Self-Generation Incentive Program
Second Year Process Evaluation

Submitted to:

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Executive Summary

This second year process evaluation provides an assessment of the performance of the Self-Generation Incentive Program during 2002 relative to a set of evaluation criteria established in the first year of the program.[1] The evaluation involved the analysis of data from a number of sources, in particular program tracking databases and survey responses of various players. Results from this analysis, along with results from the second year impact evaluation,[2] indicate that a number of the evaluation criteria are being met and the program has successfully influenced the installation of new self-generation equipment in California.

ES.1 Program Description

Assembly Bill 970 was signed into law September 6, 2000 and required the California Public Utilities Commission (CPUC) to initiate certain load control and distributed generation program activities. This included a provision for making available financial incentives to eligible customers for installing new distributed generation equipment that will produce energy used at the customer's facility. The Self-Generation Incentive Program was adopted on March 27, 2001 by the CPUC under Decision 01-03-073.

The Self-Generation Incentive Program is offered throughout most of California, specifically within the service areas of Southern California Edison, Pacific Gas & Electric, Southern California Gas Company, and San Diego Gas & Electric. PG&E, SCE, and SoCalGas administer the program in their respective service territories. Within the SDG&E service territory, the program is administered (via contractual arrangement) through the San Diego Regional Energy Office (SDREO). The program will continue to accept applications through December 31, 2004, subject to availability of administrator program funds. Decision 01-03-073 authorized an annual statewide allocation of $125 million, including all program administration costs.

The Self-Generation Incentive Program is designed to complement the California Energy Commission's existing Emerging Renewables Buydown Program. This is accomplished primarily by focusing on the commercial/industrial/agricultural market sectors and through

[1] The objectives of the Program were laid out in CPUC Decision 01-03-073. Criteria for assessing the achievement of each objective were established during the first year evaluation of the Program. See RER, First Year Evaluation Report Self-Generation Incentive Program. Submitted to Southern California Edison, June 28, 2002.

[2] See Itron/RER, CPUC Self-Generation Incentive Program – Second Year Impact Evaluation Report. Submitted to Southern California Edison, April 18, 2003.

the inclusion of select nonrenewable-fueled self-generation technology—up to 1,000 kW in generating capacity.[3] Coordination with the CEC Buydown Program occurs through participation in the Statewide Self-Generation Incentive Program Working Group and through a separately managed statewide self-generation program compliance database.

"Self-generation" refers to distributed generation technologies (microturbines, small gas turbines, wind turbines, photovoltaics, fuel cells and internal combustion engines) installed on the customer's side of the utility meter that provide electricity for a portion or all of that customer's electric load. Under the program, financial incentives will be provided to the targeted distributed generation technologies as summarized in Table 1.

Table 1: Summary of Self-Generation Incentive Program Incentive Levels

Incentive Category	Maximum Incentive Offered ($/watt)	Maximum Incentive as a % of Eligible Project Cost	Minimum System Size (kW)	Maximum System Size Incentivized (kW)	Eligible Generation Technologies
Level 1	$4.50	50%	30	1,000	■ Photovoltaics ■ Fuel Cells[1] ■ Wind Turbines
Level 2	$2.50	40%	None	1,000	■ Fuel Cells[2]
Level 3-R	$1.50	40%	None	1,000	■ Microturbines[1] ■ Internal combustion engines and small gas turbines[1]
Level 3-N	$1.00	30%	None	1,000	■ Microturbines[2, 3] ■ Internal combustion engines and small gas turbines[2, 4]

1 Operating on renewable fuel.
2 Operating on non-renewable fuel.
3 Using sufficient waste heat recovery and meeting reliability criteria.
4 Both utilizing sufficient waste heat recovery and meeting reliability criteria.

Initially, per CPUC directions, the $100 million statewide annual incentive budget is allocated equally among program Incentive Levels 1, 2, and 3 with the provision that each Program Administrator may reallocate their respective portion of the incentive budgets among incentive levels as needed. An exception is that any Level 1 renewable allocations may not be transferred to Level 2 or 3 nonrenewable technologies without the approval of the

[3] A subsequent CPUC Ruling increased the allowed maximum system size to 1,500 kW – although the maximum incentives basis remains capped at 1,000 kW.

CPUC via an advice letter filing. Additionally, unused budget available from prior program years can be carried over for each Program Administrator and used to meet their current program year incentive requests. Table 2 presents the statewide incentive budgets for Program Year (PY) 2001 and PY2002, based on data received from the Program Administrators in April 2003.

Table 2: Statewide Incentive Budgets for PY2001 and PY2002 (in millions)

Incentive Level	PY2001 Original CPUC Allocation	PY2001 Budget Transfer	Final PY2001 Budget (includes transfer)	PY2001 Reserved and Paid Incentives	PY2001 Carryover Budget	PY2002 Original CPUC Allocation	PY2002 Budget Transfer	Final PY2002 Budget (includes carryover, transfer)	PY2002 Reserved and Paid Incentives	PY2002 Carryover Budget
Level 1	$33.3	$21.4	$54.7	$12.5	$42.2	$33.3	$35.5	$111.1	$79.1	$32.0
Level 2	$33.3	$(8.1)	$25.2	$0.9	$24.3	$33.3	$(28.5)	$29.2	$1.5	$27.7
Level 3	$33.3	$4.5	$37.8	$12.0	$25.9	$33.3	$-	$59.2	$32.8	$26.5
Total	**$100.0**	**$17.8**	**$117.8**	**$25.3**	**$92.5**	**$100.0**	**$7.0**	**$199.5**	**$113.4**	**$86.1**

As shown in Table 2, incentive Level 1 possessed the highest levels of subscription for PY2001 and PY2002, followed by incentive Level 3 and incentive Level 2. Incentive Level 1 would have been oversubscribed in PY2002 absent budget carried over from PY2001 and reallocation of funds from incentive Level 2 to incentive Level 1 in PY2002. Incentive Level 3 would have been very close to full subscription absent budget carried over from PY2001. Incentive Level 2 possessed a very low subscription rate relative to the other incentive levels in both program years.

ES.2 Objectives of the Second Year Process Evaluation

This second year evaluation of the Self-Generation Incentive Program was performed to fulfill specific requirements identified in CPUC Decision 01-03-073 (Interim Opinion: Implementation of Public Utilities Code Section 399.15(b); Load Control and Distributed Generation Initiatives, March 27, 2001). The second year assessment addressed a number of topics, including program awareness, Program Administrator marketing, ease of application implementation and efficiency, and related program design issues. In addition, the second year process evaluation provided analysis on changes in these program process issues relative to findings in the first year process evaluation. This comparative analysis is particularly useful to gauge the impact of newly implemented programmatic changes and to track the metrics used to evaluate the program goals. The rationale and goals of the program were described in CPUC Decision 01-03-073. Evaluation criteria were then developed during the first-year process evaluation for meeting each goal and incorporated into the process evaluation work scope.

ES.3 Data Collection

Data was collected from several sources to support the program status, participant characterization, and process evaluation tasks. The following sources of data were employed in the second year process evaluation:

- ***Program Administrator Tracking Data.*** In 2002, the Program Administrators provided tracking data for projects for which requests for funding had been filed. After reviewing and verifying the data provided by each Program Administrator, the data was standardized to create a detailed statewide tracking database which contained relevant information on all applications submitted to the Program in 2001 and 2002.
- ***Statewide Compliance Data on Other Incentive Program Participation.*** The Program Administrators use a statewide compliance database, maintained by a contractor to SoCalGas, to check for possible duplication with other programs. Data from a March 2003 export from the compliance database was analyzed as part of this evaluation.
- ***Program Administrator Interviews.*** In-depth interviews were conducted with each Program Administrator and with the Working Group's representatives for SDG&E.
- ***Surveys of Participant Host Customers.*** In-depth telephone surveys and in-person interviews were conducted with 108 host customers involved in the Program in PY2001 and PY2002.
- ***Surveys of Participant Suppliers.*** In-depth telephone surveys and in-person interviews were conducted with suppliers involved in the Program in PY2001 and PY2002. The suppliers were generally classified into the following categories: 1) third party applicants, or 2) manufacturers.
- ***Surveys of Nonparticipant Host Customers.*** A sample of nonparticipants from the general population was surveyed to determine awareness of distributed generation and the Self-Generation Incentive Program, experience with distributed generation, and potential interest in distributed generation.
- ***Surveys of Nonparticipant Host Customer and Supplier Workshop Attendees.*** Samples of nonparticipant host customers and suppliers who had attended distributed generation workshops and/or seminars held by the Program Administrators were surveyed. The contacts were derived from registration lists for distributed generation workshops and/or seminars held in 2002.

- ***Program Marketing Plans and Materials.*** The Program Administrators provided samples of their marketing materials and overall marketing plans for 2002, which were reviewed for this evaluation.
- ***Sample On-site Verification Reports.*** Each Program Administrator provided samples of on-site verification reports completed during 2002, which were reviewed for this evaluation.
- ***Interviews with On-site Auditors.*** Three independent contractors providing on-site verification services for the Program were interviewed in PY2002.

ES.4 Program Status

The Self-Generation Incentive Program received 261 requests for funding in program year 2001 (PY2001), and 402 requests for funding in program year 2002 (PY2002). These requests are referred to as the PY2001 and PY2002 projects, respectively, and the host customers and suppliers associated with those projects are referred to as the PY2001 and PY2002 host customers and suppliers, respectively. The application status of each of these projects changes regularly. However, the analyses performed herein are based upon data received from the Program Administrators as of January 2003. The PY2001 and PY2002 projects were classified into three general project status categories: active, complete, and inactive.

Active Projects. Active projects refer to projects that were not withdrawn or rejected and are not yet complete.[4] Approximately 21% of the PY2001 projects remained active as of January 2003, accounting for roughly 18% of the total potential installed capacity of PY2001 projects, at 17,943 kW. Proof of Project Advancement[5] had been submitted for 95% of the active PY2001 projects. Approximately 69% of the PY2002 projects remained active as of January 2003, accounting for roughly 70% of the total reported potential installed capacity of PY2002 projects, at 86,685 kW. Proof of Project Advancement had been submitted for approximately 31% of the active PY2002 projects. Table 3 and Table 4 summarize the program participation and project status of all active PY2001 and PY2002 projects, respectively, on a statewide basis as of January 2003.

Completed Projects. Complete projects are defined as those projects for which the systems have been completed and inspected, and an incentive check has been issued. Approximately 8% of PY2001 projects were completed and paid as of January 2003, which represented 5,776 kW of installed capacity and $7.8 million in incentives. The majority of

4 Active projects were further classified into four categories: under review, conditional reservation, confirmed reservation, and suspended.

5 Proof of Project Advancement requires submittal of documentation to the Program Administrator to demonstrate that a project is progressing and that there is an increased commitment on the part of the applicant/host customer to complete the project.

completed PY2001 projects represented Level 3N technologies, followed by Level 1 technologies. Only one Level 2 project was completed during PY2001. While Level 1 technologies occupied the largest share of total incentives, Level 3N technologies reported the largest share of installed capacity of the completed PY2001 projects. For PY2002, approximately 3% of projects were completed and paid as of January 2003, which represented 2,181 kW of installed capacity and $5.0 million in incentives. Furthermore, almost all of the projects completed during PY2002 represented Level 1 technologies. Table 5 and Table 6 summarize the status of all PY2001 and PY2002 projects completed and paid as of January 2003.

Inactive Projects. Inactive projects are those that have been classified as withdrawn or rejected. In PY2001, inactive projects accounted for approximately 76% of reported potential installed capacity. In PY2002, inactive projects accounted for approximately 29% of reported potential installed capacity. In PY2001, Level 3N systems represented the largest share of inactive projects in terms of number of applications filed and reported potential installed capacity. In PY2002, Level 3N systems represented the largest share of inactive projects in terms of reported potential installed capacity, but Level 1 systems represented the largest share of inactive projects in terms of number of applications filed. Nearly all of the PY2001 and PY2002 inactive projects only reached an early stage in the application process prior to withdrawal or rejection.

Table 3: Summary of Active PY2001 Projects as of January 2003

Incentive Level	PY2001 Active Projects as of January 2003 (All Administrators)														
	RRF Under Review			Conditional Reservation			Confirmed Reservation			Suspended			Total Active		
	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)
Level 1	0	0	$0	0	0	$0	12	2,291	$7,979,166	0	0	$0	12	2,291	$7,979,166
Level 2	0	0	$0	0	0	$0	1	200	$367,632	0	0	$0	1	200	$367,632
Level 3N	0	0	$0	3	554	$326,543	40	14,898	$9,579,961	0	0	$0	43	15,452	$9,906,503
Total	**0**	**0**	**$0**	**3**	**554**	**$326,543**	**53**	**17,389**	**$17,926,759**	**0**	**0**	**$0**	**56**	**17,943**	**$18,253,301**

RRF = Reservation Request Form

Table 4: Summary of Active PY2002 Projects as of January 2003

Incentive Level	PY2002 Active Projects as of January 2003 (All Administrators)														
	RRF Under Review			Conditional Reservation			Confirmed Reservation			Suspended			Total Active		
	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)
Level 1	25	4,937	$14,756,552	69	13,085	$45,561,767	57	6,591	$19,815,142	6	2,263	$7,025,368	157	26,875	$87,158,828
Level 2	0	0	$0	0	0	$0	1	600	$1,500,000	0	0	$0	1	600	$1,500,000
Level 3N	23	10,626	$5,662,714	64	30,047	$17,358,737	28	14,782	$9,351,221	3	2,170	$1,307,780	118	57,625	$33,680,452
Level 3R	1	300	$146,600	6	1,145	$1,175,833	0	0	$0	1	140	$140,000	8	1,585	$1,462,433
Total	**49**	**15,863**	**$20,565,866**	**139**	**44,277**	**$64,096,337**	**86**	**21,973**	**$30,666,363**	**10**	**4,573**	**$8,473,148**	**284**	**86,685**	**$123,801,714**

RRF = Reservation Request Form

Table 5: Summary of All Completed PY2001 Projects as of January 2003

Incentive Level	2001 Completed Projects as of January 2003 (All Administrators)		
	Projects	**kW**	**Incentives ($)**
Level 1	9	1,182	$4,894,765
Level 2	1	200	$500,000
Level 3N	11	4,394	$2,410,240
Level 3R	0	0	$0
Total	**21**	**5,776**	**$7,805,005**

Table 6: Summary of All Completed PY2002 Projects as of January 2003

Incentive Level	2002 Completed Projects as of January 2003 (All Administrators)		
	Projects	**kW**	**Incentives ($)**
Level 1	12	1,118	$4,502,539
Level 2	0	0	$0
Level 3N	1	1,063	$459,880
Level 3R	0	0	$0
Total	**13**	**2,181**	**$4,962,419**

ES.5 Characterization of Participants

Third party applicants, distributed generation equipment manufacturers, and host customers are the most visible stakeholders in the Self-Generation Incentive Program. These stakeholders are collectively referred to as "the participants."

Host Customers. There were 195 host customers that submitted requests for funding to the Program in PY2001, and 288 host customers that submitted requests for funding to the Program in PY2002. Many host customers that submitted applications in PY2001 also submitted applications in PY2002, whether as re-submissions for unsuccessful PY2001 projects or original submissions for new PY2002 projects. Manufacturing establishments continued to be the best represented of all building types among participant host customers.

Internal combustion engines using nonrenewable fuels were the most popular technology adopted by host customers within the commercial, industrial, and agricultural sectors, while photovoltaics was the most popular technology adopted within the transportation, communications and utilities sector. The majority of host customers across all sectors utilized third parties during the application process in PY2001 and PY2002. In PY2002, host customers gravitated toward the center of the spectrum in terms of level of involvement in the application process.

Third Party Applicants. There were 135 third party applicants involved in the Self-Generation Incentive Program in PY2001 and PY2002. These third party applicants consisted primarily of energy service companies, energy consultants, and contractors. The scope of services provided by the third party applicants varied across technologies, with third party applicants for internal combustion engines using nonrenewable fuels performing the broadest array of roles in the project development process of all technologies.

Approximately 80% of the third party applicants that participated in the program in PY2001 also submitted requests for funding to the program in PY2002. Approximately 20% of third party applicants submitted reservation requests to multiple Program Administrators. A single third party applicant dominated participating photovoltaic projects, and a few third party applicants served as major players in the internal combustion engine and microturbines using nonrenewable fuels markets. There was no clear market leader for microturbines using renewable fuels or fuel cells using nonrenewable fuels due to low program participation of third party applicants within these technology categories.

Manufacturers. There were 50 manufacturers represented in the Self-Generation Incentive Program in PY2001 and/or PY2002. The majority of the manufacturers represented in the Program participated in both PY2001 and PY2002. While multiple manufacturers supplied photovoltaics, internal combustion engines and microturbines using nonrenewable fuels to participating host customers, only three fuel cell manufacturers were represented in the Program in PY2001 and PY2002. One manufacturer continued to dominate the participating suppliers within each respective technology category.

ES.6 Process Assessment Findings

Key Issues

Key issues reported by various market actors are presented below.

Program Administrators. Administrators were positive about changes made to the program in program year 2002 (PY2002). For the most part, marketing efforts were increased and continued to focus on third parties through workshops and promotional materials. Administrators reported that program applicants were more educated in PY2002, resulting in fewer withdrawals occurring prior to the Proof of Project Advancement milestone. Suggestions for change included extending the one-year completion deadline for new construction projects, reaching a resolution regarding the possibility of extending the sunset date of the program beyond 2004, and simplifying program insurance requirements.

Participant Host Customers. The majority of host customers participating in the Self-Generation Incentive Program in PY2001 and PY2002 reported that they had first heard of the program from a third party vendor. In addition, those that seemed most satisfied with their project had worked with a third party on a turnkey basis. Those customers who did become involved in the application process often commented on the complexity of the program and on difficulties with reaching various milestones. For example, primary areas of difficulty reported included interconnection, air pollution permitting, building permitting, and installation of net generation meters. Projects involving new construction or institutional customers such as hospitals, schools, or municipalities experienced difficulty meeting project milestones within the required time frame. However, despite these difficulties, host customers across all technologies reported a relatively high rate of satisfaction with the program.

Participant Suppliers. The majority of suppliers surveyed reported that the Program Administrators had been helpful and responsive, and the program application materials and handbook were sufficiently clear and helpful. Overall satisfaction with the program was high. Despite these favorable impressions, however, some suppliers expressed concerns regarding delays with incentive payments, problems with the interconnection process, and excessive documentation required by the program. In addition, some suppliers felt that utility field personnel were providing conflicting or discouraging information regarding to the program to host customers. Furthermore, ESCOs reported overwhelmingly that the program has had a positive impact on the development of the market for distributed generation. This was reportedly especially true for the photovoltaic industry. Overall, suppliers reported that customer awareness regarding distributed generation opportunities remained low.

Nonparticipants. Awareness levels among nonparticipant customers from the general public remained unchanged from 2001. In addition, the majority of general nonparticipant customers indicated that the high initial cost of a distributed generation system was the primary factor in the decision not to participate in the program. Nonparticipant host customers who attended workshops held by the Program Administrators similarly cited high capital outlays as the primary reason for nonparticipation. Their reported familiarity with distributed generation technology was higher than that of the nonparticipants from the general population. Nonparticipant suppliers who attended workshops cited two primary reasons for lack of participation in the program: lack of interested customers and primary involvement with projects unable to meet the minimum capacity requirements for program eligibility.

Common Themes

A number of issues were cited by both host customers and suppliers. The common themes that emerged are summarized below.

Third Party Development. The program is reportedly having a significant effect on the development of the third party market, especially for photovoltaic suppliers. ESCOs who were interviewed felt that "the energy services industry in California would not exist without the program." In addition, most customers surveyed reported learning of the program and of self-generation opportunities from their third party vendors. Furthermore, many suppliers interviewed reported that they did not think the program marketed effectively to customers; some were surprised that it did so at all. These results suggest that the program is, in fact, targeting third parties and ESCOs. Furthermore, customers who reported working with third parties offering turnkey projects were the most satisfied with their experience.

Program Deadlines. The Program Administrators reported that most applicants did not experience any difficulty meeting the 90-day Proof of Project Advancement deadline. About half the host customers and three-fourths of the suppliers surveyed agreed. However, an analysis of projects according to the Program Administrator tracking data indicates that, on average, this is not the case (see Table 4-30 in Section 4). The reason for this disconnect may be that applicants are liberally issued extensions in order to reach the Proof of Project Advancement stage. Their perceptions thus may be largely due to the receipt of extensions or to administrators overlooking deadlines as they approached. In addition, the one-year project completion deadline did not appear problematic to the majority of participants or the Program Administrators, with the exception of two types of projects: those involving new construction and those involving institutional customers such as hospitals, schools, and municipalities that possess extensive internal review processes.

Interconnection, Air Emissions Permitting, and Net Metering Problems. While the Program Administrators expended considerable effort in PY2002 attempting to smooth the interconnection process, suppliers, and host customers report that the process remains problematic. In addition, net metered customers often stated that meters were not installed in a timely fashion or that they did not understand the billing process associated with their contributions to the grid. Numerous host customers also indicated problems obtaining air emissions permits within the required time frame. Regardless of the numerous complaints cited regarding these processes, however, overall satisfaction with the program remained high among all participants. Thus, while these processes should be improved, they do not appear to be preventing host customers from completing their projects.

Low Customer Awareness. Awareness of the Program and self-generation opportunities among customers remains relatively low. Suppliers reported that marketing efforts made by the utilities were not reaching the customers. Further, the supplier and host customer interviews confirmed that third party suppliers continue to be the dominant source of information on the program for participant host customers. However, nonparticipants reported that they were just as likely to hear about the program from utility representatives or Internet searches as they were from third party suppliers. In fact, the dominant source of program information identified by nonparticipants was newspaper or magazine articles. This finding suggests that third parties are much more influential in the decision to participate than utility representatives or other sources of information.

Utility Representation. The Program Administrators indicated that they have attempted to utilize utility account representatives to educate customers about the program. In some cases, they have conducted workshops to educate their representatives on the program. One Program Administrator also pays an incentive to representatives to market the program. Comments from participant host customers and suppliers, however, revealed that in some cases, representatives require additional training or incentives to promote the program. Respondents reported that utility field representatives were not effectively influencing customers to participate in the program. In some cases, conflicting information was given to customers. Other host customers indicated that their utility representatives actually appeared to be discouraging them from installing distributed generation systems.

Uncertainty Over Exit Fees. Both host customers and suppliers cited uncertainty related to exit fees as a barrier to participation in the program. Many respondents were angry at being assessed, or the prospect of being assessed, standby charges and exit fees, and felt that the utilities really intended to discourage distributed generation through the imposition of these financial disincentives to distributed generation. Recently, the CPUC ruled that photovoltaic projects smaller than one megawatt and net metered or eligible for either CPUC or CEC incentives would be exempt from exit fees. The Program Administrators should proactively distribute this information to current participants, and should include this information in program marketing efforts, given the lessons learned from the nonparticipant surveys regarding low customer awareness.

Application Process. While the Program Administrators reported having made extensive improvements to the application process and the program handbook during PY2002, customers and suppliers continue to comment on the complexity of the handbook and the large amount of documentation required by the Program. A number of application requirements, such as insurance documentation, also remain problematic for host customers and suppliers. When surveyed, even the Program Administrators were unsure why the program required the extent of insurance documentation that it does. However, it was also noted that, due to the large dollar amount of the incentives, certain checks and balances were needed in the Program.

Other Assessment Results

Coordination with Other Programs. The Self-Generation Incentive Program requires that participants disclose other sources and amounts of funding received for projects funded by the program to ensure that participants have not received funding in excess of eligible project costs, and to ensure that no overlaps of funding occur between the Program Administrators for a given project. As such, the Program Administrators compile data on other rebate program sources and amounts for host customers in their respective jurisdictions. The Program Administrators and the CEC enter this information on reservation requests in a statewide database that tracks compliance with Program requirements. Based on discussions with the Program Administrators, results of the host customer surveys, and a review of the statewide compliance database, it appears that, in general, Program participants are fulfilling disclosure requirements. The statewide compliance database is being used effectively to track participation in other incentive programs.

On-site Verifications. Each of the contractors conducting on-site field verifications for the program were interviewed in order to assess the standard procedure used during verification visits and to identify any difficulties with that process. On-site verification contractors all reported that current procedures were working very well, at least in part due to minimal program changes that took place during 2002. The only significant problem identified (by two of the contractors) involved setting up inspections and traveling to the site only to find that equipment was not yet fully operational or monitoring equipment was incomplete. The inspection process should meet all verification needs during 2003 without change. However, in order to provide added customer benefits, Program Administrators may wish to forward information to inspection contractors at the Reservation Request stage. Bringing the inspection contractors in at this earlier stage, which is already done in at least one case, can provide an extra level of early review to help identify problems at a point in the process when changes in plans are not difficult.

ES.7 Evaluation Criteria

As stated above, evaluation criteria were formed in the previous year's evaluation of this program. In addition, they formed the basis of the research questions for this year's evaluation. Evaluation criteria are linked to the goals and objectives defined for the program in Decision 01-03-073.

In assessing progress toward meeting these criteria, it was evident that advancement had been made in a number of areas. In particular, by incentivizing the installation of new power generation, the program has reduced participant customers' use of grid power during peak demand periods. In addition, findings from the evaluation suggest that program interventions have had a positive impact on the market development of the energy services industry. Furthermore, advancement was seen in a number of areas of program administration. For example, positive growth was found in the area of providing greater incentive levels for renewable-fueled systems, maximizing incentive budgets for Level 1 and Level 2 projects, and targeting delivery channels toward third party providers and existing utility commercial and industrial customer networks.

In some areas, it was not possible to fully assess the program's efforts. These included attaining full program subscription, successfully completing a high percentage of Level 1 and Level 2 projects with sufficient performance, and providing avoided generation, capacity and T&D support benefits. In addition, progress was less evident in the following areas: 1) increasing customer awareness of available distributed generation technology and incentive programs, 2) providing fully adequate lead times for program milestones, 3) tracking energy services industry market activity and participation in the program, 4) providing outreach support to small customers, and 5) interacting with other consumer marketing support related to past energy issues to market program benefits.

ES.8 Recommendations

Recommendations for improvements to the program are made based on the findings of this evaluation. In particular, recommendations are presented for the following areas: program design, program implementation, and marketing.

Program Design Recommendations

The following recommendations and related action items are suggested:

- **Resolve incentive structures and payment mechanisms for the program**
  - Develop separate incentive levels for microturbines and internal combustion engines. The market development status, costs and environmental impacts for these technologies are dissimilar, and it makes sense to incentivize them at different levels. In addition, the differential incentive for Level 3-R projects should be re-assessed in light of the recent data on fuel clean-up costs.
  - Eliminate the percentage of project cost limit and pay all incentives on a dollar per watt basis. This change is expected to have a number of positive impacts on overall project costs. First, it will simplify the incentive determination for the applicant. Second, it will alleviate some of the burdensome administrative effort for both applicants and Program Administrators. Third, it will help to shorten the processing time of incentive claims, so applicants can be paid in a timelier manner. Fourth, it will mitigate the appearance of gaming eligible system costs on the part of suppliers.
- **Develop and communicate an exit strategy for the program**

- The Working Group should discuss and develop a plan to be submitted to the CPUC Energy Division to extend the current sunset date of the program in order to allow a transitional strategy to be put into effect. The plan should address why the program should continue beyond 2004 and present an exit strategy that could include, for example, trigger criteria for lowering rebates over time.
- Once in effect, the plan should be communicated to participants and interested parties in order to diffuse confusion and anxiety over a drop-off of incentives.
- The Working Group should consider the value of having a third year process evaluation for the Self-Generation Incentive Program.

- **Reduce, postpone or eliminate certain requirements of Proof of Project Advancement**
  - Eliminate the requirement to submit a copy of the air pollution permit application and the electrical interconnection application before the 90-day PPA deadline.
- **Extend the one-year deadline for projects involving new construction**
  - Change the one-year project completion deadline to two years for projects involving new construction.
  - Require an additional interim deadline for these projects at the one-year point in which they are required to submit proof of progress on their project in order to continue the reservation of funding.
- **Reduce or eliminate certain requirements of the one-year deadline**
  - Eliminate as appropriate the final project cost breakdown requirement in accordance with the first recommendation above, resolving the incentive structure. Even if that first recommendation is not implemented, it still seems unnecessary to require the cost breakdown for those projects receiving incentives based solely upon dollars per watt of eligible installed system capacity.
  - Accept an Authority to Construct Permit that includes a temporary Permit to Operate rather than the final Permit to Operate, which requires a greater length of time to obtain.

Implementation Recommendations

The following recommendations and related action items are suggested:

- **Assign a Working Group representative/subcommittee to develop favorable relationships with air quality permit offices, local building permit offices, utility interconnection staff, and other relevant agencies**
  - Educate outside parties as to the requirements of the program so they understand the time constraints participants face.

- Provide each participant timely access to the representative/subcommittee via phone and email for the purpose of answering questions and resolving conflicts.
- Assign the representative/subcommittee the responsibility and authority to act on behalf of the program to resolve problems between participants and above agencies.

- **Clarify Net Metering Requirements and Improve Meter Installation/Net Meter-Related Billing Processing.** This recommendation applies only to Level 1 photovoltaic and wind projects. Some host customers who installed photovoltaic systems indicated they had not received credit for contributions to the grid due to delays in obtaining meters. In addition, some customers who were being credited for their contributions to the grid indicated they were frustrated because they did not understand how credits were being applied to their bills. However, the nature of this problem is actually related to the utility and not the Program. Therefore, the following is recommended.
  - Although Program Administrators have recognized this is an issue, they should continue to talk to the appropriate representative(s) at their utility regarding the time required for net meter installation and the nature of the problems that have caused delays. If there is a way to ease this problem by educating the installing metering technicians or by providing them with additional lead-time, they should continue their efforts in this area.
  - Advise Level 1 applicants with projects involving net metering at the outset of their projects of a more realistic timeframe needed for meter installation.

- **Revise Program Documents to Provide for Site Data Upon Request**
  - The Self-Generation Incentive Program Handbook, the program's contract, and the incentive claim form submittal documents should be revised to obligate applicants and their third party provider(s) to download and transfer electronically raw project operational interval data (i.e., NGO/gross generator kW, thermal energy, photovoltaic environmental data, etc.) upon written request in order to address the M&E Team's need for monitoring data. This should be done in all cases where such host applicant or third party monitoring equipment is deemed to be useful for M&E purposes.
  - There should also be provisions for allowing appropriate and reasonable compensation from the program to the host customer or third party for their cost of setting up necessary controls and procedures to provide the data.

Marketing Recommendations

The following recommendations and related action items are suggested:

- **Address standby charges and exit fees**

  - The Program Administrators should proactively contact current program participants to address this issue. This contact could be in the form of a brief letter describing the relevant legislation and the impacts of such legislation upon program participants.
  - Administrators could also invite participants to informational seminars to address these issues in a question-and-answer type of forum. These informational seminars should also be made available to the general public to address the concerns of nonparticipants who would have considered participating in the program absent these issues.

- **Improve public access via website links to program information**
  - Provide information on the program to key websites and industry information sources so that customers can readily identify whom to contact in order to participate.

1

Introduction

The purpose of this report is to document the Self-Generation Incentive Program's second year process evaluation procedures, results, and recommendations. The Self-Generation Incentive Program was adopted on March 27, 2001 by the California Public Utilities Commission (CPUC) under Decision 01-03-073. Since June 29, 2001, the program has been available to provide financial incentives for the installation of new qualifying electric generation equipment that will meet all or a portion of the electric needs of an eligible customer's facility. Under the direction of the CPUC Decision, the Self-Generation Incentive Program is administered on a regional joint-delivery basis through three investor-owned utilities—Southern California Edison (SCE), Pacific Gas & Electric (PG&E), Southern California Gas Company (SoCalGas)—and one non-utility administrator entity, the San Diego Regional Energy Office (SDREO).[1]

The remainder of this introductory section provides a brief description of the Self-Generation Incentive Program, an overview of the distributed generation market in California, outlines of the objectives of the second year process evaluation and impact evaluation,[2] and presents the organization of the remainder of the report.

1.1 Program Description

Assembly Bill 970 was signed into law September 6, 2000 and required the CPUC to initiate certain load control and distributed generation program activities. This included a provision for making available financial incentives to eligible customers. The Self-Generation Incentive Program was adopted on March 27, 2001 by the CPUC under Decision 01-03-073. Since June 29, 2001, the program has been available to provide financial incentives for the installation of new qualifying electric generation equipment that will meet all or a portion of the electric needs of an eligible customer's facility.

1 SDREO is the Program Administrator for San Diego Gas & Electric customers.

2 The impact evaluation methodology and results are presented in a separate report entitled the California Self-Generation Incentives Program Second Year Impact Evaluation Report.

The Self-Generation Incentive Program is designed to complement the California Energy Commission's (CEC's) existing Emerging Renewables Buydown Program. This is accomplished primarily by focusing on the commercial/industrial/agricultural market sectors and through the inclusion of select renewable and nonrenewable fueled self-generation technology—up to 1,000 kW in generating capacity.[3] Coordination with the CEC Buydown Program occurs through participation in the Statewide Self-Generation Incentive Program Working Group and through a separately managed statewide self-generation program compliance database.

The Self-Generation Incentive Program is offered throughout most of California, specifically within the service areas of SCE, PG&E, SoCalGas, and SDG&E. The program will continue to accept applications through December 31, 2004, subject to availability of administrator program funds. Decision 01-03-073 authorized an annual statewide allocation of $125 million, including all Program administration costs.

"Self-generation" refers to distributed generation technologies (microturbines, small gas turbines, wind turbines, photovoltaics, fuel cells and internal combustion engines) installed on the customer's side of the utility meter that provide electricity for a portion or all of that customer's electric load. Under the program, financial incentives will be provided to the targeted distributed generation technologies as summarized in Table 1-1.

[3] A subsequent CPUC Ruling increased the allowed maximum system size to 1,500 kW – although the maximum incentives basis remains capped at 1,000 kW.

Table 1-1: Summary of Self-Generation Program Incentive Levels

Incentive Category	Maximum Incentive Offered ($/watt)	Maximum Incentive as a % of Eligible Project Cost	Minimum System Size (kW)	Maximum System Size Incentivized (kW)[1]	Eligible Generation Technologies
Level 1	$4.50	50%	30	1,000	■ Photovoltaics ■ Fuel Cells[2] ■ Wind Turbines
Level 2	$2.50	40%	None	1,000	■ Fuel Cells[3, 4]
Level 3R	$1.50	40%	None	1,000	■ Microturbines[2] ■ Internal combustion engines and small gas turbines[1]
Level 3N	$1.00	30%	None	1,000	■ Microturbines[3, 5] ■ Internal combustion engines and small gas turbines[3, 5]

1 Maximum allowable system size is 1,500 kW though maximum incentives basis is capped at 1,000 kW.
2 Operating on renewable fuel.
3 Operating on non-renewable fuel.
4 Using sufficient waste heat recovery.
5 Both utilizing sufficient waste heat recovery and meeting reliability criteria.

PG&E, SCE, and SoCalGas will administer programs in their service territories. Within the SDG&E service territory, the program is administered (via contractual arrangement) through the SDREO.

Initially, about $102 million in statewide annual incentive budget was allocated equally amongst program Incentive Levels 1, 2, and 3. As needed, the incentive budgets may be reallocated according to need, with the exception that any Level 1 renewable allocations may not be transferred to Level 2 or 3 nonrenewable technologies without the approval of the CPUC via an advice letter filing.

1.2 California's Market for Distributed Generation

Overview of California's Distributed Generation Market[4]

Distributed generation resources are small-scale power generation technologies, typically in the range of 1 kW to 10,000 kW, located where electricity is used (e.g., within a business or residence) to provide a partial alternative to or an enhancement of the utility electric power

4 This subsection is based largely on the CEC website on distributed generation: www.energy.ca.gov/distgen/.

system. Under the requirements of the Self-Generation Incentive Program, Level 1 projects are restricted to the middle of this range: 30 kW to 1,500 kW. There is no minimum size restriction for Level 2, 3R, or 3N projects.

It is generally accepted that centralized electric power plants will remain the major source of electric power supply for the near future. Distributed generation, however, can complement central power by providing incremental electric capacity to the utility grid and/or to an end use electric customer. Installing distributed generation at or near the end-user can also in some cases benefit the electric utility by avoiding or reducing the cost of transmission and distribution system upgrades. However, electric utilities have not always necessarily favored the use of distributed generation everywhere within its system. High voltage system protection issues may in some instances require modification of the original distributed generation system interconnection or control systems design. Reverse power flows and system stability of a short-term nature may also be areas of concern that distribution planners/system protection engineers must review and address with each distributed generation interconnection application.

For the electric power consumer, the potential lower cost, higher service reliability and power quality, increased energy efficiency/lower thermal energy costs, and (partial) energy independence are all reasons for interest in distributed generation in the longer term. The use of renewable distributed generation and "green power purchases" (such as wind, photovoltaic, geothermal or hydroelectric power) can also provide a significant environmental benefit as well as the potential for more stable energy costs over time.

Some of the primary applications for distributed generation include the following.

- ***Low-Cost Energy:*** the use of distributed generation as baseload or primary power that is less expensive to produce locally or on-site than it is to purchase from the electric utility. Although many systems are still passing through an elongated shakedown period, most Level 3 Self-Generation Incentive Program participants are operating their units most of the time and within 20% of the system rated capacity.
- ***Combined Heat and Power (Cogeneration):*** increases the efficiency of on-site power generation by using the waste heat for existing thermal process. This is a program requirement for all non-renewable energy systems.
- ***Premium Power:*** reduced voltage/frequency variations, voltage transients, power surges, dips or other disruptions.
- ***Peak Shaving:*** the use of distributed generation only during times when electric use and demand charges are the highest. Some Self-Generation Incentive Program participants are analyzing whether it will be cheaper to use their distributed generation units off-peak or to purchase this off-peak power from the grid.

- ***Standby Power:*** used in the event of an outage, as a back-up to the electric grid. (However, not all distributed generation systems installed through the program are designed to run without the grid.)

These nonresidential users of distributed generation have different power needs and expectations from the program. Hospitals need high reliability (back-up power) and power quality (premium power) due to the sensitivity of their operating requirements and safety regulations regarding some of their end-use equipment. They also may experience lower generation and thermal energy combined costs, although this economic driver may be a secondary motivation. Due to their high energy use intensities, industrial plants typically have high energy bills, long production hours, and thermal processes, and would therefore seek distributed generation applications that include low-cost energy with combined heat and power. Per the program handbook, CPUC 218.5 waste heat recovery utilization is required for any Self-Generation Incentive Program projects that do not use a renewable energy source. Applications that can integrate waste heat for processing can be particularly advantageous for customers. HVAC and refrigeration system thermal requirements also favor distributed generation applications and are used by many program participants. Computer data centers require steady, high quality, uninterrupted power (premium power). Distributed generation technologies are available now and others are being developed to meet these market needs.

California Distributed Generation Market

California has long been a leader in renewable energy and distributed generation applications, due mostly to favorable state energy policies and to the State's emphasis on technological energy-related innovation. In California, the energy crisis of 2000/early 2001, which led to rising prices and power shortages, had a major impact on the development of the distributed generation markets. Government policymakers, energy service providers, and energy users continue to consider distributed energy as a contributing solution to the state's energy problems.

As indicated in the following table, the amount of distributed power generation operating in California is extensive. Distributed generation, defined as all generation close to the point of consumption, accounts for nearly 10,000 MW of capacity. Smaller distributed generation resources (20 MW or less) provide nearly 2,500 MW of capacity. These figures do not include the sole application of emergency backup generation.

Distributed Generation Operating in California

(Totals shown in Megawatts and depend upon assumed size of DG)

	PG&E	SCE	SDG&E	SMUD	Riverside	Total
Generating Facilities of All Sizes	5,443	4,142	216	13	4	9,819
Facilities < 20 MW	1,039	766	58	13	4	1,880
Facilities < 10 MW	472	379	58	13	4	927
Facilities < 5 MW	241	139	28	13	4	426
Facilities < 1 MW	57	38	12	13	4	124

Source: Various utility data responses per Energy Commission reporting requirements.
PG&E Report Date: 7/25/02
SDG&E Report Date: 11/14/02
SCE Report Date: 6/02
SMUD Report Date 12/3/02: www.smud.org/info/powersupply.html
Riverside Public Utilities Presentation 4/10/02

Notes:
1) Estimates do not include merchant plants, utility-retained, or backup generation.
2) Estimates include non-utility cogeneration facilities.
3) Non-utility retailers are not required to report facilities below 1 MW.

Prepared by Scott Tomashefsky - California Energy Commission 12/3/02.

Market Entities

Various market players are involved in distributed generation. This is due not only to the complexity of some distributed generation projects, but the fact that many customers are adopting on-site generating technologies for the first time. The Self-Generation Incentive Program has encouraged third party providers such as distributed generation-oriented engineering/construction and energy service companies to market the program to host customers, and to help them navigate their project's technical and administrative hurdles.

In many respects, the distributed generation marketplace is still fairly immature. Host customers are largely unaware of available options and their economic advantages. The technologies are sufficiently complex and specialized that a host customer (with the possible exception of a few photovoltaic customers) cannot easily undertake the planning and analysis of a distributed generation project on their own, even when they are participating in a utility program. Consequently, host customers often choose to work with these third party entities. In most cases, it is the vendor or manufacturer representatives, or energy service companies, who initially approach the host electric customer about the Self-Generation Incentive Program project. These private sector companies then assume major responsibility for tasks that can include cost-effectiveness analysis, applying to the program, permitting, selecting/procuring equipment, and installation. Without this third party involvement, many of these distributed generation projects, no matter how viable otherwise, simply would not be developed.

Market entities include customers who install distributed generation at their facilities, as well as electric and natural gas utilities, consultants, performance contractors, leasing companies, financial institutions, equipment manufacturers, installers and other non-utility incentives programs.

- ***Utilities.*** Electric and gas utilities in California play a proactive role through the programs they offer to promote distributed generation. Even customers who install distributed generation outside of utility programs are proportionately impacted by the reduced consumption from the grid and in the near future, potential exit (departing load) fees. Some municipal electric utility distributed generation incentive programs are interactive with the Self-Generation Incentive Program. For instance, the Los Angeles Department of Water and Power (LADWP) solar photovoltaic incentive of up to $6.00/watt now can be applied to a Self-Generation Incentive Program project by reducing the eligible system cost, with the Self-Generation Incentive Program incentive picking up 50% of the remaining system cost. This mid-2002 dual-incentive effect for photovoltaic has just begun to have a notable impact in the LADWP service area. It remains unclear whether other existing/future municipal utility distributed generation programs will have a similar impact on local Self-Generation Incentive Program markets over the next two years.
- ***Consultants.*** Most customers who install distributed generation do so with help from consultants or other for-profit firms. Consultants can help customers in any number of ways, including evaluating the technical and economic feasibility of potential distributed generation projects, assisting with/or obtaining project approvals and permits, locating financing, selecting installation contractors, and supervising construction. Customers actively participating in the Self-Generation Incentive Program typically rely on experienced consultants to guide them through at least some parts of the project development process.
- ***Performance Contractors.*** Energy service companies (ESCOs) offer host customers the opportunity to obtain distributed generation without any upfront capital outlay. In return, the ESCO will realize much of the savings from the project. Contracts are each structured differently, but in many cases where ownership is not inherent in the contract, the host customer has an option to purchase the equipment after a pre-determined period. ESCOs often provide turnkey services for host customers.
- ***Leasing Companies.*** Some customers choose to avoid all capital outlay by using a leasing company that will purchase the equipment, and the host company will realize the savings and pay on the monthly equipment lease.
- ***Financial Institutions.*** Investment banks and other traditional lenders can be involved by providing mortgages for customers who need to borrow the money for equipment that they choose to own.

- ***Equipment Manufacturers.*** In the distributed generation industry, equipment manufacturers typically assume an active role in the development of the project, oftentimes including assistance with the Self-Generation Incentive Program application. They provide support to customers and other market entities that may resemble services offered by consultants. These services may be provided directly by the manufacturer, or through distribution representatives.
- ***Installers.*** The installation of distributed generation systems is usually contracted to a primary installation contractor that will use subcontractors as needed to complete the job. Often, equipment manufacturers will steer customers toward pre-qualified system installers. If an ESCO or equipment vendor is managing the project, the equipment and the project installation may also be subcontracted to local contractors.
- ***Other Programs.*** There are other non-utility incentive/market development programs, such those offered by the CEC, that promotes distributed generation. A few of the participants in this CEC program originally obtained their equipment through a low-interest CEC loan, then subsequently learned about Self-Generation Incentive Program incentives. The Emerging Buydown Program also offers incentives throughout much of the state to renewable distributed generation project owners, although much of these program resources are currently eligible to smaller projects (i.e., less than 30 kW), thus minimizing the overlap with the Self-Generation Incentive Program market.

The level of support that customers require varies widely. ESCOs and firms offering turnkey installation services provide the broadest support to customers. In these cases, distributed generation customers may have little exposure to the sometimes difficult process of participating in the Self-Generation Incentive Program. They are usually aware of these difficulties in a vague sense when they occur, insofar as they sign application materials prepared by third parties and they may hear about permitting and interconnection issues and related delays. It seems as though they know just enough to be relieved that they are not directly involved in the process.

There is little question that third party providers have been instrumental in both developing the market for distributed generation in California and the U.S. and are responsible for much of the Self-Generation Incentive Program activity. This group plays a valuable supporting role in Program success—from both a customer satisfaction standpoint and ensuring that potential projects are successfully completed.

Distributed Energy Systems Interface with the Utility Grid

True distributed generation systems are, by their nature, designed to operate in parallel with the utility grid. Therefore, they have the potential to influence the electric system in some fashion. These influences by distributed generation systems can be favorable or unfavorable, depending on many factors. Favorable effects can occur with distributed energy systems that are allowed to feed energy back to the grid (restricted to renewable-fueled generation sources). The favorable effects include local stabilization of voltage and frequency and potential deferral of the need for major distribution system expansion investments (e.g., power transformation equipment and related switchgear). Potentially unfavorable influences can occur if distributed generation systems are not adequately synchronized with the grid when feeding power back to the grid. Also, for safety of utility workers, the distributed generation must be disconnected from the grid during utility local distribution system outages (referred to as “islanding”). To ensure this safety issue is addressed, all program participants are required to install anti-islanding devices.

Although efforts are underway to improve the process, interconnection issues continue to be a significant problem for many program participants. Distributed generation industry groups including the IEEE P-1547 Working Group and the CEC’s Rule 21 Working Group have developed protocols to standardize the requirements for electrical interconnection. The Rule 21-related language was adopted by the CPUC (D.00-12-037 (12/21/00) - CPUC Decision Adopting Interconnection Standards). Despite these efforts, interconnection issues continue to arise at several stages of the Self-Generation Incentive Program project implementation process:

- During the application for utility interconnection,
- During the utility interconnection inspection, and
- During the local building departments’ electrical inspection.

Frequently raised issues reportedly include the failure of utility technicians and electrical inspectors to understand the rules, their lack of familiarity with these rules and the associated distributed generation equipment, and their inexperience or willingness to interface with customers in a positive and proactive way.

Metering requirements are also raised as an issue for distributed generation systems using net metering tariffs. Reported issues include the failure of the electric utility to provide appropriate meters in a timely manner, and master metering requirements. The latter refers to the requirement that the distributed generation host meter their system’s output at the point at which the distributed generation is interconnected to the grid. This imposes an additional complication and cost burden on customers/system owners that might otherwise use the self-generated power at several locations within the master-metered site downstream of the interconnection point.

Exit Fees

Utility customers in California who self-generate—including the participants in the Self-Generation Incentive Program—will likely be required to pay *exit fees* (also called *departing* *load* fees). Currently under active consideration by the CPUC (Docket R-02-01-011), these proposed exit fees are a mechanism intended to protect ratepayers remaining fully served by the utilities system from bearing an unfair share of the burden for paying the cost of more expensive power purchased during the state's energy crisis of 2000-2001. Exit fees could be imposed on self-generators to cover their portion of the long-term power supply contracts negotiated by the State of California's Department of Water Resources following the 2001 energy crisis. If exit fees are imposed, some or all distributed generation customers would be billed for producing their own electricity.

Although these proposed fees are independent of the program, it has clearly colored customer opinions about the program and their view of the utilities sponsoring the program. In some cases, distributed generation customers were not even aware at the outset of the possibility of exit fees. In this case, new payback calculations can render previously viable projects to be deemed uneconomic. Thus, exit fees could at least partially negate the value of the Self-Generation Incentive Program's incentives.

Because of protests over these exit fees from both renewable energy interests and the distributed generation industry as a whole, the February 2003 date established for settling this matter was delayed. In April 2003, the CPUC announced that it would be exempting photovoltaic projects smaller than 1 MW and net metered or eligible for CPUC or CEC incentives from exit fees. Thus, the issue of exit fees has been resolved for customers installing these types of systems. However, an air of uncertainty regarding exit fees lingers over the remainder of systems funded by the program.

Drastically Escalating Electric Rates

The program is in its early years and operating in a time of rapidly escalating electric rates in California. In addition, many customers experienced numerous blackouts during the summer of 2000. As a result, many customers are entering the program with considerable animosity toward their electric company and uncertainty towards their future rates. Many feel that these electric rate increases are threatening the viability of their business. While escalating electric rates have visibly dampened customer enthusiasm for their electric companies, it has also motivated them to self-generate and to participate in the Self-Generation Incentive Program.

1.3 Second Year Process Evaluation Objectives

This second year evaluation of the Self-Generation Incentive Program was performed to fulfill specific requirements identified in CPUC Decision 01-03-073 (Interim Opinion: Implementation of Public Utilities Code Section 399.15(b); Load Control and Distributed Generation Initiatives, March 27, 2001). The second year assessment addressed a number of topics, including program awareness, Program Administrator marketing, ease of application implementation and efficiency, and to the degree they can be addressed given available data, related program design issues. In addition, the second year process evaluation provided analysis on changes in these process issues relative to findings in the first year process evaluation. This comparative analysis is particularly useful to gauge the impact of newly implemented programmatic changes and to track the metrics used to evaluate the program goals. The rationale and goals of the program are described in Decision 01-03-073 and are presented in Table 8-1. Evaluation criteria were then developed for meeting each goal and incorporated into the process evaluation work scope.

1.4 Second Year Impact Evaluation Objectives

A parallel effort to determine the Operational Characteristics of systems funded under the Self-Generation Incentives Program is being conducted and reported under separate cover. This analysis is referred to as the Second Year Self-Generation Incentive Program Impact Study (Impact Study). Data from all available sources will contribute to the compilation and analyses of the funded self-generation system operational characteristics. These data sources include 1) a program tracking database, 2) participant end-user survey data, 3) investor-owned utility (IOU)/energy service provider electric metering data of net system output, and 4) other required operational data (i.e., recovered thermal energy, natural gas consumption for Level 1 (renewable fueled) fuel cells, etc.) to be collected under the program verification task.

The objectives of the impact study are to compile and summarize electrical energy production and demand reduction by specific time periods and technology-specific factors, determine operating and reliability statistics, determine compliance with thermal energy utilization and system efficiency program requirements, compliance with program reliability criteria, determine compliance of Incentive Level 1 systems with the renewable fuel usage requirements, and review/compare renewable fuel clean-up equipment costs for Level 1R and Level 3R systems.

1.5 Report Organization

An executive summary, which provides a high-level overview of the key aspects and findings of this second year evaluation, is presented prior to Section 1 of this report. The remainder of the report is organized as described below.

- Section 2 discusses the revisions to the Work Plan for the second year evaluation and the schedule for the third year evaluation.
- Section 3 describes the sample design and data collection efforts.

- Section 4 presents the program status of 2002 participants and provides the characteristics of these participants.
- Section 5 discusses the survey results.
- Section 6 discusses participation in other incentive programs.
- Section 7 summarizes the field verification and inspection activity.
- Section 8 assesses the evaluation criteria and provides recommendations for improving the program.
- Appendix A provides the interview guides used in the study.
- Appendix B provides a list of other distributed generation incentive programs.

2

Evaluation Work Plan Updates

This section of the Process Assessment and Recommendations Report provides a summary of the progression of the Self-Generation Incentive Program measurement and evaluation (M&E) work plan and its current status as of the first quarter of 2003. An overview of the M&E Plan goals and tasks is discussed in Section 2.1. Key revisions to the first year plan are addressed in Section 2.2, and the schedule for the upcoming third-year evaluation activities are presented in Section 2.3.

2.1 Overview of Self-Generation Incentive Program Measurement and Evaluation Plan

The initial work plan prepared for this Self-Generation Incentive Program evaluation effort was derived and refined from a series of tasks that were defined by the statewide working group of Program Administrators. These M&E support activities included the following:

- Development of the program evaluation plan
- Statistical methods assessment and system sampling
- Program participant characterization
- Compile and summarize California Public Utilities Commission (CPUC) and other program participation
- Determine system operational characteristics
- Implement on-site monitoring, data collection, and field verification inspections
- Develop program recommendations to improve on-peak load impacts
- Program administrator impact and process assessment (utility vs. non-utility)
- Prepare annual program evaluation reports
- Prepare other project deliverables

There were also several initial goals established by the Statewide Working Group for this Program evaluation effort. In addition to the first goal of developing the M&E plan, the other remaining major M&E related goals include the following:

- Develop and implement a performance data collection system and reporting framework,

- Perform annual process and impact evaluations, as required, reporting program results, and
- Develop recommendations regarding potential improvements to the program.

This early M&E planning work, which was coordinated with the Self-Generation Incentive Program Working Group, along with the first year clarifications led to the work plan that was incorporated as Section 2 of the First Year Process Evaluation Report. During the past year, there were a number of changes to the program, and regulatory requests by the CPUC that affected a few key elements of the M&E work plan. Major program modifications and clarifications that have taken place during the past year include 1) clarification of the eligibility of certain electric municipal customers that are also served by an eligible natural gas IOU, 2) allowance for incentive carry-forwards for unused incentives budgets from one program year to another, 3) ability to borrow forward future incentives funds with CPUC approval for a given incentive level when existing funds become fully subscribed, 4) creation of a new Incentive Level 3R (renewable-fueled) generators that use Level 3 energy conversion technologies, 5) implementation in PY2002 of previously specified reliability criteria for Level 3N technologies, and 6) implementation in PY2002 of maintenance requirements for Level 3N technologies greater than 200 kW.[1] These revisions and clarifications and their overall impacts on the Self-Generation Incentive Program M&E plan are discussed in further detail in Section 2.2 below.

In addition, the ALJ Gottstein Ruling of April 24, 2002 approved the Evaluation Goals/Rationale/Objectives and their respective criteria and the schedule of M&E reports for the program through April 2005.

Self-Generation Incentive Program Evaluation Criteria

The Self-Generation Incentive Program was developed to fulfill the requirements laid out in CPUC Decision 01-03-073 in Attachment 1 of the Decision (i.e., Adopted Programs to Fulfill AB970 Load Control and Distributed Generation Requirements, March 27, 2001).

The original CPUC Decision laid out the program's objectives, as listed in the "Goals/ Rationale/Objective" column in Table 2-1. With input from the Self-Generation Incentive Program Working Group, criteria were developed for assessing achievement of each goal. These criteria are listed in the second column, "Criteria for Meeting Goal" in Table 2-1.

[1] According to the program handbook, effective January 1, 2002, in order to qualify for a Level 3N incentive payment, the generation system must operate between 0.95 power factor lagging and 0.90 power factor leading. Applicants for Level 3N systems with facilities sized greater than 200 kW must coordinate the self-generation facility planned maintenance schedule with the electric utility. The applicant will only schedule a facility's planned maintenance between October and March and, if necessary, during off-peak hours and/or weekends during the months of April to September.

Table 2-1: Evaluation Criteria of the SelfGen Incentive Program

Goal/Rationale/Objective		Criteria for Meeting Goal
G1 Encourage the deployment of distributed generation in California to reduce peak electrical demand	**C1.A**	Increased customer awareness of available distributed generation technology and incentive programs
	C1.B	Fully subscribed participation in program (i.e., total installed capacity, number of participants)
	C1.C	Participants' demand for grid power during peak demand periods is reduced
G2. Give preference to new (incremental) renewable energy capacity	**C2.A**	Development and provision of substantially greater incentive levels (both in terms of $ per watt and maximum percentage of system cost)
	C2.B	Provision of fully adequate lead-times for key program milestones (i.e., 90 day and 12 month)
G3 Ensure deployment of clean self-generation technologies having low and zero operational emissions	**C3.A**	Maximum allocation of combined budget allocations for Level 1 and Level 2 technologies
	C3.B	A high percentage of Level 1 and Level 2 projects are successfully installed with sufficient performance
G4 Use an existing network of service providers and customers to provide access to self-generation technologies quickly	**C4.A**	Demonstration of customer delivery channels for program participation to include distributed generation service providers and existing utility commercial/industrial customers networks
G5 Provide access at subsidized costs that reflect the value to the electricity system as a whole, and not just to individual customers	**C5.A**	Demonstrate that the combined incentive level subscription, on an overall statewide program basis (i.e., the participant mix of Levels 1, 2, and 3 across service areas), provides an inherent generation value to the electricity system (avoided generation, capacity, and T&D support benefits).
G6 Help support continued market development of the energy services industry	**C6.A**	Quantifiable program impact on market development needs of the energy services industry
	C6.B	Demonstrated consumer education and program marketing support as needed
	C6.C	Tracking of energy services industry market activity and participation in the program
G7 Provide access through existing infrastructure, administered by the entities (i.e., utilities and SDREO) with direct connections to, and the trust of small consumers	**C7.A**	Ensure that program delivery channels include communications, marketing, and administration of the Program, providing outreach support to small consumers
G8 Take advantage of customers' heightened awareness of electricity reliability and cost	**C8.A**	Use existing consumer awareness and interact with other consumer education/marketing support related to past energy issues to market the program benefits.

The Program Evaluation Criteria, Work Plan, and schedule of M&E reports were approved as stated above by CPUC Administrative Law Judge Gottstein on April 24, 2002.

2.2 Revisions to 2001-2002 Evaluation Plan

During the implementation of the first year evaluation, there were a number of program modifications, and clarifications formalized through a series of Decision/Interim Orders and ALJ Rulings by the CPUC in PY2002. These include the following formal actions, which have impacted the PY2002 through PY2004 evaluation plans:

- Adoption of Decision 02-02-026 (Interim Order dated February 7, 2002)
- ALJ Gottstein April 24, 2002 Ruling on Evaluation Criteria, Plan, and Schedule of M&E Reporting Activity
- Adoption of Decision 02-09-051, dated September 19, 2002 (Interim Opinion addressing the eligibility of Renewable Fueled Microturbines for Self-Generation Incentive Program Incentives)

In addition to these formal actions of the CPUC, three of the Program Administrators decided in March 2003 to request proposals from the statewide evaluation contractor to provide net generator output (NGO) metering of their operational Self-Generation Incentive Program systems to address either 1) the net-metered Level 1 projects, or 2) all of their Level 1, 2, and 3 Self-Generation Incentive Program projects that are determined to require independent NGO metering. Per the Working Group's request, these NGO metering installations for certain Program Administrators will be performed outside of the statewide Program Administrator evaluation contract, directly with each Program Administrator.

The impacts on the evaluation plan implementation of each of the above program modifications and clarifications are briefly discussed below.

The adoption of Decision 02-02-026 had the effect of clarifying the inclusion of the natural gas municipal electric customers and addressing the incentive funds *carry-forward* and *annual overrun* provisions. This clarification will thus require ongoing coordination with the active electric municipal utilities in the SoCalGas and PG&E service areas regarding NGO and whole-facility metering and associated electric power data collection over the term of the program. This clarification adds a separate layer of metering and data collection coordination for these two utilities' projects and expands the number of utilities involved in this process.

The clarification of the incentive funds *carry-forward* and *annual overrun* provisions will likely provide greater funding flexibility to the program and hold all targeted incentives funds for their designated purpose through the term of the program. This has the potential effect of minimizing the concerns surrounding the allowance for extensions to applicants that may require more time to meet their 90-day Proof of Project Advancement[2] and one-year project completion milestones. The other stipulations of D. 02-02-026 (increasing the eligible project size to 1.5 MW, and the denial of RealEnergy's petition) have little effect on the evaluation plan.

ALJ Gottstein's April 24, 2002 Ruling on evaluation criteria, plan, and schedule of evaluation reporting activity directly affected the first year and all subsequent year M&E Plan implementations through the approval of the Evaluation Goals/Rationale/Objectives and their respective criteria presented above in Table 2-1. In addition, this ruling established the associated schedule of M&E related reports for the Self-Generation Incentive Program. For M&E activity budgeting purposes, this ruling further established the basis for estimating related evaluation costs through the term of the program, as it laid out all required future reports through April 2005.

The adoption of Decision 02-09-051 on September 19, 2002 perhaps had the most significant impact on the evaluation plan for PY2002 through PY2004. This Interim Opinion established a new incentive Level 3 category for renewable-fueled generators (Level 3R), including internal combustion engines, microturbines, and small gas turbines operating on a qualified "renewable fuel" as previously defined by the program. The Decision also required that Program Administrators (or their consultants) conduct on-site inspections and monitor on an ongoing basis the renewable fuel usage of these Level 3R projects, including any identified fuel switching, and report their results to the CPUC Energy Division on a semi-annual basis. Also, the required renewable fuel use reports were subsequently added to the program evaluation report schedule approved under the ALJ Gottstein April 24, 2002 Ruling & Adopted Schedule of M&E Reports.

Because of these added activities, the responsibilities for the various metering, data collection, analysis, and reporting functions were then clarified with the Working Group in accordance with Table 2-2.

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[2] Proof of Project Advancement requires submittal of documentation to the Program Administrator to demonstrate that a project is progressing and that there is an increased commitment on the part of the applicant/host customer to complete the project.

Table 2-2: Summary of Self-Generation Incentive Program Measurement and Evaluation Responsibilities

Item	Description	Level(s)	Sample Size	Data Collection Responsibility	Data Analysis Responsibility	Reporting to CPUC Responsibility
1. Net Generator Output (NGO)	• Electric interval metering (15-minute) data meeting the format requirements specified by RER. • Purpose: Energy (kWh) and peak load (kW) data to be used as part of program cost-benefit analysis to be performed under the direction of the Energy Division.	All	100%	PA	RER	RER (annually)
2. Host Facility Electric Consumption Data	• *Electric interval metering data of NGO-connected whole facility meeting* format requirements specified by RER • Purpose: Energy (kWh) and peak load (kW) data to be used as part of program cost-benefit analysis to be performed under the direction of the Energy Division	All	100%	PA	RER	RER (annually)
3. Waste Heat Utilization (PU 218.5) Evaluation	• Various measurements pertaining to a system's thermal and electric output. • Purpose: Verify whether projects which meet 218.5 requirements on paper (based on a certain set of assumptions) actually operate in a manner which satisfies the standard over 12-month timeframe(s).	L-2, L-3N	100%[1]	RER/BVA	RER	RER (annually)
4. Renewable Fuel Usage	• Measurement of total BTU contributions of renewable and natural gas (if it is available at the site) to generating system. • Purpose: Verify whether projects receiving the L-3R incentive meet the requirement that no more than 25% of total BTU input over 12-month timeframe(s) comes from natural gas.	L1R/ L3R	100%	PA	PA/RER Annual Impacts Reports	PA (every six months)
5. Renewable Fuel Cleanup Equipment Costs	• Collect costs associated with the fuel cleanup equipment. • Purpose: Evaluate whether or not to limit the amount of allowable cleanup costs (e.g., as a percentage of total project costs) as eligible project costs going forward.	L-3R	100%	PA	RER	RER (second year evaluation report)
6. SGIP Participant Surveys	• Collect information through surveys (in person and over the telephone) from program participants. • Purpose: Evaluate whether changes or improvements are needed to the program going forward and how effectively the program is being managed and delivered.	All	TBD	RER	RER	RER (annually)

PA = Program Administrators, RER = Itron/Regional Economic Research, BVA = Brown, Vence, and Associates

[1] Waste heat utilization evaluations will be conducted on 100% of all L-2 and L-3N projects initially – until such time as an appropriate sample size is reached.

In accordance with the CPUC's request within the Decision, these additional evaluation reporting responsibilities, schedule impacts and metering costs were determined and incorporated into the program-level M&E budget. The Decision also required that Program Administrators provide an estimated budget for all of the monitoring and evaluation activities required in accordance with the original program authorized under D.01-03-073 and per the additional requirements contained within D.02-09-051. Table 2-3 provides an overview of the projected number of applicants that will need to be monitored for either thermal energy or renewable fuel use, by incentive level, for the entire four-year program period. Across all incentive levels and technologies, about 34% (142/419) of the cogeneration and renewable-fuel fuel cell applicants are expected to be monitored. As noted in the table, the vast majority of these monitored applicants are expected to be Level 3 technologies (internal combustion engines, microturbines, and small gas turbines). The projected thermal monitoring sample rates are 100% in each of the first two years and then drop off to 30% and 10%, respectively, for the Level 3 projects in PY2003 and PY2004 applicants. The sample rate for Level 1R and Level 2 project thermal monitoring is projected to remain at 100% through PY2003 and then decrease to 50 percent in PY2004.

Table 2-3: Summary of Evaluation Thermal /Fuel Use Monitoring Requirements

	Level 1-R	Level 2	Level 3	Total No. Sites
Total Estimated No. Sites Monitored in PY 2001 - 2004	4	7	131	142
Total No. of Est. Active Applicants @ Year-End (PY2001 – 2004)	5	10	404	419

In addition to the thermal monitoring and data collection discussed above, electric meters will be placed on each monitored system to determine net generator kW output on a 15-minute interval basis. Natural gas meters will also be installed on monitored projects that use natural gas as their primary or secondary fuel source. Table 2-4 summarizes the estimated costs for these metering components for each program year's applicants, without indicating which party may be responsible for them. Customer applicants will pay for NGO electric meters and natural gas meters that are installed to meet utility interconnection and tariff requirements; however, these costs are eligible for a partial rebate under the program. Those NGO or natural gas meters installed solely to meet M&E requirements of the program will be paid for entirely by the program (from the Administrative/M&E budget).

Table 2-4: Estimated Net Generator Output and Natural Gas Metering Costs

Program Applicant Category	Incentive Level 1	Incentive Level 2	Incentive Level 3	Program Applicant Total	Total No. Electric Monitored Sites*	Est. NGO Meter Costs (@ $5,500 per Installation)	Est. NG Meter Costs (@ $1,500 per Installation)
PY2001	24	4	71	99	72	$395,340	$90,000
PY2002	134	0	111	245	123	$676,188	$58,100
PY2003	70	2	111	183	105	$578,600	$52,800
PY2004	72	4	111	187	49	$269,867	$19,600
Total Program Estimated NGO & Natural Gas Metering Costs:						$1,919,995	$220,500

* Program Administrators will be monitoring the electric output of 100% of program participants who complete their installations. The drop in numbers from applicants to monitored sites assumes a certain level of attrition based on available data.

The combined program total for the estimated NGO and natural gas metering costs over the four years included within Table 2-4 is $2,140,495.

The scope of work in the Itron proposal approved by the Working Group included the evaluation of the first two years of the program (through PY2002). On April 24, 2002, the "Administrative Law Judge's Ruling on Schedule for Evaluation Reports" (ALJ's Report Ruling) extended the program evaluation deliverables through the fourth year of the program by requiring that the Program Administrators submit a "Schedule of M&E Deliverables" through PY2004. Therefore, the revised scope and estimated budget, provided in response to Decision 02-09-051, include the following:

- The two-year extension of the evaluation activities, as specified in the ALJ's Report Ruling.
- The added Fuel Clean-up Equipment Cost Review and Fuel Use Monitoring and Reporting requirements in Ordering Paragraphs 7, 8, and 9 of D.02-09-051.

Table 2-5 contains the revised annual program year M&E estimated budgets, which are provided by specific evaluation activity, including process evaluations, impact evaluations, thermal monitoring systems, administrator comparison, and the M&E Activities added by D.02-09-051. These estimated costs are shown for each program year through 2004. Note that the process evaluation activity is not currently scheduled to be performed after PY2002 (this year), and that the installation of monitoring systems, data collection, and impact evaluation efforts have begun in the second year of the program and will continue through early 2005 (for PY2004). The following includes a brief summary description of the evaluation activities represented in each column of Table 2-5.

Table 2-5: Measurement and Evaluation Four-Year Program Estimated Budget

Program Year	Process Evaluations	Impacts Evaluations	Thermal Monitoring Systems	Administrator Comparison	M&E Activities Added by D.02-09-051	Total Annual M&E Budget
PY1 (2001)	$452,038	$0	$544,279	$0	$0	$ 996,317
PY2 (2002)	$250,000	$329,058	$413,456	$90,170	$113,200	$1,195,884
PY3 (2003)	$0	$345,511	$389,898	$0	$130,280	$865,689
PY4 (2004)	$0	$362,786	$153,085	$0	$134,360	$650,231
Subtotals	$702,038	$1,037,355	$1,500,718	$90,170	$377,840	$3,708,121
Total M&E Net Generator Output and Natural Gas Metering Costs (see Table 2-4)						$2,140,495
Total M&E Estimated Budget for the Authorized Program Period:						**$5,848,616**

- ***Process Evaluations.*** Activities related to gathering information from program stakeholders (e.g., customer participants and nonparticipants, third party participants and nonparticipants, Program Administrators) about how the program was run, in order to provide recommendations on incentive levels and other program design changes that might improve the program.
- ***Impact Evaluations.*** Activities related to operational project data collection and related quality control, estimation of customer and ISO peak load reduction, compliance with useful thermal energy requirements, system performance and reliability, renewable fuel use and renewable fuel cleanup cost comparisons (second year impacts report), and program cost-effectiveness.[3]
- ***Thermal Monitoring Systems.*** Activities specifically designed to measure compliance with useful thermal energy requirements, including: site preliminary assessments and metering/data collection plans, specification and installation of metering systems and data loggers/communications interfaces, and system maintenance.
- ***Administrator Comparison.*** Activities related to collecting information through interviews and surveys of all program stakeholders, reviewing program databases from the first and second program years, analyzing the information, and reporting the findings in written reports and targeted presentations.
- ***M&E Activities Added by D.02-09-051.*** The added M&E activity addressing Level 3R and Level 1 fuel cell projects begins with the eligible PY2002 participants and will continue through the term of the program. This last increment to the program's prior updated M&E work scope includes the following tasks:
    - Collect data on fuel clean-up equipment costs for both Level 3R combustion technologies and renewable fuel cells (Level 1),
    - Examine the fuel cleanup equipment cost data to see if the costs appear unreasonably high,
    - Report cost analysis as part of the second year program evaluation report,
    - Conduct on-site inspections of all projects that utilize renewable fuels,
    - Determine compliance with the renewable fuel use provisions once the projects are operational,
    - Determine whether fuel switching has occurred,
    - Re-evaluate the renewable incentive categories on a prospective basis, as needed, and
    - Submit renewable fuel-use monitoring reports every six months.

[3] Program cost-effectiveness analyses will be performed when the CPUC/Energy Division determines that an appropriate methodology has been developed for all load removal programs per Decision 01-03-073.

2.3 Schedule for Third-Year Evaluation Tasks

Table 2-6 summarizes the schedule for all Self-Generation Incentive Program evaluation activities currently foreseen over the program duration. The program's third year evaluation reports include 1) Outline for Third Year Program Impact Evaluation Report, 2) On-Site Monitoring Fuel-Use Report No. 3, 3) Third Year Program Impact Evaluation Report, and 4) On-Site Monitoring Fuel-Use Report No. 4.

Table 2-6: Summary of Self-Generation Incentive Program Evaluation Deliverables

Annual & Fuel Use Program Evaluation Reports	Due Date	Compliance
First Year Incentives/Program Design Evaluation/ Recommendations Report	June 28, 2002	Submitted in lieu of First Year Peak Operations Impacts; recommendations for Program Year 2002
Outline for Second Year Program Impact Evaluation Report	December 18, 2002	Per ALJ Gottstein 4/24/02 Ruling
Outline for Second Year Program Process Evaluation Report	December 25, 2003	Per ALJ Gottstein 4/24/02 Ruling
On-Site Monitoring Fuel-Use Report #1	*March 17, 2003*	*Renewable fuel use monitoring and cost comparison of Level 3 and 3-R Projects.*
Outline for Utility/Non-Utility Administrator Comparison Report	April 3, 2003	Per ALJ Gottstein 4/24/02 Ruling
Second Year Program Impact Evaluation Report	April 18, 2003	For energy production and system peak demand reductions occurring during the program year 2002
Second Year Program Process Evaluation Report	April 25, 2003	To provide recommendations on incentives or Program designs that could improve peak load reduction for Program Year 2003
Utility/Non-Utility Administrator Comparison Report	August 1, 2003	To provide an analysis of the relative effectiveness of the utility and non-utility administrative approaches during years 2001 & 2002
On-Site Monitoring Fuel-Use Report #2	*September 17, 2003*	*Renewable fuel use monitoring and cost comparison of Level 3 and 3-R Projects.*
Outline for Third Year Program Impact Evaluation Report	December 16, 2003	Per ALJ Gottstein 4/24/02 Ruling
On-Site Monitoring Fuel-Use Report #3	*March 17, 2004*	*Renewable fuel use monitoring and cost comparison of Level 3 and 3-R Projects.*
Third Year Program Impact Evaluation Report	April 16, 2004	For energy production and system peak demand reductions occurring during program year 2003
On-Site Monitoring Fuel-Use Report #4	*September 17, 2004*	*Renewable fuel use monitoring and cost comparison of Level 3 and 3-R Projects.*
Outline for Fourth Year Program Impact Evaluation Report	December 15, 2003	Per ALJ Gottstein 4/24/02 Ruling
On-Site Monitoring Fuel-Use Report #5	*March 17, 2005*	*Renewable fuel use monitoring and cost comparison of Level 3 and 3-R Projects.*
Fourth Year Program Impact Evaluation Report	April 15, 2005	For energy production and system peak demand reductions occurring during program year 2004
Program Funding Ends	**December 31, 2004**	

Note: The evaluation and impacts reports cover January 1 - December 31. First program year is 2001.

3

Data Collection Activities

3.1 Overview

This section summarizes the second year data collection activities performed to support the Self-Generation Incentive Program Process Evaluation. The following data sources were used in the second year evaluation:

- Program Administrator tracking data,
- Statewide compliance data on other incentive program participation,
- Program Administrator workshop/seminar attendee lists,
- Program Administrator interviews,
- Surveys of participant host customers,
- Surveys of participant suppliers,
- Surveys of nonparticipant host customers,
- Surveys of nonparticipant host customers and suppliers who attended workshops,
- Program marketing plans and materials,
- Sample on-site verification reports, and
- Interviews with on-site auditors.

3.2 Program Administrator Tracking Databases

Tracking Database Contents

Each Program Administrator maintains its own Self-Generation Incentive Program tracking system. These systems include hard copy files and electronic data. Additionally, each Program Administrator provides the California Public Utilities Commission (CPUC) with monthly summary reports of the Self-Generation Incentive Programs under its jurisdiction. The monthly CPUC status reports include the majority of the tracking data requested in the first year process evaluation, including the following:

- Applicant company name,
- Host customer company name, address, and SIC code,
- Incentives requested and granted,

- Basic system details (including prime mover technology, size, and eligible installed costs),
- Project status, and
- Major project milestone dates.

Other tracking data variables requested in the first year process evaluation included the following:

- Applicant contact name and phone number,
- Host customer contact name and phone number,
- Facility address (i.e., address for site at which system would be installed),
- Latest project stage/milestone reached,
- Basis of incentive,
- Withdrawal/rejection/suspension date for inactive projects,
- Annual peak demand, and
- Other incentive program rebate amounts and sources.

In 2002, all Program Administrators provided data from the monthly CPUC reports as well as the majority of the additional tracking data variables requested from the first year process evaluation. Between 2001 and 2002, a remarkable degree of standardization of tracking data variables was achieved across Program Administrators. The Program Administrators expended considerable time and effort to supply the information requested for the second year process evaluation, which has greatly enhanced the quality of the analyses that can be performed upon the tracking data.

When questions arose regarding the content of the tracking databases, the project team contacted the program Administrators to ensure that variables were defined consistently across administrators. After reviewing and verifying the electronic tracking data provided by each Program Administrator, the data was standardized to create a detailed statewide tracking database that contained relevant information on all applications submitted to the Self-Generation Incentive Program in 2001 and 2002. The summary statistics presented in the following sections of this report are based upon the contents of this statewide tracking database, as well as the results of the participant interviews.

Recommended Additions to the Program Administrator Tracking Data

As mentioned previously, all Program Administrators made great strides in expanding the scope of tracking data collected for the projects under their respective jurisdictions, and in standardizing tracking data variables since the first year process evaluation effort. There are only three additional variables that are either (a) not currently provided by any Program Administrator, or (b) currently provided by only some of the Program Administrators. These variables include facility address (i.e., site where the system will be installed), system installation contractor name, and date of operation in parallel with the grid.

Facility addresses assist in tracking applicants who re-submit applications for systems serving the same site, and assist in metering efforts for program impact evaluations. Identification of installation contractors involved in the Self-Generation Incentive Program allows for a more comprehensive examination of all market actors impacted by the program, and the typical roles performed by suppliers to the Self-Generation Incentive Program. Dates of operation in parallel with the grid assist in metering efforts for the impacts evaluation. Date of utility authorization to interconnect also serves as a useful proxy if date of operation in parallel with the grid is not available for a given project.

Use of Tracking Data

For this evaluation, the tracking data were used for the following:

- To construct strata and contact lists for the participant host customer sample,
- To construct strata and contact lists for the participant supplier sample,
- To characterize program participants as presented in Section 4, and
- To analyze project characteristics as presented in Section 4.

3.3 Statewide Compliance Database

In addition to the tracking data submitted to Itron and the monthly project status reports submitted to the CPUC, the Program Administrators record tracking data in a statewide compliance database. The primary purpose of the compliance database is to check for possible duplication with other programs, such as the California Energy Commission's (CEC's) Buydown Program. The database does not track federal incentive reservations, loans or tax credits provided to Self-Generation Incentive Program participants.

The statewide compliance database should not be confused with the Program Administrator tracking data compiled by Itron. The statewide compliance database contains the following information:

- Reservation number,
- Host name, address, telephone number, taxpayer ID and utility account number,
- System capacity (kW),
- Incentive requested,
- Prime mover technology employed,
- Project status,
- Administrator, and

- Date Reservation Request Form received.

While each Program Administrator is responsible for entering tracking data for applications filed within its jurisdiction, a contractor to Southern California Gas Company (SoCalGas) provides overall maintenance of the compliance database. In the compliance database, each reservation request is assigned a point score based upon the recurrence of variables within the compliance database. Reservations assigned a point score of 60 or greater are flagged as possible duplicates (i.e., those that are flagged as possibly receiving funding for the same system from multiple sources). Each Program Administrator is responsible for checking reservations flagged as possible duplicates for compliance with the Self-Generation Incentive Program requirements.

The most recent version of the compliance database supplied to the project team was received in March 2003. After reviewing the compliance database export provided by the contractor, the data was cleaned and analyzed to verify that duplication was not occurring between incentive programs, and that applicants were fulfilling the disclosure requirements of the Self-Generation Incentive Program. The results of this analysis are presented in the Coordination with Other Incentives Program Participation section of the report.

Recommended Addition to the Statewide Compliance Database

According to the Self-Generation Incentive Program Handbook, project size cap limits of 1.5 MW per site and per corporate or government parent host customer per program year are in force for all projects.[1] Compliance with the maximum capacity requirements is also checked using the statewide compliance database, which lists reservation requests by host name (among other factors). However, the statewide compliance database does not track identities of corporate or government parents, simply listing reservation requests by host customer name as identified on the Reservation Request Form.

Thus, the statewide compliance database may not identify reservations filed by subsidiaries of the same corporate parent as possible duplicates if the reservations were filed under each subsidiary's name rather than the name of the corporate parent. Since the reservations were not flagged as possible duplicates, there would be no reason for a Program Administrator to suspect that the applications might be filed by a common corporate parent, and the Program Administrator would not check to ensure that that corporate parent was in compliance with the 1.5 MW capacity limit for the program year. Thus, it would be possible for some corporate parent host customers to circumvent the imposed capacity limits simply by submitting multiple applications under different subsidiary names. The statewide compliance database should include a variable to track corporate parent or government parent host customer name (if applicable) in order to ensure that host customers remain in

[1] There are no reservation limits for third party contractors, vendors, or ESCOs applying to the program.

compliance with Self-Generation Incentive Program maximum capacity requirements. The Program Administrators are currently considering the addition of this variable to the compliance database.

The Program Administrators could track information on corporate parents by adding fields to the Reservation Request Form for corporate parent name, address, and taxpayer ID number. These fields could be assigned a point score consistent with other variables in the compliance database. The database could then be used to more effectively track compliance with maximum capacity requirements. The Program Administrators should consult the appropriate legal counsel to determine how corporate and government parents should be defined for documentation purposes on the Reservation Request Form, as the current definition within the program handbook could be clarified to state a specific percentage of ownership or control requirement.

3.4 Distributed Generation Workshop Attendee Lists

The primary focus of the nonparticipant surveys is to determine the awareness of and the potential interest in distributed generation and the Self-Generation Incentive Program. The results of the surveys may illustrate differences in levels of awareness and interest across business types, thereby assisting in marketing strategies for the Self-Generation Incentive Program.

Thus, in the first year process evaluation, a random sample of nonparticipants was selected and surveyed in accordance with the distribution of business types represented in the Self-Generation Incentive Program. In the second year process evaluation, however, the nonparticipant sample was augmented to include attendees of distributed generation workshops and/or seminars held by the Program Administrators. Unlike the initial nonparticipant sample, which provides a general indication of the types of firms interested in and aware of the Self-Generation Incentive Program and other distributed generation options, the attendee sample provides a more focused appraisal of the success of Program Administrator marketing efforts. Specifically, an examination of the reasons why attendees sufficiently interested in distributed generation to attend such workshops ultimately did not opt to participate in the Self-Generation Incentive Program may shed some light upon possible improvements to the Program Administrators' marketing efforts. The nonparticipant attendee sample may also provide some confirmation of the types of businesses more seriously interested in and aware of distributed generation.

Accordingly, each Program Administrator provided Itron with lists of attendees of distributed generation workshops and/or seminars held in 2002. The contents of these attendee lists varied among Program Administrators, but the lists generally contained the following variables:

- Attendee name,
- Attendee company name, and
- Attendee contact information.

Some lists distinguished between attendees and registrants who did not ultimately attend the seminar/workshop. Other lists merely presented names and contact information of all registrants. When a distinction was made between attendees and non-attending registrants, only attendees were selected as possible survey targets. All registrant/attendee lists were standardized and compiled into a master list that served as the population for the surveys of nonparticipant host customers and suppliers who attended 2002 workshops.

3.5 Program Administrator In-Depth Interviews

In-depth interviews were conducted with each Program Administrator and with the Working Group's representative for San Diego Gas and Electric Company (SDG&E).[2] Before the interviews, each Program Administrator was asked to provide some background materials such as marketing materials and examples of on-site verification reports. Each interview was conducted in person at the Program Administrator's place of business. Three senior Itron staff conducted each interview, which lasted from two to four hours. The main topics of the interviews were as follows:

- Changes in the program from 2001 to 2002,
- Opinions on program goals,
- Key lessons learned over the previous year,
- Program design issues (i.e., program milestones and incentive levels),
- The application process,
- Barriers to participation,
- Project verification and metering,
- Marketing, and
- Concerns.

In addition, a telephone interview was conducted with the Working Group's representative for the CPUC. Copies of the interview guides are provided in Appendix A of this report. Results of the interviews are discussed in Section 5.

[2] The San Diego Regional Energy Office (SDREO) is the Program Administrator for customers in the San Diego Gas and Electric Company service territory.

3.6 Host Customer In-Depth Interviews

An in-depth survey instrument was designed and administered to host customers who participated in the program in 2001 and 2002. The length of the telephone interviews ranged from 15 minutes to one hour. Host customers contacted for the survey were called a maximum of five times, or until the host customer's sampling stratum target was met. The host customer interviews focused on issues related to the process evaluation and participant characterization, which are discussed in Sections 4 and 5. Copies of the interview guides are provided in Appendix A of this report. The main topics covered during the interviews include the following:

- Initial source of information regarding the program,
- Program design,
- Business characterization of the host customer,
- Reasons for installing distributed generation,
- Difficulty of various stages of project development,
- Operational characteristics of systems that have been completed and paid, and
- Overall satisfaction with the program.

A host customer's familiarity with each of these topics depends largely on the level of involvement with their self-generation project, the stage of their application, and the status of their application.

Host Customer Sample Design

As in the previous year's process evaluation, the populations of 2001 and 2002 host customers were stratified by application status, Program Administrator, and distributed generation technology. Since many host customers submitted multiple applications to the program, it was necessary to develop a classification method to assign a primary administrator and a primary technology to each host customer. Development of such a classification method ensured that all Program Administrators and technologies were adequately represented in the sample.

Assigning Primary Characteristics

In 2001, the primary technology for a host customer was assigned based upon the most advanced stage reached by any of the host customer's projects. Thus, if a host customer submitted two applications for funding in 2001, including one photovoltaic system that reached an advanced stage (i.e., for which Proof of Project Advancement was submitted) and one fuel cell system utilizing renewable fuels that only reached an early stage (i.e., Proof of Project Advancement had not yet been submitted), the host customer would be assigned a primary technology of photovoltaics. A similar methodology was used to assign a primary technology to host customers in 2002.

When a host customer submitted an equal number of applications for different technologies that reached the same stage, a primary technology was assigned based on the dates the Reservation Request Forms were received for each of the respective projects. For example, if a host customer submitted two applications in 2002 that reached an advanced stage, one for a photovoltaics system and one for an internal combustion engine utilizing non-renewable fuels, the Reservation Request Form would serve as the deciding factor as to which primary technology would be assigned to the host customer. If the host customer submitted the Reservation Request Form for the photovoltaics system prior to submitting the Reservation Request Form for the internal combustion engine, the primary technology assigned to the host customer would be photovoltaics.

When a host customer submitted an equal number of applications that reached the same stage for different technologies, and the Reservation Request Form receipt dates for each of these systems were identical, a primary technology was assigned to the host customer based upon system size. Thus, if a host customer submitted two Reservation Request Forms for photovoltaics systems on 10/31/2002 that reached an advanced stage, and also submitted two Reservation Request Forms for microturbines using non-renewable fuels on 10/31/2002 that reached an advanced stage, the primary technology would be determined by which of these systems possessed the largest capacity in kW.

In 2001, the primary administrator for a host customer was assigned based upon the total number of Reservation Request Forms submitted to each Program Administrator. Thus, if a host customer submitted three applications to Southern California Edison, two applications to Pacific Gas & Electric, and one to SoCalGas, then the primary administrator assigned to the host customer would be Southern California Edison since the host customer submitted the majority of his applications to Southern California Edison.

This methodology resulted in a potential mismatch of primary administrator and primary technology for each host customer since a primary technology was assigned based upon the latest stage reached by any given project, while a primary administrator was not assigned based upon project stage. For example, if a host customer submitted one advanced stage photovoltaics application to Pacific Gas & Electric and three early stage applications to Southern California Edison, the host customer would be assigned a primary technology of photovoltaics, but a primary administrator of “Southern California Edison.” However, according to the raw data, the host customer did not submit any applications for photovoltaic systems to Southern California Edison.

Thus, in PY2002, the primary administrator is assigned based upon the primary technology assigned. For example, if a host customer is assigned a primary technology of photovoltaics, the number of photovoltaics applications submitted to each administrator is determined. The administrator with the most photovoltaics applications that reached the most advanced stage would be selected as the primary administrator. However, when an equal number of applications for the primary technology were submitted to multiple administrators, and each of the applications had reached the same stage, and the Reservation Request Forms received dates and system sizes were identical, the administrator for the system with the highest annual peak demand was selected as the primary administrator.

Sample Stratification and Completed Sample

Once the primary characteristics were assigned to each host customer, the sample was stratified and targets were assigned for each stratum. First, the host customers were stratified by year of application: 2001 and 2002. Second, they were stratified according to primary Program Administrator. Third, they were stratified according to application status: complete, advanced, early, or withdrawn/rejected/suspended.

A sample size of roughly 120 completed surveys was used as a guide in developing the sampling strategy. Further, customers with applications in the advanced and complete strata were sampled more heavily than customers with applications in the early and Withdrawn/Rejected/Suspended strata since customers with more advanced projects were believed to have more experience with the program. In addition, customers who had applied in 2001 and whose application status was now in the Withdrawn/Rejected/Suspended strata were to be surveyed only if they had reached the advanced stage before moving to the Withdrawn/Rejected/Suspended stage, as it was believed there was something to be learned from their experience of withdrawing from an advanced stage.

Table 3-1 and Table 3-2 present the resulting sample targets for host customers.

Table 3-1: Sample Design: Host Customers Who Applied in 2001

Strata	PG&E		SCE		SoCalGas		SDREO		All	
	Pop	Target	Pop	Target	Pop	Target	Pop	Target	Pop	Target
Fuel Cells Nonrenewable										
complete	1	1	0	0	0	0	0	0	1	1
advanced	0	0	1	1	0	0	0	0	1	1
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	2	1	0	0	1	0	0	0	3	1
Fuel Cells Renewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	0	0	0	0	0	0	0	0	0	0
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	1	0	0	0	0	0	0	0	1	0
IC Engine Nonrenewable										
complete	0	0	2	1	2	2	2	2	6	5
advanced	6	2	3	2	10	2	2	2	21	8
early	2	1	0	0	0	1	0	0	2	2
wd/rej/sus	19	2	10	2	19	1	7	2	55	7
Microturbine Nonrenewable										
complete	0	0	1	1	1	1	2	1	4	3
advanced	2	1	0	1	7	2	8	2	17	6
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	2	0	5	1	11	1	4	1	22	3
PV										
complete	5	2	1	0	0	0	1	1	7	3
advanced	6	2	1	1	0	0	2	0	9	3
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	25	1	13	1	5	2	3	1	46	5
Total	***71***	***13***	***37***	***11***	***56***	***12***	***31***	***12***	***195***	***48***

Table 3-2: Sample Design: Host Customers Who Applied in 2002

Strata	PG&E		SCE		SoCalGas		SDREO		All	
	Pop	Target	Pop	Target	Pop	Target	Pop	Target	Pop	Target
Fuel Cells Nonrenewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	1	1	0	0	0	0	0	0	1	1
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	0	0	0	0	0	0	0	0	0	0
Fuel Cells Renewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	0	0	0	0	0	0	0	0	0	0
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	0	0	0	1	0	0	0	0	0	1
IC Engine Nonrenewable										
complete	1	0	0	0	0	0	0	0	1	0
advanced	11	4	2	2	9	4	2	2	24	12
early	33	2	7	1	11	2	1	1	52	6
wd/rej/sus	10	2	5	1	12	2	0	0	27	5
IC Engine Renewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	0	0	0	0	0	0	0	0	0	0
early	1	1	0	0	0	0	0	0	1	1
wd/rej/sus	0	0	0	0	0	0	0	0	0	0
Microturbine Nonrenewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	1	1	2	2	2	2	1	0	6	5
early	3	1	6	2	8	1	0	0	17	4
wd/rej/sus	0	0	1	1	3	1	1	1	5	3
Microturbine Renewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	0	0	0	0	0	0	0	0	0	0
early	3	1	2	1	0	0	0	0	5	2
wd/rej/sus	0	0	0	0	0	0	0	0	0	0
PV										
complete	7	3	1	1	3	3	1	1	12	8
advanced	16	4	8	4	7	4	4	2	35	14
early	32	2	13	1	25	2	0	0	70	5
wd/rej/sus	13	1	9	1	9	1	1	1	32	4
Total	***132***	***23***	***56***	***18***	***89***	***22***	***11***	***8***	***288***	***71***

Completed Host Customer Sample

A total of 108 host customers were surveyed for the second year process evaluation. Table 3-3 and Table 3-4 summarize the completed sample.

Table 3-3: Completed Sample for 2001 Participant Host Customers

Strata	PG&E		SCE		SoCalGas		SDREO		All	
	Target	Comp	Target	Comp	Target	Comp	Target	Comp	Target	Comp
Fuel Cells Nonrenewable										
complete	1	1	0	0	0	0	0	0	1	1
advanced	0	0	1	0	0	0	0	0	1	0
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	1	1	0	0	0	0	0	0	1	1
Fuel Cells Renewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	0	0	0	0	0	0	0	0	0	0
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	0	0	0	0	0	0	0	0	0	0
IC Engine Nonrenewable										
complete	0	0	1	0	2	0	2	0	5	0
advanced	2	2	2	2	2	2	2	2	8	8
early	1	1	0	0	1	0	0	0	2	1
wd/rej/sus	2	2	2	1	1	2	2	1	7	6
Microturbine Nonrenewable										
complete	0	0	1	1	1	1	1	1	3	3
advanced	1	1	1	0	2	3	2	2	6	6
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	0	0	1	2	1	1	1	2	3	5
PV										
complete	2	3	0	0	0	0	1	1	3	4
advanced	2	1	1	1	0	0	0	1	3	3
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	1	0	1	0	2	0	1	0	5	0
Total	***13***	***12***	***11***	***7***	***12***	***9***	***12***	***10***	***48***	***38***

Table 3-4: Completed Sample for 2002 Participant Host Customers

Strata	PG&E		SCE		SoCalGas		SDREO		All	
	Targe t	Comp	Target	Comp	Target	Comp	Target	Comp	Target	Comp
Fuel Cells Nonrenewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	1	1	0	0	0	0	0	0	1	1
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	0	0	0	0	0	0	0	0	0	0
Fuel Cells Renewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	0	0	0	0	0	0	0	0	0	0
early	0	0	0	0	0	0	0	0	0	0
wd/rej/sus	0	0	1	0	0	0	0	0	1	0
IC Engine Nonrenewable										
complete	1	1	0	0	0	0	0	0	1	1
advanced	3	3	2	1	4	4	2	2	11	10
early	2	2	1	2	2	2	1	0	6	6
wd/rej/sus	2	2	1	1	2	2	0	0	5	5
IC Engine Renewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	0	0	0	0	0	0	0	0	0	0
early	1	1	0	0	0	0	0	0	1	1
wd/rej/sus	0	0	0	0	0	0	0	0	0	0
Microturbine Nonrenewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	1	1	2	2	2	2	0	0	5	5
early	1	1	2	2	1	1	0	0	4	4
wd/rej/sus	0	0	1	1	1	1	1	1	3	3
Microturbine Renewable										
complete	0	0	0	0	0	0	0	0	0	0
advanced	0	0	0	0	0	0	0	0	0	0
early	1	1	1	1	0	0	0	0	2	2
wd/rej/sus	0	0	0	0	0	0	0	0	0	0
PV										
complete	3	2	1	1	3	1	1	1	8	5
advanced	4	8	4	4	4	3	2	2	14	17
early	2	2	1	2	2	2	0	0	5	6
wd/rej/sus	1	1	1	1	1	1	1	1	4	4
Total	***23***	***26***	***18***	***18***	***22***	***19***	***8***	***7***	***71***	***70***

The number of completed interviews does not match the target for every stratum since some host customers were incorrectly classified as distinct entities during the sample design stage, leading to an incorrect estimate of the stratum population and the survey targets. These errors were revealed during the host customer interviews, when respondents indicated that multiple applications to the program were filed by wholly owned subsidiaries of a single corporate parent. In addition, some targets were not met because customers within that stratum refused to participate or did not return calls and there was not additional sample to use to meet the target. Finally, for 2001 customers in the Withdrawn/Rejected/Suspended category, only those host customers whose project was in an advanced stage before leaving the program were interviewed, and there were very few customers who met this criterion.

Results of the host customer interviews are presented in Section 5.

3.7 Supplier In-Depth Interviews

In-depth telephone surveys and in-person interviews were conducted with suppliers involved in the Self-Generation Incentive Program in 2001 and 2002. The suppliers were generally classified into one of the following two categories:

- ***Third Party Applicants.*** Third party applicants are energy service companies, other energy consultants, and integrators who serve as applicants to the program for one or more host customers.
- ***Manufacturers.*** Manufacturers are firms that manufacture or supply distributed generation equipment installed by projects participating in the program.

Senior research staff via telephone conducted the majority of the third party and manufacturer surveys. Approximately 20% of the supplier interviews were conducted in-person on-site. Suppliers contacted for the survey were called a maximum of five times, or until the sampling stratum target was met. Copies of the interview guides are provided in Appendix A of this report. The main topics covered during the interviews include the following:

- Verification of level of involvement in program,
- Opinion on application process and materials,
- Barriers to program participation,
- Level of satisfaction with the program,
- Impact of program on the industry,
- Information on distribution channels and lead times, and
- General business characteristics.

Supplier Sample Design

Insofar as some suppliers served as both third party applicants on behalf of host customers and manufacturers of the actual systems installed by the host customers. Since many of these firms submitted multiple applications to the program, it was necessary to develop a classification method to assign a primary technology to each supplier. In addition, suppliers were characterized according to the number of applications they had submitted.

Assigning Primary Characteristics

Manufacturers were grouped into categories of ranges of total number of applications filed within a program year. In addition, a primary technology was assigned to each manufacturer. Unlike the methodology used in the host customer characterization, the most advanced stage of applications involving the manufacturer did not determine the primary technology. The primary technology was simply determined by the greatest number of applications of each technology for the supplier. Thus, if a manufacturer supplied three photovoltaic systems and one internal combustion engine using non-renewable fuel to applicants to the Self-Generation Incentive Program, the primary technology assigned to the supplier would be photovoltaics.

A similar process was carried out with the third party firms. However, when a third party applicant was listed as serving an equal number of host customers representing different technologies within a given program year, the third party applicant was assigned a primary technology based upon the application(s) filed by the third party applicant that reached the latest stage (as with the customer-level data). Thus, if a third party applicant submitted two Reservation Request Forms for photovoltaics systems that both reached an advanced stage and also submitted two Reservation Request Forms for internal combustion engines using non-renewable fuels that only reached an early stage, the third party applicant was assigned a primary technology of photovoltaics.

In general, the distinction between the methodologies applied to the host customer and the supplier stratification served to ensure that all types of participants would be adequately represented in the surveys. Assignment of a primary technology to a host customer based upon the project for that host customer which reached the most advanced stage ensured that each host customer would be sampled based upon the project for which the host customer had had the most experience with different stages of the program. However, since manufacturers and third party applicants were more likely than host customers to specialize in one or more given technologies, it was more logical to assign a primary technology to suppliers based upon the total number of applications submitted which named those suppliers within a given program year.

Sample Stratification and Completed Sample

Once the primary characteristics were assigned to each supplier, the sample was stratified and targets were assigned for each stratum. First, suppliers were stratified according to the following characteristic groups.

- Manufacturers who participated in 2002 and were interviewed for the 2001 Process Report,
- Remaining manufacturers who participated in 2002,
- Manufacturers who participated in 2001 but did not participate in 2002,
- Third party vendors who participated in 2002 and were interviewed for the 2001 Process Report,
- Remaining third party vendors who participated in 2002,
- Third party vendors who participated in 2001 but did not participate in 2002,
- Firms that are both manufacturers and third party vendors and participated in 2002 and were interviewed for the 2001 Process Report,
- Remaining firms which are both manufacturers and third party vendors and participated in 2002, and
- Firms that are both manufacturers and third party vendors and participated in 2001 but did not participate in 2002.

Second, firms within each of these groups were stratified according to their primary technology. Third, firms within each of these groups were stratified according to ranges of application volume (e.g., only one application, two to eight applications, nine or more applications, etc.).

A sample size of roughly 60 completed surveys was used as a guide in developing the sampling strategy. A sample was selected to represent a broad range of participating firms according to the sample strata. Firms who had participated in 2001 but not in 2002 were administered a separate survey instrument, for which the primary intent was to ascertain why they did not continue in the program in 2002.

Table 3-5, Table 3-6, and Table 3-7 present the sample design for suppliers.

Table 3-5: Sample Design for Manufacturers

Strata	1 Appl.		2 to 9 Appl.		10 to 19 Appl.		> 19 Appl.		All	
	Pop	Target	Pop	Target	Pop	Target	Pop	Target	Pop	Target
Manufacturers who Participated in 2002 and were Interviewed in First Year Evaluation:										
Fuel Cells Nonrenewable	0	0	1	1	0	0	0	0	1	1
Fuel Cells Renewable	0	0	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	0	0	1	1	0	0	1	1	2	2
IC Engine Renewable	0	0	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	1	1	0	0	1	1	2	2
Microturbine Renewable	0	0	0	0	0	0	0	0	0	0
PV	0	0	1	1	0	0	2	2	3	3
Total	***0***	***0***	***4***	***4***	***0***	***0***	***4***	***4***	***8***	***8***
Remaining Manufacturers who Participated in 2002:										
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	2	1	7	2	0	0	1	1	10	4
IC Engine Renewable	0	0	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	2	1	0	0	0	0	2	1
Microturbine Renewable	0	0	0	0	0	0	0	0	0	0
PV	2	1	5	2	2	2	1	1	10	6
Total	***4***	***2***	***14***	***5***	***2***	***2***	***2***	***2***	***22***	***11***
Manufacturers who Participated in 2001 but did not Participate in 2002:										
Fuel Cells Nonrenewable	1	0	0	0	0	0	0	0	1	0
Fuel Cells Renewable	1	0	0	0	0	0	0	0	1	0
IC Engine Nonrenewable	0	0	2	1	0	0	0	0	2	1
IC Engine Renewable	0	0	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	4	2	1	1	0	0	0	0	5	3
Microturbine Renewable	0	0	0	0	0	0	0	0	0	0
PV	1	0	0	0	0	0	0	0	1	0
Total	***7***	***2***	***3***	***2***	***0***	***0***	***0***	***0***	***10***	***4***

Table 3-6: Sample Design for Third Party Vendors

Strata	1 Appl.		2 to 8 Appl.		> 8 Appl.		All	
	Pop	Target	Pop	Target	Pop	Target	Pop	Target
Third Party Vendors who Participated in 2002 and were interviewed in First Year Evaluation								
Fuel Cells Nonrenewable	1	1	0	0	0	0	1	1
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	1	1	2	2	1	1	4	4
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	1	1	0	0	1	1
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	0	0	2	2	1	1	3	3
Total	***2***	***2***	***5***	***5***	***2***	***2***	***9***	***9***
Remaining Third Party Vendors who Participated in 2002:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	18	3	9	2	1	1	28	6
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	4	2	2	1	0	0	6	3
Microturbine Renewable	2	2	1	1	0	0	3	3
PV	30	6	19	7	3	2	52	15
Total	***54***	***13***	***31***	***11***	***4***	***3***	***89***	***27***
Third Party Vendors who Participated in 2001 but did not Participate in 2002:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	1	0	0	0	0	0	1	0
IC Engine Nonrenewable	7	2	5	2	0	0	12	4
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	4	1	1	1	0	0	5	2
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	4	2	4	2	1	1	9	5
Total	***16***	***5***	***10***	***5***	***1***	***1***	***27***	***11***

Table 3-7: Sample Design for Manufacturer/Third Party Vendors

Strata	1 Appl.		2 to 8 Appl.		9 or more		All	
	Pop	Target	Pop	Target	Pop	Target	Pop	Target
Manufacturers/Third Party Vendors who Participated in 2002 and were Interviewed in First Year Evaluation:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	1	1	1	1	0	0	2	2
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	0	0	0	0	0	0
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	0	0	2	1	1	1	3	2
Total	***1***	***1***	***3***	***2***	***1***	***1***	***5***	***4***
Remaining Manufacturers/Third Party Vendors who Participated in 2002:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	1	0	0	0	0	0	1	0
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	1	0	0	0	0	0	1	0
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	1	1	0	0	0	0	1	1
Total	***3***	***1***	***0***	***0***	***0***	***0***	***3***	***1***
Manufacturers/Third Party Vendors who Participated in 2001 but did not Participate in 2002:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	0	0	0	0	0	0	0	0
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	1	1	1	1	0	0	2	2
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	0	0	0	0	0	0	0	0
Total	***1***	***1***	***1***	***1***	***0***	***0***	***2***	***2***

Completed Supplier Sample

Table 3-8, Table 3-9, and Table 3-10 present the completed sample for participant suppliers.

Table 3-8: Completed Sample: Manufacturers

Strata	1 Appl.		2 to 9 Appl.		10 to 19 Appl.		> 19 Appl.		All	
	Target	Comp	Target	Comp	Target	Comp	Target	Comp	Target	Comp
Manufacturers who Participated in 2002 and were Interviewed in First Year Evaluation:										
Fuel Cells Nonrenewable	0	0	1	1	0	0	0	0	1	1
Fuel Cells Renewable	0	0	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	0	0	1	0	0	0	1	0	2	0
IC Engine Renewable	0	0	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	1	1	0	0	1	1	2	2
Microturbine Renewable	0	0	0	0	0	0	0	0	0	0
PV	0	0	1	1	0	0	2	1	3	2
Total	***0***	***0***	***4***	***3***	***0***	***0***	***4***	***2***	***8***	***5***
Remaining Manufacturers who Participated in 2002										
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	1	0	2	1	0	0	1	0	4	1
IC Engine Renewable	0	0	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	1	0	0	0	0	0	1	0
Microturbine Renewable	0	0	0	0	0	0	0	0	0	0
PV	1	1	2	2	2	2	1	1	6	6
Total	***2***	***1***	***5***	***3***	***2***	***2***	***2***	***1***	***11***	***7***
Manufacturers who Participated in 2001 but did not Participate in 2002:										
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	0	0	1	0	0	0	0	0	1	0
IC Engine Renewable	0	0	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	2	0	1	1	0	0	0	0	3	1
Microturbine Renewable	0	0	0	0	0	0	0	0	0	0
PV	0	0	0	0	0	0	0	0	0	0
Total	***2***	***0***	***2***	***1***	***0***	***0***	***0***	***0***	***4***	***1***

Table 3-9: Completed Sample: Third Party Vendors

Strata	1 Appl.		2 to 8 Appl.		> 8 Appl.		All	
	Target	Comp	Target	Comp	Target	Comp	Target	Comp
Third Party Vendors who Participated in 2002 and were interviewed in First Year Evaluation:								
Fuel Cells Nonrenewable	1	1	0	0	0	0	1	1
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	1	1	2	2	1	0	4	3
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	1	1	0	0	1	1
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	0	0	2	2	1	1	3	3
Total	***2***	***2***	***5***	***5***	***2***	***1***	***9***	***8***
Remaining Third Party Vendors who Participated in 2002:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	3	3	2	2	1	1	6	6
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	2	2	1	0	0	0	3	2
Microturbine Renewable	2	2	1	1	0	0	3	3
PV	6	6	7	7	2	2	15	15
Total	***13***	***13***	***11***	***10***	***3***	***3***	***27***	***26***
Third Party Vendors who Participated in 2001 but did not Participate in 2002:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	2	2	2	2	0	0	4	4
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	1	1	1	1	0	0	2	2
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	2	3	2	1	1	1	5	5
Total	***5***	***6***	***5***	***4***	***1***	***1***	***11***	***11***

Table 3-10: Completed Sample: Manufacturers/Third Party Vendors

Strata	1 Appl.		2 to 8 Appl.		9 or more		All	
	Target	**Comp**	**Target**	**Comp**	**Target**	**Comp**	**Target**	**Comp**
Manufacturers/Third Party Vendors who Participated in 2002 and were Interviewed in First Year Evaluation:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	1	1	1	0	0	0	2	1
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	0	0	0	0	0	0
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	0	0	1	1	1	1	2	2
Total	***1***	***1***	***2***	***1***	***1***	***1***	***4***	***3***
Remaining Manufacturers/Third Party Vendors who Participated in 2002:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	0	0	0	0	0	0	0	0
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	0	0	0	0	0	0	0	0
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	1	1	0	0	0	0	1	1
Total	***1***	***1***	***0***	***0***	***0***	***0***	***1***	***1***
Manufacturers/Third Party Vendors who Participated in 2001 but did not Participate in 2002:								
Fuel Cells Nonrenewable	0	0	0	0	0	0	0	0
Fuel Cells Renewable	0	0	0	0	0	0	0	0
IC Engine Nonrenewable	0	0	0	0	0	0	0	0
IC Engine Renewable	0	0	0	0	0	0	0	0
Microturbine Nonrenewable	1	0	1	0	0	0	2	0
Microturbine Renewable	0	0	0	0	0	0	0	0
PV	0	0	0	0	0	0	0	0
Total	***1***	***0***	***1***	***0***	***0***	***0***	***2***	***0***

3.8 Nonparticipant Surveys

The primary focus of the nonparticipant surveys is to determine the awareness of and potential interest in distributed generation and the Self-Generation Incentive Program. In addition, the survey results show how awareness and interest differ across business types. The results from the surveys can potentially help the marketing strategy for the Self-Generation Incentive Program and other related programs. The main topic areas covered by the nonparticipant surveys include the following.

- Awareness of distributed generation and the Self-Generation Incentive Program,
- Experience with distributed generation, and
- Potential interest in distributed generation.

The project team developed the nonparticipant survey instruments, with input from the Working Group. Appendix A contains the final survey instruments.

The following three types of nonparticipants were surveyed.

- ***Nonparticipant Host Customers from the General Population.*** This survey includes a general sampling of the population of nonparticipant potential host customers.
- ***Nonparticipant Host Customers who attended Program Workshops.*** This survey was conducted with a sample of potential host customers who attended program workshops in 2002.
- ***Nonparticipant Suppliers who attended Program Workshops.*** This was a survey that focused on a sample of potential third parties who attended program workshops in 2002.

The sample design and summary of completed sample sizes is discussed below for each of these survey efforts.

Nonparticipant Host Customers from the General Population

A stratified random sampling design was developed for the survey of nonparticipating businesses located in the electric service territories of PG&E, SDG&E, SCE, and LADWP.[3] The project team agreed upon a target sample size of 300 completed surveys based on the estimated length of each survey and available budget. In particular, the nonparticipant sample was stratified by business type and electric service territory. The target for each stratum was selected based on that stratum's proportional share of total estimated electrical

[3] LADWP was the only municipal utility included in the survey. It was necessary to include LADWP in order for SoCalGas' service territory to be adequately represented.

consumption in 2002.[4] In particular, the sample of 300 was distributed across building types based on relative proportion of total kWh consumption. Table 3-11 summarizes the percentage of electricity usage by building type and utility.

4 The estimates of electrical consumption by business type and electric utility service area were obtained from the CEC's reports on California Energy Demand and EPRI's 1998 Energy Market Profiles (citations below). (CEC. 1995. *Staff Report. California Energy Demand. 1995-2015.* Volumes III-VII. Sacramento, CA) (EPRI. 1999. *Energy Market Profiles. Volume 3: 1998 Industrial Buildings, Equipment, and Energy Use.* MA-114434-V3. Palo Alto, CA)

Table 3-11: Electricity Consumption for Electric Service Territories

	SDG&E	PG&E	SCE	LADWP	Total Electricity consumption (GW-Hrs)	Percent of Sector	Percent of Total
Commercial							
Office	1,772.4	7,071.9	7,416.1	4626.2	25,055	30%	15%
Restaurant	706.9	1,320.4	1,487.3	654.1	6,706	8%	4%
Retail	611.5	1,746.2	3,586.8	761.3	10,118	12%	6%
Food Stores (food/liquor)	1,006.4	2,829.3	4,991.2	1290.7	9,808	12%	6%
Warehouse (Refrigerated and Un-refrig)	811.4	4,258.8	3,839.8	897.7	5,384	6%	4%
Schools	279.5	2,127.1	1,598.5	495.8	2,795	3%	2%
Colleges	87.4	482.0	247.6	65.8	2,637	3%	2%
Hospitals (health care)	318.4	776.5	1,392.8	307.7	8,532	10%	5%
Lodging (hotels)	419.7	638.4	1,026.5	552.5	3,190	4%	2%
Miscellaneous	1,138.0	3,441.3	3,006.1	947.0	9,952	12%	6%
Total Commercial	7,151.6	24,691.9	28,592.7	10598.8	84,177	100%	52%
Industrial							
Manufacturing	1,630	17,988	20,918	3,701	44,238	84%	27%
Construction	68	750	872	154	1,843	4%	2%
Mining & Extraction	160	3,168	2,842	198	6,368	12%	4%
Total Industrial	1,858	21,906	24,632	4,053	52,449	100%	33%
Agriculture	266	5,991	5,323	144	11,724	100%	7%
Transportation, Communication, & Utilities	1,500	4,876	4,658	1927	12,961	100%	8%

Table 3-12 and Table 3-13 show the distribution of host customers by building type for 2001 and 2002 respectively, based on the SIC codes provided with the program tracking database. As shown, manufacturing and offices were the most heavily represented building types for both years. In addition, miscellaneous buildings were also significantly represented in the 2002 program.

Table 3-12: Summary of 2001 Host Customers by Building Type

Building Type	Number of Host Customers	Percent of Sector	Percent of Total
Commercial			
Office	46	29%	19%
Restaurant	1	1%	0%
Retail	7	4%	3%
Food Stores (food/liquor)	13	8%	5%
Warehouse (Refrigerated and Un-refrig)	25	16%	10%
Schools	5	3%	2%
Colleges	12	8%	5%
Hospitals (health care)	9	6%	4%
Lodging (hotels)	14	9%	6%
Miscellaneous	26	16%	11%
Total Commercial	*158*	*100%*	*66%*
Industrial			
Manufacturing	55	89%	23%
Construction	3	5%	1%
Mining & Extraction	4	6%	2%
Total Industrial	*62*	*100%*	*26%*
Agriculture			
Total Agriculture	*2*	*100%*	*1%*
Transportation, Communication, & Utilities			
Total TCU	*18*	*100%*	*8%*

Table 3-13: Summary of 2002 Host Customers by Building Type

Building Type	Number of Host Customers	Percent of Sector	Percent of Total
Commercial			
Office	63	28%	19%
Restaurant	0	0%	0%
Retail	7	3%	2%
Food Stores (food/liquor)	15	7%	4%
Warehouse (Refrigerated and Un-refrig)	20	9%	6%
Schools	15	7%	4%
Colleges	22	10%	6%
Hospitals (health care)	16	7%	5%
Lodging (hotels)	11	5%	3%
Miscellaneous	59	26%	17%
Total Commercial	*228*	*100%*	*67%*
Industrial			
Manufacturing	64	89%	19%
Construction	4	6%	1%
Mining & Extraction	4	6%	1%
Total Industrial	*72*	*100%*	*21%*
Agriculture			
Total Agriculture	*3*	*100%*	*1%*
Transportation, Communication, & Utilities			
Total TCU	*37*	*100%*	*11%*

A screening question was developed to minimize the number of interviews with firms that probably have little or no interest in distributed generation. Most distributed generation systems require a minimum amount of electricity consumption to be practical. This minimum cutoff varies across technology. Almost all of the Level 3 systems on the Self-Generation Incentive Program applications were above 50 kW. Assuming a capacity factor of 0.8 and 2000 hours of operation per year, a system of that size would supply 80,000 kWh of electricity per year. Therefore, it is likely that firms consuming less than 80,000 kWh of electricity per year would not be interested in distributed generation. However, to avoid potentially screening out too many businesses, a minimum cutoff equal to the typical yearly output of a 30 kW photovoltaic system (the minimum eligible size for a photovoltaic system under the Self-Generation Incentive Program), which is about 52,000 kWh (assuming a capacity factor of 0.2 and 8760 hours of operation), was chosen.

Based on the minimum cutoff of 52,000 kWh, the minimum number of employees needed to consume 52,000 kWh per year for a typical firm within each business type[5] was estimated. This was done for two reasons: 1) respondents are more likely to know the number of employees within their firm than its annual electricity consumption, and 2) the sample available to Flagship Research included the number of employees, so Flagship could screen out businesses below the minimum cutoff without wasting interview time.

Table 3-14 presents the final sample design for the nonparticipant survey. The sample is stratified by *electric* service territory and building type. SoCalGas customers are included in the LADWP and SCE electric service territory strata.

[5] To yield the number of employees needed to consume 52,000 kWh per year, 52,000 kWh was divided by the annual per-employee electricity consumption for each building type. The per-employee consumption data were obtained from EPRI's 1998 "Energy Market Profiles."

Table 3-14: Nonparticipant Survey Sample Design

	PG&E	SCE	LADWP	SDG&E	All
Commercial	35	42	18	28	123
Industrial	58	64	11	8	141
Agriculture	9	8	0	0	17
TCU	6	6	3	4	19
All	108	120	32	40	300
Total	36%	40%	11%	13%	100%
Commercial					
Large Office	8	10	7	6	31
Small Office	1	2	1	2	6
Restaurant	3	4	1	2	10
Retail	3	6	2	4	15
Food Stores (food/liquor)	6	5	1	2	14
Warehouse (Nonrefrigerated)	3	2	1	0	6
Warehouse (Refrigerated)	1	0	0	0	1
Schools	1	2	0	0	3
Colleges	0	1	1	2	4
Hospitals (health care)	3	3	1	6	13
Lodging (hotels)	1	1	1	2	5
Miscellaneous	5	6	2	2	15
Total	35	42	18	28	123
Industrial`					
Manufacturing	25	29	5	4	63
Construction	1	1	0	0	2
Mining & Extraction	5	4	0	0	9
Process	11	7	2	0	20
Assembly	16	23	4	4	47
Total	58	64	11	8	141
Agriculture					
Total Agriculture	9	8	0	0	17
Transportation, Communication, & Utilities					
Total TCU	6	6	3	4	19

Flagship Research, a survey firm based in San Diego, purchased a sample of randomly selected businesses for each stratum from a commercial firm that provides business contact lists. The business listing firm matched each randomly selected business to a stratum using the business' ZIP code (which mapped the business to a specific electric service territory) and four-digit SIC code (which mapped the business to a specific business type category). Flagship administered the surveys using a CATI (computer-assisted telephone interview) system. A four callback protocol was used to conduct the survey. Once a stratum's target was met, Flagship stopped calling businesses from that stratum.

Table 3-15 presents the completed sample.

Table 3-15: Completed Sample for Nonparticipant Host Customers

	PG&E	SCE	LADWP	SDG&E	All
Commercial	38	42	19	24	123
Industrial	59	64	11	8	142
Agriculture	9	8	0	0	17
TCU	7	6	3	3	19
All	113	120	33	35	301
Total	38%	40%	11%	12%	100%
Commercial					
Large Office	9	10	7	5	31
Small Office	1	2	1	2	6
Restaurant	3	3	1	2	9
Retail	3	6	2	3	14
Food Stores (food/liquor)	6	5	1	2	14
Warehouse (Nonrefrigerated)	2	2	1	0	5
Warehouse (Refrigerated)	2	0	0	0	2
Schools	0	2	0	0	2
Colleges	2	0	1	2	5
Hospitals (health care)	3	3	1	5	12
Lodging (hotels)	2	2	1	1	6
Miscellaneous	5	7	3	2	17
Total	38	42	19	24	123
Industrial					
Manufacturing	25	29	5	4	63
Construction	1	1	0	0	2
Mining & Extraction	5	4	0	0	9
Process	11	7	2	0	20
Assembly	17	23	4	4	48
Total	59	64	11	8	142
Agriculture					
Total Agriculture	9	8	0	0	17
Transportation, Communication, & Utilities					
Total TCU	7	6	3	3	19

Each stratum of nonparticipant host customer survey respondents was assigned a relative weight based on the population electricity consumption of that stratum (i.e., business type and electric service territory), relative to the total electricity consumption across all strata. For example, Table 3-11 shows that offices in the PG&E electrical service territory consume 7,072 GWh annually. This is 4% of the total electricity consumed across all business types and service territories in Table 3-11.[6] Therefore, the PG&E office respondents receive a collective weight of 0.04. Respondents *within* a stratum were each weighted equally. To continue the example, since there were seven respondents from the PG&E office stratum, each of these respondents has a relative weight of 0.04/7. These relative weights were used when analyzing results across nonparticipant strata in the subsequent sections of this report.

Nonparticipant Host Customers and Suppliers Who Attended Program Workshops

Nonparticipant potential host customers and suppliers who attended workshops in 2002 that presented the program were also surveyed for this evaluation. Two survey instruments were designed and administered to a sample of these firms. The surveys focused on why the respondents chose to not participate in the program, familiarity with distributed generation equipment, and general business characteristics. Copies of the survey instruments are provided in Appendix A.

Flagship Research randomly selected businesses from contact lists developed for this project from the workshop attendee lists described above. Flagship administered the surveys using a CATI (computer-assisted telephone interview) system. A four callback protocol was used to conduct the survey.

Lists of parties interested in the 2002 workshops that marketed the program were obtained from the Program Administrators. From these, a subset of names was derived of firms that attended one or more of the workshops. The names of attendees were roughly identified as potential hosts or potential third parties.

Based on the size of the resulting list, a sampling plan was designed to target 200 surveys, stratified by type of firm and by program area. Table 3-16 presents the sample design.

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[6] The total GW-Hrs is 161,311.

Table 3-16: Sample Design for Nonparticipants Who Attended Workshops

	PG&E		SCE		SoCalGas		SDREO		All	
	Pop	Target	Pop	Target	Pop	Target	Pop	Target	Pop	Target
Potential Host Customers	49	15	240	40	274	50	132	25	695	130
Potential Third Parties	73	15	180	25	80	15	78	15	400	70
Total	***122***	***30***	***420***	***65***	***354***	***65***	***210***	***40***	***1,106***	***200***

Table 3-17 presents the completed sample for these groups.

Table 3-17: Completed Sample: Nonparticipants from Workshops

	PG&E		SCE		SoCalGas		SDREO		All	
	Target	Comp	Target	Comp	Target	Comp	Target	Comp	Target	Comp
Potential Host Customers	15	13	40	29	50	22	25	30	130	94
Potential Third Parties	15	19	25	21	15	10	15	20	70	70
Total	***30***	***32***	***65***	***50***	***65***	***32***	***40***	***50***	***200***	***164***

3.9 Program Marketing Plans and Materials

Each Program Administrator provided samples of their marketing materials and overall marketing plan for 2002. The materials were used, along with interview results of the administrators, in the analysis of program administration. The results are presented in Section 5.

Sample marketing materials provided by the Program Administrators included printouts of website content, brochures, bill inserts, flyers, and presentation materials from workshops and/or seminars. Workshops and seminars promoting the Self-Generation Incentive Program were not exclusively limited to meetings exclusively discussing the program; the program was also marketed through workshops and seminars with a more technical, but related focus (e.g., workshops focused on a particular technology, such as photovoltaics, or upon a specific technical topic, such as cogeneration).

Each Program Administrator's marketing plan contained information regarding types of outreach efforts conducted by the Program Administrator and the relevant materials utilized in those efforts. The marketing plans also contained information regarding 2002 and proposed 2003 marketing budgets, as well as proposed marketing channels in 2003. The contents of the marketing plans are discussed in further detail in Section 5.

3.10 Sample On-Site Verification Reports

Each Program Administrator provided samples of on-site verification reports completed during 2002 for the evaluation. The reports were used, along with interview results of the contractors conducting the on-site visits, in the analysis of the on-site verification process. The results of the analysis are presented in Section 7.

3.11 Interviews with On-Site Verification Inspectors

In evaluating the on-site field verification and inspection activities of the program in 2002, telephone interviews were held with the three on-site verification inspectors used by the Program Administrators. Each Program Administrator contracts with an independent firm to provide the required on-site verification services for the program. In 2002, three firms were used for this service. Table 3-18 presents the firms and the regional area in which each of them conducted verification visits in 2002.

Table 3-18: On-Site Verification Contractors

Program Administrator	Area	On-Site Contractor
SD Regional Energy Office	SDG&E	AESC
Southern California Gas	SoCalGas	Energy Nexus
Southern California Edison	SCE	AESC[7]
Pacific Gas and Electric	PG&E	KW Engineering

Interview topics included the following:

- Number of verifications performed in 2002,
- Process followed during verification visit,
- Changes made in 2002 to the process,
- Problems encountered during on-site verifications,
- Opinions about benefits to the host customer from the on-site visit, and
- Suggestions for changes to the verification process.

A copy of the survey instrument is provided in Appendix A. Results of the interviews are discussed in Section 7.

[7] AESC also provides review of waste heat calculations in the PG&E area, with KW Engineering providing on-site verification of waste heat operation, where possible.

4

Program Status and Participant Characterization

4.1 Introduction

This section provides a summary overview of participant characteristics for all applicants to the Self-Generation Incentive Program in Program Years 2001 (PY2001) and 2002 (PY2002), based on tracking data available as of January 31, 2003 and participant surveys conducted through March 28, 2003.[1] This section also provides a summary of general Program activity in PY2001 and PY2002 based on tracking data available as of January 31, 2003. Section 4 is comprised of the following subsections:

- ***Participant Classification*** discusses the classification scheme used to categorize all Program participants by role in distributed generation projects.
- ***Project Classification*** discusses the classification scheme used to categorize all projects by status and stage in the application process.
- ***Program Status*** presents a general overview of all projects for which Reservation Request Forms were received on or before December 31, 2003. This section summarizes the following characteristics for all projects:
  - Activity by project status and incentive level,
  - Capacity by project status and incentive level,
  - Building type by project status, and
  - Annual peak demand by building type.
- ***Summary of Active Projects*** presents a summary of characteristics for all projects classified as active as of January 2003, including:
  - Program activity by incentive level,
  - System characteristics by technology and incentive level, and
  - Project milestones by technology and incentive level.
- ***Summary of Completed Projects*** presents a summary of characteristics for all projects completed and paid as of January 2003, including:
  - Program activity by incentive level,

[1] The application status and stage of each project changes regularly. The status and stage of all projects reported herein was developed using the latest available data provided by the Program Administrators as of January 31, 2003.

  - System characteristics by technology and incentive level, and
  - Project milestones by technology and incentive level.
- ***Summary of Inactive Projects*** presents a summary of characteristics for all projects classified as inactive as of January 2003, including:
  - Program activity by incentive level,
  - Days active prior to withdrawal or rejection by technology and incentive level, and
  - Successful re-submissions to the Program.
- ***Host Customer Characterization*** presents the host customer characterization according to the host customer survey results.
  - Number of employees,
  - Monthly electric bill,
  - Square footage,
  - Use of distributed generation system as emergency backup, and
  - Level of host customer involvement with the project.
- ***Supplier Characterization*** presents the supplier characterization according to the results of the supply channel surveys.
- ***Summary*** presents an overview of the major findings presented in Sections 4.4 through 4.9.

All figures and tables presented in Section 4 implement the participant and project classification methods discussed in Sections 4.2 and 4.3.

4.2 Participant Classification

Program participants include several types of stakeholders involved with a typical self-generation project. While the level of involvement for each stakeholder varies by project, the stakeholders are collectively referred to as "participants." The Program participants associated with the PY2001 projects are referred to as the "PY2001 participants," while the Program participants associated with the PY2002 projects are referred to as the "PY2002 participants."

Participants in the Self-Generation Incentive Program are generally classified into the following categories:[2]

[2] It should be noted, however, that there exists some overlap between the different types of participants. Thus, for example, some manufacturers and distributors of distributed generation equipment may also have provided installation services to host customers as system integrators. Similarly, some manufacturers of distributed generation equipment may have opted to install distributed generation equipment at their own sites and thus would be classified as both host customers and suppliers.

- ***Host customers.*** Owners or operators of the facility where the generating system will be installed.
- ***Energy service companies (ESCOs).*** Firms that typically own the generating system and charge the host customer for the electricity (and thermal energy) produced.
- ***Energy consultants, contractors, and system integrators.*** Firms that perform tasks ranging from feasibility studies to turnkey installation and operation.
- ***Manufacturers and distributors of distributed generation equipment.*** Suppliers of photovoltaic modules, wind turbines, fuel cells, microturbines, small gas turbines, and internal combustion engines installed under the Self-Generation Incentive Program.

All participant types served as applicants to the Program in PY2001 and PY2002. Any party other than the host customer that served as the applicant for a Self-Generation Incentive Program project is referred to as a third-party applicant.

The host customers, third parties and suppliers associated with the PY2001 projects are referred to as the PY2001 host customers, third parties and suppliers, respectively, and the host customers, third parties, and suppliers associated with the PY2002 projects are referred to as the PY2002 host customers, third parties, and suppliers, respectively. However, there exists some overlap in these lists of Program participants between Program Years, as a host customer or applicant may have submitted applications in both Program Years, or a supplier may have manufactured systems utilized in both Program Years. Thus, this section also presents an analysis of the representation of all Program participants across Program Years.

4.3 Project Status and Stage Classification

Applications to the Self-Generation Incentive Program were classified according to the date on which the Reservation Request Form was received. Thus, if a Reservation Request Form for a project was submitted on or before December 31, 2001, the project was considered to be a PY2001 project. Similarly, if a Reservation Request Form for a project was submitted between January 1, 2002 and December 31, 2002, the project was classified as a PY2002 project. In PY2001, 261 applicants submitted request for funding from the Self-Generation Incentive Program in the form of a Reservation Request Form. In PY2002, 402 applicants submitted requests for funding from the Program.

All projects were classified by incentive level (1, 2, 3N or 3R). This represented a departure from the PY2001 process evaluation, where projects were classified into Incentive Levels 1, 2, and 3. All technologies are classified accordingly, and Level 3 systems are distinguished by type of fuels (renewable or non-renewable) employed. Additionally, all projects were classified into three general categories by project status: active, complete, and inactive.

- ***Active Projects.*** Active projects refer to projects that were not withdrawn or rejected. Active projects are further classified into four categories:
  - **Under Review.** Projects considered under review are those projects for which a Reservation Request Form has been received, and remains under review by the Program Administrator.
  - **Conditional Reservation.** Active projects classified into this category consist of those projects that were issued a Conditional Reservation Notice letter, but for which applicants have not yet provided Proof of Project Advancement.
  - **Confirmed Reservation.** Active projects classified into this category consist of those projects for which Proof of Project Advancement has been submitted.
  - **Suspended.** Suspended projects consist of those projects for which the Reservation Request Form remains active, but advancement has been suspended.

- ***Complete.*** Complete projects are defined as those projects for which the systems have been completed and inspected and an incentive check has been issued.

- ***Inactive Projects.*** Inactive projects are classified into the following categories[3]:
  - **Withdrawn.** Withdrawn projects consist of those projects for which the applicant or host customer cancelled the application.
  - **Rejected.** Rejected projects consist of those projects for which the Program Administrator cancelled the application due to failure to meet Program requirements.

Active projects were further classified into the following categories according to the latest stage reached:[4]

- **RRF Received.** Reservation Request Form received from applicant (i.e., the application is under review).

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[3] The distinction between withdrawals and rejections is artificial in many cases, since a project may be mutually cancelled by the Program Administrator (since the project did not meet Program requirements) and by the applicant or host customer (due to difficulties unrelated to the Program).

[4] In PY2002, all Program Administrators submitted data for the milestones described herein. Although it was initially proposed that submittal milestones be recorded as the date in which the required form (whether Reservation Request Form, Proof of Project Advancement, or Reservation Confirmation and Incentive Claim Form) and all supporting documentation was received by the Program Administrator, most Program Administrators did not track packages in their entirety. Thus, the Program Administrators recorded the date at which an initial submittal was received, whether or not the submittal was complete. Active projects were classified accordingly.

- **Suspended.** Suspended projects consist of those projects for which the Reservation Request Form remains active, but advancement has been suspended.
- **CRN Sent.** Conditional Reservation letter sent to applicant (i.e., a conditional reservation has been issued).
- **PPA Received.** Proof of Project Advancement received from applicant.
- **PPA Approved.** Proof of Project Advancement approved by Program Administrator.
- **RCICF Sent.** Reservation Confirmation and Incentive Claim Form received from applicant (i.e., the reservation has been confirmed).
- **OSV Complete.** An on-site verification of the system has been conducted.
- **Check Issued.** The system has been completed and has passed inspection. An incentive check has been issued to the applicant or host customer.

4.4 Program Status Overview

This section presents an overview of Program activity for all PY2001 and PY2002 projects, regardless of general application status (i.e., active, inactive, or complete). The analyses presented in this section are based upon tracking data received from the Program Administrators as of January 2003. The following discussions are included in this section:

- Activity by project status and incentive level,
- Capacity by project status and incentive level,
- Building types by project status, and
- Annual peak demand by building type.

Activity by Project Status and Incentive Level

As mentioned, Figure 4-1 and Figure 4-2 present the distribution of the PY2001 and PY2002 projects by general application status and incentive level. As shown in Figure 4-1, approximately 21% of PY2001 projects remained active as of January 2003.[5] Approximately 70% of applications for PY2001 projects were withdrawn or rejected, and approximately 8% of PY2001 projects were completed. As shown in Figure 4-2, approximately 69% of PY2002 projects remained active as of January 2003. Approximately 28% of PY2002 projects were withdrawn or rejected, and approximately 3% of PY2002 projects were completed.

[5] Figure 4-1 and Figure 4-2 present distributions for display purposes only. Thus, percentages may not exactly tie due to rounding.

Figure 4-1: Distribution of PY2001 Projects by Application Status and Incentive Level

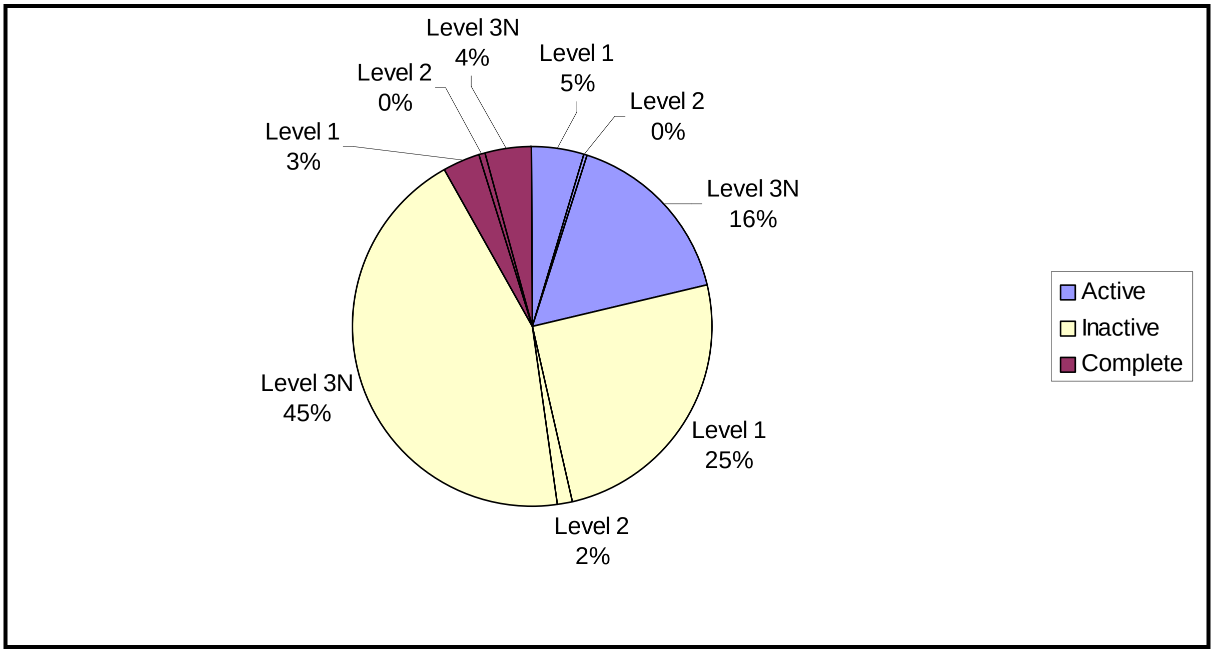
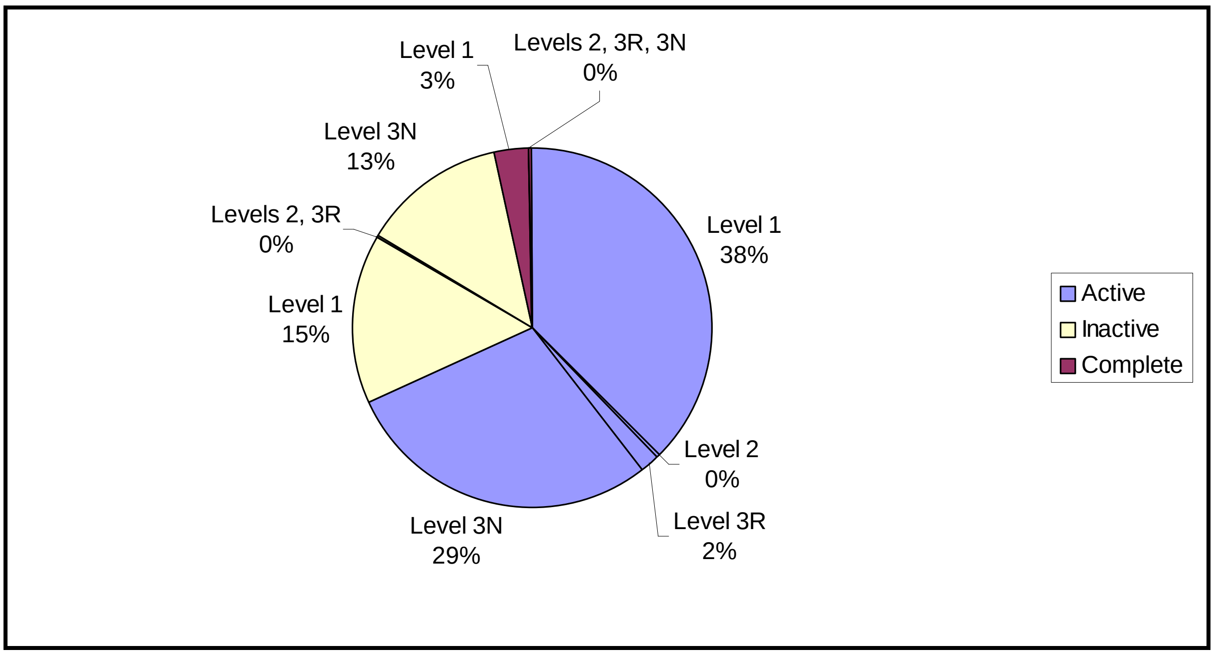


Figure 4-2: Distribution of PY2002 Projects by Application Status and Incentive Level



While these data may seem to indicate that overall, the PY2001 projects displayed a higher success rate than the PY2002 projects in terms of the share of completed projects, it should be noted that the percentage of projects reported as complete for both Program Years was current as of January 2003. The share of PY2001 projects that were actually completed in 2001 may have been lower than 3%, indicating that the PY2002 projects actually displayed a higher success rate in terms of project completion than the PY2001 projects. Thus, it is difficult to compare the success rate of Program applicants across Program Years since no comparable time frame is available to assess relative percentages of completed, active or inactive projects.

Capacity by Project Status and Incentive Level

Figure 4-3 and Figure 4-4 present the distribution of potential installed capacity for the PY2001 and PY2002 projects, respectively.[6] As shown in Figure 4-3, approximately 18% of the installed capacity of PY2001 projects was still active as of January 2003, accounting for 17,943 kW. Withdrawn or rejected projects accounted for approximately 76% of reported potential installed capacity, and completed projects accounted for approximately 6% of 2001 installed capacity.

As shown in Figure 4-4, approximately 70% of the installed capacity of PY2002 projects was still active as of January 2003, accounting for 86,685 kW. Withdrawn or rejected projects accounted for approximately 29% of total 2002 reported potential installed capacity, accounting for 35,930 kW of installed capacity. Completed projects accounted for approximately 2% of total PY2002 reported potential installed capacity.

[6] Figure 4-3, Figure 4-4, and Figure 4-5 are presented for display purposes only. Percentages may not exactly tie due to rounding.

Figure 4-3: Distribution of Potential Installed kW Capacity of PY2001 Projects by Application Status and Incentive Level

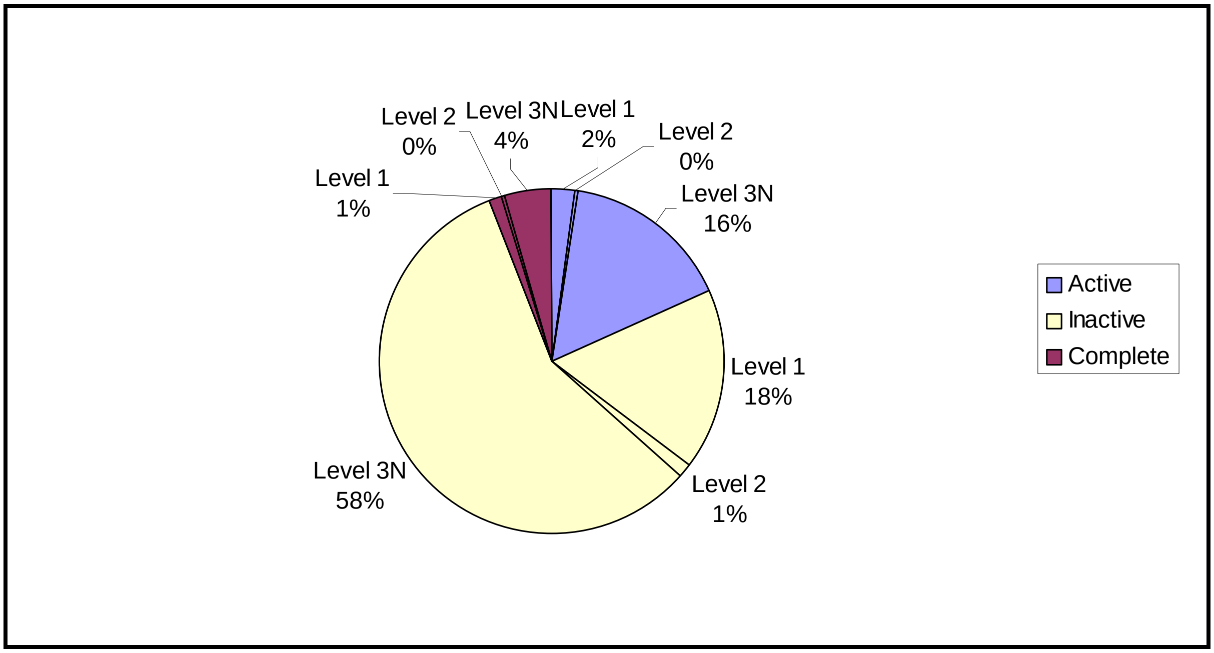
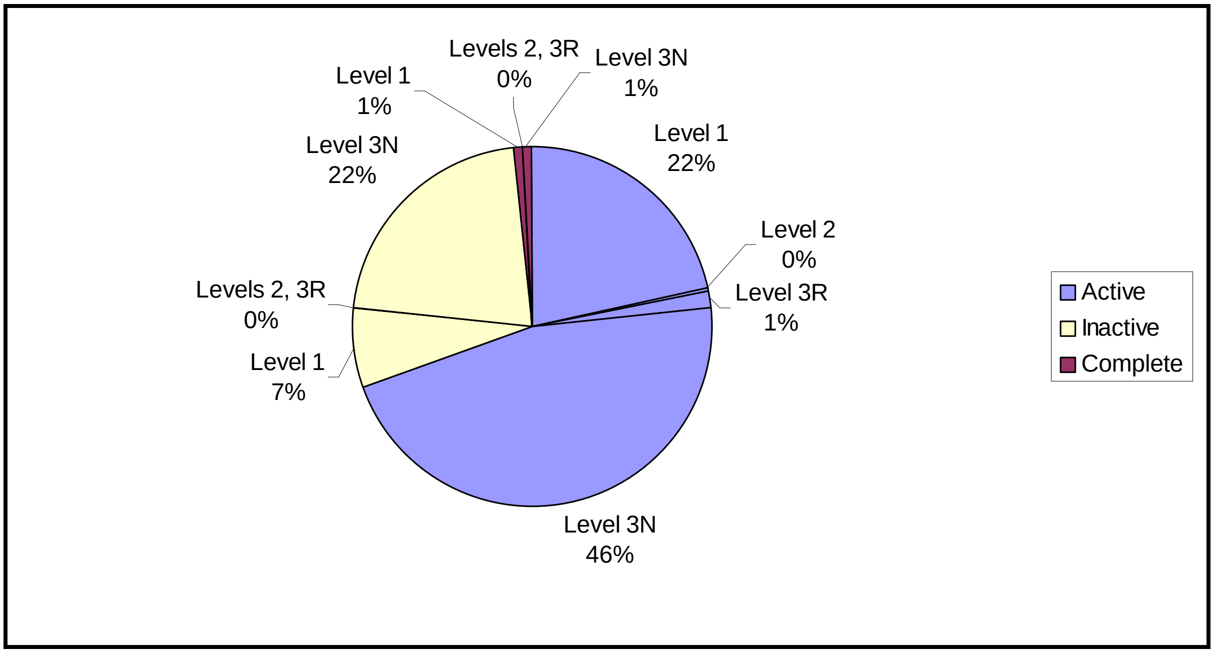


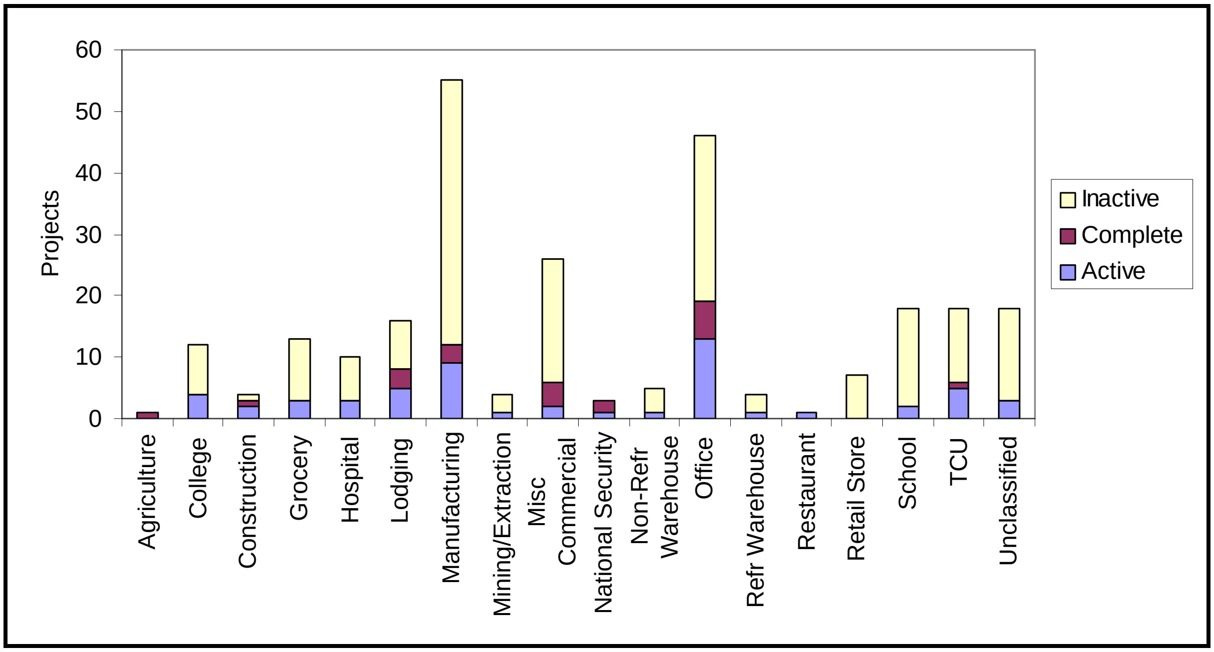
Figure 4-4: Distribution of Potential Installed kW Capacity of PY2002 Projects by Application Status and Incentive Level



Building Type by Application Status

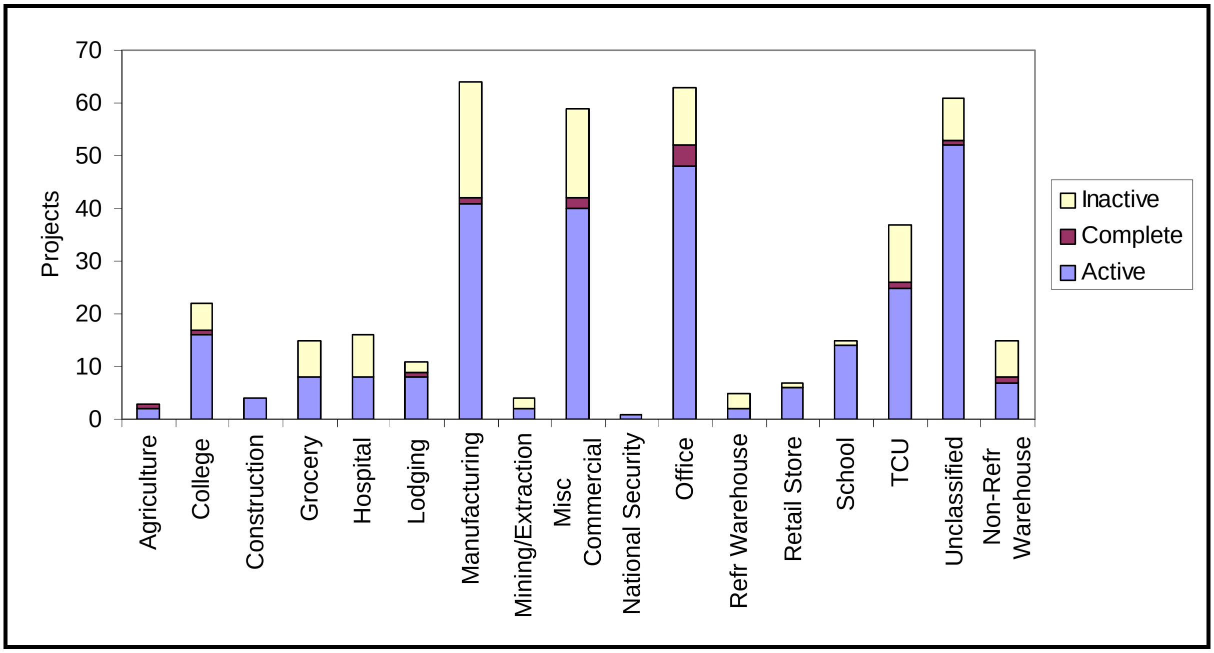
Figure 4-5 and Figure 4-6 present the PY2001 and PY2002 distributions of host customers across building types, respectively, based upon data reported by the Program Administrators.[7] As shown in Figure 4-5 and Figure 4-6, the majority of host customers that applied to the Program in PY2001 and PY2002 represented manufacturing industries, followed by offices. However, manufacturing industries and offices represented a slightly smaller share of the total number of applications filed (for which SIC codes were reported) in PY2002 than in PY2001. Additionally, according to Figure 4-5 and Figure 4-6, a substantial portion of host customers also represented the miscellaneous commercial and transportation, communications and utilities industries in both Program Years. Miscellaneous commercial and TCU industries represented a slightly larger share of total applications filed (for which SIC codes were reported) in PY2002 than in PY2001. The shares of all other building types reported remained relatively constant across Program Years.

Figure 4-5: Building Type Characterization of PY2001 Projects by Project Status



[7] Some host customers did not report SIC codes. Those host customers are assigned a status of “unclassified.” Unclassified SIC code host customers also include those host customers whose reported SIC codes did not fall into any of the other categories presented in Figure 4-5 and Figure 4-6.

Figure 4-6: Building Type Characterization of PY2002 Projects by Project Status



Annual Peak Demand by Building Type

Figure 4-7 and Figure 4-8 present the PY2001 and PY2002 mean and median annual peak demands reported for each building type.[8] As shown in Figure 4-7 and Figure 4-8, national security projects possessed the highest reported mean and median annual peak demand of all building types, followed by mining/extraction and college projects. The average annual peak demand reported by national security projects in PY2001 and PY2002 (8,424 and 17,496 kW, respectively) far surpassed the average annual peak demand reported by any other building type. The mean peak demands reported by mining/extraction projects in PY2001 and PY2002 were 4,549 and 5,688 kW, respectively. The mean peak demands reported by colleges in PY2001 and PY2002 were 2,965 and 2,319 kW, respectively. In 2001 and 2002, all building types other than colleges, mining/extraction, and national security reported mean annual peak demands between 60 and 1,500 kW.

8 Calculations of the mean and median peak demand for each building type are based on reported data since not all projects reported annual peak demand.

Figure 4-7: Average Reported Annual Peak Demand for PY2001 Projects

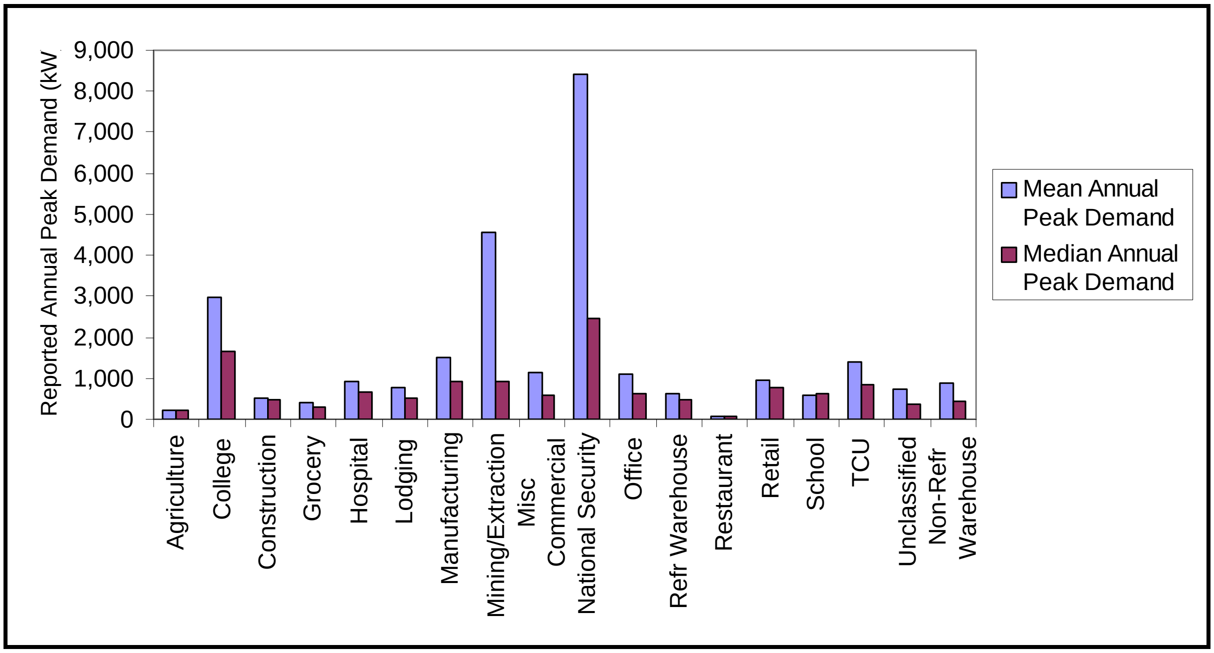
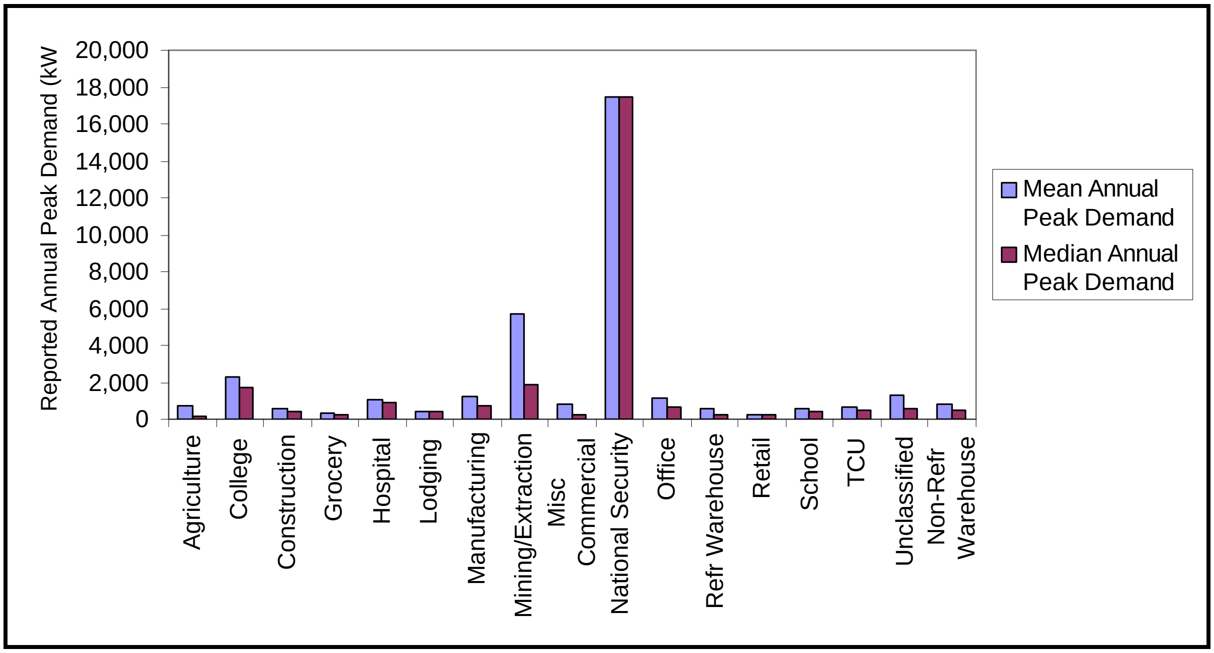


Figure 4-8: Average Reported Annual Peak Demand for PY2002 Projects



4.5 Summary of Active Projects

This section presents an overview of the system characteristics and incentives awarded to applicants whose projects remained active as of January 2003. The following analyses are presented in this section:

- Program activity by incentive level,
- Potential installed capacity by technology and incentive level,
- Eligible installed system costs by technology and incentive level,
- Eligible installed system costs per watt by technology and incentive level,
- Basis of incentive by technology and incentive level,
- Participant versus Program contribution toward eligible installed costs by technology and incentive level, and
- Time required to reach project milestones by technology and incentive level.

Program Activity by Incentive Level

Table 4-1 presents the status of the 56 PY2001 projects active at the end of January 2003. Of the three incentive levels for which PY2001 applications remained active, Level 3N had the most projects still active as of January 2003 (43), which represented 15,452 kW of (potential) installed capacity, and $9.9 million in total potential incentives reserved. Level 1 projects (12) accounted for the next largest share of active potential installed capacity and total potential incentives reserved, with 2,291 kW of potential installed capacity and $8.0 million of total potential incentives. Only one Level 2 project remained active as of January 2003, which accounted for 200 kW of potential installed capacity and $0.4 million of potential incentives reserved. No PY2001 projects remained under review, as all of the projects had advanced to a later stage or were withdrawn or rejected as of January 2003.[9]

Table 4-2 presents the status of the 284 PY2002 projects active at the end of January 2003. Level 1 projects (157) accounted for the majority of the total potential incentives reserved ($87.2 million), but only accounted for 26,875 kW of potential installed capacity. Level 3N projects (118) also accounted for the majority of potential installed capacity (57,625 kW), but only accounted for $33.7 million in potential incentives reserved. Level 3R projects (8) accounted for the next largest share of potential installed capacity (1,585 kW) and potential incentives reserved ($1.5 million) after Level 1 and Level 3N. There was only one Level 2 project active as of January 2003, which represented 600 kW of potential installed capacity and $1.5 million of potential incentives reserved.

[9] Incentive Level 3R was not created until PY2002. Thus, there were no Level 3R projects as of PY2001.

Table 4-1: Summary of Active PY2001 Projects as of January 2003[10]

Incentive Level	PY2001 Active Projects as of January 2003 (All Administrators)														
	RRF Under Review			Conditional Reservation			Confirmed Reservation			Suspended			Total Active		
	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)
Level 1	0	0	$0	0	0	$0	12	2,291	$7,979,166	0	0	$0	12	2,291	$7,979,166
Level 2	0	0	$0	0	0	$0	1	200	$367,632	0	0	$0	1	200	$367,632
Level 3N	0	0	$0	3	554	$326,543	40	14,898	$9,579,961	0	0	$0	43	15,452	$9,906,503
Total	**0**	**0**	**$0**	**3**	**554**	**$326,543**	**53**	**17,389**	**$17,926,759**	**0**	**0**	**$0**	**56**	**17,943**	**$18,253,301**

Table 4-2: Summary of Active PY2002 Projects as of January 2003

Incentive Level	PY2002 Active Projects as of January 2003 (All Administrators)														
	RRF Under Review			Conditional Reservation			Confirmed Reservation			Suspended			Total Active		
	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)	Projects	kW	Incentives ($)
Level 1	25	4,937	$14,756,552	69	13,085	$45,561,767	57	6,591	$19,815,142	6	2,263	$7,025,368	157	26,875	$87,158,828
Level 2	0	0	$0	0	0	$0	1	600	$1,500,000	0	0	$0	1	600	$1,500,000
Level 3N	23	10,626	$5,662,714	64	30,047	$17,358,737	28	14,782	$9,351,221	3	2,170	$1,307,780	118	57,625	$33,680,452
Level 3R	1	300	$146,600	6	1,145	$1,175,833	0	0	$0	1	140	$140,000	8	1,585	$1,462,433
Total	**49**	**15,863**	**$20,565,866**	**139**	**44,277**	**$64,096,337**	**86**	**21,973**	**$30,666,363**	**10**	**4,573**	**$8,473,148**	**284**	**86,685**	**$123,801,714**

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[10] Proof of Project Advancement approval was delayed for one of the PY2001 projects at the Conditional Reservation stage due to changes in system ownership midway through the application process, which delayed the host customer's submittal of the Project Cost Breakdown worksheet, which was the only requirement the host customer had not fulfilled for Proof of Project Advancement. The host customer recently submitted this worksheet, underwent successful field verification, and submitted an incentive claim form. Another of the PY2001 projects at the Conditional Reservation stage was not able to achieve Proof of Project Advancement approval since the host customer had been unable to provide Proof of Professional Liability Insurance. The reservation was not cancelled since all other requirements for Proof of Project Advancement had been met. The host customer was further delayed by the departure of the system's installation contractor from the market. The Program Administrator is considering requesting that the host customer withdraw the PY2001 reservation and re-apply as a PY2003 project, pending review of retroactive eligibility requirements. The final PY2001 project at the Conditional Reservation stage was withdrawn and re-submitted as a PY2003 project. The project had been delayed for various reasons, such as departure of the previous project manager and subsequent changes in the internal management of the host customer firm. Proof of Project Advancement requirements for the re-submitted PY2003 project have been met and approved by the Program Administrator.

Figure 4-9 and Figure 4-10 illustrate the distribution of active projects by project stage as of January 2003. As in Table 4-1 and Table 4-2, active projects are classified as projects that remain under review, projects issued Conditional Reservation Notices, projects that reached an advanced stage (i.e., for which Proof of Project Advancement has been submitted), and projects that remain active but whose advancement has been suspended.

In general, a one-year deadline is established for completion of installation of a project receiving funding under the Self-Generation Incentives Program. This one-year deadline is calculated based upon the date the Conditional Reservation Notice is issued. Since PY2001 projects are defined as those projects for which a Reservation Request Form was received on or by December 31, 2001, and applicants may be granted an additional 30 days to furnish any missing information prior to Conditional Reservation Notice issuance, the original one-year deadlines for all PY2001 projects have passed and no PY2001 projects should be active as of January 2003, absent any extensions. However, since extensions to the various project milestones have been granted, as shown in Figure 4-9, a substantial percentage of PY2001 projects remain active as of January 2003. Extensions were only granted to applicants under extenuating circumstances, based upon the judgment of the individual Program Administrators.

Figure 4-9: Distribution of Active PY2001 Projects by Project Stage

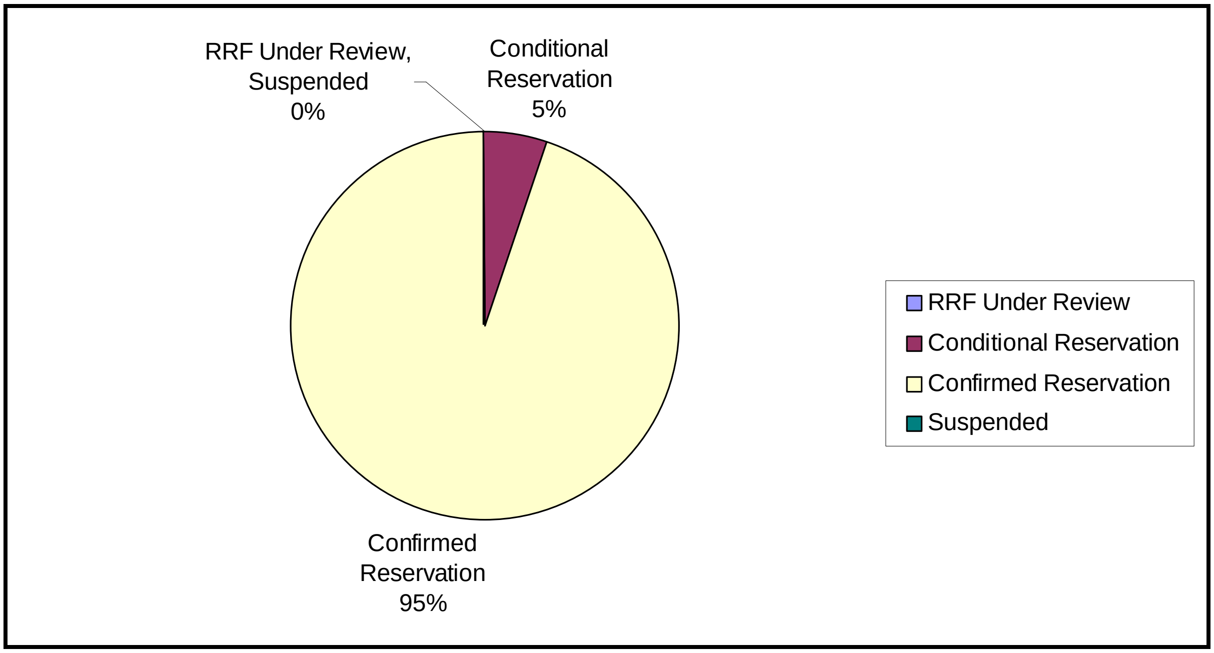
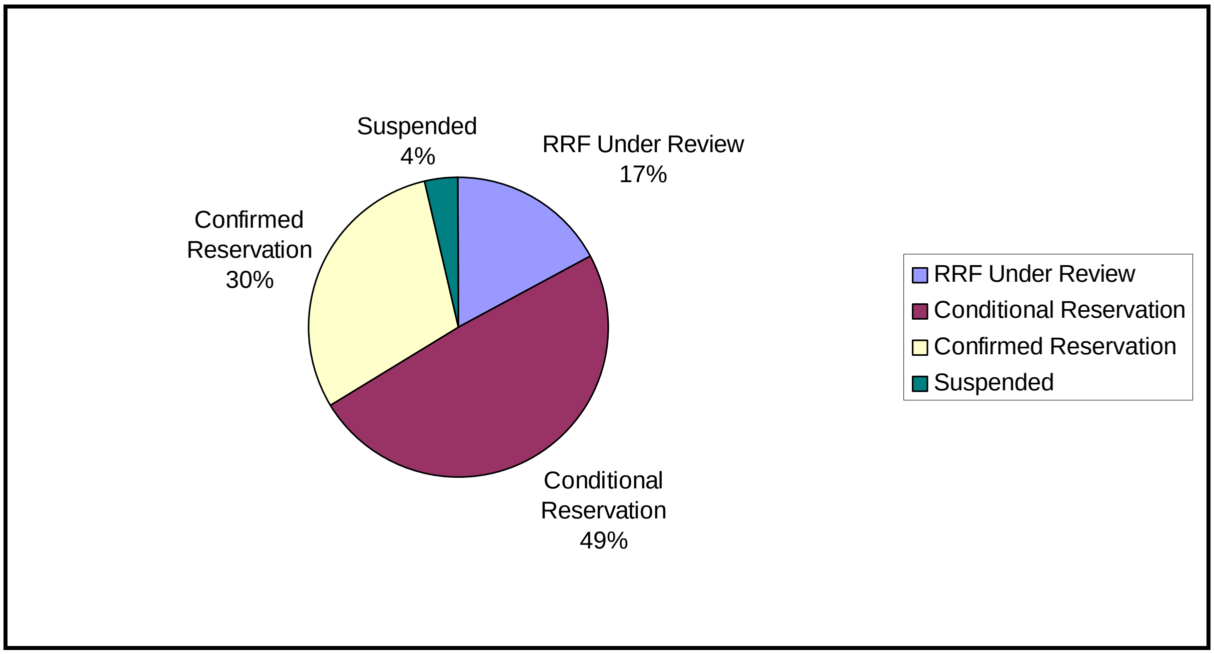


Figure 4-10: Distribution of Active PY2002 Projects by Project Stage



System Characteristics by Technology and Incentive Level

All Program Administrators included information on the technologies employed in each system as well as the project size (in kW) and eligible system cost. Table 4-3 to Table 4-8 display summary statistics calculated based upon these reported capacities and system costs.

Potential Installed Capacities of Active Projects by Technology and Incentive Level

As shown in Table 4-3, in terms of potential installed capacity (kW), internal combustion engines utilizing non-renewable fuels were the largest systems receiving funding under the Self-Generation Incentive Program in PY2001, followed by fuel cells utilizing non-renewable fuel, photovoltaics, and microturbines utilizing non-renewable fuels. In PY2001, capacities of internal combustion engines utilizing non-renewable fuels averaged 519 kW and ranged from 100 kW to 1,015 kW. The fuel cell project utilizing non-renewable fuels accounted for 200 kW of potential installed capacity. Photovoltaic systems averaged 191 kW, and ranged in size from 30 kW to 999 kW. Microturbines utilizing non-renewable fuels averaged 138 kW and ranged in size from 28 kW to 600 kW.

Additionally, as shown in Table 4-4, the single fuel cell project utilizing nonrenewable fuels accounted for the largest mean system size at 600 kW during PY2002, followed by internal combustion engines utilizing non-renewable fuels, the single fuel cell project using renewable fuels, microturbines utilizing non-renewable fuels and renewable fuels, photovoltaics, and finally, internal combustion engines utilizing renewable fuels. Internal combustion engines utilizing nonrenewable fuels averaged 554 kW and ranged in size from 50 kW to the Program maximum of 1,500 kW. The single fuel cell project using renewable fuels was 391 kW. Microturbines utilizing non-renewable and renewable fuels tended to be roughly the same size, with a mean system size of 235 and 225 kW, respectively. Microturbines utilizing non-renewable fuels ranged in size from 30 kW to 1,400 kW and microturbines utilizing renewable fuels ranged in size from 70 to 420 kW. Photovoltaic systems averaged 170 kW, and ranged in size from 27 kW to the Program maximum of 1,500 kW. Finally, internal combustion engines utilizing renewable fuels averaged 118 kW, and ranged in size from 95 kW to 140 kW.

As is apparent in Table 4-3 and Table 4-4, there exists a great deal of variation in system sizes within all technologies. Particularly in PY2002, applicants seem to have taken advantage of the extended system sizes proscribed by the Program Handbook.[11] The

[11] Originally, the Self-Generation Incentive Program required that in order to meet eligibility requirements, applicants would be restricted to system sizes under 1 MW. However, in PY2002, this maximum capacity limit was increased to 1.5 MW. While applicants were allowed to construct larger systems and still remain eligible for funding under the Self-Generation Incentive Program, calculation of eligible incentives were prorated to the original 1 MW. Thus, systems larger than 1 MW would only be eligible for an incentive based on the original project size of 1 MW. Incentives based upon percentages of eligible project costs were calculated based upon prorated project costs assuming a maximum eligible project capacity of 1 MW.

maximum installed capacity reported for photovoltaics and internal combustion engines using non-renewable fuels in PY2002 was 1.5 MW, the Program limit. The maximum installed capacity reported for microturbines using non-renewable fuels was also quite close to the Program limit, at 1.4 MW. The only technologies for which participants did not take advantage of the increased capacity limits in 2002 were fuel cells using renewable and non-renewable fuels and internal combustion engines and microturbines using renewable fuels.

Table 4-3: Potential Installed Capacities for Active PY2001 Projects

Incentive Level	Technology	System Size (kW)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	12	191	30	38	999
Level 2	Fuel Cell, Nonrenewable Fuel	1	200	200	200	200
Level 3N	IC Engine, Nonrenewable Fuel	25	519	100	400	1,015
	Microturbine, Nonrenewable Fuel	18	138	28	100	600

Table 4-4: Potential Installed Capacities for Active PY2002 Projects

Incentive Level	Technology	System Size (kW)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	156	170	27	74	1,500
	Fuel Cell, Renewable Fuel	1	391	391	391	391
Level 2	Fuel Cell, Nonrenewable Fuel	1	600	600	600	600
Level 3R	IC Engine, Renewable Fuel	2	118	95	118	140
	Microturbine, Renewable Fuel	6	225	70	245	420
Level 3N	IC Engine, Nonrenewable Fuel	92	560	50	400	1,500
	Microturbine, Nonrenewable Fuel	26	235	30	117	1,400

Eligible Installed System Costs of Active Projects by Technology and Incentive Level

Table 4-5 and Table 4-6 summarize the eligible installed system costs reported by the Program Administrators. As shown in Table 4-5, in 2001, photovoltaics displayed the largest eligible installed system costs, averaging $1.4 million. Fuel cells and internal combustion engines utilizing non-renewable fuels came in a close second, averaging $1.1 million in eligible installed system costs. Microturbines utilizing non-renewable fuels ranked a distant third, averaging only $0.4 million in eligible installed system costs.

As shown in Table 4-6, the single fuel cell project utilizing non-renewable fuels possessed the largest eligible installed system cost of all technologies in PY2002 at $4.7 million. The next largest mean eligible installed system cost was $1.7 million, for the single fuel cell project utilizing renewable fuels. Photovoltaics accounted for the next largest mean eligible installed system cost of $1.3 million, followed by internal combustion engines utilizing non-renewable fuels, at $1.2 million. Thus, the average eligible installed system cost of photovoltaic and internal combustion engines utilizing non-renewable fuels remained relatively stable across Program Years. Microturbines utilizing renewable and non-renewable fuels and internal combustion engines utilizing renewable fuels averaged $0.6 million in eligible installed system costs.

In general, the maximum eligible installed system costs for all technologies have increased since PY2001. While there were several multimillion-dollar projects in each incentive level in 2001, the most expensive project in PY2001 was $7.6 million (as opposed to the $11.0 million project reported in PY2002). Additionally, in general, the mean eligible installed system costs are much higher than the median eligible installed system costs for all technologies in both PY2001 and PY2002. This implies that in both Program Years there are a few projects that were responsible for pulling up the average eligible installed system costs.

Table 4-5: Eligible Installed System Cost of Active PY2001 Projects

Incentive Level	Technology	Eligible Installed System Cost ($)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	12	$1,441,618	$159,840	$313,623	$7,659,655
Level 2	Fuel Cell, Nonrenewable Fuel	1	$1,119,080	$1,119,080	$1,119,080	$1,119,080
Level 3N	IC Engine, Nonrenewable Fuel	25	$1,063,327	$175,000	$841,270	$2,944,600
	Microturbine, Nonrenewable Fuel	18	$398,019	$59,145	$216,000	$2,100,454

Table 4-6: Eligible Installed System Cost of Active PY2002 Projects

Incentive Level	Technology	Eligible Installed System Cost ($)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	155	$1,293,572	$152,640	$688,031	$11,000,000
	Fuel Cell, Renewable Fuel	1	$1,700,000	$1,700,000	$1,700,000	$1,700,000
Level 2	Fuel Cell, Nonrenewable Fuel	1	$4,650,000	$4,650,000	$4,650,000	$4,650,000
Level 3R	IC Engine, Renewable Fuel	2	$554,782	$170,183	$554,782	$939,380
	Microturbine, Renewable Fuel	6	$647,750	$275,000	$560,750	$1,420,000
Level 3N	IC Engine, Nonrenewable Fuel	92	$1,179,265	$95,000	$879,572	$6,599,087
	Microturbine, Nonrenewable Fuel	26	$632,103	$114,295	$236,654	$3,368,617

Eligible Installed Costs Per Watt of Active Projects by Technology and Incentive Level

Table 4-7 and Table 4-8 summarize the eligible installed costs per watt of active PY2001 and PY2002 projects across all technologies. As shown in Table 4-7, photovoltaic per-watt costs were clearly the highest of all technologies in PY2001, at $7.65 per watt. Per-watt charges were next highest for fuel cells, microturbines, and internal combustion engines utilizing non-renewable fuels, respectively, at $4.74, $2.88, and $2.00 per watt, respectively.

As shown in Table 4-8, photovoltaic per-watt costs remained the highest of all technologies in PY2002, averaging $8.46 per watt. The single fuel cell project utilizing non-renewable fuels ranked second at $7.75 per watt. Per-watt charges were next highest for fuel cells using renewable fuels, internal combustion engines utilizing renewable fuels, microturbines utilizing renewable and non-renewable fuels, respectively, and for internal combustion engines utilizing non-renewable fuels, at $4.35, $4.25, $3.07, $2.98, and $2.32, respectively.

Interestingly, as shown in Table 4-7 and Table 4-8, the mean and median per-watt costs for Level 1, 2 and 3N systems increased between PY2001 and PY2002. The increase in eligible per-watt costs could reflect inflation of reported eligible costs by suppliers during PY2002 to capture the maximum amount of incentives available under the Program. Alternatively, the increase could reflect a legitimate increase in system costs caused by a surge in activity in the market for distributed generation in response to programs such as the Self-Generation Incentive Program between PY2001 and PY2002. Higher levels of incentivization for distributed generation systems may have increased the level of demand for such systems, taxing the existing manufacturer infrastructure and leading to supply bottlenecks and higher costs.

Table 4-7: Eligible Installed Cost Per Watt of Active PY2001 Projects

Incentive Level	Technology	Eligible Installed Project Cost Per Watt ($/Watt)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	12	$7.65	$5.00	$8.48	$9.60
Level 2	Fuel Cell, Nonrenewable Fuel	1	$4.74	$4.74	$4.74	$4.74
Level 3N	IC Engine, Nonrenewable Fuel	25	$2.02	$1.20	$2.01	$3.18
	Microturbine, Nonrenewable Fuel	18	$2.88	$1.22	$2.73	$5.67

Table 4-8: Eligible Installed Cost Per Watt of Active PY2002 Projects

Incentive Level	Technology	Eligible Installed Project Cost Per Watt ($/Watt)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	156	$ 8.51	$ 0.90	$ 9.00	$ 13.69
	Fuel Cell, Renewable Fuel	1	$ 4.35	$ 4.35	$ 4.35	$ 4.35
Level 2	Fuel Cell, Nonrenewable Fuel	1	$ 7.75	$ 7.75	$ 7.75	$ 7.75
Level 3R	IC Engine, Renewable Fuel	2	$ 4.25	$ 1.79	$ 4.25	$ 6.71
	Microturbine, Renewable Fuel	6	$ 3.07	$ 1.22	$ 3.28	$ 4.29
Level 3N	IC Engine, Nonrenewable Fuel	92	$ 2.32	$ 0.76	$ 2.30	$ 5.00
	Microturbine, Nonrenewable Fuel	26	$ 2.98	$ 0.95	$ 2.52	$ 7.35

Basis of Incentive for Active Projects by Technology and Incentive Level

The incentive for a self-generation project is based on dollars per watt of eligible installed capacity or percent of eligible installed system costs, whichever results in a lower incentive. Table 4-9 and Table 4-10 present the basis for the allocated incentive amounts reported in Table 4-1 and Table 4-2. As shown in Table 4-9 and Table 4-10, most of the allocated incentives are based on percentage of eligible installed system costs rather than dollars per watt of eligible installed capacity. In PY2001, incentives were awarded based on percentage of eligible system costs more frequently than based on dollars per watt of eligible installed capacity for photovoltaics and internal combustion engines using non-renewable fuels. In PY2002, incentives were awarded based on percentage of eligible installed system costs more frequently than based on dollars per watt of eligible installed capacity for projects across all technologies other than for internal combustion engines using renewable fuels.

Table 4-9: Basis of Incentive for Active PY2001 Projects

Incentive Level	Technology	Dollars Per Watt of Eligible Installed Capacity	Percent of Eligible Installed System Costs
Level 1	Photovoltaic	3	9
Level 2	Fuel Cell, Nonrenewable Fuel	1	0
Level 3N	IC Engine, Nonrenewable Fuel	9	16
	Microturbine, Nonrenewable Fuel	10	8

Table 4-10: Basis of Incentive for Active PY2002 Projects

Incentive Level	Technology	Dollars Per Watt of Eligible Installed Capacity	Percent of Eligible Installed System Costs
Level 1	Photovoltaic	74	82
	Fuel Cell, Renewable Fuel	0	1
Level 2	Fuel Cell, Nonrenewable Fuel	0	1
Level 3R	IC Engine, Renewable Fuel	1	1
	Microturbine, Renewable Fuel	2	4
Level 3N	IC Engine, Nonrenewable Fuel	12	80
	Microturbine, Nonrenewable Fuel	10	16

Participant vs. Program Contribution for Active Projects by Technology and Incentive Level

Table 4-11 and Table 4-12 present the mean of the proportion of the eligible installed system cost provided by the Self-Generation Incentive Program, and the mean of the cost per watt provided by the Program for active PY2001 and PY2002 projects. In PY2001 and PY2002, the mean proportion of eligible installed system costs is very close to the maximum allowable percentage at each incentive level, for each technology. This result is hardly surprising since, as shown in Table 4-9 and Table 4-10, the majority of the projects were awarded incentives based upon percentage of eligible installed system costs in both Program Years.

Table 4-11: Participant vs. Program Contribution for Active PY2001 Projects

Incentive Level	Technology	Maximum Allowable Incentive Per Watt of Eligible Installed Capacity	Average of Approved Incentives	Maximum Allowable Percent of Eligible System Cost	Average of Approved Incentives (Percent of Eligible System Cost)
Level 1	Photovoltaic	$4.50	$3.19	50%	43%
Level 2	Fuel Cell, Nonrenewable Fuel	$2.50	$1.84	40%	33%
Level 3N	IC Engine, Nonrenewable Fuel	$1.00	$0.67	30%	30%
	Microturbine, Nonrenewable Fuel	$1.00	$0.69	30%	26%

Table 4-12: Participant vs. Program Contribution for Active PY2002 Projects

Incentive Level	Technology	Maximum Allowable Incentive Per Watt of Eligible Installed Capacity	Average of Approved Incentives	Maximum Allowable Percent of Eligible System Cost	Average of Approved Incentives (Percent of Eligible System Cost)
Level 1	Photovoltaic	$4.50	$3.34	50%	40%
	Fuel Cell, Renewable Fuel	$4.50	$2.17	50%	50%
Level 2	Fuel Cell, Nonrenewable Fuel	$2.50	$2.50	40%	32%
Level 3R	IC Engine, Renewable Fuel	$1.50	$0.86	40%	27%
	Microturbine, Renewable Fuel	$1.50	$1.10	40%	34%
Level 3N	IC Engine, Nonrenewable Fuel	$1.00	$0.66	30%	28%
	Microturbine, Nonrenewable Fuel	$1.00	$0.79	30%	28%

Project Milestones by Technology and Incentive Level

As stated in the Program Handbook, applicants to the Self-Generation Incentive Program are required to meet certain project milestones in order to remain eligible for funding under the Program. In general, these milestones require applicants to submit all required application forms, proof of project advancement, and reservation confirmations within certain timeframes. Extensions, however, may be granted at the discretion of each Program Administrator if applicants are able to demonstrate that such extensions were required due to unforeseeable circumstances beyond their control. If applicants fail to meet the proscribed milestones and are not granted extensions, their reservations may be cancelled and they may be compelled to submit new Reservation Request Forms. Resubmitted applications are treated as new applications, and are processed in normal sequence along with other new applications. The application process is described below in further detail.

Submission of Reservation Request Form

Once a Reservation Request Form is submitted to a Program Administrator, the Program Administrator reviews the application for completeness. If the submittal is incomplete, the Program Administrator requests the information necessary to process the application. Applicants are granted 30 days to respond with the necessary information. If after 30 days, an applicant has not submitted the requested information, the application will be rejected and returned. In order to receive funding, the applicant must submit a new application with all required information. Once the completed Reservation Request Form is approved, the Program Administrator issues a Conditional Reservation Notice to the applicant.

Issuance of Conditional Reservation Notice

Table 4-13 and Table 4-14 illustrate the average length of time between Reservation Request Form submission and Conditional Reservation Notice issuance for active PY2001 and PY2002 projects. As shown in Table 4-13 and Table 4-14, the average number of days between Reservation Request Form submittal and Conditional Reservation Notice issuance ranges from approximately one to two months for all technologies other than fuel cells, and has remained relatively constant across Program Years. Conditional Reservation Notices for the two fuel cell projects in PY2001 and PY2002 were issued within two weeks of Reservation Request Form submittal. Generally, Program Administrators required the most time to issue Conditional Reservation Notices to internal combustion engines, followed by microturbines, photovoltaics, and fuel cells.[12]

Table 4-13: Days to Conditional Reservation Notice Issuance from Reservation Request Form Submittal for Active PY2001 Projects

Incentive Level	Technology	Days to Conditional Reservation Notice				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	12	40	6	33	91
Level 2	Fuel Cell, Nonrenewable Fuel	1	4	4	4	4
Level 3N	IC Engine, Nonrenewable Fuel	25	60	1	45	147
	Microturbine, Nonrenewable Fuel	17	55	10	40	154

[12] The total number of observations for which days to milestones are calculated may not exactly equal the total number of reservations that have reached a given milestone because not all milestone dates are recorded when reached. Thus, Table 4-13 to Table 4-21 only provide an estimate of the time required for applicants to reach project milestones.

Table 4-14: Days to Conditional Reservation Notice Issuance from Reservation Request Form Submittal for Active PY2002 Projects

Incentive Level	Technology	Days to Conditional Reservation Notice				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	129	32	0	26	146
Level 2	Fuel Cell, Nonrenewable Fuel	1	9	9	9	9
Level 3R	IC Engine, Renewable Fuel	1	33	33	33	33
	Microturbine, Renewable Fuel	5	27	8	13	69
Level 3N	IC Engine, Nonrenewable Fuel	71	47	2	42	264
	Microturbine, Nonrenewable Fuel	23	46	0	33	140

Approval of Proof of Project Advancement

Applicants must furnish Proof of Project Advancement within 90 days of issuance of the Conditional Reservation Notice. Extensions of up to 90 days may be granted for the Proof of Project Advancement date. Any extension granted, however, does not automatically extend the reservation expiration date.

Table 4-15 and Table 4-16 illustrate the average length of time between Conditional Reservation Notice issuance and Proof of Project Advancement approval for the PY2001 and PY2002 projects. The mean length of time between Proof of Project Advancement approval and Conditional Reservation Notice was greater than 90 days for all technologies in both Program Years, other than the single PY2002 fuel cell project.

As presented in Table 4-15, the mean length of time required for Proof of Project Advancement approval was greatest for microturbines in PY2001, followed by internal combustion engines, photovoltaics and the single fuel cell project. The mean length of time for Proof of Project Advancement approval was greater than 180 days for both internal combustion engines and microturbines. Additionally, the maximum length of time required for Proof of Project Advancement approval was almost one year for one of the internal combustion engine projects in PY2001, indicating that multiple extensions were granted to the original 90-day deadline in PY2001.

As shown in Table 4-16, photovoltaics required the greatest mean length of time for Proof of Project Advancement approval, followed by microturbines, internal combustion engines and the single fuel cell project. The mean length of time required for Proof of Project Advancement approval dropped considerably for all technologies other than photovoltaics, and did not exceed 180 days for any technology. The minimum length of time required for Proof of Project Advancement approval also decreased significantly for all technologies, falling below the originally proscribed 90-day deadline. The maximum length of time required for Proof of Project Advancement approval also decreased for all technologies other than photovoltaics.

Table 4-15: Days to Proof of Project Advancement from Conditional Reservation Notice Issuance for Active PY2001 Projects

Incentive Level	Technology	Days to Proof of Project Advancement				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	12	151	102	143	249
Level 2	Fuel Cell, Nonrenewable Fuel	1	149	149	149	149
Level 3N	IC Engine, Nonrenewable Fuel	23	190	94	179	364
	Microturbine, Nonrenewable Fuel	17	197	92	189	287

Table 4-16: Days to Proof of Project Advancement from Conditional Reservation Form Issuance for Active PY2002 Projects

Incentive Level	Technology	Days to Proof of Project Advancement				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	50	147	0	150	265
Level 2	Fuel Cell, Nonrenewable Fuel	1	40	40	40	40
Level 3N	IC Engine, Nonrenewable Fuel	17	115	76	99	191
	Microturbine, Nonrenewable Fuel	6	129	60	131	192

Table 4-17 and Table 4-18 illustrate extensions granted to the original 90-day deadline for active projects. Extensions are calculated as the difference between the Proof of Project Advancement approval date recorded by the Program Administrator in the tracking data and the calculated 90-day deadline.[13]

According to Table 4-17, nearly all of the PY2001 projects that remained active as of January 2003 had been granted extensions to the original 90-day deadline. The mean extension granted ranged from approximately two to three months across all technologies. The maximum extensions granted for the PY2001 projects exceeded 90 days, indicating that multiple extensions were granted to the PY2001 host customers for the Proof of Project Advancement deadline.

As shown in Table 4-18, a significant fraction of PY2002 host customers also received extensions to the 90-day deadline. The mean extensions granted decreased by approximately one-half for internal combustion engines and microturbines in PY2002, though the mean extension granted for photovoltaics remained relatively constant across Program Years. The

[13] The 90-day deadline was calculated as the original date of Conditional Reservation Notice issuance reported by the Program Administrators plus 90 calendar days.

maximum extensions granted also fell for all technologies other than photovoltaics, though they remained greater than 90 days across all technologies for which extensions were granted.

Table 4-17: Extensions to the 90-Day Deadline for Active PY2001 Projects

Incentive Level	Technology	Extensions				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	12	61	12	53	159
Level 2	Fuel Cell, Nonrenewable Fuel	1	59	59	59	59
Level 3N	IC Engine, Nonrenewable Fuel	23	100	4	89	274
	Microturbine, Nonrenewable Fuel	17	107	2	99	197

Table 4-18: Extensions to the 90-Day Deadline for Active PY2002 Projects

Incentive Level	Technology	Extensions				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	46	65	1	60	175
Level 2	Fuel Cell, Nonrenewable Fuel	0	N/A	N/A	N/A	N/A
Level 3N	IC Engine, Nonrenewable Fuel	11	43	1	43	101
	Microturbine, Nonrenewable Fuel	5	53	19	44	102

Submittal of Reservation Confirmation and Incentive Claim Form

Within 9 months of the original Proof of Project Advancement due date, a Reservation Confirmation and Incentive Claim Form must be submitted to the Program Administrator, unless an applicant is granted an extension to file this form. Applicants may request extensions of up to 180 calendar days from the original Reservation Confirmation and Incentive Claim Form due date.

Table 4-19 and Table 4-20 illustrate the mean length of time between Reservation Confirmation and Incentive Claim Form Submittal from approval of Proof of Project Advancement for active PY2001 and PY2002 projects. As shown in Table 4-19, the mean length of time between Proof of Project Advancement approval and Reservation Confirmation and Incentive Claim Form submission ranged from approximately three to seven months. The maximum length of time required was slightly less than one year.

According to Table 4-20, the mean length of time between Proof of Project Advancement approval and Reservation Confirmation and Incentive Claim Form submittal decreased dramatically across all technologies between PY2001 and PY2002. The mean length of time ranged from one day for the single 2002 fuel cell project to slightly less than one month for photovoltaics and slightly over three months for internal combustion engines.

Table 4-19: Days to Reservation Confirmation and Incentive Claim Form Submittal from Proof of Project Advancement Approval for Active PY2001 Projects

Incentive Level	Technology	Days to Reservation Confirmation and Incentive Claim Form				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	6	217	0	260	350
Level 2	Fuel Cell, Nonrenewable Fuel	1	221	221	221	221
Level 3N	IC Engine, Nonrenewable Fuel	6	98	0	108	181
	Microturbine, Nonrenewable Fuel	2	166	164	166	168

Table 4-20: Days to Reservation Confirmation and Incentive Claim Form Submittal from Proof of Project Advancement Approval for Active PY2002 Projects

Incentive Level	Technology	Days to Reservation Confirmation and Incentive Claim Form				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	7	24	0	1	123
Level 2	Fuel Cell, Nonrenewable Fuel	1	1	1	1	1
Level 3N	IC Engine, Nonrenewable Fuel	1	97	97	97	97
	Microturbine, Nonrenewable Fuel	0	N/A	N/A	N/A	N/A

Table 4-19 and Table 4-20 may, however, be inappropriate for use in an analysis of the adequacy of the nine-month deadline since they present the length of time between the Reservation Confirmation and Incentive Claim Form submittal date and the actual Proof of Project Advancement approval date as opposed to the claim form submittal date and the original Proof of Project Advancement submittal date. The Handbook explicitly states that the claim form submittal date should be calculated based on the original Proof of Project Advancement due date regardless of any extensions to the Proof of Project Advancement approval date granted by the Program Administrator. Thus, the original one-year deadline for claim form submittal was calculated as the Conditional Reservation Notice issuance date plus 365 calendar days for all active reservations, and was compared to the actual length of time recorded between Reservation Confirmation and Incentive Claim Form submittal and Conditional Reservation Notice issuance. This analysis reveals that the claim form submittal date of only five active projects exceeded the original nine-month deadline. The five projects that exceeded the nine-month deadline for submission only exceeded the deadline by 5-90 days, which is well within the final 180-day extension applicants are allowed according to the Program Handbook.

On-Site Verification

Once the Reservation Confirmation and Incentive Claim Form is submitted, the Program Administrator notifies the applicant whether additional information is required. If the submittal is incomplete, the applicant is granted an additional 14 calendar days to furnish the required information. If no additional information is required, the Program Administrator schedules an on-site verification with the host customer to ensure that the system is functioning as reported and as intended. Table 4-21 presents the mean length of time required between Reservation Confirmation and Incentive Claim Form submittal and on-site verification for active PY2001 projects. According to Table 4-21, the mean and maximum length of time between Reservation Confirmation and Incentive Claim Form submittal and on-site verification was less than 14 days for all technologies. There was no tracking data available for active PY2002 projects that had reached the on-site verification stage.

Table 4-21: Days to On-Site Verification from Reservation Confirmation and Incentive Claim Form Submittal for Active PY2001 Projects

Incentive Level	Technology	Days to On-Site Verification				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	1	12	12	12	12
Level 2	Fuel Cell, Nonrenewable Fuel	0	N/A	N/A	N/A	N/A
Level 3N	IC Engine, Nonrenewable Fuel	3	10	8	9	13
	Microturbine, Nonrenewable Fuel	1	11	11	11	11

Issuance of Incentive Claim Check

If the Program Administrator's independent verification consultant determines that the system is not compliant with Program requirements at the time of the on-site verification, the applicant is allowed 14 calendar days from the time of the on-site verification to bring the system into compliance. When the Program Administrator determines that the system is compliant with Program requirements, the Program Administrator issues an incentive check to the applicant or the host customer for the amount determined by the final inspection. The Program Handbook states that the Program Administrators normally require approximately 30 days from final approval to issue an incentive check.

Since projects classified as active by definition have not yet received an incentive check, the time between on-site verification and check issuance is not calculated for active projects. The typical length of time required to reach this milestone, however, is presented in Section 4.6, Summary of Completed Projects.

Conclusions Regarding Milestone Difficulty

According to Table 4-13 to Table 4-21, applicants in both Program Years seemed to experience trouble meeting the 90-day Proof of Project Advancement deadline. A significant fraction of applicants required extensions to the 90-day deadline, and some applicants received multiple extensions. Once applicants had received Proof of Project Advancement approval, however, the process was relatively rapid. The mean length of time between Reservation Confirmation and Incentive Claim Form submittal was minimal for the PY2002 projects, and the length of time between claim form submittal and on-site verification was minimal for the PY2001 projects. Multiple extensions were only required for the 90-day deadline, and almost all projects that reached the claim form submittal stage were able to submit the claim form within the originally proscribed one-year deadline, regardless of any extensions granted for Proof of Project Advancement. The milestone lengths calculated for the active PY2001 and PY2002 projects thus indicate that while applicants may find it difficult to meet the original 90-day deadline for Proof of Project Advancement, the nine-month deadline for Reservation Confirmation and Incentive Claim Form submittal does not appear particularly onerous.

Additionally, according to Table 4-13 to Table 4-21, the mean and maximum length of time generally required for all technologies to reach project milestones declined between PY2001 and PY2002. These results imply that one or more of the following scenarios may have occurred:

- The Program Administrators and related agencies (such as air pollution control districts) became more efficient at processing paperwork as they gain more experience with the Program, leading to shorter gaps between project milestones.
- Program requirements were clarified by revisions to materials provided to applicants, leading to enhanced understanding of the components of successful submissions and more rapid and complete submissions on the part of the Program applicants.
- Applicants gained a better understanding of Program requirements through increased experience in the Program because of multiple submissions of applications to the Program and continued interaction with the Program Administrators. The high incidence of re-submissions and multiple submissions by individual host customers/applicants suggests that this phenomenon may play a strong role in decreasing the length of time required by applicants to reach project milestones in subsequent years.
- Applicants whose applications were withdrawn or rejected who opt to re-apply in a subsequent year may have delayed filing a new Reservation Request Form until their projects reached a later stage of maturity. Thus, for example, if a host customer's application is rejected by a Program Administrator due to non-compliance with waste heat design requirements, the host customer may postpone

re-applying to the Program until he/she knows that those requirements have been met so as to avoid a second rejection. This phenomenon would also result in a decrease in the mean length of time required by applicants to reach Proof of Project Advancement.

4.6 Summary of Completed Projects

This section presents a summary overview of the PY2001 and PY2002 projects completed as of January 2003. The following analyses are presented in this section:

- Program activity by incentive level,
- Potential installed capacity by technology and incentive level,
- Eligible installed system costs by technology and incentive level,
- Eligible installed system costs per watt by technology and incentive level,
- Basis of incentive by technology and incentive level,
- Participant versus Program contribution toward eligible installed costs by technology and incentive level, and
- Time required to reach project milestones by technology and incentive level.

Program Activity by Incentive Level

Table 4-22 presents the status of the 21 PY2001 projects complete as of the end of January 2003. The majority of the PY2001 projects that were completed represented Level 3N technologies. Eleven Level 3N projects were completed, which represented $2.4 million of incentives and 4,394 kW of capacity. While fewer Level 1 projects were completed (9), Level 1 projects accounted for the majority of the incentive dollars awarded. Level 1 projects constituted $4.4 million in funding and 1,182 kW of capacity. Only one Level 2 project was completed, which accounted for 200 kW of capacity and $0.5 million of incentives.[14]

Table 4-23 presents the status of all completed PY2002 projects as of January 2003. There were no completed Level 2 or 3R projects. However, 12 Level 1 projects were completed, which accounted for 1,118 kW of installed capacity and $4.5 million in incentives. Additionally, one Level 3N project was completed, which accounted for 1,063 kW of potential installed capacity and $0.5 million in incentives.

[14] Incentive Level 3R did not exist in PY2001. Thus, there were no PY2001 Level 3R projects completed.

Table 4-22: Status of All Completed PY2001 Projects as of January 2003

Incentive Level	2001 Completed Projects as of January 2003 (All Administrators)		
	Projects	**kW**	**Incentives ($)**
Level 1	9	1,182	$4,894,765
Level 2	1	200	$500,000
Level 3N	11	4,394	$2,410,240
Total	**21**	**5,776**	**$7,805,005**

Table 4-23: Status of All Completed PY2002 Projects as of January 2003

Incentive Level	2002 Completed Projects as of January 2003 (All Administrators)		
	Projects	**kW**	**Incentives ($)**
Level 1	12	1,118	$4,502,539
Level 2	0	0	$0
Level 3N	1	1,063	$459,880
Level 3R	0	0	$0
Total	**13**	**2,181**	**$4,962,419**

System Characteristics by Technology and Incentive Level

Table 4-24 to Table 4-28 summarize the system characteristics of all completed projects. Completed projects were not classified by Program Year since so few projects were actually completed that cross-year comparisons would not be very meaningful.

Installed Capacities of Completed Projects

As shown in Table 4-24, internal combustion engines possessed the largest mean system size of all completed projects (716 kW). The single fuel cell project using nonrenewable fuel displayed the next largest system size of all completed projects, at 200 kW, followed by photovoltaics (110 kW) and microturbines utilizing non-renewable fuels (89 kW).

Both completed photovoltaics projects and microturbines utilizing non-renewable fuels displayed a lower mean installed capacity than the respective means of potential installed capacities reported for active projects. However, completed internal combustion engines utilizing non-renewable fuels displayed a higher mean installed capacity than the reported mean potential installed capacity of active internal combustion engine systems utilizing non-renewable fuels.

Since so few projects have been completed in PY2001 and PY2002, it may be difficult to draw a conclusion regarding the level of difficulty associated with completing a system from a particular technology based simply upon reported system size; however, in general, it appears that for systems employing a technology other than internal combustion engines utilizing non-renewable fuels, it may be easier to complete installation of a smaller project.

Table 4-24: Installed Capacities of Completed Projects

Incentive Level	Technology	System Size (kW)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	21	110	30	46	521
Level 2	Fuel Cell, Nonrenewable Fuel	1	200	200	200	200
Level 3N	IC Engine, Nonrenewable Fuel	7	716	150	1,000	1,063
	Microturbine, Nonrenewable Fuel	5	89	60	84	120

Eligible Installed System Costs of Completed Projects by Technology and Incentive Level

Table 4-25 illustrates the eligible installed system costs of all completed projects. As shown, the single fuel cell project utilizing non-renewable fuels possessed the highest eligible installed system cost of all completed projects ($3.6 million), followed by internal combustion engines utilizing non-renewable fuels ($1.2 million), photovoltaic systems ($0.9 million), and microturbines utilizing non-renewable fuels ($0.4 million). This ranking slightly differs from the ranking of active projects by eligible installed system costs; in 2001 and 2002, photovoltaics possessed the highest mean eligible installed system costs ($1.4 million and $1.3 million, respectively), followed by internal combustion engines utilizing non-renewable fuels ($1.1 and $1.2 million, respectively) and microturbines utilizing non-renewable fuels ($0.4 million and $0.6 million, respectively). The higher eligible installed system costs of completed internal combustion engines utilizing non-renewable fuels relative to the mean reported costs of active projects is consistent with the results of Table 4-24, which illustrated that of the technologies, the internal combustion engines utilizing non-renewable fuels also possessed a larger mean system size than that reported for active projects utilizing the same technology.

Table 4-25: Eligible Installed System Costs of Completed Projects

Incentive Level	Technology	Eligible Installed System Cost ($)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	21	$929,861	$247,804	$505,702	$4,716,497
Level 2	Fuel Cell, Nonrenewable Fuel	1	$3,599,961	$3,599,961	$3,599,961	$3,599,961
Level 3N	IC Engine, Nonrenewable Fuel	7	$1,223,164	$176,347	$1,400,000	$1,833,990
	Microturbine, Nonrenewable Fuel	5	$327,426	$148,989	$253,152	$648,460

Eligible Installed System Cost Per Watt of Completed Projects by Technology and Incentive Level

As shown in Table 4-26, the single completed fuel cell project using non-renewable fuels displayed the highest per-watt costs, followed by photovoltaics, microturbines utilizing non-renewable fuels, and internal combustion engines utilizing non-renewable fuels. With the exception of fuel cells, this ranking is consistent with the rankings produced by orderings of per-watt costs of active projects in both Program Years.

Table 4-26: Eligible Installed System Cost per Watt of Completed Projects

Incentive Level	Technology	Eligible Installed System Cost Per Watt ($/Watt)				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	21	$9.05	$6.77	$9.01	$12.25
Level 2	Fuel Cell, Nonrenewable Fuel	1	$18.00	$18.00	$18.00	$18.00
Level 3N	IC Engine, Nonrenewable Fuel	7	$1.65	$1.18	$1.59	$2.13
	Microturbine, Nonrenewable Fuel	5	$3.46	$2.61	$2.88	$5.40

Basis of Incentive by Technology and Incentive Level

As mentioned earlier, the incentive for a self-generation project is based on dollars per watt of eligible installed capacity or percentage of eligible installed system costs, whichever results in a lower incentive. Table 4-27 presents the basis for the incentives awarded to projects completed and paid as of January 2003. As shown in Table 4-27, the incentive basis was split fairly evenly between percentage of eligible installed system costs and dollars per watt of eligible installed capacity for completed projects.

Table 4-27: Basis of Incentive for Completed Projects

Incentive Level	Technology	Dollars Per Watt of Eligible Installed Capacity	Percentage of Eligible Installed System Costs
Level 1	Photovoltaic	8	10
Level 2	Fuel Cell, Nonrenewable Fuel	1	0
Level 3N	IC Engine, Nonrenewable Fuel	4	3
	Microturbine, Nonrenewable Fuel	2	3

Participant vs. Program Contribution for Completed Projects by Technology and Incentive Level

Table 4-28 presents the mean proportion of the total cost provided by the Self-Generation Incentive Program, and the mean installed system cost per watt provided by the Program for completed projects. Since the majority of the projects that were completed were awarded incentives based upon percentage of eligible installed system cost rather than dollars per watt of eligible installed capacity, as with the active projects, the mean proportion of cost provided by the Program is similar to the maximum allowable percentage at each incentive level, other than Level 2. As is apparent in Table 4-28, the single Level 2 project that was completed was awarded an incentive based on dollars per watt of eligible installed capacity rather than percentage of eligible installed system cost.

Table 4-28: Participant vs. Program Contribution for Completed Projects

Incentive Level	Technology	Maximum Allowable Incentive Per Watt	Average of Approved Incentives	Maximum Allowable Percent of Eligible System Cost	Average of Approved Incentives (Percent of Eligible System Cost)
Level 1	Photovoltaic	$4.50	$4.04	50%	45%
Level 2	Fuel Cell, Nonrenewable Fuel	$2.50	$2.50	40%	14%
Level 3N	IC Engine, Nonrenewable Fuel	$1.00	$0.51	30%	29%
	Microturbine, Nonrenewable Fuel	$1.00	$0.79	30%	25%

Project Milestones by Technology and Incentive Level

Conditional Reservation Notice Issuance

Table 4-29 to Table 4-34 present the typical length of time required to meet project milestones for systems completed and paid as of January 2003. According to Table 4-29, the mean length of time between Reservation Request Form submittal and Conditional Reservation Notice issuance was quite similar across photovoltaics, internal combustion engines, and microturbines, at approximately 40-50 days. The single completed fuel cell project required 77 days for Conditional Reservation Notice issuance. These results are quite similar to the mean length of time required for Conditional Reservation Notice issuance for active projects.

Table 4-29: Days to Conditional Reservation Notice Issuance from Reservation Request Form Receipt for Completed Projects

Incentive Level	Technology	Days to Conditional Reservation Notice				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	21	40	4	47	126
Level 2	Fuel Cell, Nonrenewable Fuel	1	77	77	77	77
Level 3N	IC Engine, Nonrenewable Fuel	7	46	14	42	104
	Microturbine, Nonrenewable Fuel	5	48	10	47	85

Proof of Project Advancement Approval

Table 4-30 illustrates the average length of time required for Proof of Project Advancement approval for projects complete as of January 2003. According to Table 4-30, on average, completed projects required more than 90 days to receive approval of Proof of Project Advancement regardless of technology employed. As with the active projects, this indicates that extensions to Proof of Project Advancement were requested and received for completed projects. As with the active projects, maximum lengths of time between Conditional Reservation Notice issuance and Proof of Project Advancement approval of greater than 180 days indicate that multiple extensions to the 90-day deadline were granted. The mean length of time required for Proof of Project Advancement approval was quite similar between active and completed projects.

Table 4-30: Days to Proof of Project Advancement Approval from Conditional Reservation Notice Issuance for Completed Projects

Incentive Level	Technology	Days to Proof of Project Advancement				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	18	124	28	122	250
Level 2	Fuel Cell, Nonrenewable Fuel	1	154	154	154	154
Level 3N	IC Engine, Nonrenewable Fuel	7	112	21	96	243
	Microturbine, Nonrenewable Fuel	5	125	63	104	218

<u>Reservation Confirmation and Incentive Claim Form Submittal</u>

Table 4-31 illustrates the typical length of time between Reservation Confirmation and Incentive Claim Form submittal and Proof of Project Advancement approval for completed projects. As shown in Table 4-31, the mean length of time required for submission of the Reservation Confirmation and Incentive Claim Form ranged from slightly over two months for internal combustion engines to slightly over seven months for the single completed fuel cell project. The maximum lengths of time required for incentive claim form submittal was less than nine months for all completed projects.

Table 4-31: Days to Reservation Confirmation and Incentive Claim Form Submittal from Proof of Project Advancement Approval for Completed Projects

Incentive Level	Technology	Days to Reservation Confirmation and Incentive Claim Form from Proof of Project Advancement Approval				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	16	84	2	62	256
Level 2	Fuel Cell, Nonrenewable Fuel	1	211	211	211	211
Level 3N	IC Engine, Nonrenewable Fuel	7	75	1	70	195
	Microturbine, Nonrenewable Fuel	5	162	82	140	265

As mentioned previously, Table 4-31 might present a slightly misleading estimate of the length of time required to file the Reservation Confirmation and Incentive Claim Form since calculations are based upon Proof of Project Advancement approval dates rather than original Proof of Project Advancement dates (absent any extensions). Thus, to determine the adequacy of the nine-month deadline, Table 4-32 presents the typical length of time between the actual dates of Conditional Reservation Notice issuance and Reservation Confirmation and Incentive Claim Form receipt. According to Table 4-32, the mean length of time between Conditional Reservation Notice issuance and Reservation Confirmation and Incentive Claim Form receipt was less than or equal to the allowed one year period for completed systems across all technologies. The maximum length of time required for claim form submission was exactly one year for all technologies other than internal combustion engines. Thus, as with the active projects, it appears that while applicants may experience some difficulty meeting the 90-day Proof of Project Advancement deadline, the nine-month deadline for submission of the Reservation Confirmation and Incentive Claim Form is not as difficult.

Table 4-32: Days to Reservation Confirmation and Incentive Claim Form Submittal from Conditional Reservation Notice Issuance for Completed Projects

Incentive Level	Technology	Days to Reservation Confirmation and Incentive Claim Form from Conditional Reservation Notice				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	21	201	73	182	365
Level 2	Fuel Cell, Nonrenewable Fuel	1	365	365	365	365
Level 3N	IC Engine, Nonrenewable Fuel	7	187	61	203	291
	Microturbine, Nonrenewable Fuel	5	286	221	278	365

On-Site Verification

Table 4-33 illustrates the typical length of time from Reservation Confirmation and Incentive Claim Form submittal to on-site verification. As shown in Table 4-33, the mean delay between claim form receipt and on-site verification ranged from slightly over one week to slightly over one month. Interestingly, the mean length of time between claim form receipt and on-site verification was greater for completed systems than active systems across all technologies, as the mean length of time required for on-site verification was less than 14 days for all active projects that reported this data. Lengths of greater then 14 days between claim form submittal and on-site verification may indicate that some claim forms were incomplete, and applicants were granted additional time to present the missing information, as described in the Program Handbook. Alternatively, lengths of greater than 14 days could indicate delays on the part of the Program Administrator in scheduling on-site verifications. It is difficult to determine the cause of delays absent discussions with the host customers and/or Program Administrators.

Table 4-33: Days to On-Site Verification from Reservation Confirmation and Incentive Claim Form Receipt for Completed Projects

Incentive Level	Technology	Days to On-Site Verification				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	19	21	5	19	44
Level 2	Fuel Cell, Nonrenewable Fuel	1	18	18	18	18
Level 3N	IC Engine, Nonrenewable Fuel	4	8	2	5	20
	Microturbine, Nonrenewable Fuel	4	36	8	20	95

Incentive Check Issuance

Table 4-34 illustrates the length of time between on-site verification and incentive check issuance for completed projects. As shown in Table 4-34, the mean length of time between on-site verification and incentive check issuance was quite similar for photovoltaic systems and the single completed fuel cell project, at slightly less than one month. Internal combustion engines and microturbines, however, required three to four months on average between on-site verification and incentive check issuance. It is difficult to determine whether the delays in incentive check issuance for internal combustion engines and microturbines occur due to delays caused by the applicant, or delays caused by the Program Administrators. The enhanced length of time between these stages may reflect initial failures of the sites to meet the compliance requirements of the on-site verification, and extensions requested and granted to bring the systems into compliance prior to final approval by the Program Administrator, or delays in processing incentive checks by the Program Administrator. It is difficult to determine the source of the delays absent any discussions with the host customers and/or Program Administrators.

Table 4-34: Days to Incentive Check Issuance from On-Site Verification for Completed Projects

Incentive Level	Technology	Days to Check Issuance				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	18	24	1	24	53
Level 2	Fuel Cell, Nonrenewable Fuel	1	22	22	22	22
Level 3N	IC Engine, Nonrenewable Fuel	7	111	9	96	249
	Microturbine, Nonrenewable Fuel	5	80	36	66	174

Finally, Table 4-35 presents the typical number of days that reservations were active for systems prior to completion, where “active” indicates the length of time between Reservation Request Form submittal and incentive check issuance. According to Table 4-35, the mean length of activity for completed photovoltaics and internal combustion engine was less than one year, though the mean length of activity for microturbines and the single fuel cell project was closer to 1.25 years. The maximum length of activity for all completed systems was close to 500 days across all technologies.

Table 4-35: Days Active Prior to Completion

Incentive Level	Technology	Days Active Prior to Completion				
		N	**Mean**	**Minimum**	**Median**	**Maximum**
Level 1	Photovoltaic	19	282	137	246	504
Level 2	Fuel Cell, Nonrenewable Fuel	1	482	482	482	482
Level 3N	IC Engine, Nonrenewable Fuel	7	331	116	336	521
	Microturbine, Nonrenewable Fuel	5	423	363	393	496

Table 4-36 and Table 4-37 illustrate the typical number of days reservations remained active for systems by incentive basis. According to Table 4-36 and Table 4-37, on average, projects awarded incentives based on dollars per watt of eligible installed capacity required less time to complete than projects awarded incentives based on percentage of eligible installed system costs. However, only photovoltaic systems displayed a significant difference between mean project lengths based on incentive basis.[15] It is possible that photovoltaic systems awarded incentives based on dollars per watt of eligible installed capacity required significantly less time to complete due to differences in processing and/or verification requirements associated with projects with incentives awarded based on dollars per watt of eligible installed capacity rather than percentage of eligible installed costs. Photovoltaic projects are often turnkey, do not require air permits and site inspections, and involve simpler paperwork. Internal combustion engine and microturbine projects often include more project cost documentation, often require change orders, may require source testing, and may encounter difficulties with waste heat recovery.

Alternatively, differences in the mean lengths of time required for project completion by incentive basis may be attributable to the participant characterization of completed projects. The same third-party applicant represented most photovoltaic systems that received incentives based on percentage of eligible installed system costs. Therefore, it is difficult to determine whether differences in the lengths of time required by percentage of eligible installed cost-basis projects for completion were due to delays caused by that third-party applicant who was so heavily represented in the Program, or due to other factors.

[15] A difference of means test was conducted to determine whether the difference between the mean length of time to completion for projects awarded incentives based on percentage of eligible installed system cost and the mean length of time to completion for projects awarded incentives based on dollars per watt of eligible installed capacity was significantly different from zero for each technology at a 90% level of confidence.

Table 4-36: Days Active Prior to Completion for Projects with Incentives Based on Dollars per Watt of Eligible Installed Capacity

Incentive Level	Technology	Days Active				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	6	216	151	234	256
Level 2	Fuel Cell, Nonrenewable Fuel	1	482	482	482	482
Level 3N	IC Engine, Nonrenewable Fuel	4	273	116	295	384
	Microturbine, Nonrenewable Fuel	2	432	378	432	486

Table 4-37: Days Active Prior to Completion for Projects with Incentives Based on Percentage of Eligible Installed System Costs

Incentive Level	Technology	Days Active				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	10	343	220	342	504
Level 2	Fuel Cell, Nonrenewable Fuel	0	N/A	N/A	N/A	N/A
Level 3N	IC Engine, Nonrenewable Fuel	3	409	258	447	521
	Microturbine, Nonrenewable Fuel	3	417	363	393	496

Conclusions Regarding Milestone Difficulty

In general, the lengths of time required by completed projects to reach project milestones were quite similar to the lengths of time observed for active projects. As in the case of the active projects, issuance of the Conditional Reservation Notice required approximately 40-50 days on average for all technologies other than the single completed fuel cell project. The mean number of days required for Proof of Project Advancement approval ranged from slightly less than four months for internal combustion engines using non-renewable fuels to slightly over five months for photovoltaics. Thus, as with the applicants whose projects remained active as of January 2003, applicants whose systems were completed experienced difficulty providing Proof of Project Advancement within the required 90-day timeframe. As with the active projects, multiple extensions were granted to the Proof of Project Advancement deadline for completed projects.

Additionally, as with the active projects, while the 90-day Proof of Project Advancement deadline was difficult to meet, the nine-month deadline for submission of the Reservation Confirmation and Incentive Claim Form seemed adequate. All completed projects submitted Reservation Confirmation and Incentive Claim Forms within the required nine-month deadline, though the maximum length of time required to submit this form from Conditional Reservation Notice issuance was exactly 365 days for photovoltaics, fuel cells using nonrenewable fuels, and microturbines using nonrenewable fuels. The maximum length of time required to complete an internal combustion engine project using nonrenewable fuels was just under 10 months. No extensions to the nine-month deadline were required for the completed projects.

The mean length of time between Reservation Confirmation and Incentive Claim Form submittal and on-site verification was greater for completed projects than for active projects for photovoltaics and microturbines using non-renewable fuels. While all active projects reported mean delays of less than 14 days for on-site verifications, the mean delays reported for completed projects were 21 days for photovoltaics, 18 days for the single fuel cell project, and 36 days for microturbines using nonrenewable fuels. Completed internal combustion engines using non-renewable fuels only reported a mean delay of eight days to on-site verification. As noted previously, it is difficult to determine whether the host customers or the Program Administrators were responsible for the delays. The delays might have been caused by incomplete submittals of Reservation Confirmation and Incentive Claim Forms that required additional time for the host customers to remedy, or the delays might have been caused by delays in processing by the Program Administrators.

The fact that the delays to on-site verification were greater for completed projects than for active projects may indicate the occurrence of one or more of the phenomena observed earlier for the active projects—that host customers have gained more experience in the Program due to multiple submissions or re-submissions of projects, or Program Administrators and other agencies have become more adept at processing the required paperwork as they have gained more experience with the Program. These phenomena were manifested in a decrease in the mean length of time required by active projects across all technologies to reach project milestones between PY2001 and PY2002. Since all active projects for which on-site verification dates were recorded reported on-site verification dates from August 2002 through January 2003, while a significant portion (nearly one-third) of completed projects reported on-site verification dates prior to August 2002, the decrease in the mean length of time between claim form submittal and on-site verification may reflect increased experience with the on-site verification process on the part of the host customers and/or Program Administrators.

The mean length of time between on-site verification and incentive check issuance was within the 30-day period estimated by the Program Handbook for completed photovoltaic systems and the single fuel cell project using nonrenewable fuels. However, the mean length of time required for check issuance for completed microturbines and internal combustion engines using nonrenewable fuels ranged from approximately three to four months. While approximately two-thirds of completed projects were issued incentive checks within approximately 30 days, a few outliers experienced delays of five to eight months between on-site verification and incentive check issuance. Three of these outliers were internal combustion engines using nonrenewable fuels, and one was a microturbine using nonrenewable fuels. The maximum length of time between on-site verification and incentive check issuance was 249 days. As with the time elapsed between Reservation Confirmation and Incentive Claim Form submittal and on-site verification, it is difficult to determine whether the host customers or the Program Administrators were responsible for these delays.

The Program Handbook states that if a Program Administrator's independent verification consultant determines that a system is not compliant with Program requirements at the time of the on-site verification, the applicant is allowed 14 calendar days from the time of the on-site verification to bring the system into compliance. The Program Handbook does not, however, preclude extensions to the compliance deadline or multiple on-site verifications to determine whether requirements have been met. Extended delays to check issuance may thus reflect initial failure of host customer systems to meet Program requirements and the time of the initial on-site verification, followed by extensions to the 14-day deadline and an additional on-site verification to determine whether the problem(s) have been remedied. Host customers may have been granted several attempts to meet compliance requirements, i.e., if a second on-site verification revealed that the system was still not in compliance with Program requirements, the applicant may have been granted an additional 14 days to remedy the problem. However, it is difficult to determine whether these scenarios occurred absent discussions with the host customers who have successfully completed projects.[16]

4.7 Summary of Inactive Projects

This section presents a summary overview of the PY2001 and PY2002 projects inactive as of January 2003. For the inactive projects, this section presents the following:

- Program activity by incentive level,
- Days active prior to withdrawal or rejection, and
- Successful re-submissions of applications previously withdrawn or rejected.

Program Activity by Incentive Level

As shown in Table 4-38, Level 3N projects constituted the majority of the inactive PY2001 projects, both in terms of the number of inactive projects (115) and the total potential installed capacity of the projects (56,539 kW). There were also a substantial number of inactive Level 1 projects (65), which represented 16,800 kW of potential installed capacity. There were only four inactive Level 2 projects, which represented 1,250 kW of potential installed capacity.[17]

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[16] These scenarios will be discussed in Section 5, which contains the results of the participant surveys.
[17] Incentive Level 3R did not exist in PY2001.

Table 4-39 presents the status of the PY2002 projects inactive as of the end of January 2003. Level 3N projects accounted for the majority of inactive projects in terms of potential installed capacity (27,058 kW), though the number of Level 3N inactive projects (50) was less than the number of inactive Level 1 projects (55). Level 1 inactive projects accounted for 8,872 kW of potential installed capacity. No Level 2 or Level 3R projects were inactive as of the end of January 2003.

Table 4-38: Status of All Inactive PY2001 Projects as of January 2003

Incentive Level	PY2001 Inactive Projects as of January 2003 (All Administrators)					
	Withdrawn		Rejected		Total Inactive	
	Projects	kW	Projects	kW	Projects	kW
Level 1	53	14,965	12	1,835	65	16,800
Level 2	2	800	2	450	4	1,250
Level 3N	71	36,180	44	20,179	115	56,359
Total	**126**	**51,945**	**58**	**22,464**	**184**	**74,409**

Table 4-39: Status of All Inactive PY2002 Projects as of January 2003

Incentive Level	PY2002 Inactive Projects as of January 2003 (All Administrators)					
	Withdrawn		Rejected		Total Inactive	
	Projects	kW	Projects	kW	Projects	kW
Level 1	45	6,258	10	2,614	55	8,872
Level 2	0	0	0	0	0	0
Level 3N	39	19,073	11	7,985	50	27,058
Level 3R	0	0	0	0	0	0
Total	**84**	**25,331**	**21**	**10,599**	**105**	**35,930**

Days Active by Technology and Incentive Level

Table 4-40 illustrates the typical length of time applications remained active prior to withdrawal or rejection.[18] Of the 184 applications withdrawn or rejected in PY2001, only four advanced to the Proof of Project Advancement stage prior to withdrawal or rejection. Of the 105 applications that were withdrawn or rejected in PY2002, only one application reached the Proof of Project Advancement stage prior to withdrawal or rejection. Thus, most applications only reached an early stage prior to becoming inactive.

[18] The number of withdrawn or rejected applications in Table 4-40 may be lower than the number of withdrawn or rejected applications reported in Table 4-38 and Table 4-39 since dates of withdrawal or rejection were not available for all applications that became inactive.

Applications for fuel cells using non-renewable fuels remained active the greatest length of time prior to withdrawal, rejection or suspension (335 days), followed by internal combustion engines and microturbines using non-renewable fuels (157 and 137 days, respectively), photovoltaics (133 days), and fuel cells using renewable fuels (78 days). For all technologies other than fuel cells using renewable fuels, the mean length of time that applications remained active prior to withdrawal or rejection (in conjunction with the inability of those projects to reach Proof of Project Advancement) indicates that, on average, many applicants whose applications were granted extensions to the Proof of Project Advancement deadline were still unable to meet the requirements. Those projects ultimately able to meet the Proof of Project Advancement requirements remained active or were eventually completed.

However, as shown in Figure 4-7 and Figure 4-8, many applicants who were unable to meet the Proof of Project Advancement milestone on their first attempt have successfully re-submitted applications to the Program and are making or have made subsequent progress toward achieving that milestone.

Table 4-40: Days Active Prior to Withdrawal or Rejection

Incentive Level	Technology	Days Active				
		N	Mean	Minimum	Median	Maximum
Level 1	Photovoltaic	112	133	1	122	411
	Fuel Cell, Renewable Fuel	2	78	42	78	114
Level 2	Fuel Cell, Nonrenewable Fuel	3	335	168	381	455
Level 3N	IC Engine, Nonrenewable Fuel	123	157	0	144	476
	Microturbine, Nonrenewable Fuel	24	137	4	108	420

Successful Re-Submissions to the Program

Table 4-41 and Table 4-42 present the proportion of active and completed PY2002 projects classified as successful re-submissions based on data received as of January 2003. A successful re-submission is defined as an application that remains active for a facility address for which an application was previously filed and withdrawn or rejected.

Re-submissions were not determined based on the host customer characterization described in the previous section. Although a host customer may have submitted multiple applications to the Self-Generation Incentive Program, applications were only considered re-submissions if the projects were to be installed at the same site. Additionally, re-submissions were determined by host customer facility address regardless of technology employed in each submission. Thus, if a host customer submitted one application to the Program for an internal combustion engine in PY2001, but that application became inactive, and an application for a microturbine was subsequently submitted for the same site, the microturbine application would be classified as a re-submission despite the change in technology employed.

In the case of multiple applications submitted by the same host customer for the same facility address where all applications remained active, none of the applications submitted by the host customer is considered a re-submission. This rationale is based on the assumption that an applicant will not submit a new application for the same project if an application for that project remains currently active (i.e., until the application is withdrawn or rejected).

Therefore, successful re-submissions were classified into the following general categories:

- Applications withdrawn or rejected in PY2001 and successfully re-submitted in PY2002,
- Applications withdrawn or rejected and successfully re-submitted in PY2002, and
- Other. Applications included in this category include active applications for which no other applications were filed for the same facility address,[19] or for inactive applications where an application was filed for the same facility address and the previous application was withdrawn or rejected (i.e., unsuccessful re-submissions).

According to Table 4-41, of the 284 PY2002 applications to the Self-Generation Incentive Program that remained active as of January 2003, 43 applications can be considered successful re-submissions according to the methodology described above. This amounts to 15% of the total applications submitted in both Program Years for all incentive levels. Table 4-42 illustrates the proportion of completed projects that were classified as successful re-submissions to the Program. As shown, 23% of the projects completed in PY2002 were re-submissions from applicants who had unsuccessfully filed an application for the same facility address in PY2001. Applicants who had unsuccessfully filed an application for the same facility address earlier in PY2002 also represented 23% of the projects completed in PY2002. These results, in conjunction with the high reported percentages of successful re-applications to active PY2002 projects presented in, suggest that many applicants require several attempts at submissions before successfully completing a project.

[19] Since re-submissions are determined based upon reported host customer facility address, where host customer facility addresses were not reported, applications were not categorized as re-submissions since it was impossible to determine whether earlier applications had been filed for the same facility addresses, whether successfully or unsuccessfully.

Table 4-41: Successful Re-Submissions to Active PY2002 Projects as of January 2003

Incentive Level	Technology	WD/REJ 2001; Active 2002		WD/REJ 2002; Active 2002		Other		Total Active	
		Projects	Percent	Projects	Percent	Projects	Percent	Projects	Percent
Level 1	Photovoltaic	7	2%	9	3%	140	49%	156	55%
	Fuel Cell, Renewable Fuel	0	0%	0	0%	1	0%	1	0%
Level 2	Fuel Cell, Nonrenewable Fuel	1	0%	0	0%	0	0%	1	0%
Level 3R	IC Engine, Renewable Fuel	0	0%	0	0%	2	1%	2	1%
	Microturbine, Renewable Fuel	0	0%	0	0%	6	2%	6	2%
Level 3N	IC Engine, Nonrenewable Fuel	18	6%	4	1%	70	25%	92	32%
	Microturbine, Nonrenewable Fuel	3	1%	1	0%	22	8%	26	9%
Total	**All Technologies**	**29**	**10%**	**14**	**5%**	**241**	**85%**	**284**	**100%**

Table 4-42: Successful Re-Submissions to Completed PY2002 Projects as of January 2003

Incentive Level	Technology	WD/REJ 2001: Complete 2002		WD/REJ 2002: Complete 2002		Other		Total Complete	
		Projects	Percent	Projects	Percent	Projects	Percent	Projects	Percent
Level 1	Photovoltaic	2	15%	3	23%	7	54%	12	92%
	Fuel Cell, Renewable Fuel	0	0%	0	0%	0	0%	0	0%
Level 2	Fuel Cell, Nonrenewable Fuel	0	0%	0	0%	0	0%	0	0%
Level 3R	IC Engine, Renewable Fuel	0	0%	0	0%	0	0%	0	0%
	Microturbine, Renewable Fuel	0	0%	0	0%	0	0%	0	0%
Level 3N	IC Engine, Nonrenewable Fuel	1	8%	0	0%	0	0%	1	8%
	Microturbine, Nonrenewable Fuel	0	0%	0	0%	0	0%	0	0%
Total	**All Technologies**	**3**	**23%**	**3**	**23%**	**7**	**54%**	**13**	**100%**

4.8 Host Customer Characterization

This section characterizes the host customers using data from the host customer surveys. The following characteristics are examined:

- Building type,
- Number of employees at the host customer facility by building type,
- Monthly electric bill by building type,
- Square footage by building type,
- Use of distributed generation system for emergency backup by building type, and
- Level of host customer involvement with the project by sector.

Building Type Characterization

Almost every major building type was represented among the surveyed host customers. Figure 4-11 presents the weighted distribution of host customers across building types, based upon the host customer surveys.[20] Manufacturing establishments were the most prevalent of all building types, followed by government and miscellaneous establishments, colleges and schools. Construction, mining, and retail establishments were not represented in the survey sample and are therefore excluded from the following figures. Each building type in Figure 4-11 is included in the subsequent figures for the purposes of consistency. In Figure 4-11, government establishments were granted their own category since there was such high representation of government establishments in the completed survey sample.

Number of Employees at Host Customer Facility by Building Type

Figure 4-12 presents the mean and median number of employees at the facility to be supplied by the self-generation system, according to the host customer interviews. For most building categories, the mean number of employees was well above 100, indicating that smaller firms are generally not in the market for distributed generation. Only warehouses and transportation, communication and utilities (TCU) establishments averaged fewer than 100 employees. Colleges possessed the highest mean number of employees, followed by hospitals, offices, and schools. Overall, the mean number of employees at host customer facilities was slightly greater than 400.

[20] All figures and tables in Sections 4.8 and 4.9 are weighted according to the host customer weighting methodology introduced in Section 3.

Figure 4-11: Number of Host Customers by Building Type

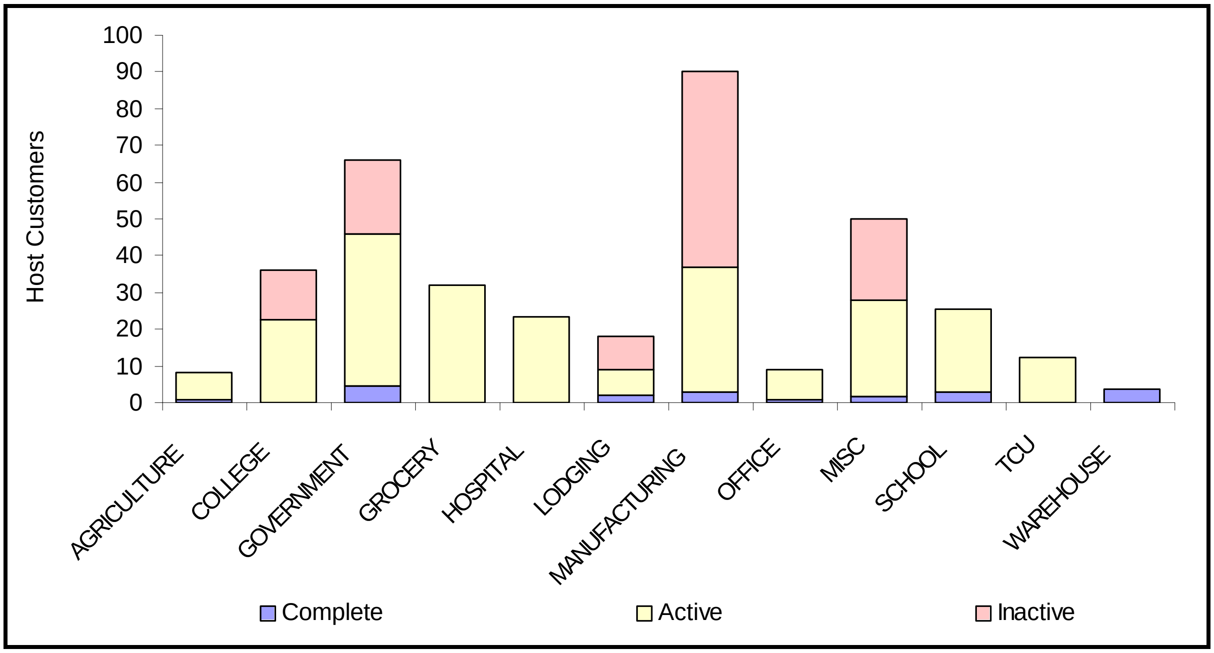
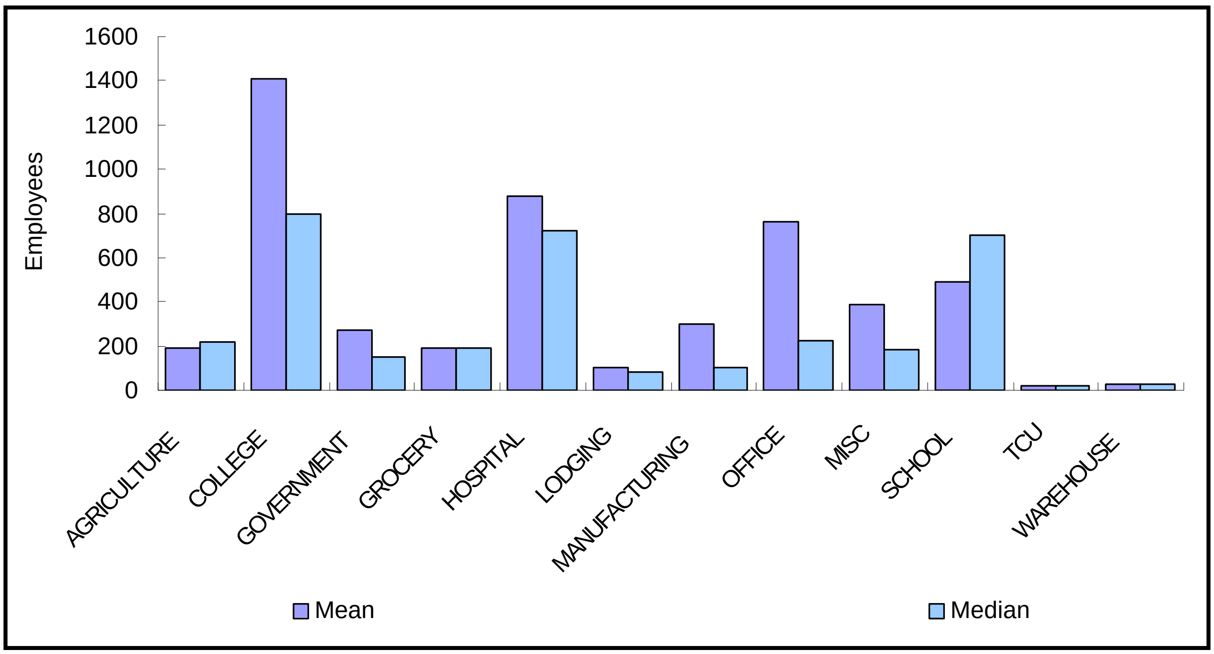


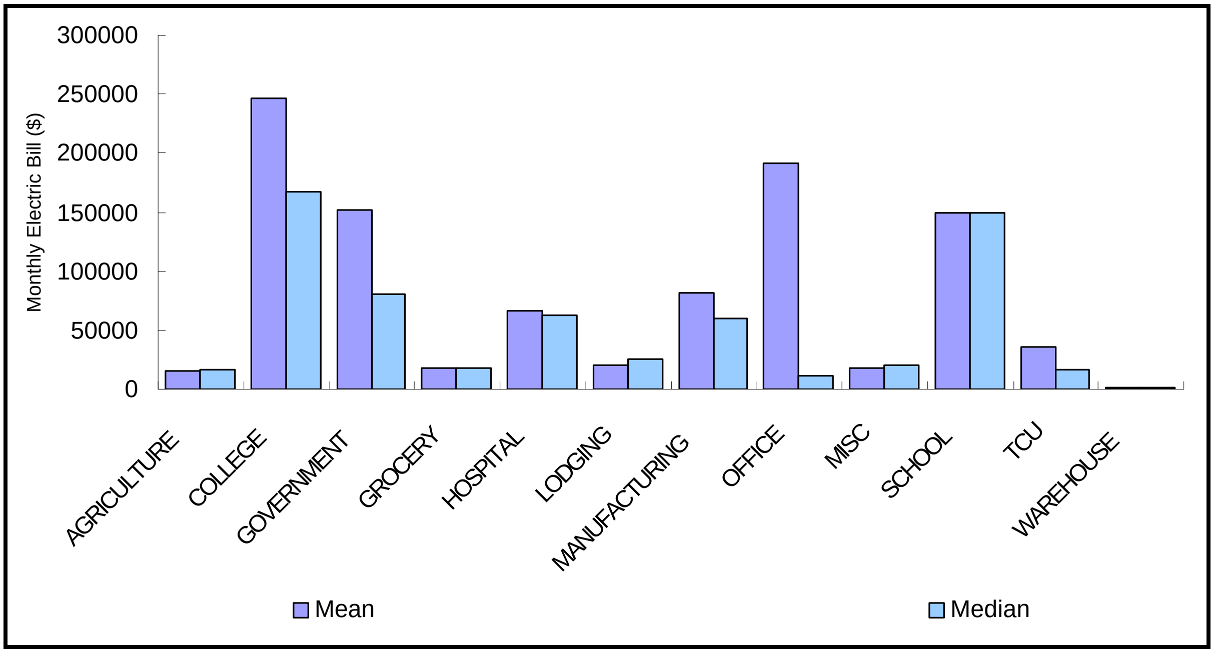
Figure 4-12: Average Number of Employees at Host Customer Facility by Building Type



Monthly Electric Bill by Building Type

Figure 4-13 presents the mean and median electric utility bills for each building type. The mean monthly electric bills reported by surveyed host customers for each building type ranged from $1,300 to nearly $250,000. Colleges possessed the highest mean electric monthly bills, followed by offices, schools, and government agencies. The distribution of host customers across building types according to monthly electric bills is roughly similar to the distribution of host customers across building types according to number of employees.

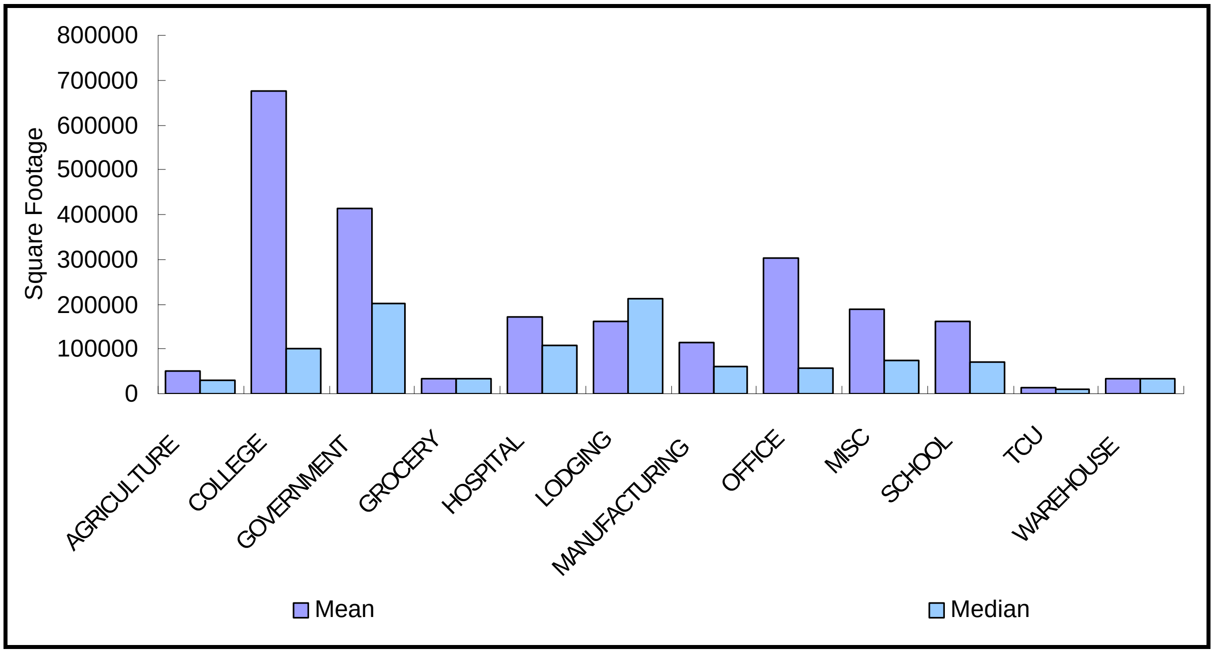
Figure 4-13: Average Host Customer Monthly Electric Bill by Building Type



Square Footage by Building Type

Figure 4-14 presents the mean and median square footage for host customers by building type. The mean square footage reported by surveyed host customers for each building type represented in the Program ranged from slightly over 13,000 to 680,000. Colleges possessed the largest mean square footage, followed by governments and offices.

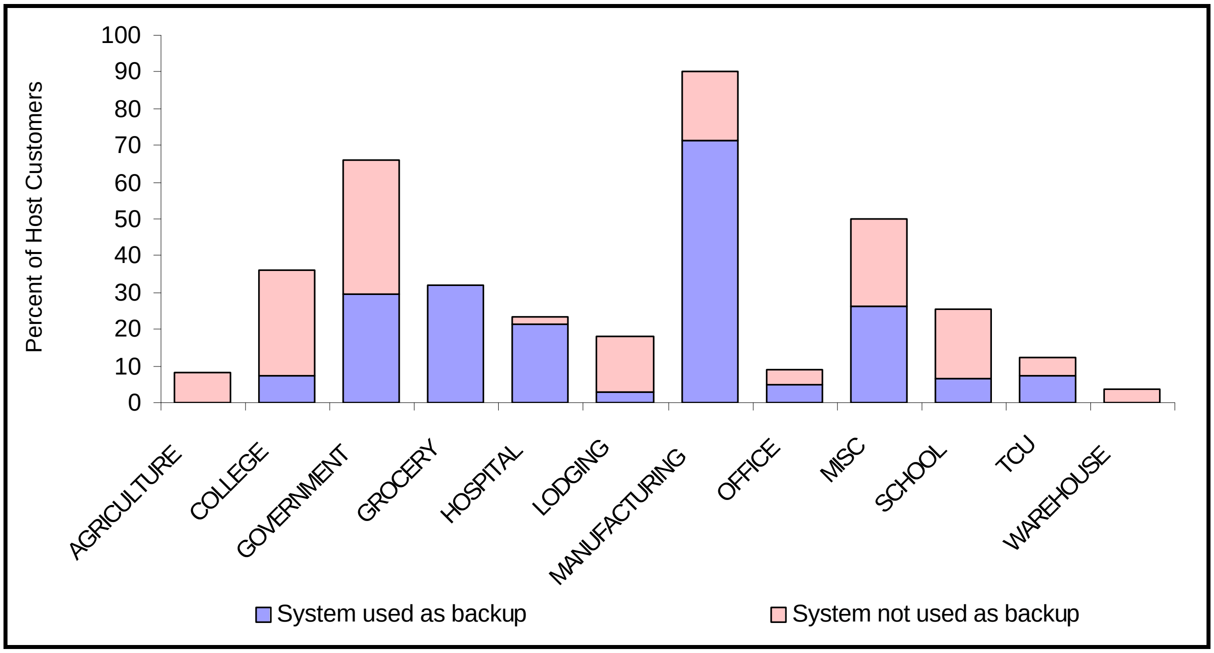
Figure 4-14: Average Host Customer Square Footage by Building Type



Use of Distributed Generation System as Emergency Backup by Building Type

Figure 4-15 presents the percent of host customers whose self-generation systems will be available for emergency backup by building type. While self-generation systems may not be used primary for emergency backup purposes, many of the surveyed host customers were sensitive to power outages and thus designed their systems to continue to operate when power from the grid is interrupted. Most host customers who indicated that their systems would be available for emergency backup purposes represented manufacturing business types, followed by groceries, government agencies and miscellaneous building types.

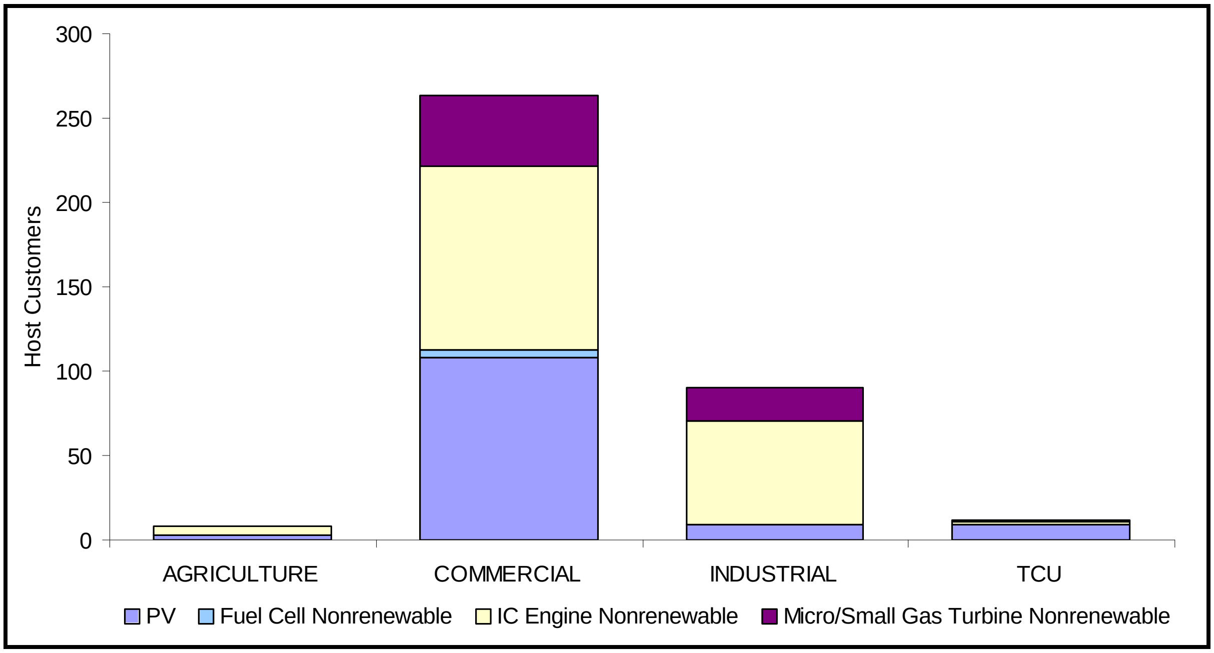
Figure 4-15: Percent of Host Customers Whose Distributed Generation System Provides Emergency Backup by Building Type



Distributed Generation Technology Applications by Sector

Figure 4-16 presents the distribution of technologies by sector for surveyed host customers. Photovoltaics, internal combustion engines, and microturbines using nonrenewable fuels were represented in all sectors other than the agricultural sector. Microturbines using nonrenewable fuels were not represented in the agricultural sector. Fuel cells using nonrenewable fuels were only represented in the commercial sector. Internal combustion engines using nonrenewable fuels were the most well represented of all technologies across all sectors other than the agricultural sector, which was dominated by photovoltaics.

Figure 4-16: Distributed Generation Technology Applications by Sector



Level of Host Customer Involvement with the Project

Surveyed host customers were asked about their level of involvement with their self-generation project(s). They were divided into three groups based on their responses:

- ***Self Applicants:*** Those who are completing and submitting all application forms themselves, and have direct contact with the Program Administrator,
- ***Involved Host Customers:*** Those who employ an energy service company (ESCO), contractor, or some other third party to complete and file the application forms, but only after thorough consultation, and
- ***Uninvolved Host Customers:*** Those who employ an ESCO, contractor, or some other third party to complete and file the application forms, with minimal host customer involvement.

Figure 4-17 and Figure 4-18 present the involvement level of PY2001 and PY2002 host customers, respectively, by sector.[21] As shown in Figure 4-17 and Figure 4-18, the TCU and commercial sectors possessed the highest percentage of self-applicants relative to total applicants than other sectors in both PY2001 and PY2002. Involved applicants dominated the industrial sector in PY2001, and the agricultural sector in PY2002. The commercial sector possessed the highest percentage of uninvolved applicants relative to total applicants than other sectors in PY2001, though the industrial sector possessed the highest percentage of uninvolved applicants in PY2002. Regardless, however, of the level of involvement stated by the host customers, the majority of host customers in all sectors utilized third parties during the application process in PY2001 and PY2002.

[21] The "Multifamily" sector was omitted from the host customer characterization in PY2002. The host customers classified into this category in PY2001 were reclassified into other sectors in PY2002 according to the results of the host customer surveys.

Figure 4-17: PY2001 Host Customer Level of Involvement with Application Process by Sector

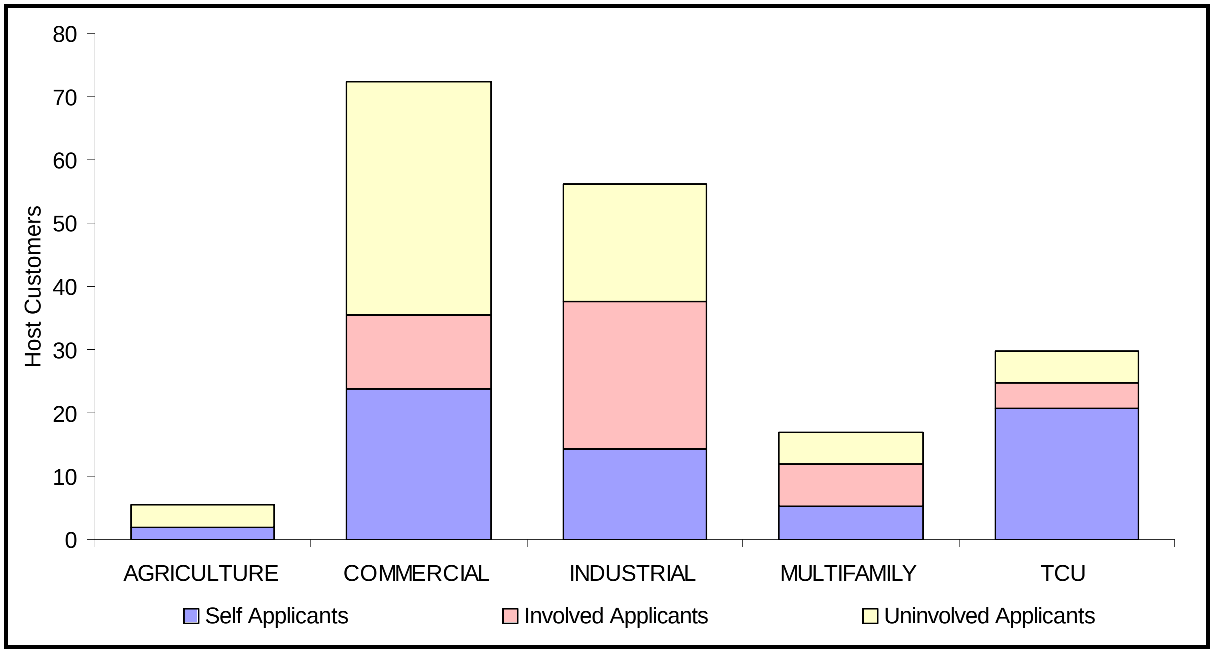
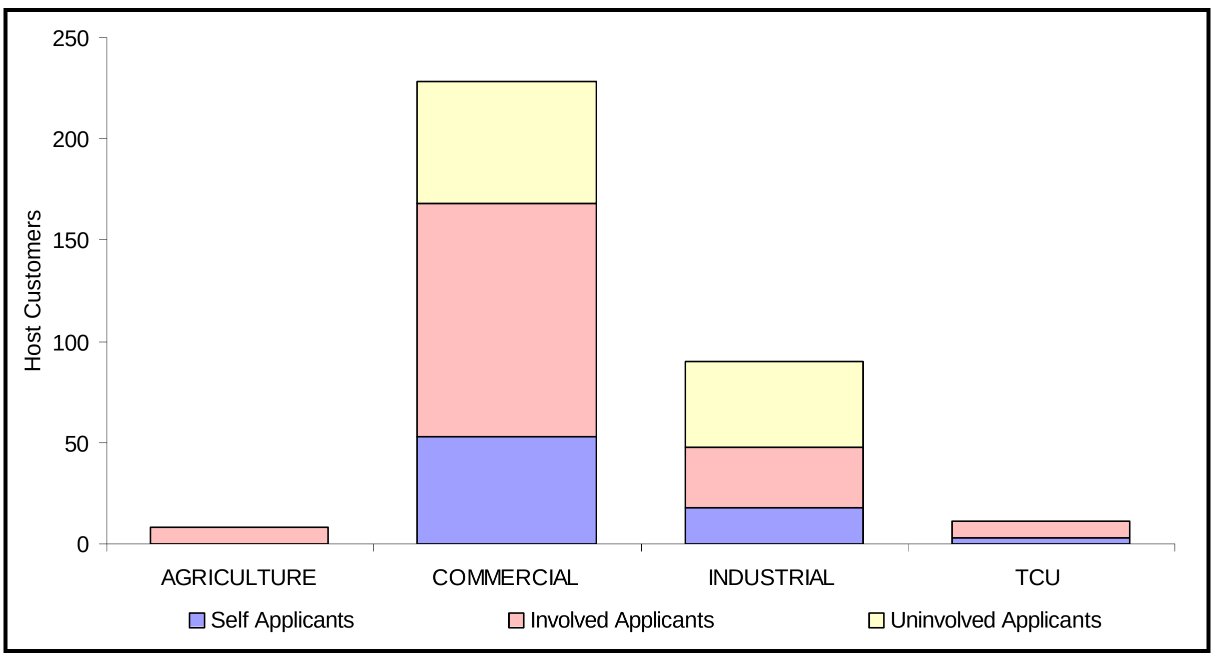


Figure 4-18: PY2002 Host Customer Level of Involvement with Application Process by Sector



Overall, the percentage of self-applicants fell from 37% in PY2001 to 22% in PY2002. However, the percentage of involved applicants nearly doubled from 25% in PY2001 to 48% in PY2002. The percentage of uninvolved applicants fell from 38% in PY2001 to 30% in PY2002.

Thus, it appears that between PY2001 and PY2002, host customers have gravitated to the middle of the spectrum in terms of level of involvement in the application process. While the proportion of self-applicants has fallen, the proportion of uninvolved applicants has also fallen.

The decrease in the proportion of uninvolved applicants may be due to one or more of the following phenomena:

- ***Host customers have gained more experience with the Program.*** Host customers who submitted one or more applications to the Program in PY2001 and subsequently applied to the Program in PY2002 may have gained more experience with the application and/or project development process, increasing their confidence regarding involvement with subsequent projects.
- ***Host customers are more concerned about operating costs.*** While the state of the economy in PY2001 worsened during the latter half of PY2001, its condition did not improve dramatically in PY2002. Energy prices also increased during the latter half of PY2002 due, among other reasons, to the possibility of disruption of energy imports. Host customers that may have been optimistic regarding rapid recovery of the economy have become more concerned regarding its condition, and have been forced to focus more on managing operating costs. The salience of development costs associated with distributed generation projects and the projects' impact upon future energy costs increased, inducing host customers to become more involved with the application and/or project development process.

The decrease in the proportion of self-applicants could be due to one or more of the following phenomena:

- ***The type of host customers submitting reservation requests for Program funding has changed since PY2001.*** Host customers that were more sophisticated in terms of knowledge of distributed generation and/or incentive programs such as the Self-Generation Incentive Program may have represented a larger share of the total host customers in PY2001 and PY2002 since these types of host customers were more likely to have learned about the Program soon after its inception. Enhanced marketing efforts conducted by the Program Administrators since the Program's inception has broadened the scope of organizations participating in the Program. The types of host customers aware of the Program in PY2001 may also have been more likely to be sufficiently sophisticated to manage the application process without the assistance of third-party vendors.

- ***Host customers have taken more time to examine their options regarding third-party vendors in PY2002.*** Some host customers may have been concerned that funds available under the Self-Generation Incentive Program would be exhausted quickly in PY2001, which motivated them to submit applications as rapidly as possible in order to reserve their share of available funds. In their haste to reserve funding, host customers may not have taken the time to examine their options regarding third-party vendors.
- ***Host customers that served as self-applicants in PY2001 opted for third party assistance in PY2002 due to negative experiences with the Program in PY2001.*** If host customers felt that the application process for their PY2001 projects had been burdensome, they might have preferred that a third party manage the process on their behalf for subsequent projects. Conversely, regardless of the quality of their experiences with the Program in PY2001, those host customers that already went through the process may have felt that they gained sufficient experience not to require assistance from third parties for subsequent projects. It is difficult to determine which of these phenomena would prevail for host customers that had had negative experiences with the Program in PY2001, and whether this scenario was a compelling factor in the decline in self-applicants in PY2002.

One or both of the following factors may also have caused the gravitation of host customers to the center of the involvement spectrum.

- ***The market for third-party vendors has developed since PY2001.*** The Self-Generation Incentive Program has generated more interest in installation of distributed generation systems, which has in turn increased demand for third-party vendor services. It is possible that more ESCOs, consultants and other types of firms have entered the market since PY2001, and more choices are available to host customers regarding potential vendors. Additionally, firms that served as third-party applicants to the Program in PY2001 have gained experience with the application and project development process, and their service offerings may seem more attractive to potential host customers.
- ***Third-party vendors have increased Program marketing efforts.*** According to the results of the host customer surveys, the majority of host customers in PY2002 first learned about the Self-Generation Incentive Program from a third-party vendor, whether a manufacturer, ESCO or other consultant. Third-party vendors may have begun marketing the Program more aggressively to clients since PY2001 if they perceive that the Program presents a valuable opportunity to provide savings to their clients and if their experience with the Program in PY2001 had been positive.

4.9 Supplier Characterization

This section characterizes the PY2001 and PY2002 Self-Generation Incentive Program suppliers using data from the Program Administrator tracking data, third-party applicant surveys, and manufacturer surveys. Based on their roles in self-generation projects, suppliers are grouped into two categories.

- ***Manufacturers.*** These are manufacturers of distributed generation systems listed on PY2001 and PY2002 project applications.
- ***Third-Party Applicants.*** These are ESCOs, turnkey integrators, and installers, contractors, energy consultants, and related firms that served as applicants to the Program on behalf of one more host customers.

There is some overlap between these two groups since some firms provide multiple services (e.g., some firms manufacture distributed generation systems and provide turnkey installation services). Overall, 11 firms were both distributed generation system manufacturers and third-party applicants to the Program in PY2001 and PY2002. Four of these 11 firms were included in the supplier surveys.

The following characteristics are examined for each type of supplier:

- Level of activity/representation in the Self-Generation Incentive Program,
- Firm size and number of years in business, and
- Typical role(s) performed by the firm in a distributed generation project.

Manufacturers

<u>Program Activity</u>

There were 50 manufacturers represented in the PY2001 and PY2002 projects. Most of the manufacturers represented in the Program were in both PY2001 and PY2002. Of the manufacturers represented in the Program:

- One primarily manufactured fuel cells using renewable fuels,
- Two primarily manufactured fuel cells using nonrenewable fuels,
- Twelve primarily manufactured microturbines using nonrenewable fuels,
- Seventeen primarily manufactured internal combustion engines using nonrenewable fuels, and
- Eighteen primarily manufactured photovoltaic systems.

As described in Section 3, each manufacturer was assigned a primary technology, and the number of applications listing that manufacturer was summed across PY2001 and PY2002.[22]

Table 4-43 presents the total number of projects for the most heavily represented equipment manufacturers by primary technology, based on Program Administrator tracking data. Since the Program Administrator tracking data used for these tables is confidential, no identifying information is presented for the manufacturers.

As shown in Table 4-43, one manufacturer dominated the participating suppliers within each technology category. The photovoltaic and internal combustion engine markets, however, possessed a few other major players represented in the Program. In contrast, fuel cells using renewable and non-renewable fuels represented in the Program were each primarily supplied by one manufacturer.

Table 4-43: Number of Projects Involving Manufacturers Most Heavily Represented in the Program

Primary Technology	Anonymous Manufacturer Name	Number of Projects
Level 1 Projects		
Photovoltaic	A	65
	B	49
	C	39
Fuel Cell, Renewable Fuel	D	1
Level 2 Projects		
Fuel Cell, Nonrenewable Fuel	E	6
	F	1
Level 3N Projects		
IC Engine, Nonrenewable Fuel	G	64
	H	42
	I	35
Microturbine, Nonrenewable Fuel	J	60
	K	11

22 Since manufacturers were assigned a primary technology based upon the total number of applications submitted listing that manufacturer in a single Program Year, not all technologies are shown in the following table though applications may have been submitted to the Program for those technologies.

Firm Size and Age

Table 4-44 presents the number of full-time employees at the surveyed manufacturer firms, and Table 4-45 presents the typical number of years the surveyed manufacturer firms have been in business.[23] As shown in Table 4-44, the equipment manufacturers tended to possess very large numbers of full-time employees. The mean number of full-time employees ranged from 225 for manufacturers of microturbines using nonrenewable fuels to 1,600 for manufacturers of internal combustion engines using non-renewable fuels. As shown in Table 4-45, the surveyed equipment manufacturers have been in business for a considerable length of time. Length of operations ranged from a minimum of 5 years, for a manufacturer of microturbines using nonrenewable fuels, to a maximum of 40 years, for a manufacturer of photovoltaic systems and a manufacturer of internal combustion engines using nonrenewable fuels.

Table 4-44: Number of Full-Time Employees of Equipment Manufacturers

Incentive Level	Primary Technology	Full-Time Employees				
		N	Mean	Minimum	Median	Maximum
1	Photovoltaic	1	700	700	700	700
	Fuel Cell, Renewable Fuel	1	900	900	900	900
3N	IC Engine, Nonrenewable Fuel	2	1,600	1,000	2,000	2,000
	Microturbine, Nonrenewable Fuel	1	225	225	225	225

Table 4-45: Number of Years in Business for Equipment Manufacturers

Incentive Level	Primary Technology	Years in Business				
		N	Mean	Minimum	Median	Maximum
1	Photovoltaic	6	17	6	15	40
	Fuel Cell, Renewable Fuel	1	30	30	30	30
3N	IC Engine, Nonrenewable Fuel	2	34	30	30	40
	Microturbine, Nonrenewable Fuel	2	14	5	15	15

Distribution Channels and Lead Times

Manufacturers were also surveyed regarding the typical distribution channel and typical lead times between placement of an order and delivery of the generation system. A significant fraction of the manufacturers indicated that larger systems were shipped directly to the customer site and smaller systems were shipped to distributors or wholesalers. The typical

[23] Table 4-44 and Table 4-45 present data based on the manufacturer surveys, where manufacturers were classified according to primary technology supplied. Thus, no results are available for incentive Level 2 since no manufacturers of fuel cells using non-renewable fuels were surveyed. Additionally, no results are available for incentive Level 3R since no manufacturers were assigned a primary technology in incentive Level 3R for PY2001 and PY2002.

lead times between order placement and generation system delivery varied by technology, as follows:

- ***Photovoltaics:*** Less than one week to 8 weeks[24]
- ***Fuel cells:*** 4 to 6 months
- ***Microturbines:*** 4 to 6 weeks
- ***Internal combustion engines:*** 16 to 24 weeks

Thus, for photovoltaics and microturbines, up to two months elapse between order placement and system shipment. For fuel cells and internal combustion engines, up to six months elapse between order placement and system shipment.

Third-Party Applicants

Program Activity

There were 135 third-party applicants involved in the Self-Generation Incentive Program in PY2001 and PY2002. Approximately 80% of the third-party applicants that participated in the Program in PY2001 also submitted applications to the Program in PY2002. Of the third-party applicants involved in the Program:

- One third-party applicant was primarily involved with nonrenewable fuel cell projects,
- One third-party applicant was primarily involved with renewable fuel cell projects,
- Three third-party applicants were primarily involved with microturbines using renewable fuels,
- Fifteen third-party applicants were primarily involved with microturbines using nonrenewable fuels,
- Forty-seven third-party applicants were primarily involved with internal combustion engines using nonrenewable fuels, and
- Sixty-eight third-party applicants were primarily involved with photovoltaic systems.

Table 4-46 presents the most active third-party applicants for the PY2001 and PY2002 projects, based on the Program Administrator tracking data. As with the manufacturers, each third-party applicant was assigned a primary technology and the number of applications submitted by each third-party applicant as a third-party applicant was summed across PY2001 and PY2002. Also, as with the manufacturers, no identifying information is presented for the third-party applicants since the data provided by the Program Administrators is confidential.

[24] However, one of the surveyed manufacturers stated that 4 to 6 months typically elapsed between order placement and system delivery. Projects involving new construction typically required up to one year.

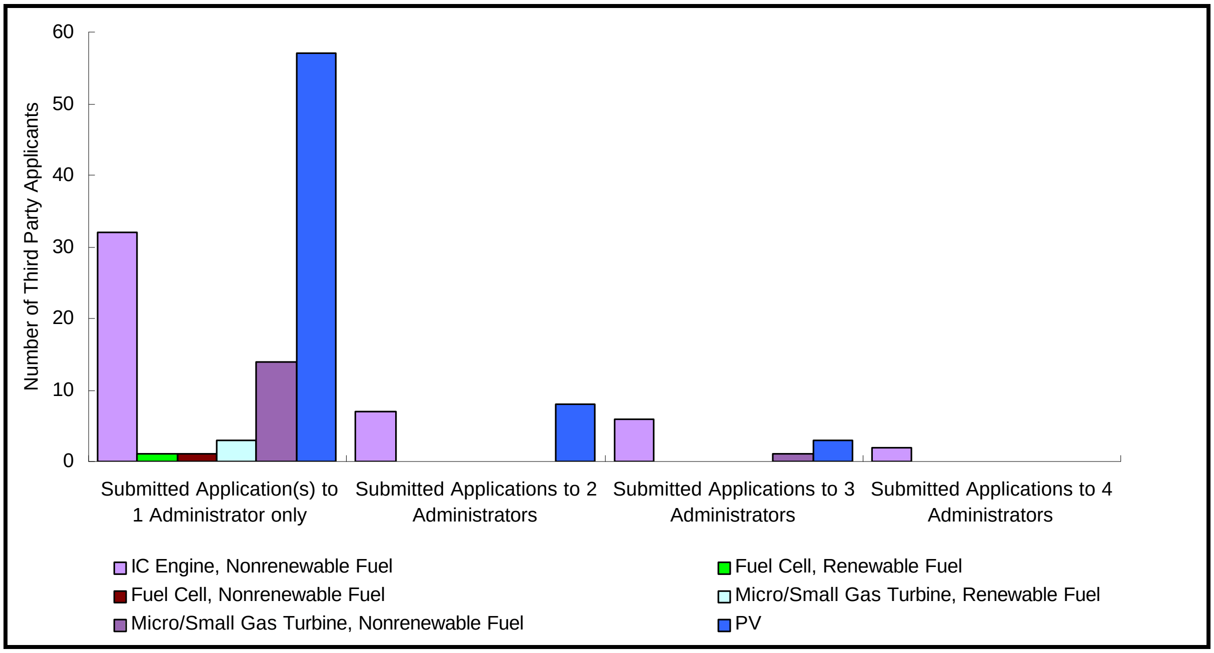
As shown in Table 4-46, a single third-party applicant dominated the photovoltaic projects funded by the Program. A few third-party applicants served as major players in the internal combustion engine and microturbine using nonrenewable fuels markets. There was no clear market leader for microturbines using renewable fuels or fuel cells using nonrenewable fuels due to low Program participation of third-party applicants for these technologies. Self-applicant host customers submitted most applications for microturbines using renewable fuels.

Table 4-46: Number of Applications Submitted by Third-Party Applicants Most Heavily Represented in the Program

Primary Technology	Anonymous Third-Party Applicant Name	Number of Projects
Level 1 Projects		
Photovoltaic	A	67
	B	19
	C	13
Level 2 Projects		
Fuel Cell, Nonrenewable Fuel	E	3
Level 3R Projects		
Microturbine, Renewable Fuel	F	1
	G	1
Level 3N Projects		
IC Engine, Nonrenewable Fuel	H	23
	I	20
	J	11
Microturbine, Nonrenewable Fuel	K	8
	L	4
	M	2

While most third-party applicants were only involved with projects in one Program Administrator's service territory, some spanned multiple service territories. Figure 4-19 presents the number of third-party applicants who submitted applications to multiple Program Administrators in PY2001 and PY2002. Twenty-seven of the third-party applicants (approximately 20%) submitted applications to more than one Program Administrator. As shown in Figure 4-19, third-party applicants involved primarily with internal combustion engine projects were more likely to submit reservation requests to multiple Program Administrators than third-party applicants associated with other technologies.

Figure 4-19: Scope of Third Party Application Activity by Primary Technology



Firm Size and Age

Table 4-47 summarizes the number of employees of the surveyed third-party applicants, and Table 4-48 summarizes the number of years in business of the surveyed third-party applicants according to the supply channel survey data. As shown in Table 4-47, the average number of full-time employees of third-party applicants ranged from a minimum of two employees for third-party applicants for photovoltaic systems and internal combustion engines using nonrenewable fuels to a maximum of 75,000 for a third-party applicant for an internal combustion engine using nonrenewable fuels. The mean number of full-time employees of third-party applicants varied widely across technologies. The mean number of years in business of third-party applicants also varied across technologies. Third-party applicants for photovoltaics and internal combustion engines tended to be better established, while third-party applicants for microturbines and fuel cells were relatively new entrants to the market.

Table 4-47: Number of Full-Time Employees of Third-Party Applicants

Incentive Level	Primary Technology	N	Mean	Minimum	Median	Maximum
1	Photovoltaic	9	60	2	16	700
2	Fuel Cell, Nonrenewable Fuel	2	453	5	453	900
3N	IC Engine, Nonrenewable Fuel	10	2,442	2	47	75,000
	Microturbine, Nonrenewable Fuel	2	117	9	117	225

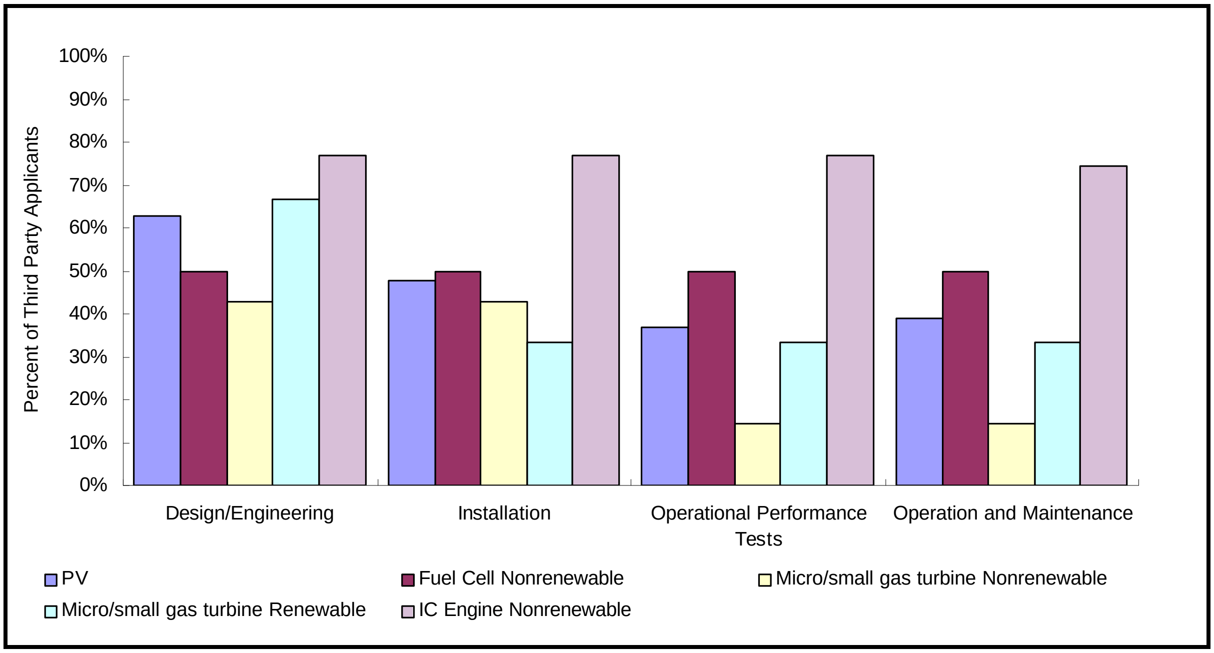
Table 4-48: Number of Years in Business for Third-Party Applicants

Incentive Level	Primary Technology	N	Mean	Minimum	Median	Maximum
1	Photovoltaic	25	15	1	10	52
2	Fuel Cell, Nonrenewable Fuel	2	26	21	26	30
3R	Microturbine, Renewable Fuel	2	16	2	16	30
3N	IC Engine, Nonrenewable Fuel	11	34	4	29	190
	Microturbine, Nonrenewable Fuel	4	7	1	5	15

Typical Roles Performed in a Distributed Generation Project

Figure 4-20 presents the distribution of typical roles performed by the surveyed third-party applicants. As shown in Figure 4-20, most third-party internal combustion engine applicants provide all types of services, including design/engineering, installation, operational performance testing and operation and maintenance. Most third-party applicants for photovoltaics and microturbines using renewable fuels provide design/engineering services, but do not provide installation, operational performance testing or operation and maintenance services. One of the two surveyed third-party applicants for fuel cells using nonrenewable fuels provided all services in Figure 4-20, and less than 50% of all surveyed third-party applicants for microturbines using nonrenewable fuels provide any of the services in Figure 4-20. Thus, on average, third-party applicants for internal combustion engines using nonrenewable fuels perform the broadest array of roles in the project development process. In general, more firms across all represented technologies are involved with design/engineering and installation than with operational performance testing and maintenance.

Figure 4-20: Distribution of Typical Roles Performed by Third-Party Applicants



Summary

Program Status

The Self-Generation Incentive Program received 261 requests for funding in PY2001, and 402 requests for funding in PY2002. The majority of Program participants represented manufacturing industries and offices in both Program Years. Other sectors heavily represented in the Program include schools, miscellaneous commercial and transportation, communication and utilities industries. Major findings from the Program Administrator tracking data are presented below.

- ***Approximately 21% of PY2001 projects were still active as of January 2003.*** The majority of active PY2001 projects represented Level 3N technologies. Level 3N projects accounted for the majority of the total potential installed capacity reported by the active PY2001 projects (15,452 kW) and total potential incentives reserved ($9.9 million). Proof of Project Advancement had been submitted for the majority (95%) of the active PY2001 projects.
- ***Approximately 69% of PY2002 projects remained active as of January 2003.*** The majority of the PY2002 active projects represented Level 1 technologies. While Level 1 technologies accounted for the majority of the total potential incentives reserved for active PY2002 projects ($87.2 million), Level 3N technologies accounted for the majority of total potential installed capacity reported by the active PY2002 projects (57,625 kW). Proof of Project

Advancement had been submitted for approximately 30% of the active PY2002 projects.

- ***The majority of active PY2001 and PY2002 projects were awarded incentives based on percentage of eligible installed system costs rather than dollars per watt of eligible installed capacity.*** As a result, the average proportion of eligible installed project cost supplied by Program funds is very close to the maximum allowable percentage for each incentive level in PY2001 and PY2002.
- ***Approximately 8% of PY2001 projects were completed and paid as of January 2003.*** The majority of the completed PY2001 projects represented Level 3N technologies, followed by Level 1 technologies. Only one Level 2 project was completed in 2001. While Level 1 technologies reported the largest share of total incentives awarded, Level 3N technologies reported the largest share of installed capacity for the completed PY2001 projects.
- ***Approximately 3% of PY2002 projects were completed and paid as of January 2003.*** Almost all of the completed PY2002 projects represented Level 1 technologies.
- ***Applicants experienced difficulty meeting the 90-day Proof of Project Advancement deadline.*** The mean length of time required for Proof of Project Advancement approval exceeded 90 days for applicants across all technologies in both Program Years, with the exception of the single active PY2002 fuel cell project. Multiple extensions were granted to the 90-day deadline in PY2001 and PY2002.
- ***The application process proceeded fairly rapidly once the Program Administrator approved Proof of Project Advancement.*** The mean length of time required for applicants across all technologies to submit the Reservation Confirmation and Incentive Claim Form was well within the proscribed nine-month deadline. Once the claim forms were submitted, on-site verifications and check issuance proceeded fairly rapidly across all technologies.
- ***The mean lengths of time required for all applicants to reach project milestones decreased significantly across Program Years.*** This phenomenon indicates that one or more of the following scenarios occurred: (1) applicants had gained a better understanding of Program requirements through previous involvement in the Program, (2) Program Administrators and other related industries had gained more experience in processing applicant forms and administering Program requirements, and/or (3) applicants waited to re-submit applications in PY2002 for projects that had been withdrawn or rejected until the requirements of certain milestones had been met, leading to decreased lag times for meeting those milestones.
- ***Regardless of extensions granted to the 90-day deadline, nearly all applicants were able to submit the Reservation Confirmation and Incentive Claim Form within the original nine-month deadline.*** The five projects for which Reservation Confirmation and Incentive Claim Forms were

submitted subsequent to the original nine-month deadline only required an additional 5-90 days to file the required form, which was well within the final 180-day extension applicants are allowed according to the Program Handbook. Thus, while applicants found meeting the 90-day Proof of Project Advancement deadline difficult, the nine-month Reservation Confirmation and Incentive Claim Form submittal deadline was not overly difficult.

- ***Incentive basis only accounted for significant differences in project length for photovoltaic systems.*** Photovoltaic systems awarded incentives based on dollars per watt of eligible installed capacity remained active for a significantly shorter length of time than those awarded incentives based on percentage of eligible installed system costs. This phenomenon may be attributable to differences in processing speed and/or permitting and verification requirements associated with projects awarded incentives based on percentage of eligible installed system costs, or due to bias caused by heavy representation of a single cost-based third-party applicant in the Program (which may have been responsible for delays).
- ***The majority of inactive PY2001 projects was officially classified as withdrawn, and represented Level 3N technologies.*** Level 3N systems represented the largest share of inactive PY2001 projects in terms of number of applications filed and reported potential installed capacity.
- ***The majority of inactive PY2002 projects was officially classified as withdrawn, and represented Level 1 technologies.*** While Level 1 systems represented the majority of inactive projects in terms of number of applications filed, Level 3N systems represented the largest share of inactive PY2002 projects in terms of reported potential installed capacity. There were no PY2002 Level 2 or Level 3R systems reported as inactive as of January 2003.
- ***Nearly all of the PY2001 and PY2002 inactive projects only reached an early stage in the application process prior to withdrawal or rejection.*** This phenomenon indicates that projects that successfully reach the Proof of Project Advancement stage are more likely to remain active and to eventually be completed.
- ***Approximately 15% of PY2002 projects that remained active as of January 2003 and nearly 50% of PY2002 projects completed and paid represented successful re-submissions to the Program.*** This indicates that a significant portion of applicants may require more than one attempt to successfully complete the application process under the Self-Generation Incentive Program.

Participant Characterization

Third-party applicants, distributed generation equipment manufacturers, and host customers are the most visible stakeholders in the Self-Generation Incentive Program. These stakeholders are referred to collectively as the participants. The following is a summary of the participants involved in the Program based upon the host customer and supply channel surveys.

Host Customers

There were 195 unique host customers that submitted applications to the Self-Generation Incentive Program in PY2001, and 288 host customers that submitted applications to the Program in PY2002. Many of the host customers that submitted applications in PY2001 also submitted applications in PY2002, whether as re-submissions for unsuccessful PY2001 projects or original submissions for new PY2002 projects. Major findings regarding the characterization of host customers from the host customer surveys are presented below:

- ***Manufacturing establishments were the best represented of all building types among the surveyed host customers, followed by governments, miscellaneous establishments, and schools.*** Colleges displayed the largest mean number of employees of all building types among the surveyed host customers, followed by hospitals, offices, and schools. Colleges also displayed the highest mean monthly electric bills of all building types, followed by offices, schools, and government establishments. Additionally, colleges dominated all other building types in terms of mean square footage, followed by government establishments and offices.
- ***Internal combustion engines using nonrenewable fuels were the most popular technology adopted by host customers within the commercial, industrial, and agricultural sectors, while photovoltaics were the most popular technology within the TCU sector.*** Photovoltaics, internal combustion engines, and microturbines using nonrenewable fuels were represented in all sectors other than the agricultural sector. Fuel cells were only represented in the commercial sector.
- ***The majority of surveyed host customers across all sectors utilized third parties during the application process in PY2001 and PY2002.*** Only slightly less than one-third of host customers in PY2002 indicated that they completed and submitted all application forms themselves and maintained direct contact with the Program Administrator. This observation highlights the crucial role played by ESCOs and other third-party vendors in the application process.
- ***Host customers gravitated toward the center of the spectrum in terms of involvement in the application process in PY2002.*** The proportion of uninvolved applicants to the Program decreased, perhaps due to increased concerns regarding the state of the economy or due to increased experience with the Program. The proportion of self-applicants to the Program also decreased, perhaps due to changes in the characterization of host customers involved with the Program in PY2002, increased scrutiny by host customers of possible vendor options, or negative experiences with the Program in PY2001. Alternatively, gravitation of host customers toward the center of the involvement level spectrum

could have been caused by development of the third-party vendor market or by increased Program marketing efforts by ESCOs and other consultants.

Manufacturers of Distributed Generation Systems

There were 50 manufacturers represented in the Self-Generation Incentive Program in PY2001 and/or PY2002. While multiple manufacturers supplied photovoltaics, internal combustion engines and microturbines using nonrenewable fuels to participating host customers, only three fuel cell manufacturers were represented in the Self-Generation Incentive Program in PY2001 and PY2002. Major findings regarding the characterization of manufacturers from the supply channel surveys are presented below:

- ***The majority of the manufacturers represented in the Program participated in both PY2001 and PY2002.*** Only ten manufacturers that participated in the Program in PY2001 did not participate in PY2002.
- ***One manufacturer dominated the participating suppliers within each technology category.*** However, there were a few other major players represented in the photovoltaics and internal combustion engine markets. Fuel cells using renewable and nonrenewable fuels were each primarily supplied by one manufacturer.
- ***Lead times for equipment shipments ranged from up to two months for photovoltaics and microturbines, and from four to six months for fuel cells and internal combustion engines.*** Manufacturers indicated, however, that the typical length of time required between placement of an order and shipment of the system varied depending upon the size of the project and whether the project involved new construction. A significant fraction of the surveyed manufacturers indicated that while larger systems were shipped directly to the customer site, smaller systems were shipped to distributors or wholesalers.

Third-Party Applicants

There were 135 third-party applicants involved in the Self-Generation Incentive Program in PY2001 and PY2002. Major findings regarding the characterization of third-party applicants from the supply channel surveys are presented below:

- ***Approximately 80% of the third-party applicants that participated in the Program in PY2001 also submitted applications to the Program in PY2002.*** Some of these reservation requests represented re-submissions to the Program for unsuccessful PY2001 projects, but others represented new submissions for new PY2002 projects.
- ***A single third-party applicant dominated photovoltaic projects funded by the Program, and a few third-party applicants served as major players in the internal combustion engine and microturbines using nonrenewable fuels markets.*** There was no clear market leader for

microturbines using renewable fuels or fuel cells using nonrenewable fuels due to low Program participation of third-party applicants within these technology categories. Self-applicant host customers filed the majority of reservation requests for microturbines using renewable fuels.

- ***Approximately 20% of the third-party applicants submitted reservation requests to more than one Program Administrator.*** Third-party applicants involved with internal combustion engine projects were more likely to submit reservation requests to multiple Program Administrators than third-party applicants associated with other technologies.
- ***The scope of services provided by third-party applicants varied across technologies.*** Third-party applicants for internal combustion engines using nonrenewable fuels performed the broadest array of roles in the project development process of all the technologies. Most third-party internal combustion engine applicants provide design/engineering, installation, operational performance testing and maintenance services. Most third-party applicants for photovoltaics and microturbines using renewable fuels provide design/engineering services, but do not provide services such as installation, operational performance testing or operation and maintenance. One of the two surveyed third-party applicants for fuel cells using nonrenewable fuels provided all of these services. However, less than half of the surveyed third-party applicants for microturbines using renewable fuels provided any of these services.

In sum, the conclusions regarding Program status and participant characterization discussed above relied heavily upon the tracking data provided by the Program Administrators and the results of the host customer and supply channel surveys. The contents of the Program Administrator tracking data were presented in detail in Section 3, and the final survey instruments administered to the host customers and the suppliers are presented in the appendices to the report. The following section discusses other results of the host customer and supply channel surveys for use in the second year process evaluation.

5

Survey Results

5.1 Introduction

This section presents the results from surveys and in-depth interviews of market actors conducted for this evaluation. Responses from the following market actors are presented:

- Program Administrators,
- Participant host customers,
- Participant suppliers, and
- Nonparticipants.

The remainder of this section addresses each of these market actors. In addition, a subsection on free ridership and a final subsection summarizes the results and discusses the major common issues as they apply across market actors.

5.2 Program Administrators

Program Administrators were interviewed about their experience with the Program and changes that had occurred over the previous year. Their responses are organized by the following topics:

- Changes in the 2002 Program,
- Program Administrators' experience with participants,
- The incentive structure,
- Marketing,
- The working group,
- Verification and marketing, and
- Suggestions for change.

Changes in the 2002 Program

Program Administrators were asked to describe changes that occurred in 2002 to Program staff, Program goals (in particular goals they may have for administering the Program in their area), Program design, and processing of applications. In addition, they commented on important lessons learned and key accomplishments from 2002.

Changes in Staffing

Three of the four Program Administrators experienced at least one change in staff during the 2002 Program Year due to staff vacancies. Two of the four stated that they planned to hire a new staff person in 2003 to help push projects through the completion stage. As they learned in 2002, reviewing costs and other documentation associated with incentive claims is time consuming.

Changes in Goals

All Program Administrators agreed that the overall Program goal is to have new, qualifying distributed generation equipment installed to reduce grid demand. In addition, Program Administrators discussed goals they had for Program administration in their particular area. Most had not made changes in this area.

One Program Administrator, however, reported their goal is not to be a hindrance to the customer in completing the Program. In particular, their goal is to focus on customer service and to respond to the customer in a timely and helpful manner. To facilitate this, they have set up a standard to respond to a customer within five business days. In addition, they try to "fast track" incentive payments to prevent third party cash flow problems that prevent more projects from being starting. By expediting incentive payments, third parties can schedule verification visits even if there remains some final paperwork that must be completed. In this manner, they are seeking to respond to customer concerns and to provide a better experience for the customers and third parties that participate in the Program.

Changes in Program Design

Each Program Administrator was asked to summarize changes made to the Program in 2002. Responses identified major changes with the incentive levels, handbook, and Program requirements. In particular, the following were discussed:

- **Incentive Levels.** The 2002 Program bifurcated the Level 3 incentive category into renewable and nonrenewable levels. Level 3-R provides incentives for renewable fueled technology at $1.50 a watt, and Level 3-N provides incentives for nonrenewable-fueled technology at $1.00 a watt. Both levels include microturbines, internal combustion engines, and small gas turbines. Level 3-N includes an additional requirement that the installed systems use sufficient waste heat recovery and meet reliability criteria.

- **Handbook Revisions.** The Program handbook was revised in 2002 after numerous in-depth discussions with the working group. In particular, a concerted effort was made to clarify a number of concepts thought to be ambiguous (e.g., warranty costs).
- **Requirement Changes.** Because of discussion and consensus among the working group, some changes were made in 2002 to certain requirements of the Program. For example, Program Administrators can now grant a six-month extension to the one-year deadline for project completion. In addition, the requirement for the host customer to provide proof of professional liability insurance was eliminated.
- **Carport Structure Policy.** The Program instituted a new policy in 2002 regarding carport structures for photovoltaic systems. Originally, the cost of building a carport to support the photovoltaic panels was not covered under the Program. Now, a carport structure is an eligible cost of the project if the sole use of the structure is to support the photovoltaic modules (i.e., structures with roofs or walls are not included).

Program Administrators were asked their opinion of the 3-R and 3-N incentive levels. Overall, they thought the change was favorable. In particular, one Program Administrator commented that since nonrenewable projects need to meet air quality requirements, the addition of these systems would help meet the goals of the Program and be good for society. One Program Administrator commented that in retrospect it might have been better to have kept them at a single incentive level and then provide a performance-based additional incentive after one year for the renewable-fueled systems. This would have been preferable, they explained, to monitoring the systems after the full incentive had been paid.

Program Administrators were also asked about the reliability compliance requirement applicable to Level 3-N. The new reliability criteria, effective January 2002, include power factor requirements for system operation and an agreement to coordinate planned system maintenance with the electric utility. In general, the Program Administrators' opinion on this issue is that the requirement is good but will not necessarily result in having a significant impact on the grid. For example, one Program Administrator commented that if system maintenance was done during off peak hours, system reliability would be improved; however, they are not sure that will happen.

Changes in Application Processing

Program Administrators were asked about changes made in 2002 to the application process. Changes reported included the following.

- **Refinements to the Tracking Database.** One Program Administrator described how they had improved their database to the point where they could print letters and reports from it automatically. Another described changes they planned to make this year to their database to improve reporting functions.
- **Expanded Website Information.** Two Program Administrators described informational documents they had added to their web site. In particular, an explanation of the application process and more information on the interconnection process was made available.
- **Applications.** One Program Administrator reported that they are now asking for an original application in which the signature is dated before the date the purchase order is signed. They further explained that this practice should help to reduce free ridership in the Program.
- **Customer Contact.** One Program Administrator reported that they discuss the application requirements on the telephone with the applicant before the paperwork is submitted. This reportedly cuts down on processing time since the application is more likely to be complete when it is received. Several Program Administrators described contacting customers by letter, e-mail, or telephone when applications are submitted incompletely and/or when the 90-day Proof of Project Advancement deadline approaches and additional information is still needed.

Key Lessons and Accomplishments in 2002

Each Program Administrator was asked to describe the key lessons they learned from administering the Self-Generation Incentive Program in 2002. In addition, they were asked to describe their greatest accomplishments for that Program Year. The following was reported.

- **Market Transformation.** Several Program Administrators observed that market transformation is not a goal of the Self-Generation Incentive Program. At least one, however, thought that a transformation is taking place, in particular with the photovoltaic industry. Program Administrators also reported they had learned more about the distributed generation market and had developed relationships with some of the third parties and other players in the industry.
- **Working Group and CPUC Involvement.** Program Administrators commented on the experience of working with different perspectives during discussions with the working group. In addition, it was reported that the process of the group working through a number of difficult issues has helped them to be more productive. Several Program Administrators commented on how they enjoyed working closely on the group with a representative of the CPUC.
- **Processing Claims.** It was reported that the experience of actually processing incentive claims raised a number of issues that had to be worked through. In particular, the large volume of documentation that needed to be reviewed and approved, as well as the time and effort that such a task required, created problems

for some Program Administrators. However, all Program Administrators reported being happy they had projects completed and paid that they could point to as successes in the Program.

- **Regulatory Changes.** All Program Administrators mentioned that the uncertainty related to exit fees was causing some customers to "hold back" from participating in the Program. One Program Administrator commented that the occurrence of regulatory changes while the Program was in effect was poor timing.
- **Retention.** Some Program Administrators reported that it was their perception that retention rates had improved in 2002. In particular, they felt that the trend noted in the first year of the Program of applicants withdrawing or not making it to the 90-day Proof of Project Advancement milestone was decreasing. Some attributed this to greater awareness among customers and third parties of the Program timeline and requirements. This reportedly improved the situation because initially applicants felt some urgency to reserve incentive funds and did so before they were ready to proceed with the project.

Experience with Participants

Program Administrators were asked about their experience with applicants in the Program. In particular, they were asked to comment on the application process, appropriateness of the 90-day Proof of Project Advancement and one-year completion deadlines, and other problems and barriers that customers and third parties might be experiencing.

Application Process

When asked about the application process, Program Administrators overall reported there had been improvement in 2002 in customers' understanding of the process, which led to fewer problems. In addition, they reported improvements in the manner applications were processed by the Program Administrators, which were due mostly to refining procedures after a year of experience with the Program. Only a few minor problems were reported, examples of which are highlighted below.

- Some applications were reportedly sloppy or miscalculated. For example, one Program Administrator commented that applicants sometimes do not understand the difference between watts and kilowatts. Another stated it was a literacy problem.
- Some Program Administrators reported that in certain cases, customers are led to believe from suppliers or others that they can sell their excess power back to the utility. There is still misunderstanding among the industry about net generation.
- One Program Administrator expressed frustration at having to require an air quality permit, a utility interconnect permit, and a purchase order from the applicant in order to show commitment to the project when one of those should be sufficient.

- Similarly, it was suggested that the Program should accept an authority to construct permit that includes a temporary permit to operate instead of requiring an actual permit to operate (which takes longer to obtain). This would help applicants to meet project deadlines.
- Complying with complex insurance requirements was reported to be a problem for applicants. For example, it was suggested that it is unclear why the customer must provide insurance documentation for the Program when it must be provided to the interconnection department anyway. In addition, it is not clear why the Program requires proof of business auto insurance.

Program Deadlines

Program Administrators were asked if applicants were still experiencing problems meeting the 90-day Proof of Project Advancement and the one-year completion deadlines. All reported that the deadlines were no longer a problem since they have the ability to grant extensions when needed. Overall, it was reported that roughly 10% to 30% of projects require an extension on the 90-day deadline and up to 65% require an extension on the one-year deadline. Program Administrators reported that the primary reason applicants bump up against the 90-day deadline is that they have delayed putting all their paperwork together. For the one-year deadline, however, the following were reported.

- Projects that involve new construction typically have problems meeting the one-year deadline. Installation of the system may be held up by construction delays with the building. One Program Administrator suggested a three-year schedule for completion would be more realistic for these projects.
- Obtaining an air quality permit was also reported to be a time-consuming problem that might require a deadline extension.
- Interconnection was reported to be another reason why extensions are required. This was also reported in last year's process evaluation. As a result, several Program Administrators said that they made a large effort in 2002 to coordinate with the interconnection group in their utility in order to ease this problem. For example, one Program Administrator reported having access to the interconnection database so they can track the progress. Other examples of efforts in this area included having a workshop for applicants about what to expect with interconnection and posting information on the utility web site. Despite these efforts, however, this milestone continues to be problematic for the applicant.

Reasons for Withdrawals/Rejections/Suspensions

Program Administrators were asked for typical reasons why applications were withdrawn or rejected or suspended from the Program. The following responses were given.

- Reasons for withdrawals:
  - Some applicants withdrew due to uncertainty over exit fees.

  - Some applicants who did not meet the 90-day Proof of Project Advancement deadline withdrew and then reapplied.
  - Some applicants changed their mind about going ahead with the project because they were not ready or willing.
  - Some applicants withdrew because they could not obtain financing or because they did not think the project was cost effective.
- Reasons for rejections:
  - Applications from municipal utilities were rejected because they are not eligible to participate in the Program.
  - Some applications were rejected because the applicants did not respond when asked for required documents or information.
  - Some applicants were rejected because they did not quality due to waste heat issues.
- Reasons for suspensions:
  - Applications are sometimes suspended due to no responsiveness on the part of the applicant.
  - Applications are sometimes suspended due to not meeting proof of insurance requirements.

Barriers

Program Administrators were asked about what barriers might be preventing applicants from participating in the Program. Several reported that the Program addresses well the problem of up-front capital cost, so that was no longer a perceived barrier. However, others that were reported include the following:

- **Uncertainty.** Program Administrators reported that customers and third parties are apprehensive about future rates and departing load fees. This issue may be causing them to hold back on projects or to consider projects non-cost-effective. One Program Administrator mentioned future gas prices might be a factor also.
- **Air Quality Permit Requirements.** Program Administrators reported that obtaining these permits is often problematic and time-consuming for applicants.
- **Sunset Date.** Program Administrators reported that the sunset date on the standby exemption (June 1, 2003) is causing some customers to not participate.
- **Wind Turbines.** The Program has to date has had no wind projects. Barriers reported for this area included the treatment of net energy metering on wind generation and the problem of finding an appropriate location. Most customers do not want the structures on their property. Possible exceptions are agriculture and reservation casinos.

- **Fuel Cells.** Program Administrators reported there is a general misunderstanding and lack of information regarding fuel cells, causing low demand for this technology.

Incentive Structure

Program Administrators reported that a subcommittee to the working group has been discussing the incentive structure of the Program. However, they have not yet arrived at a consensus. Program Administrators shared comments about the incentive structure of the Program, and they reported that these issues had been discussed by the subcommittee.

One issue discussed was the relative incentive levels among the various technologies. For example, it was observed that Level 3 projects have the largest impact on the grid; however, these projects are also incentivized at the lowest level. In addition, Program Administrators reported that the inspections for Level 1 projects show that the systems are not putting out what they claim, although they are incentivized at the highest level. Furthermore, even though Level 3 projects are incentivized at the lowest level, Program Administrators commented that incentives for internal combustion engines are probably higher than they need to be. As a result, they explained, project costs are being artificially inflated in some cases.

Program Administrators were also asked what they thought about the alternative of a tiered payment or pay for performance structure for the incentive. One Program Administrator explained that programs in Germany have had success with performance-based incentives. Arguments for this type of arrangement focused on providing more of an effect on the grid since payment would be tied to performance. Arguments against this type of arrangement focused on the hurdle customers would face with the up-front capital cost if payments were spread out over time. In particular, Program Administrators reported that they perceived that customers would prefer a one-time rebate as opposed to progress payments because they need the cash flow. In fact, the up-front capital investment could become a barrier to participation if the rebate were paid over a longer period.

Program Administrators were asked what they thought of eliminating the percentage of cost portion of the incentive and going with a straight dollar per watt incentive. Most reported that they did not want to do this for several reasons. First, eliminating the cost portion would not be a good strategy because some third parties appear to be "gaming" the Program. One Program Administrator described how they had looked at project size and project cost and found little correlation between the two. For example, it was reported that often the cost of photovoltaic projects is exactly $9 per watt. In addition, the range of project costs for photovoltaic projects is from $5 per watt to $15 per watt. One Program Administrator commented that many customers do not know about the difference in costs because they do not shop projects or bid them out, they just accept the first price quoted. Another Program

Administrator reported that third parties also seemed to be loading their costs for the Level 3 projects. "They are throwing everything in that they can." For Level 3 projects, however, the spread between high and low cost projects was reported to be narrower. One reason suggested for this difference was that the market is more mature and the customers shop around more.

A second reason given for wanting to keep the percentage of cost requirement was that there was not yet enough data to determine average costs. Therefore, having a straight dollar per watt incentive without collecting information on associated project costs would be premature. The third reason given for wanting to keep the percentage of cost requirement was due to the presence in the market of multiple rebates. In particular, with customers who participate in both the Self-Generation Incentive and Los Angeles Department of Water & Power programs, it would be possible for them to collect more in rebates than the total installation cost.

A concern was expressed that since the CEC program lowered their incentive for residential systems, the Self-Generation Incentive Program incentive should be lowered as well so that commercial systems would not be incentivized at a higher rate than residential systems. Further, it was reported that a common perception is that if the incentive is lowered, costs will drop and the customer will pay less. However, some Program Administrators did not agree and stated that such an effect would cause demand to fall and vendors would be very unhappy.

Marketing

This section discusses the Program Administrators marketing efforts. Included in the discussion are the marketing plans and budgets for PY2003, marketing activities and expenditures for PY2002, and lessons learned from the marketing of the Self-Generation Incentive Program in previous Program Years.

Two Program Administrators drafted detailed marketing plans for PY2003 describing potential outreach strategies and materials to be used in those efforts. Additionally, one Program Administrator presented a summary marketing budget for PY2003. Marketing expenditures for PY2002 Program Administrators were $10,000, $89,000, $130,000, and $187,000. Note these figures are approximate estimates; detailed budgets were not provided. For PY2003, the following budgets were reported by the four Program Administrators: $65,000, $109,000, $130,000, and $182,000.

The marketing activities conducted by the Program Administrators in PY2002 and their plans for PY2003 are discussed further below.

- ***Workshops.*** In PY2002, all of the Program Administrators conducted workshops, training sessions and seminars featuring the Self-Generation Incentive Program. The Program Administrators also marketed the Program through other workshops and seminars not specifically focused on the Self-Generation Incentive Program, such as workshops and seminars focused on a particular technology (such as photovoltaic) or on a particular technical topic (such as cogeneration). Additionally, the Program Administrators partnered on marketing and consumer education activities by speaking together at joint workshops held to promote the Self-Generation Incentive Program.
- ***Conferences.*** Three Program Administrators stated that they attended conferences and/or trade shows related to various renewable energy issues or held by selected target associations in order to promote awareness of the Self-Generation Incentive Program.
- ***Promotional Material.*** The Program Administrators developed a substantial amount of promotional material including brochures, tradeshow posters, and presentations for potential applicants. One Program Administrators also provided promotional give-away materials to potential applicants, including mini-flashlights, pens, pencils, and notepads with telephone numbers and e-mail addresses for Self-Generation Incentive Program contacts. This Program Administrator intended to replenish the supply of popular give-away materials in PY2003.
- ***Coordination with Other Organizations/Programs.*** One Program Administrator stated that they would actively seek to participate in other outside committees to increase awareness about the Program in the renewable energy community. Two Program Administrators were considering forging joint marketing alliances with other distributed generation Program Administrators in PY2003. One Program Administrator had met with Program Administrators of other similar rebate programs in PY2002 to discuss coordination between the Self-Generation Incentive Program and other incentive programs, to answer questions regarding the Program, and to investigate other marketing opportunities.
- ***Website Marketing.*** All Program Administrators used the Internet as a means to disseminate information. Application forms and resources are available on the individual web sites, which also provide further information regarding relevant legislation and links to related web sites. The Internet was cited as the primary source of outreach marketing for one Program Administrator. Additionally, one Program Administrator was investigating the possibility of funding Internet banner ads on related web sites.
- ***Telemarketing.*** A subset of the Program Administrators used inbound and outbound telemarketing in an effort to increase customer awareness and expedite the application process by addressing common concerns. One Program Administrator assisted in preparing call center scripts for customer service professionals to answer questions and direct potential applicants to the Program.

Additionally, one Program Administrator intended to develop an 800 number in PY2003 for use in screening and collecting leads on potential Program applicants.

- ***Internal Coordination and Outreach Efforts.*** One Program Administrator conducted presentations at a number of internal department meetings to improve Program awareness among employees with customer contact responsibilities who could refer potential applicants to the Program.
- ***Targeted Marketing.*** According to the Program Administrators, the most successful marketing campaigns targeted distinct groups or sectors. Targeted groups include local governments, community-based organizations, small to large businesses, business/professional associations, and distributed generation vendors. Two Program Administrators stated that they conducted presentations on-site for certain targeted distributed generation manufacturers and/or installers. Marketing programs targeting specific corporate or nonprofit organizations and vendors address the goal to support continued market development of distributed generation, provide access through the existing infrastructure, and take advantage of customers' heightened awareness of electricity, reliability, and cost.
- ***Direct Mail (including E-Mail).*** A quick way to reach a target audience is through direct mail, including business direct mail (BDM) and e-mail marketing. One Program Administrator offers an electronic newsletter to provide continuous updates to prospective and current applicants about the Self-Generation Incentive Program and distributed generation trends. One Program Administrator also designed, printed and distributed bill inserts promoting the Program in PY2002 for all its nonresidential customers. Due to poor response rates, the Program Administrator did not intend to pursue this marketing channel in PY2003.
- ***Press Releases.*** Press releases offer an independent viewpoint of the Program and often proliferate through the Internet. While some press releases specifically focus on the Self-Generation Incentive Program, others are designed to focus on specific case studies for firms that have successfully completed installation of their systems and that have received incentive checks. Some Program Administrators specifically stated that they encourage host customers and/or vendors to participate in media outreach events upon system completion.
- ***Advertising (Print and Radio).*** Although not the most popular method for communicating with prospective customers, two Program Administrators mentioned that they intended to market the Program through magazine, newspaper and radio ads. However, one Program Administrator intended to market the Program through local business and trade publications rather than newspaper, magazine and radio ads.

In addition to the marketing activities designed and implemented by the Program Administrators, third parties market the Self-Generation Incentive Program. According to the Program Administrators, third-party suppliers have been successful at marketing the Program. Interviews with host customers who submitted applications to the Program in

PY2001 and PY2002 confirm that most host customers learned of the Program through a vendor rather than a utility representative.

Program Administrators have expended considerable effort expanding their marketing capabilities since the inception of the Program. The Program Administrators have made great strides in improving their Program web sites and in conducting seminars and training sessions for potential applicants. According to the surveys conducted in PY2002, host customers who attended seminars and/or workshops conducted by the Program Administrators stated that the information provided at the meetings was useful, and that the workshops and/or seminars were an excellent resource. However, since not all of the surveyed host customers were aware of the seminars and/or workshops held by the Program Administrators, it appears that marketing efforts to promote these events could be enhanced.

Working Group

Program Administrators were asked about their experience of being on the working group. In general, their comments about the working group were positive. For example, one Program Administrator commented, “We disagree a lot but manage to move on.” In particular, the working group spent a lot of time over the past year revising the handbook. Some expressed frustration over that process and commented that it is difficult to obtain a consensus within the group.

The working group has a subcommittee that has been discussing the Program’s incentive structure and considering possible changes. The subcommittee has been meeting for over a year. A consultant recently submitted a report to the subcommittee that 1) reviewed the Program data, 2) reviewed the available literature on distributed generation for ranges of installed costs, and 3) offered recommendations for the Self-Generation Incentive Program incentives. The report recommended reducing Level 1 and Level 3 incentives and removing the percentage of cost limit. The working group has reviewed the report and has not come to a consensus on any recommendations.

Program Administrators commented on the role of the CPUC representative on the working group. All stated that it was good to have such representation in the working group. Some Program Administrators stated that their experience with this Program and with the working group has provided the closest experience they have had with the CPUC and, as a result, their relationship with the CPUC has improved. Some expressed the desire that the CPUC representative take more of a stand in the group, especially when they are at a stalemate.

Verification/Metering Process

Each Program Administrator uses a contractor to perform the verification visits. Contractors are identified and the process they use is described in Section 7. Section 3 presented the number of verifications completed in 2002. Three of the four Program Administrators reported that they go along on the visits with the contractor. All but one contractor produce electronic reports; the remaining contractor produces hardcopy only with pictures on a CD.

One Program Administrator reported that some customers are surprised when the verification inspection is conducted because they had an inspection for the interconnection also. Program Administrators further reported that the inspectors usually go to the site within five days of receiving the paperwork. One Program Administrator described sloppiness or workmanship issues that have been found on the inspections. They explained that their policy is to point these out without failing the inspection. However, one inspection was failed that involved a leaky converter box.

When asked about changes made to their process in the past year, the following was reported.

- One Program Administrator explained that they withhold payment until the meter is installed. This is because of an experience with one vendor who said the meter was not needed, who then received the rebate check and then installed the meter. It was felt that the vendor misrepresented the situation so the rebate check would not be delayed.
- One Program Administrator asked the inspection contractor to add an extra significant figure on the photovoltaic system ratings.
- One Program Administrator reported they use a better camera on their inspections this year to photograph the equipment.
- One Program Administrator asked the contractor to document if a meter was installed for the cogeneration system or if it was tied into the existing meter. They also ask them to note the rated capacity of the system.

Suggestions for Change

Program Administrators made the following suggestions for changes in the Program:

- ***Simplify Program Requirements.*** It was mentioned that insurance requirements are complex and could be simplified. In addition, it was suggested that some of the documentation collected at the 90-day milestone could be collected later in the project, which would relieve some of the customer's burden.
- ***Extend Deadline for New Construction Projects.*** It was suggested that projects involving new construction require longer than a year for completion time. In particular, three years was suggested.
- ***Describe End of Program.*** Program Administrators reported that applicants are asking what will happen to the Program in 2004. They commented that they would like to be able to give the applicants and other interested parties some idea of how the Program will end.

- ***Eliminate Uncertainty Regarding Exit Fees.*** Program Administrators reported a need for resolution on the departing load issue in order to convince some customers to participate in the Program.

5.3 Participant Host Customers

As mentioned in Section 3, 103 surveys were administered to host customers who submitted reservation requests for Self-Generation Incentive Program funding in PY2001 and PY2002. The host customer sample was stratified across utility area, primary technology, and primary project status as described in the sample design presented in Section 3. The completed sample was then weighted to represent the total number of participating host customers in the Program in 2002. Weighted responses from the host customer surveys are presented below by the following major issues:

- Awareness and interest in self generation,
- Experience with Self-Generation Incentive Program projects,
- Experience with Program administration,
- Barriers to participation, and
- Suggestions for change.

Awareness and Interest in Self-Generation

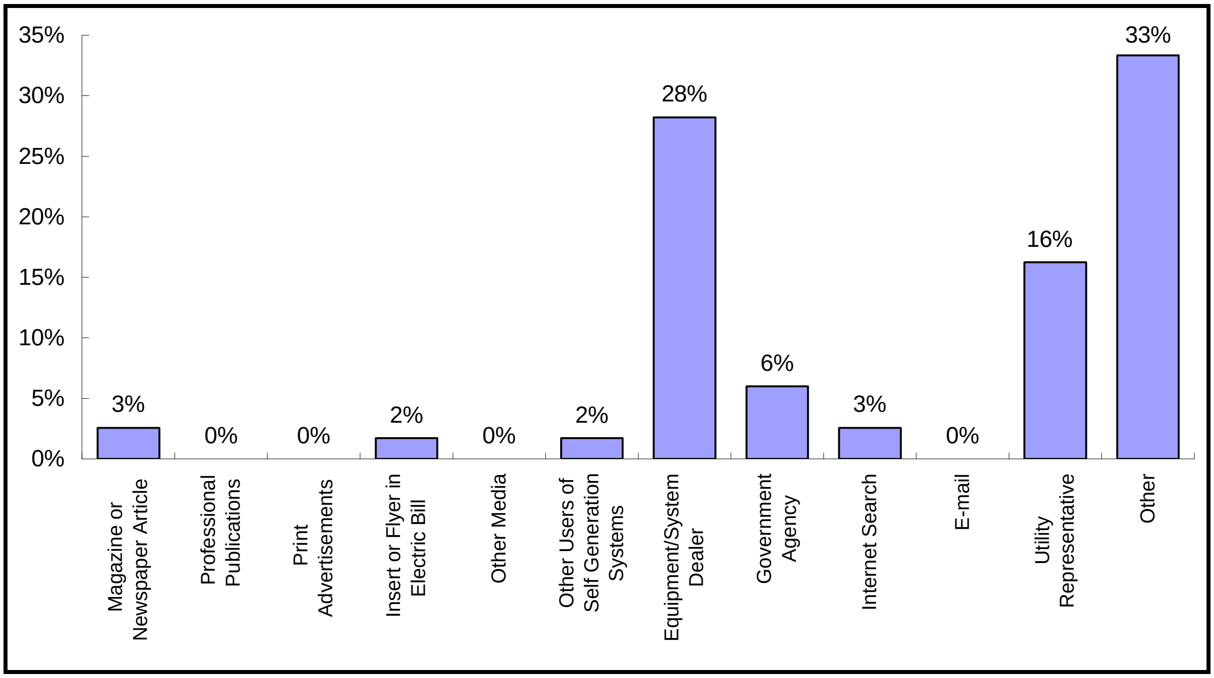
In researching the awareness and interest of participant host customers relative to self-generation opportunities and the Self-Generation Incentive Program, survey respondents were asked about how they had first heard about the Program, how the Program had contributed to their awareness of distributed generation technology, and what factors had influenced them to install self-generation equipment. In addition, customers with photovoltaic projects were asked about their awareness of net metering.

<u>Source of Information of the Self-Generation Incentive Program</u>

Respondents were asked to identify the means through which they first heard about the Program. Figure 5-1 summarizes the responses gathered from the host customer surveys.[1]

[1] The "Other" category includes other employees within the host customer's organization. Some respondents indicated that they employed staff responsible for researching funding opportunities such as the Self-Generation Incentive Program on a regular basis.

Figure 5-1: Customers' Initial Source of Information on the Program



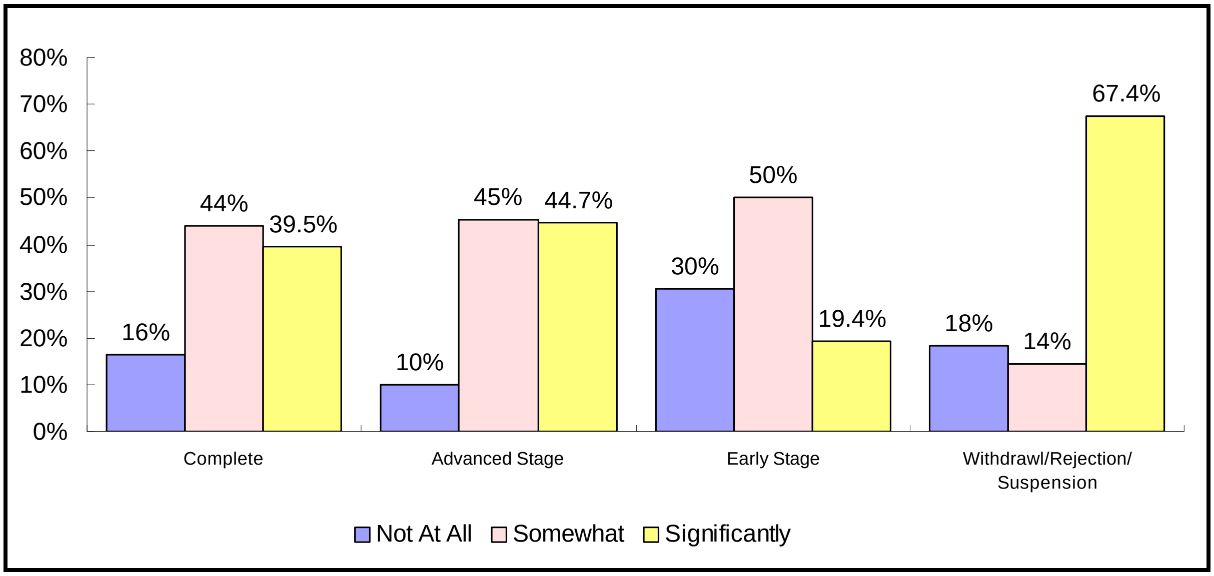
As shown, roughly 28% of host customers first learned of the Program from a third-party supplier. A significant proportion of respondents also indicated that they initially learned of the Program from a utility representative. Only a few respondents (less than 7% per category) indicated that they had learned of the Program through a government agency (such as the CEC or the CPUC), the Internet, newspaper or magazine articles, bill inserts, or other users of self-generation systems. None of the respondents indicated that they first learned of the Program through professional publications, e-mail, or other media such as television or radio news press releases.

While a few respondents indicated that they had heard of the Program through seminars and/or workshops held by the Program Administrators, the majority of the respondents was not aware that the Program Administrators offered such opportunities to learn more about the Program and/or distributed generation.

Awareness of Distributed Generation Technology

Host customers were also asked if they felt that the Self-Generation Incentive Program had increased their awareness of available distributed generation technology. Figure 5-2 shows that most host customers reported an increase in awareness due to the Program, regardless of project status. Approximately 80 to 90% of inactive, advanced stage, and complete host customers reported a moderate to significant increase in awareness due to the Program, while approximately 70% of early stage host customers reported a moderate to significant increase in awareness due to the Program.

Figure 5-2: Percent of Customers Who Indicated the Program Increased Their Awareness of Distributed Generation



Awareness of Net Metering Requirements

Additionally, host customers who submitted reservation requests for photovoltaic projects were asked whether they were aware of the net metering requirements provided by electric utilities in California. Overall, 66% of respondents indicated that they were aware of these requirements. Respondents whose projects had been completed displayed higher levels of awareness than respondents whose projects had only reached an advanced or early stage.[2] A few respondents added that although they were aware of net metering requirements, they had purposefully designed their systems to not produce excess energy above that which they intended to consume on-site.

Awareness of Self-Generation Incentive Opportunities

When surveyed, several host customers indicated that they were unaware of performance contracting and equipment leasing companies. Some respondents stated that they had voluntarily withdrawn from the Program because they had not possessed sufficient capital to cover initial project costs; they were unaware that they could participate with little or no up-front cash outlay.

Additionally, several respondents with active PY2002 projects had only spoken to one leasing company or third-party contractor. These respondents expressed concern that they were not obtaining the best deal available, but were unaware of any alternatives. Many

[2] Of host customers whose photovoltaic projects had been completed, 84% reported awareness of net metering requirements, as compared to 63% of advanced stage and 78% of early stage host customers.

respondents also stated that it was difficult to locate manufacturers or installation contractors with experience in distributed generation.

Influential Factors in the Decision to Install Distributed Generation

Host customers were asked to rate the influence of various factors on their decision to install distributed generation systems on a scale of 1 to 5, where 1 indicated a factor had not been influential at all in the decision to install distributed generation, and 5 indicated a factor had been very influential in the decision to install. Table 5-1 presents the mean ratings of the influence of various factors upon the decision to install by technology.

Table 5-1: Influential Factors in the Decision to Install Distributed Generation (5=very influential and 1=not at all influential)

Factor	PV	Fuel Cell, Nonren. Fuel	IC Engine, Ren. Fuel	Micro-turbine, Ren. Fuel	IC Engine, Nonren. Fuel	Micro-turbine, Nonren. Fuel
Reduce Utility Bills	4.0 n = 35	4.0 n = 3	5.0 n = 1	5.0 n = 2	5.0 n = 34	5.0 n = 23
Improve Reliability of Electricity Supply	2.0 n = 35	4.0 n = 3	1.0 n = 1	3.0 n = 2	3.0 n = 34	3.0 n = 22
Concern for the Environment	4.0 n = 35	5.0 n = 3	4.0 n = 1	3.0 n = 2	3.0 n = 34	3.0 n = 21
Energy Supply Independence	3.0 n = 35	3.0 n = 3	1.0 n = 1	5.0 n = 2	3.0 n = 34	3.0 n = 22
Improve Business Image (Green Marketing)	3.0 n = 35	4.0 n = 3	3.0 n = 1	4.0 n = 2	3.0 n = 34	2.0 n = 22
Technical Demonstration	3.0 n = 35	3.0 n = 3	1.0 n = 1	3.0 n = 2	2.0 n = 34	3.0 n = 22

According to Table 5-1, overall, the reduction of utility bills was the most compelling factor in the decision to install distributed generation. Host customers across all technologies other than fuel cells rated the reduction of utility bills as the most influential component in their decision to install. Respondents installing photovoltaics, fuel cells, and internal combustion engines using renewable fuels also stated that concern for the environment was a compelling factor in their decision to install a distributed generation system.

Surveyed host customers whose reservation requests for Program funding had been withdrawn, rejected, or suspended indicated on average that the likelihood that they would proceed to install their distributed generation projects was quite low. On a scale of 1 to 5, where 1 indicated the respondent was not at all likely to pursue the project and 5 indicated the respondent was very likely to install the project, respondents assigned the likelihood of project completion a 2 rating. While the reasons for opting not to install a distributed generation system varied among respondents, absence of the financial incentive to install was a major factor in the decision not to proceed with the project.

Participants' Experience with Self-Generation Projects

Host customers surveyed were asked about any difficulties they had experienced with their projects as a result of Program deadlines or requirements. In particular, respondents were asked about the adequacy of the 90-day Proof of Project Advancement deadline and the one-year completion period, and the difficulty of meeting particular Program milestones. Some respondents also described other issues they faced with completing their projects.

90-Day Proof of Project Advancement Deadline

The requirements for Proof of Project Advancement include the following:

- Submission of an air pollution permit application,
- Submission of an electrical interconnection application,
- Submission of a Purchase Order for the generating equipment,
- Submission of proof of insurance,
- Submission of waste heat recovery calculations, and
- Submission of a detailed project cost breakdown.

During the host customer surveys, respondents were asked whether they felt that the 90-day deadline provided sufficient time for Proof of Project Advancement in their case. Slightly more than 50% of all host customers indicated that they felt the 90-day deadline was sufficient to meet the requirements of Proof of Project Advancement in PY2002, as compared to the 36% of host customers in PY2001.

Host customers who indicated that the 90-day deadline for Proof of Project Advancement was not sufficient were asked why this was the case. More than half of the respondents answering this question indicated that it was no specific requirement but rather the combination of requirements for Proof of Project Advancement that rendered the 90-day deadline difficult to meet. Moreover, certain types of organizations tended to state that their internal decision-making and approval processes were responsible for difficulties in submitting materials within the required periods. These organizations tended to be government agencies, hospitals, and schools/colleges. Less common reasons given for not meeting the 90-day Proof of Project Advancement deadline included the following:

- Difficulty with submitting the air pollution permit application was described by 14% of customers.

- Difficulty with submitting an equipment purchase order was described by roughly 10% of customers.
- Proof of insurance was reported as a difficulty by 8% of customers.
- Roughly 6% of customers said submitting the electrical interconnect application within 90 days had been problematic.
- Providing a project cost breakdown was cited by 4% of customers as being problematic.

Interestingly, many of those respondents who stated that the 90-day deadline was sufficient for Proof of Project Advancement stated that they had received extensions to their 90-day deadlines. This discrepancy was due to a general consensus in feelings observed by respondents that while the 90-day deadline was sufficient in general, that it was their project in particular that had rendered them unable to meet the 90-day deadline.

Some respondents indicated that they were quite worried they would lose their funding if they could not provide Proof of Project Advancement within the required period since the language in the Program handbook seemed “so final.” However, in reality, numerous respondents observed that the Program Administrators were quite flexible in granting extensions to the 90-day deadline. Recipients of extensions included government agencies, hospitals, nonprofit organizations, and municipalities. This assignment of extensions is consistent with the general consensus stated by these organizations that they required more time to complete project milestones due to the length of their internal decision-making processes. The Program Administrators observed this phenomenon in PY2001, and confirmed that such organizations were liberally granted extensions to project milestones.

One-Year Project Completion Deadline

Host customers were also asked if they felt the one-year deadline would be sufficient to complete the installation of a system like the one for which they applied. Figure 5-3 presents the responses to this question by project status.

Figure 5-3 shows that, overall, 75.1% of host customers felt the one-year deadline was adequate. The percentage of host customers who felt the deadline was adequate was quite similar across inactive, early, and advanced stage host customers, and ranged from 70-80%. Of host customers whose systems had been successfully completed, the percentage that felt the deadline was sufficient was somewhat higher at 89%.

Figure 5-3: Percent of Host Customers Who Indicated that the One-Year Deadline is Sufficient by Project Status

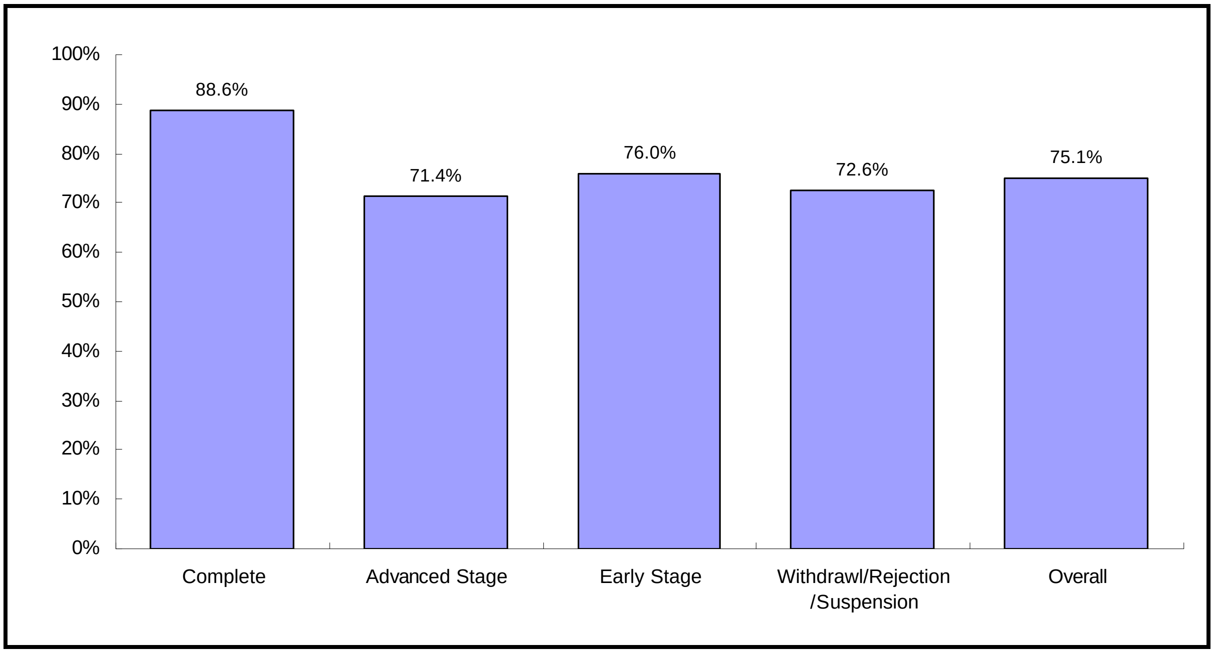
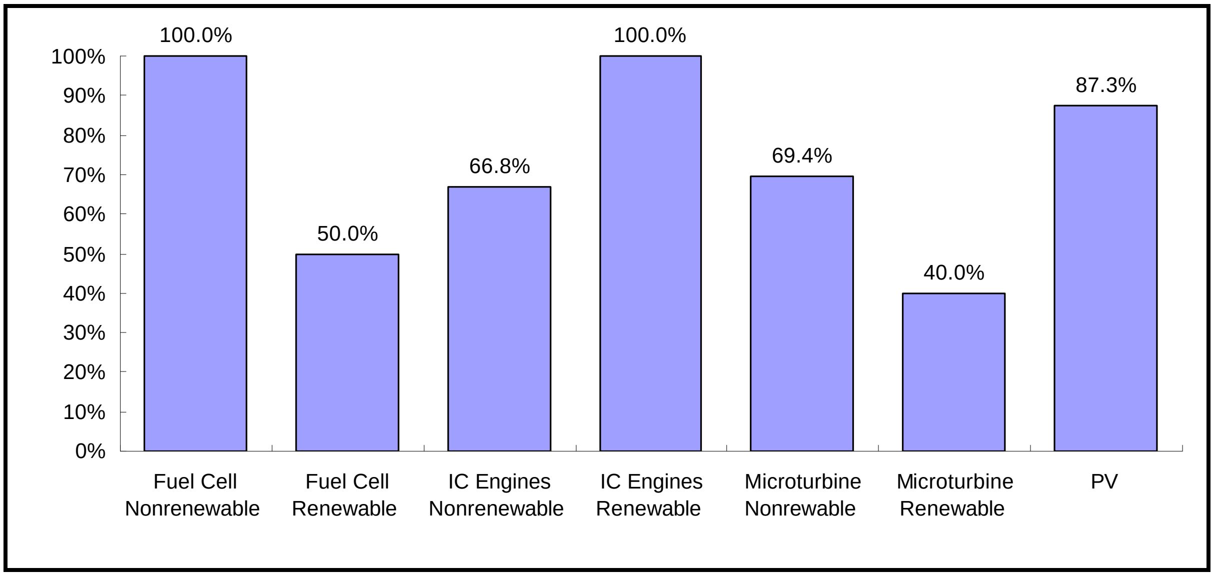


Figure 5-4 presents the same results by distributed generation technology. As shown, all host customers who had installed or were in the process of installing fuel cells using nonrenewable fuels or internal combustion engines using renewable fuels felt the one-year deadline was sufficient. Host customers installing photovoltaics were the next most confident that the deadline would be sufficient (90%), followed by host customers installing microturbines and internal combustion engines using nonrenewable fuels (69% and 66%, respectively), fuel cells using renewable fuels (50%), and microturbines using renewable fuels (40%).

Figure 5-4: Percent of Host Customers Who Indicated that the One-Year Deadline is Sufficient by Technology



Host customers who indicated the one-year deadline was not sufficient for project completion were asked why they felt the deadline was not sufficient. Most reported the length of their internal decision-making processes as the primary reason for the difficulty in completing their projects within the required period. Of the host customers whose responses fell into this category, a significant portion was composed of hospitals, schools, and government agencies. These host customers recommended that the one-year deadline be extended to 1.5 or 2 years for their types of organizations. While these host customers were grateful for the liberality with which Program Administrators granted extensions to deadlines, they stated that the deadlines should be extended so they would not be compelled to file additional paperwork to be granted extensions. Rather, deadlines should be extended so no additional extensions would be required.

Host customers installing fuel cells indicated that building permitting issues were the primary reason why projects could not be completed in one-year. In addition, roughly 36% of host customers installing internal combustion engines stated that the difficulty of the air emissions permitting process rendered the one-year deadline insufficient. None of the host customers felt that the one-year deadline was insufficient due to long lead times for manufacturers to ship equipment, installation delays by contractors, meeting waste heat recovery requirements, interconnection, or financing.

Thus, interestingly, while numerous host customers stated that the interconnection process was the most difficult phase of project development, none of the respondents indicated that it caused sufficient delays to jeopardize project completion within the required period.

However, they did report that air emissions permitting was a factor that could jeopardize project completion within the required period.

Difficulty of Meeting Project Milestones

Host customers were asked to rank the difficulty of the following project milestones on a scale of 1 to 5, where 1 meant not at all difficult and 5 meant very difficult.

- Selecting a manufacturer,
- Selecting an installer/integrator/contractor,
- Interconnection engineering with the utility,
- Meeting waste heat design requirements (where applicable),
- Providing detailed cost estimates,
- Obtaining air emissions permits (where applicable),
- Project construction,
- Utility pre-parallel inspection, and
- System operational performance testing.

Table 5-2 summarizes the mean level of difficulty associated with meeting these project milestones as reported by host customers surveyed for this evaluation. As shown, host customers indicated that the two most difficult milestones to meet were obtaining the interconnection engineering agreement with the utility and obtaining air emissions permits. The two simplest project milestones to meet in PY2002 were operational performance testing and obtaining a system warranty.

Table 5-2: Average Level of Difficulty Reported by Host Customers in Meeting Project Milestones (5=very difficult and 1=not at all difficult)

	Fuel Cells Nonren.	IC Engines Nonren.	IC Engines Renew.	Micro-turbine Nonren.	Micro-turbine Renew.	PV
Selecting a manufacturer	1.0 n = 1	2.0 n = 35 (0.2)	4.0 n = 1	2.6 n=10 (0.6)	1.0 n=2 (0.0)	1.5 n = 16 (0.3)
Selecting installer/integrator/contractor	1.0 n=1	2.0 n=33 (0.2)	1.0 n=1	2.8 n=9 (0.5)	1.0 n=2 (0.0)	1.3 n=15 (0.2)
Interconnection engineering w/utility	5.0 n=1	2.7 n=31 (0.3)	5.0 n=1	2.9 n=8 (0.6)	3.4 n=2 (2.0)	2.3 n=12 (0.4)
Meeting waste heat design requirements	1.0 n=1	2.2 n=34 (0.2)	-	1.4 n=6 (0.2)	-	-
Providing detailed cost estimates	1.0 n=1	2.3 n=29 (0.2)	3.0 n=1	1.9 n=8 (0.4)	1.0 n=1	2.3 n=13 (0.3)
Obtaining air emissions permits	2.0 n=1	3.2 n=29 (0.3)	2.0 n=1	1.8 n=3 (0.3)	1.6 n=2 (0.5)	1.3 n=4 (0.3)
Obtaining a warranty for the system	2.0 n=1	1.5 n=26 (0.1)	2.0 n=1	4.0 n=7 (0.5)	1.0 n=1	1.1 n=13 (0.1)
Project construction	1.0 n=1	2.5 n=25 (0.2)	1.0 n=1	3.4 n=7 (0.6)	1.0 n=2 (0.0)	2.2 n=12 (0.3)
Utility pre-parallel inspection	-	2.3 n=19 (0.2)	-	1.7 n=7 (0.4)	2.2 n=2 (1.0)	2.1 n=8 (0.3)
System operational performance tests	-	1.7 n=2 (0.5)	-	-	-	-

Note: Standard errors in parentheses.

In comparing these results (PY2002) to those reported in last year's process evaluation (PY2001), it is interesting to note that the reported levels of difficulty associated with interconnection, project construction, utility pre-parallel inspection, meeting waste heat design requirements, and system operational performance testing increased between PY2001 and PY2002. Furthermore, the levels of difficulty associated with locating an installer/integrator/contractor, locating a manufacturer, obtaining a warranty, and providing detailed cost estimates decreased between PY2001 and PY2002, perhaps reflecting development in the market for third-party vendors of distributed generation systems and services. The level of difficulty associated with air emissions permitting remained approximately constant between PY2001 and PY2002. Moreover, sample sizes for responses in the PY2002 evaluation are slightly higher than those in the PY2001 evaluation, suggesting they may be more representative of overall customer opinions. From these results, interconnection and air emissions permitting have remained the most difficult project milestones to meet in PY2001 and PY2002, despite the efforts of Program Administrators to improve these processes in PY2002.

Interconnection

As stated previously, numerous host customers indicated that the interconnection process was overly lengthy. A number of respondents indicated that the process of completing a detailed interconnection study and/or receiving the authorization to interconnect required an excessive amount of time. Some respondents felt that interconnection staff appeared uninformed and were sometimes discourteous, and indicated that they were suspicious the utilities were deliberately attempting to make the process difficult for them.

The primary reason implicated for difficulties with the interconnection process was confusion regarding the requirements for interconnection. In particular, several respondents indicated that confusion arose over the interpretation of protective equipment required under Rule 21.[3]

In some cases, this resulted in differences of opinion between Program Administrators and cities. In other cases, confusion resulted in differences of opinion between Program Administrators and third parties. Some respondents indicated that the sheer number of entities involved in the interconnection process rendered the process excessively difficult, as protracted negotiations regarding differences of opinion and inconsistency of interpretations of interconnection requirements among different Program Administrators created confusion and prolonged the interconnection process. These respondents also stated that supplementary review processes required extended time and that paperwork associated with the review process was frustrating and cumbersome.

Air Emissions Permitting

As mentioned previously, host customers surveyed in PY2002 stated that the air emissions permitting process was the second most difficult project milestone to meet after interconnection. Numerous respondents felt that the air emissions permitting process required an excessive amount of time, but most respondents cited factors beyond the Program Administrators' control. One respondent stated that resizing of his distributed generation

[3] An explanation of Rule 21 can be found on http://www.sdge.com/tm2/pdf/ERULE21.pdf.

system was necessary to avoid being subject to Title 5 requirements. Another respondent stated that it had been difficult to obtain air emissions permits since his system would be sited near a school. Another respondent stated that the air pollution control district had been unfamiliar with internal combustion engines and was compelled to establish new requirements for those types of systems. Multiple respondents indicated that they were compelled to pay their air pollution control districts extra in order to obtain the permit within the required period.

Net Metering

Additionally, although host customers were not specifically surveyed regarding the level of difficulty associated with the installation of net meters, numerous respondents mentioned net metering as a source of contention and delay to project development. Several respondents who had installed photovoltaic systems complained that they had not received credit for their grid contributions due to long delays in obtaining meters. One respondent stated that the delay in installing the panel had spanned an entire year. When the respondent contacted his Program Administrator, the Program Administrator stated that they lacked instructions for installation. Another host customer indicated that his Program Administrator installed the wrong meter and that he was still in the process of attempting to obtain the correct meter.

Other respondents installing photovoltaic systems indicated problems with billing for net metering. One respondent stated that his Program Administrator was unable to identify the amount of power his system had supplied to the grid. Additionally, several respondents also said they did not understand how they are being credited for the amount of power they supply to the grid.

Operating Off the Grid

Another concern cited by respondents installing microturbines was that they could not operate their systems when power from the grid was interrupted. Some respondents were surprised to learn they could not use their systems solely for backup power. Of the host customers who indicated they were physically able to operate off the grid, the only comment made by one respondent was that the cost of the additional equipment required to operate off the grid had been prohibitive.

Likelihood of Project Completion

Host customers whose projects remained active indicated that their projects were very likely to be completed. On a scale of 1 to 5, where 1 indicated the respondent was not at all likely to complete the project and 5 indicated the respondent was very likely to complete the project, both early and advanced stage host customers assigned their likelihood of completion a rating of 5.

Participants' Experience with Program Administration

Respondents were asked about their experience and opinions concerning the application materials and their dealings with their Program Administrator. Specifically, they were asked about any unnecessary delays they might have experienced that were caused by the Program Administrator. Since much of this experience depends on how involved with the application process they were (i.e., many customers had third parties perform most of this function for them), customers were also asked to describe their level of involvement.

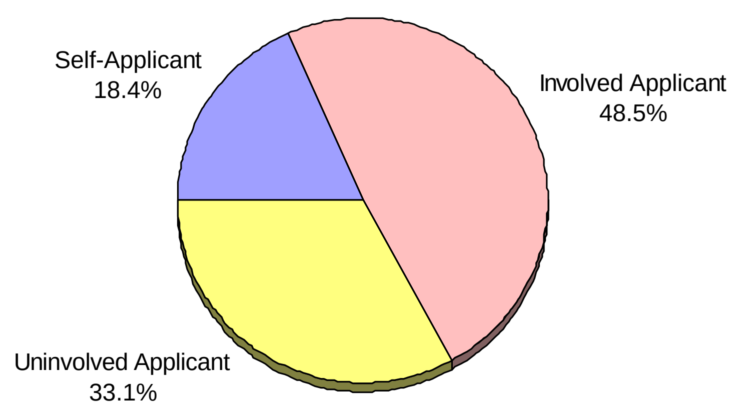
Level of Involvement

As described in Section 4, host customers were asked to describe their level of involvement with the application process. The host customers were categorized into one of the following involvement levels according to their responses:

- Respondent completed all forms themselves with direct contact with the Program Administrator (self-applicant),
- Respondent contracted with a third party who completed and submitted the forms for them after thorough consultation (involved applicant), or
- Respondent contracted with a third party who completed and submitted the forms for them without much help from the customer (uninvolved applicant).

Figure 5-5 summarizes the levels of involvement reported by all surveyed host customers.

Figure 5-5: Level of Host Customer Involvement with the Application Process



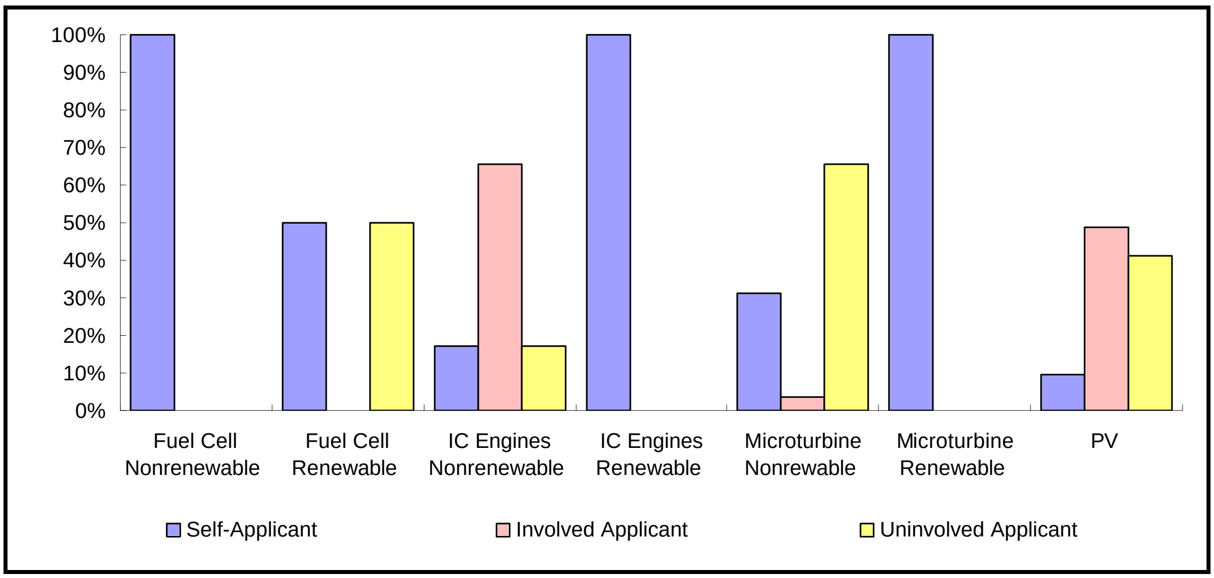
As shown, nearly half of respondents reported involvement in the application process, approximately one-third reported being uninvolved in the application process, and the remainder reported that they had managed the entire application process by themselves. Furthermore, Table 5-3 presents a comparison of how these proportions changed since the first year of the Program. As shown, the proportion of customers working with third parties increased from 25% to 49% in the second year. Moreover, the proportion of customers completing applications by themselves was cut in half from 37% to 18%.

Table 5-3: Comparison of Involvement of Customers in PY2001 & PY2002

Level of Involvement	PY2001	PY2002
Uninvolved applicant (third party completed application)	38 %	33 %
Involved applicant (completed application with help from third party)	25 %	49 %
Self-applicant (completed application themselves)	37 %	18 %

Figure 5-6 presents respondents' reported levels of involvement by technology. As shown, involved applicants tended to be more prevalent with internal combustion engine and photovoltaic projects. In addition, self-applicants tended to be fewer among the photovoltaic projects.

Figure 5-6: Level of Involvement of Customers by Technology



Application Materials

Approximately 72% of the surveyed host customers reported that they had personally reviewed the application materials and instructions. This proportion was slightly down from 85% reported in the PY2001 results. As expected, the proportion of respondents that reviewed the application materials and instructions in 2002 was much lower for uninvolved applicants (40%) than it was for involved applicants (88%) or self-applicants (92%).

Respondents who reviewed the materials were also asked if they found them to be clear. Most (62%) indicated that they did find the materials clear. This represents a significant decline from PY2001 results, in which 87% of host customers who had reviewed the Program application materials and instructions stated that they felt the materials were sufficiently clear. This phenomenon could be attributable to differences in the types of host customers who applied to the Self-Generation Incentive Program in PY2002 as opposed to the types of host customers who applied in PY2001, or, alternatively, it could reflect the effects of changes made to the Program application materials and instructions since PY2001.

Indeed, a significant portion of respondents who reviewed the application materials stated that they felt the application materials and instructions were excessively complex, lengthy, and confusing. The required documentation was purported to be excessive, cumbersome, and stringent. Several respondents stated that they felt a third-party interpreter was necessary to translate the Program requirements into a language they could understand. Many host customers who employed a third-party consultant or ESCO seemed relieved to not be directly involved in the application process.

Host customers who reported the Program application materials and instructions were not sufficiently clear recommended that the following changes be made:

- The discussion regarding prorating systems with capacities larger than 1 MW should be clarified,
- The requirements for the provision of detailed cost estimates should be clarified, and
- Requirements for each phase of project development should be clarified, as Program Administrators’ interpretations of Program requirements differ.

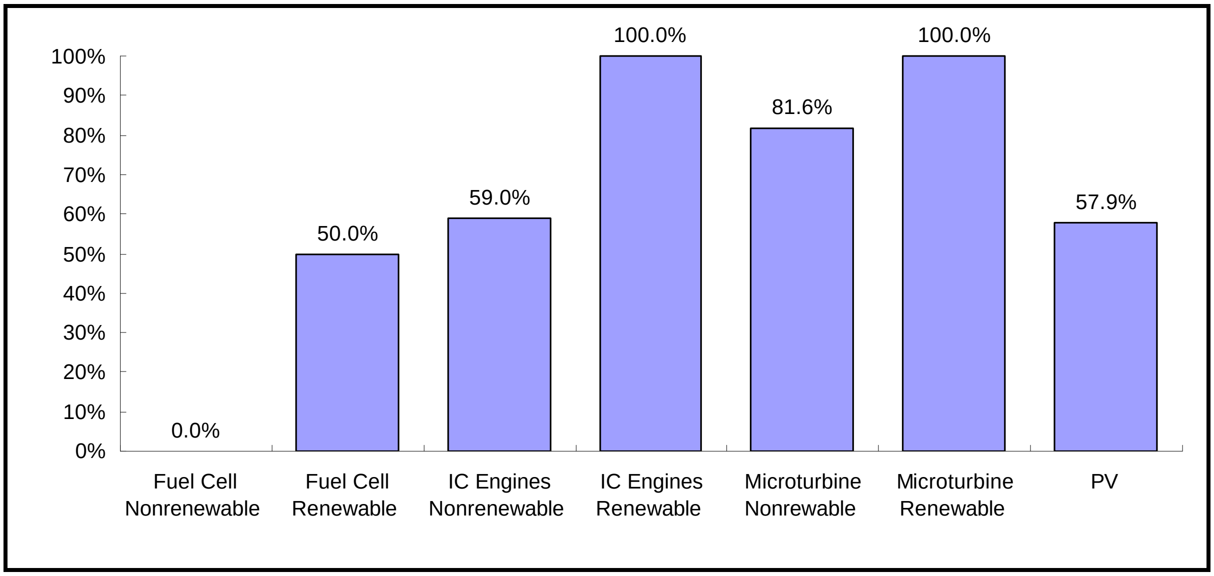
Host customers were also asked if they had reviewed the Program handbook. Only 13% of all host customers surveyed reported reviewing the handbook and these tended to be customers in the self-applicant category. Most respondents stated that they were not even aware a Program handbook existed. However, most of the respondents that did have the opportunity to review the Program handbook found it helpful on some level, though many commented that it was cumbersome, vague in some places, and time-consuming to interpret.

For example, one respondent said the handbook needed a better explanation for system sizes. Several respondents noted that they needed a contractor or professional outside of their organization to interpret it for them.

Experience with Program Administrator

Host customers were also asked if they felt that their Program Administrator had provided satisfactory answers to their questions. Figure 5-7 shows that the percentage of host customers who felt their Program Administrators had answered their questions satisfactorily varied by technology.

Figure 5-7: Percent of Host Customers Who Indicated that Program Administrators Answer Questions Satisfactorily by Technology



Host customers installing internal combustion engines and microturbines using renewable fuels reported the highest level of satisfaction. All host customers surveyed for these technologies stated that their Program Administrators were sufficiently responsive. Host customers installing microturbines using nonrenewable fuels possessed the next highest level of satisfaction (82%), followed by host customers installing internal combustion engines using nonrenewable fuels, photovoltaics, fuel cells using renewable fuels, and fuel cells using nonrenewable fuels (59.0%, 57.9%, 50.0%, and 0%, respectively). It is important to realize that technologies showing 0% or 100% are represented by very small sample sizes, so these results are not necessarily representative of all customers with that technology.

Complaints cited by displeased host customers included lack of timeliness of Program Administrator response, lack of sufficient technical competency to answer questions, and bureaucracy associated with being shuffled from department to department in search of answers to questions.

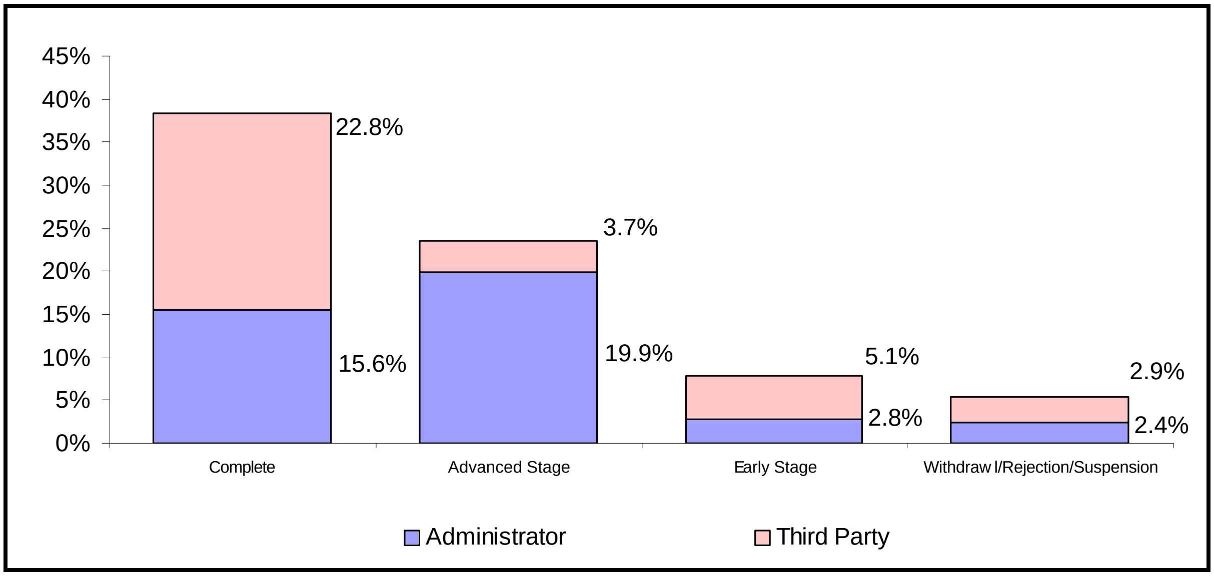
Overall, 62% of PY2002 respondents indicated that their Program Administrator(s) answered their questions satisfactorily. This figure also represents a sharp decline from the 95% level of satisfaction reported by host customers in PY2001. This decline could be due, in part, to changes in the distribution of host customers involved with the application process. As stated previously, the proportion of self-applicants and uninvolved applicants to the Program declined, while the proportion of involved applicants increased. The decline in the proportion of self-applicants could imply a decline in the level of sophistication of the host customers between PY2001 and PY2002. On the other hand, the decrease in uninvolved applicants, in conjunction with the decrease in self-applicants and the increase in involved applicants, indicates a gravitation of host customers to the middle of the involvement level spectrum. A higher proportion of involved applicants in PY2002 might also indicate that more questions were posed to Program Administrators in PY2002. Thus, the high levels of satisfaction reported by the PY2001 customers may have in part reflected a decreased propensity of applicants to pose questions to their Program Administrators.

Even more likely, the decline in the level of satisfaction reported by the PY2002 host customers could reflect the fact that projects have progressed further in PY2002 overall than they had in PY2001. None of the PY2001 host customers had reached the on-site verification stage in PY2001. However, a number of PY2001 and PY2002 projects were completed and paid in PY2002. Host customers may have posed more questions to their Program Administrators as they reached later stages of project development, and answers to those questions may have taken more time or research on the part of the Program Administrators since PY2002 was the first Program Year in which final verifications were conducted and projects were completed and paid.

Host customers were also asked if their Program Administrators had contacted them after they submitted their Reservation Request Forms, but before the Reservation Request Forms were approved. Most respondents indicated that they did not remember if their Program Administrator contacted them after they submitted their Reservation Request Forms. Some respondents, however, indicated that their Program Administrator had been "in constant contact" with them throughout the application process, contacting them periodically to inform them of upcoming deadlines.

Respondents were also asked if their Program Administrator and/or their third-party applicant had caused any unnecessary delays. Figure 5-8 displays the percentage of respondents at each stage of project development that felt that their Program Administrator and/or third-party applicant had caused unnecessary delays.

Figure 5-8: Percent of Customers Who Indicated Unnecessary Delays Were Caused by the Program Administrator, the Third Party, or Both, Shown by Project Status



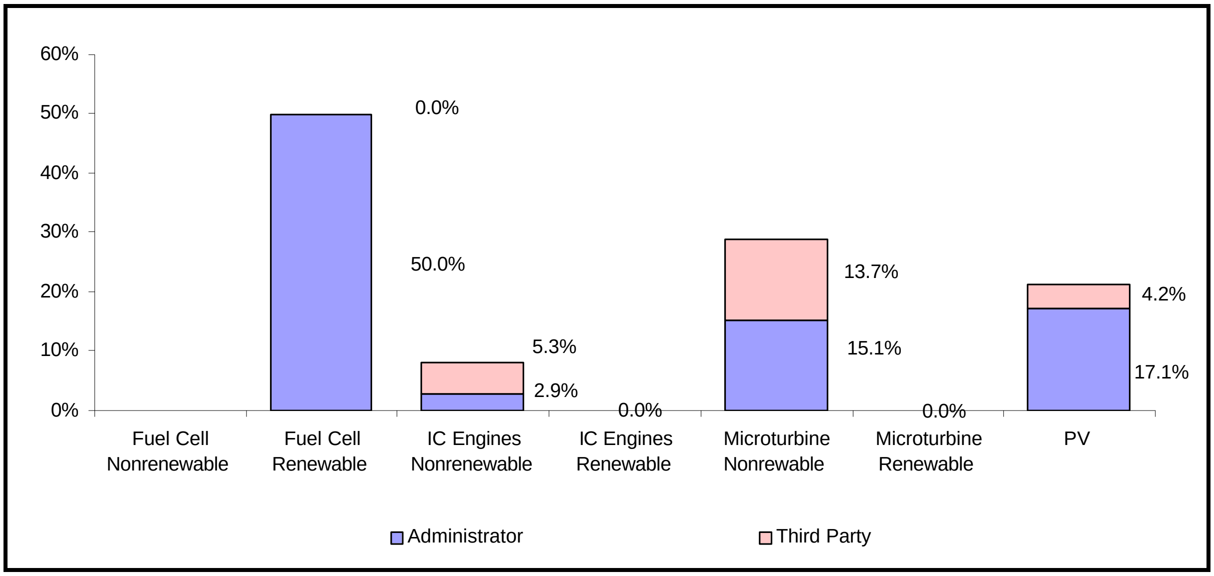
As shown in Figure 5-8, nearly 40% of respondents whose projects had been completed reported they had experienced unnecessary delays due to their Program Administrator and/or third-party applicant. Roughly 24% of customers with projects in an advanced stage and 8% of customers in an early stage reported delays by their Program Administrator and/or third-party applicant.

The percentages of early and advanced stage respondents who reported delays caused by a Program Administrator and/or third party were lower in PY2002 than in PY2001. In PY2001, approximately 16% of early stage respondents and approximately 40% of advanced stage respondents indicated delays, as compared to 8% of early stage respondents and 24% of advanced stage respondents in PY2002. This result may confirm that the Program Administrators and/or third-party vendors have gained increased experience with processing and/or establishing, interpreting, and fulfilling requirements for the Self-Generation Incentive Program, leading to an overall decrease in the percentage of active respondents reporting delays.

Additionally, as shown in Figure 5-8, the percentage of respondents reporting delays was correlated with progress in project development. Respondents whose projects had progressed further had had more opportunities for interaction with the third party and/or Program Administrator in negotiating and fulfilling Program requirements, and thus would seem more likely to report delays since there were more opportunities for delays to arise.

Figure 5-9 presents the same results by technology. As shown in Figure 5-9, one of the two respondents using fuel cells using renewable fuel stated that the Program Administrator caused delays. This respondent reported a request by the Program Administrator to install an additional component. The respondent stated that this additional component was extraneous; however, he did design and install the component as requested.

Figure 5-9: Percent of Host Customers Who Indicated Unnecessary Delays Caused by the Program Administrator, the Third Party, or Both, by Technology



Most of the respondents who did cite delays indicated that they were caused by external organizations such as local permitting officials, staff in utility interconnection departments, or inspectors from other incentive programs (for those respondents who had also applied for funding from other incentive programs.

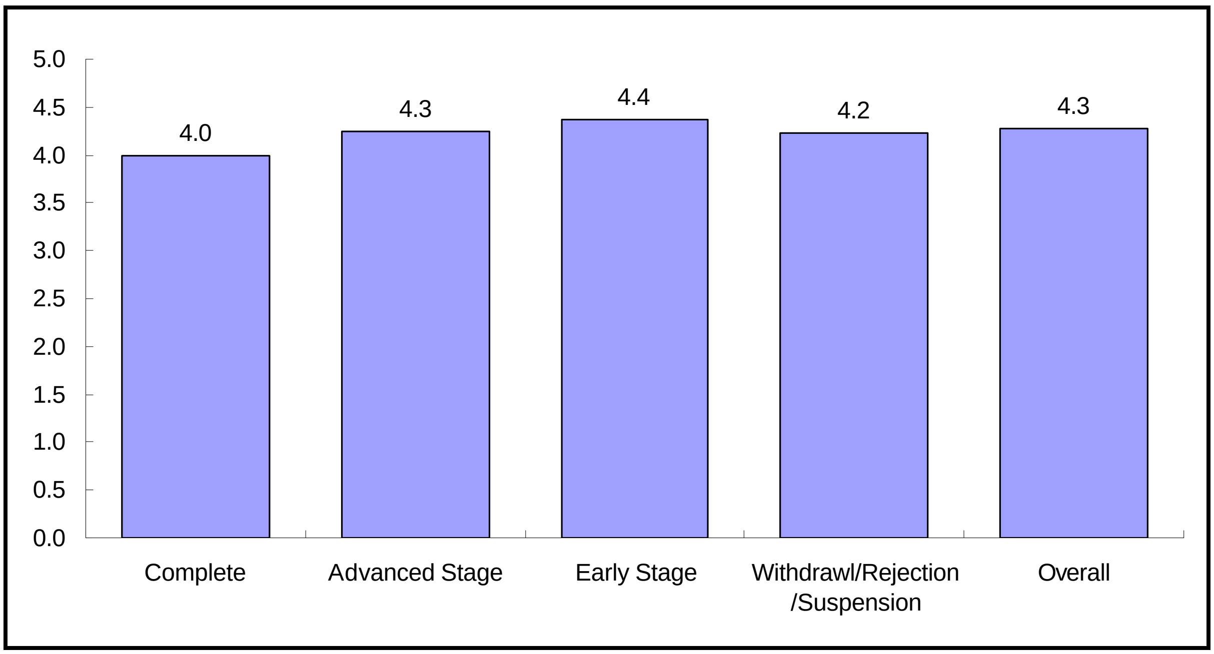
Finally, as shown in Figure 5-9, the vast majority of respondents who installed or were in the process of installing internal combustion engines concurred that neither their third-party vendors nor their Program Administrators had caused any unnecessary delays. Those who did cite third party delays described delays caused by the departure of an ESCO from the market and delays in design, financing, and construction. Program Administrator delays were described as related to meter installation, bench tests, and determining Rule 21 requirements.

While most host customers indicated that the Program Administrators did not cause any unnecessary delays, respondents with multiple projects across different utility service areas complained that Program requirements were not applied uniformly across Program Administrators. These respondents indicated that they would appreciate increased coordination between Program Administrators or a single utility contact for all projects.

Satisfaction with Program

Finally, host customers were asked to rate their overall satisfaction with the Self-Generation Incentive Program on a scale of 1 to 5, with 1 meaning very dissatisfied and 5 meaning very satisfied. Host customers whose systems had been completed ranked their overall satisfaction with the Program a 4.0. Host customers whose applications had been withdrawn, rejected, or suspended assigned their level of overall satisfaction a rating of 4.2. The overall levels of satisfaction with the Program were slightly higher for advanced stage and early stage host customers, at 4.3 and 4.4, respectively. Figure 5-10 shows the results.

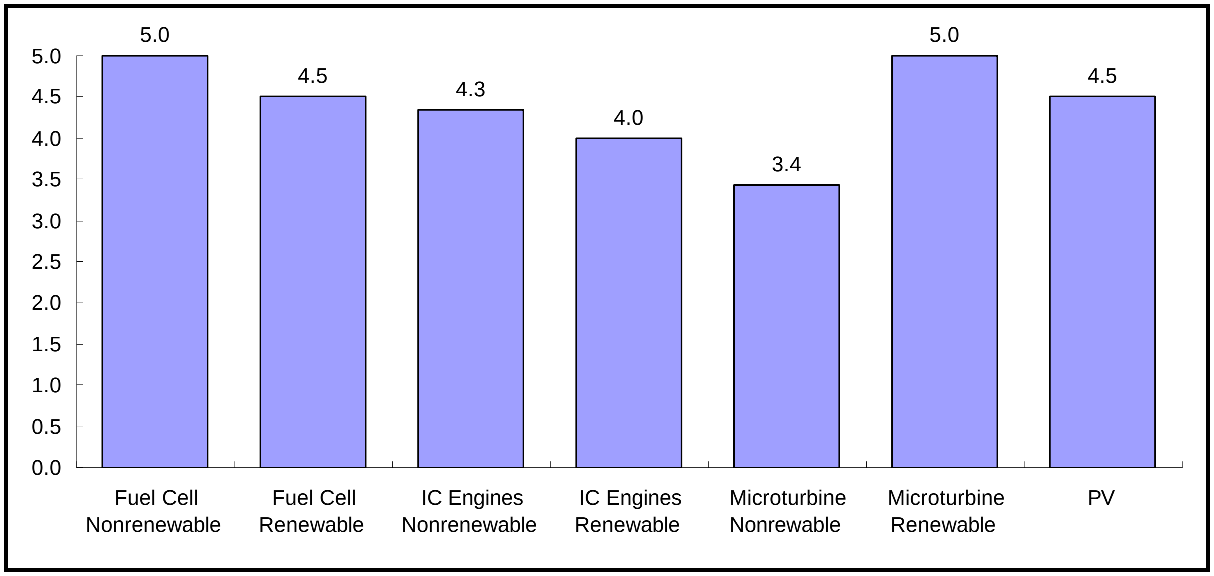
Figure 5-10: Host Customer Average Satisfaction by Project Stage (5=very satisfied and 1=not at all satisfied)



It is remarkable that the lowest level of satisfaction reported by host customers was attributable to respondents whose systems had been completed and paid. This result seems contrary to common sense since one would normally expect that a host customer who had actually received an incentive check would be more satisfied than one who was still in the process of fulfilling Program requirements to receive the incentive check.

Figure 5-11 seeks to shed more light on the issue of host customer satisfaction, presenting the results shown in Figure 5-10 by distributed generation technology. As Figure 5-11 shows, host customers installing microturbines using renewable fuels and fuel cells using nonrenewable fuels reported the highest overall levels of satisfaction with the Program (5.0), followed by host customers installing photovoltaics and fuel cells using renewable fuels (4.5), internal combustion engines using nonrenewable and renewable fuels (4.3 and 4.0, respectively), and microturbines using nonrenewable fuels (3.4).

Figure 5-11: Host Customer Average Satisfaction by Technology (5=very satisfied and 1=not at all satisfied)



According to Figure 5-10 and Figure 5-11, overall, respondents reported they were quite satisfied with the Self-Generation Incentive Program. One reason for the high level of overall satisfaction with the Program is the attitudes of the host customers surveyed. Many respondents indicated that they understood problems would occur since the Program was new, and thus there would be a learning curve on their part and on the part of the Program Administrators. It was surprising how many respondents thought they were one of the first host customers to go through the Program. One respondent remarked, "We were one of the first customers into the Program and we encountered all kinds of problems for that reason." Host customers who felt that their systems were pioneer projects were more likely to be more understanding of delays associated with the learning process.

Additionally, regardless of the difficulties associated with the application and/or project development process, host customers were appreciative of the existence of the incentive. The high level of overall satisfaction from all respondents may indicate that many host customers feel the incentive is worth the work.

<u>Barriers to Participation</u>

Several barriers to Program participation were identified in the host customer interviews. Barriers cited by respondents included the following.

- ***Problems with project financing.*** Several host customers were unaware of leasing or performance contracting options in which they would not be required to make any payments up front. Other host customers indicated that while they were aware of financing options, the financing process was difficult due to lenders' lack of familiarity with distributed generation systems and/or programs such as the Self-Generation Incentive Program.
- ***High project cost, even with incentives.*** Several host customers indicated that they withdrew from the Program because their system costs were too high, even with the incentive. In other cases, host customers learned of additional costs of which they were not initially aware. One customer stated that the costs associated with frequent replacement of components were prohibitive.
- ***Uncertainty.*** While customers are often able to absorb the costs they are aware of at the outset of the project, they were very concerned about the unknown. With potential exit fees and other charges, some customers simply thought there was too much risk involved. In fact, many respondents were angry at being assessed, or the prospect of being assessed, standby charges and exit fees. They felt that while the Program Administrators seemed helpful in answering questions, they really intended to discourage distributed generation through the assessment of standby charges and exit fees.

Exit fees, not part of the Program itself, are intended to defray the cost of electricity purchases among all customers, not just those who remain on the system. Since exit fees extend the payback period, they need to be included in payback calculations. Customers were angry when they discovered this potential cost after already committing to the project based on a payback that did not include that extra cost. One customer with a photovoltaic project explained that exit fees would more than double the payback so those systems would no longer be feasible to install. He stated, "I can't see anyone installing solar if that happens." He further commented "I have to wonder if the state and the utilities really want to practice what they preach (conserve power and start producing our own)...what's happening with the exit fees tells me they don't...I'm not sure they really want us to do this."

Suggestions for Change

While overall customers expressed satisfaction with the Program, some suggestions for improvement were offered.

- Several stated that the Program needed to be marketed more effectively. One said "I looked around myself and didn't know about this until my contractor found it for me."

- One respondent (a school) explained the 1.5 MW cap (1 MW cap for incentive) is too small for a university or a large business, since they need to build bigger systems than that to cover their usage.
- One internal combustion engine respondent indicated that his organization was lobbying the CPUC for a revision to the Program handbook to extend eligibility requirements for the Self-Generation Incentive Program to customers whose heating and cooling needs were served by a central plant, and who lack a gas account with one of the Program Administrators.

5.4 Participant Suppliers

A stratified sample of participant suppliers was interviewed for the evaluation. The sample was weighted to represent the population of participant suppliers identified in the Program database as of January 30, 2003. The results are presented below by the following topics:

- Barriers to participation,
- Self-Generation Incentive project difficulties,
- Experience with Program Administrators, and
- Project and market development.

Barriers to Participation

Equipment suppliers who participated in the Program were asked to identify important barriers to the development of projects suitable for involvement in the Program. A commonly mentioned barrier was the lack of host customer awareness of the benefits of distributed generation and/or of the Program. Other barriers included the complexity of the Program requirements, confusion about interconnection specifications, and negative information passed on to host customers by utility service representatives.

Another barrier to participation often mentioned in various contexts is a general mistrust of the utilities. Potential hosts are wary of the political influence of the IOUs and feel that this creates uncertainty around future savings from self-generation. The utilities' pressure at the CPUC to levy exit fees is an example of this type of uncertainty. Even if the fees are ultimately not levied, some host customers might take this issue as an indication of future institutional changes, which would, in retrospect, diminish the economic viability of the Self-Generation Incentive Program investment.

Other barriers to Program participation include cash-flow problems, which are exacerbated by the long delay between project-related capital outlays and the receipt of incentive payment and/or delays in actual generation startup. Net metering complexities and Program requirements that the net generation output be metered have posed difficulties and expenses in some cases. Suppliers also mentioned the onerous insurance and indemnification requirements of the Program.

In the case of renewable fueled microturbines, two vendors noted that one Program Administrator did not allow uncompensated inadvertent power flows into the grid. This prohibition increases the cost of installations because they must either be undersized to prevent backflow to the grid or include additional control equipment to eliminate surplus generation. For nonrenewable-fueled microturbines, it can further limit the number of site applications that are able to meet the heat recovery requirements of the Program in such cases where the number of daily operational hours is limited by the prohibition of surplus power flow to the grid.

Microturbine cogeneration project options are limited by the CHP heat recovery requirement of the Program. Microturbine manufacturers have been impacted by the stringent air quality performance testing and equipment certification requirements. One microturbine manufacturer terminated its distribution of equipment because it could not pass the California air emissions certification and thus it was deemed too costly to continue the certification process. As a result, their vendors and host customers were left with essentially useless equipment. Some of these third-party vendor/engineering companies were forced to close their businesses. Competition in the microturbine market is presently minimal with possibly one vendor remaining with fully pre-certified equipment.

For photovoltaic technology, the greatest barrier is still the high capital cost of equipment and installation. The Program is generally seen as reducing this barrier in at least two ways: 1) by reducing installed costs directly, and 2) by stimulating economies of scale in manufacturing and lower installation costs as third-party vendors and engineering companies become more efficient at designing and installing the systems. The life of the Program is a concern to some vendors and manufacturers. They would like to see the Program extend beyond 2004, while gradually tapering off the level of the incentives. They advocate this as an approach that would gradually allow the industry to stand on its own in the future without subsidy.

Many suppliers view the long period between project initiation and receipt of the incentive payment as another serious barrier. No payment is received from the Program Administrators until every approval is obtained and every project invoice is documented and approved. Suppliers that had receivables tied to receipt of the incentive payment reported experiencing capitalization limitations, especially if a large part of their business was dependent on the Program. In effect, the delay in payment limited their ability to sell what might otherwise have been viable projects. Capitalization constraints were also binding on some photovoltaic manufacturers who made longer than the usual 30-day terms with their dealers in order to help the dealers float larger capital-intensive Self-Generation Incentive

Program projects. At least one photovoltaic manufacturer noted that this capitalization pressure had the effect of siphoning off funds that might have otherwise gone to R&D or manufacturing plant improvements. Thus, while the Program has helped to develop the distributed generation industry, it has also somewhat impeded its growth by tying up capital.

Respondents were asked if the new Program requirements related to power factor limits for Level 3 projects have been a significant barrier to project development. Approximately 35% of suppliers responded that it had been a barrier. As one respondent explained "these requirements mean that projects require more engineering and more money to complete." Another said that the power factor requirement was "just an irritant." Another described the "extra cost involved with providing power factor upgrades to facilities and, of more concern, space required for installation of net generator output meters that have no bearing on project economics."

Further, respondents were asked about specific aspects of the Program that may have prevented customers from participating or from installing systems. Respondents mentioned the following.

- The size cap is too low, especially for internal combustion engine projects.
- There is a lack of partial (progress) payments, especially for photovoltaic projects, which are highly capital-intensive is a problem. With payments only at final certification, capital is tied up for too long, making projects less economic for hosts and limiting the number of simultaneous projects that can be fronted by suppliers.
- Some utility field representatives are discouraging customers from going ahead with self-generation projects.
- There is a general lack of understanding about the Program by host customers due to poor dissemination of Program information.
- There is uncertainty about the eligibility of costs included in Program, and exclusion of costs, which are related to the Program (e.g., absorption chillers to replace electric chillers by using waste heat from internal combustion engine systems).
- The CHP related requirements limit the eligibility of certain potential host sites due to the thermal energy recovery and annual efficiency applicability.
- Obtaining financing is a problem. Reservation letters of commitment do make obtaining the financing easier, but applicants may not be able to afford to make it to this critical point.
- Program insurance requirements are complicated.
- Customers do not want to prepay three years of maintenance and warranty coverage prior to issuance of the incentive payment.

- There is confusion regarding applicable electric rates.
- There is uncertainty regarding the applicability and applied level of exit fees.
- Complying with Rule 21 (interconnect) requirements is difficult.
- Net generation (surplus power to the grid) is not allowed.

Reasons for Withdrawal from the Self-Generation Incentive Program

Eleven third-party applicants who had participated in the Self-Generation Incentive Program in PY2001 but had not participated in the Program in PY2002 were surveyed. The following factors were cited as reasons for failure to participate in the Self-Generation Incentive Program in PY2002.

- One respondent primarily involved with photovoltaics indicated that he did not participate in the Program in PY2002 due to lack of customer interest.
- One respondent primarily involved with internal combustion engines indicated that no reservation requests were submitted to the Program in PY2002 since the PY2001 project had not yet been completed due to problems with Rule 21 electrical interconnection requirements.
- Two respondents stated that they did not participate in the Program in PY2002 because none of their clients' projects met eligibility requirements for Program funding. One respondent, who was primarily involved with photovoltaics, stated that his customers' projects were not large enough to meet the minimum capacity requirements imposed by the Program. The other respondent, who was involved in projects from all technologies represented in the Program, stated that his firm had opted to become more selective regarding the types of projects for which they would provide services. None of his PY2002 clients possessed projects eligible for Program funding. This respondent's firm had become more selective regarding project selection due to uncertainty in the market for distributed generation and the poor state of the economy in PY2002.
- One respondent primarily involved with internal combustion engines and microturbines stated that his lack of Program participation in PY2002 was attributable solely to changes in the internal organization of his firm, which precluded his firm from providing such services in PY2002.
- Two respondents indicated that they did not participate in the Program in PY2002 because they had not been promoting the Program to their clients. One respondent was disillusioned about the Program due to inconsistencies he had experienced in dealing with the various Program Administrators, and cited disincentives to installation of distributed generation projects such as uncertainty regarding Rule 21 requirements. The other respondent stated that the Program simply required applicants to jump over "too many hurdles" to receive funding. The respondent stated that too much paperwork was involved in the application process, and that insurance and testing requirements were too burdensome.

- A third-party supplier for microturbine systems went out of business because the turbine equipment they were contracted to provide did not pass air emissions certification requirements.

Four other respondents did not cite specific reasons for lack of Program participation in PY2002.

Interestingly, one respondent primarily involved with internal combustion engine projects indicated he had participated in the Program in PY2002 as a third-party vendor, although he was not listed as a participant according to the Program Administrator tracking data. This respondent said his firm requests that host customer clients list their names on Reservation Request Forms rather than his firm's name due to insurance requirements imposed by the Program.

According to the terms of the Self-Generation Incentive Program contract, applicants and host customers are required to fulfill certain requirements regarding insurance and to provide proof of such insurance to Program Administrators as part of Proof of Project Advancement. According to the Program handbook, host customers and applicants are required to hold the following types of coverage, or an equivalent amount of self-insured coverage satisfactory to the Program Administrator.[4]

- **Worker's Compensation and Employers' Liability.** Worker's compensation insurance or self-insurance must be provided in accordance with all relevant labor codes, laws, and statutes where the applicant and host customer perform work. Employer's liability insurance must not be less than $1 million per accident for injury or death.
- **Commercial General Liability.** Coverage must be at least as broad as the Insurance Services Office (ISO) Commercial General Liability Coverage occurrence form, and must not be less than $1 million per occurrence for bodily injury, property damage and personal injury. The Program Administrator and the Program Administrator's staff and agents must be covered under this policy.
- **Business Auto.** Coverage must be as broad as the ISO Business Coverage form for Automobile Liability, code 1, and must not be less than $1 million per accident for bodily injury and property damage.

If the Program's insurance requirements seem as onerous to other third-party applicants as it did to the single third-party applicant who said his firm requested that host customers list themselves as self-applicants on the Reservation Request Form, it is possible other third-party applicants were involved in the Self-Generation Incentive Program in PY2001 and/or

[4] While professional liability (errors and omissions) insurance was a requirement of the Self-Generation Incentive Program in PY2001, this type of insurance is no longer required.

PY2002 who have not disclosed their involvement with the Program. However, based on the results of the host customer surveys, it appears that this problem was not widespread since most of the host customers surveyed did list their third-party applicant as such on the Reservation Request Form.

The third-party applicants who participated in the Program in PY2001 but choose not to participate in PY2002 only made a few recommendations for possible improvement to the Program, including streamlining of the final inspection process, clarification of eligible project costs by the Program Administrators, reduction of paperwork, and on-line document submittal. Although not specifically surveyed regarding exit fees and standby charges, many respondents indicated that these factors were a major source of concern regarding the continued viability of the Program. According to the third-party applicants, these charges are significant financial disincentives that may offset the financial incentives offered by the Self-Generation Incentive Program. Even though the Program Administrators may have limited influence over legislation surrounding exit fees and standby charges, these issues must be considered when examining the potential future viability of the Self-Generation Incentive Program.

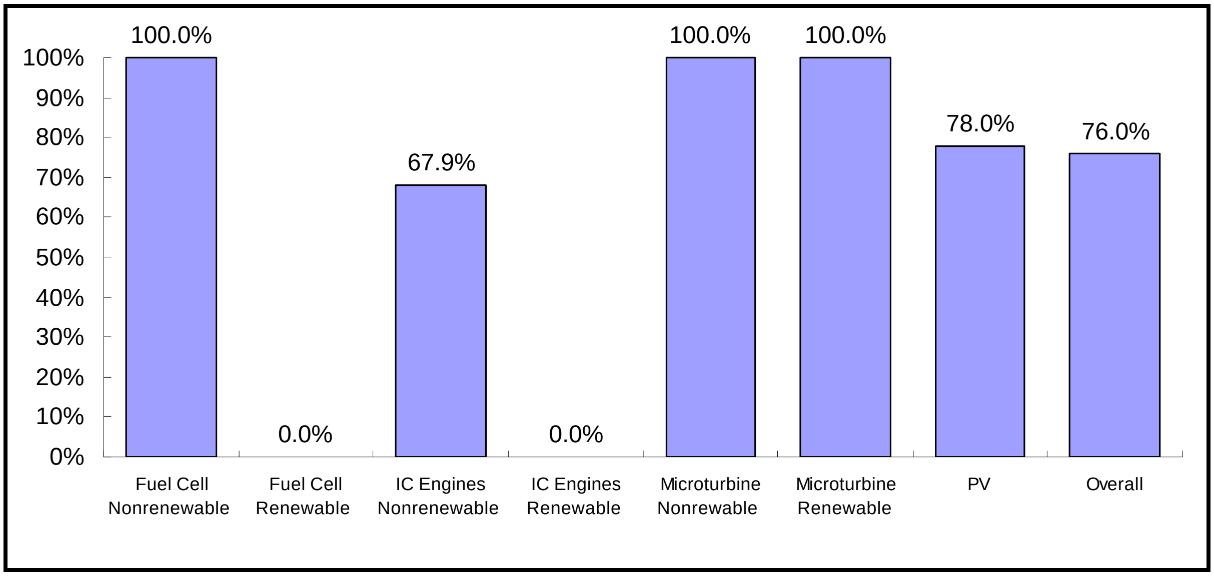
Self-Generation Incentive Project Timing Difficulties

Participant suppliers were asked about problems they might have experienced with the 90-day and one-year deadlines in the Program. In addition, they were asked about any unnecessary delays caused by either Program Administrators or host customers. The results are presented below.

Difficulties with the 90-Day Deadline

Overall, 76% of participating suppliers reported no significant difficulty meeting the 90-day Proof of Project Advancement deadline with their Self-Generation Incentive projects. Figure 5-12 presents the results by technology.

Figure 5-12: Ninety-Day Deadline Sufficient (by Technology)



The 90-day allowance for Proof of Project Advancement was generally found to be reasonable by participating suppliers. Several third-party applicants felt that this requirement, while somewhat challenging to satisfy, was helpful in creating an incentive for host customers to make the decision to commit to the project. Respondents who felt that this requirement was problematic reported several common areas of difficulty. One main problem area was the sequencing of financial commitment. When the host customer is a public entity, the decision process involves obtaining approval from a decision-making body (i.e., a board or committee) rather than from one or two executives. Because the 90-day Proof of Project Advancement process requires equipment purchase orders to be submitted, this essentially means the third party must take the risk of doing sufficient design and engineering work prior to the host customer's financial commitment decision in order to provide sufficient project feasibility detail to the decision-making body. Vendors who did not have a separate design contract were at risk if the project was not approved. From the host customer's perspective, or the perspective of their creditors, it is difficult to obtain financing approval for the project prior to obtaining approval for the incentive payment. In some cases, the initial conditional reservation satisfies these decision makers; in other cases more assurance is needed. In these cases, this results in a "chicken and egg" problem. Vendors who provided turnkey services including applying to the Program, providing all design and installation services in-house, and obtaining financing were most successful in meeting the deadlines.

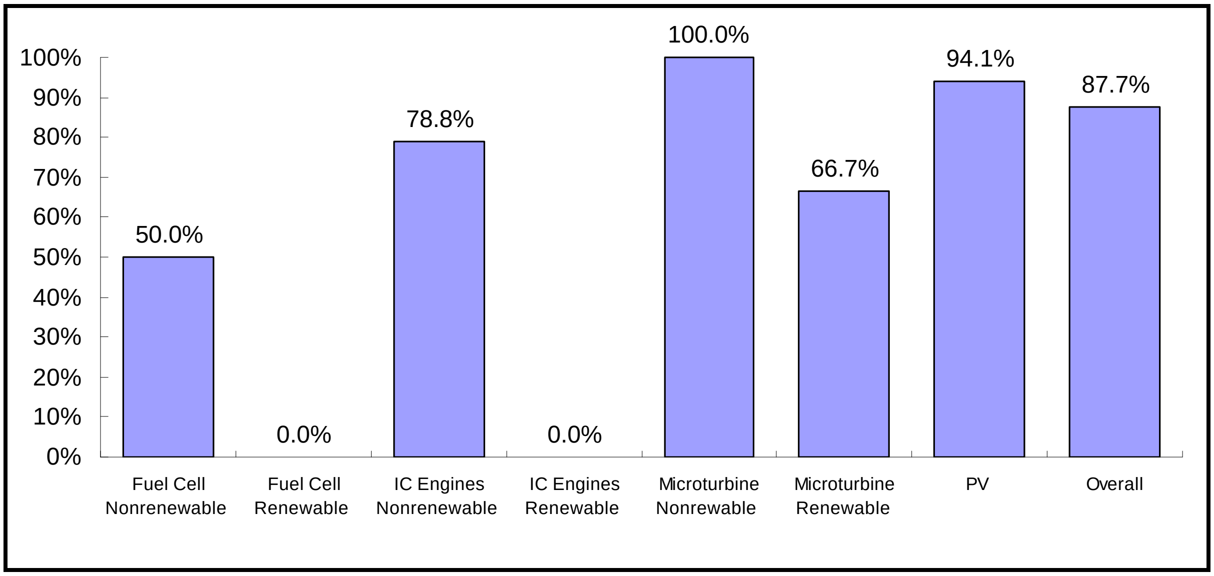
Additional reasons reported for why the 90-day Proof of Project Advancement deadline was problematic included the following:

- Finalizing the financing can take 90 days in itself. One supplier suggested a six-month deadline for Proof of Project Advancement.
- There is insufficient time for engineering design and host approval, especially with respect to internal combustion engine projects, which tend to be complex.
- A longer time is needed for decision-making with municipalities and hospitals (as described above).
- Determining building department requirements and need for obtaining variances (e.g., height variance on the building permit). Although building permits are not explicitly a 90-day Proof of Project Advancement requirement, they are often necessary to determine whether the project is feasible. Because the Proof of Project Advancement requires financial commitment, this determination is on the 90-day critical path.

Difficulties with the One-Year Deadline

Overall, 88% of suppliers reported that the one-year project completion deadline was sufficient. Figure 5-13 presents the results by technology.

Figure 5-13: One-Year Deadline Sufficient by Technology



The one-year limit on project completion restriction was generally felt to be sufficient by photovoltaic and microturbine third-party applicants. The two main exceptions were with respect to installations in new construction and installations for institutional hosts (schools and hospitals). Photovoltaic projects involving new construction pose particular timing challenges. For the photovoltaic design to be integral with the new construction structural design, the reservation must be made early in the overall project design process. Meeting a one-year (or even an 18-month) deadline from application to approved installation is often impossible with new construction projects, especially if there are construction delays unrelated to the distributed generation installation.

The one-year completion requirement on applications for institutional hosts was occasionally mentioned as a problem due to delays in host customer decision-making, similar to that discussed above regarding the 90-day Proof of Project Advancement deadline. In addition, delays associated with interconnection complications imposed by the utilities or local building department inspectors were occasionally mentioned as pushing the one-year completion requirement. On the other hand, most third-party vendors supported the one-year requirement because they felt that it helped keep the project moving forward.

The following additional reasons for why the one-year deadline is problematic were reported:

- Air pollution permitting issues,
- Building permit issues,
- Financing issues,
- Paperwork requirements,
- Getting bond approval to bid or break ground,
- Waiting for approval from the Office of Statewide Health Planning and Development (OSHPOD), which takes six months, and
- Release of the final retention payment by host customer.

It is interesting to note the differences in responses from suppliers surveyed in the first year process evaluation versus this second year. While the overall percentage reporting that the deadlines are sufficient is very similar between years, there are differences among the particular technologies. For example, last year only 21% of microturbine suppliers reported the 90-day deadline was sufficient, while this year the percentage is much larger.

Unnecessary Delays

Respondents were asked if there were any unnecessary delays caused by either their host customers or Program Administrators. Over half reported no delays. Approximately 32% reported delays caused by the host customers and 13% reported delays caused by their Program Administrators.

Respondents identified these reasons for delays by the host customer.

- **Financing Problems.** Suppliers reported that customers sometimes delay projects due to insufficient capital outlay or other financing delays.
- **Uncertainty.** Host customers were reported to hold up projects due to unknown costs associated with exit fees or standby charges.
- **Contract Approval.** Public entities require a time-consuming process to obtain approval for the third-party contract. In addition, companies needing board approval or approval from an outside agency may also delay the project.
- **Insurance Requirements.** Host customers may have problems meeting insurance and indemnification requirements, especially with errors and omissions requirements.

In addition, respondents identified these reasons for delays by the Program Administrator.

- **Paperwork.** Suppliers reported Program Administrators make ambiguous requests for documentation then subsequently ask for more, or they lose paperwork that then must be replaced. Furthermore, some complained of slow responses and turnaround times of 30 to 45 days.
- **Not Helpful.** It was reported that utilities sometimes give customers conflicting information. One supplier stated that one utility deliberately tries to keep projects from happening.
- **Interconnection.** The interconnection process was reported to cause delays for some suppliers.

Other Difficulties

Respondents were further asked if they had experienced any difficulties connecting systems to the grid. Approximately 30% reported they had experienced some difficulty. Respondents' comments indicated that the difficulties focused on these areas: installing the meters, slow response time from utilities, inconsistencies among utilities, complexity and uncertainty regarding the requirements, and obtaining certification for equipment.

Respondents involved with photovoltaics were asked if they had difficulties obtaining information about net metering. Nearly 30% responded that they had experienced difficulty. One respondent mentioned a delay in adoption of a net metering tariff for one utility. Another respondent mentioned problems obtaining correct billing information. Overall, however, respondents had trouble with installation of the meters. For example, problems were cited with meter locations and with confusion over the type, requirements, and pricing of meters. In addition, it was reported that having the meters installed is a confusing and time-consuming process.

Respondents were also asked if they had any difficulties with inspection approval by the utility. One third party responded that he had experienced difficulty. He explained there was a lack of understanding of the technology and code issues by the utility representatives and inspectors, and that requirements among utilities were inconsistent.

Respondents were asked if they received adequate local building department support and information for building code requirements. Approximately 43% replied that they did not receive adequate support. Furthermore, they were asked a similar question regarding building department safety inspections and approval and 30% responded they had problems. Problems reported included the following:

- Drainage,
- Building inspectors are not knowledgeable about microturbines,
- Information is not easily forthcoming,
- Inspectors do not know what to look for, and
- Dealing with OSHPOD is a horrible process.

Leveraging Incentives

Although not directly related to the Self-Generation Incentive Program, microturbine air quality certification has effectively reduced competition in that market segment. In addition, the arduous and expensive certification process imposes a barrier on the introduction of new turbine manufacturers to the market. Nevertheless, microturbine generation equipment, at least in favorable applications, is fairly close to being economically viable. Renewable-fueled microturbine systems are probably at or very close to economic viability even without the incentive payment. The incentive is an effective inducement for the host to adopt the technology and even though the scale of generation is fairly small, landfill and digester projects are helped over the hurdle by incentive payments. The California Energy Commission (CEC) also offers some grants for these systems, which results in leveraging of the Self-Generation Incentive Program incentive.

Few photovoltaic or microturbine projects were able to use the Self-Generation Incentive Program incentive to leverage other market incentives. One major exception to this trend was in the case of photovoltaic hosts in the Los Angeles Department of Water and Power service area who were able to obtain both the Self-Generation Incentive Program and utility incentives, thus leveraging the Self-Generation Incentive Program incentive. Companies in that service area who were able to avail themselves of both incentive programs are able to achieve much shorter payback periods for their photovoltaic self-generation systems.

Suppliers' Experience with Program Administration

Suppliers were asked about their experiences with Program Administrators, their opinions of the application materials, and their overall satisfaction with the Program.

Experience with Program Administrator

Nearly all photovoltaic and microturbine project applicants felt that the Program Administrators were genuinely helpful and responsive to questions. Issues were, however, raised by some third-party applicants regarding the timeliness of responses to questions and the ability of Program Administrators to make discretionary decisions. Several applicants mentioned that if a question arose that was not clearly specified in the instructions or handbook, the question had to be taken back to the working group for discussion, which caused significant delays.

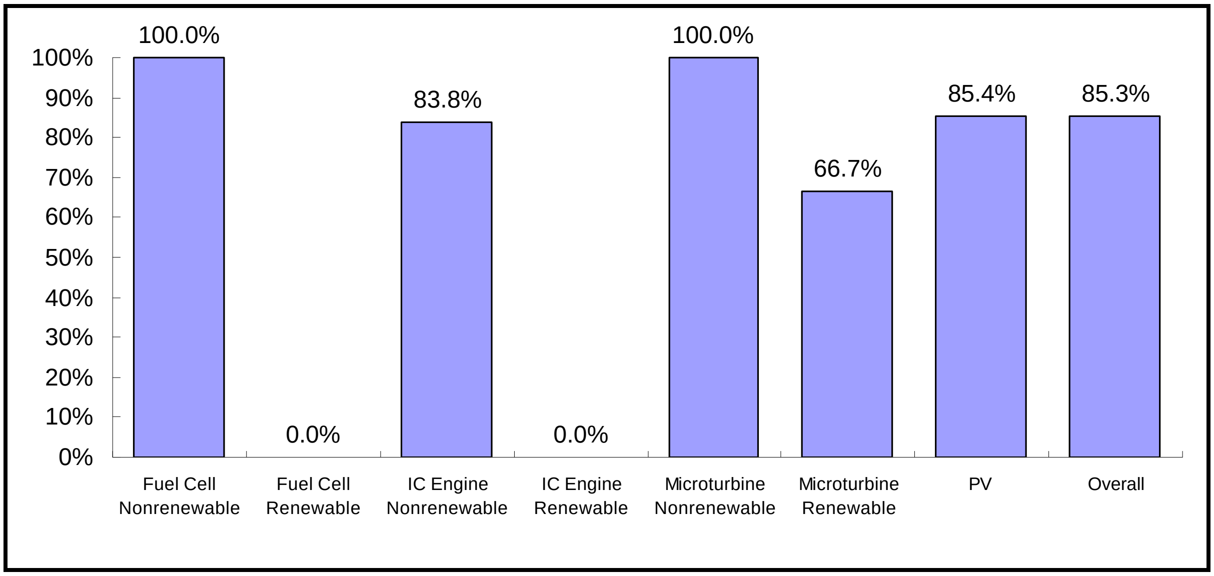
Approximately 92% of suppliers responded that Program Administrators had provided satisfactory answers to their questions about the Program. Some of their comments are as follows:

- "They were helpful and worked with us to overcome the liability insurance problem."
- "They were very helpful and cooperative."
- "Satisfactory but not perfect. Took four days turnaround to answer two questions by e-mail."
- "New staff is helpful but unsure of requirements."
- "Excellent cooperation."
- "They are not always timely with their response."

Application Process

Approximately 85% of suppliers reported the application forms and instructions were clear. Figure 5-14 presents the results by technology.

Figure 5-14: Suppliers' Reported Clarity of Application Materials (by Technology)



Some differences can be seen between these results and those found in last year's process evaluation. While last year's overall percentage of suppliers reporting that application materials were clear is similar to this year's percentage (82% versus 85%), there are differences for particular technologies. For example, last year only one-third of fuel cell customers found the materials clear; this year 100% found them clear. The photovoltaic and microturbine third-party suppliers were generally quite satisfied with the clarity of the application and instructions.

When asked about the handbook, most suppliers responded it had been helpful. One commented that it was very good that the handbook was identical across Program Administrators. Two unfavorable comments were that the timelines were not clear and that it was lengthy.

The main issues raised regarding the clarity of the instructions involved the following three areas: 1) terminology, 2) frequent changes in instruction and requirements, and 3) the perceived inadequacy of instructions with regard to the required documentation. For example, some vendors, especially those that had only gone through the process once or twice, found the instructions to be written in "utilityese" rather then in terms that vendors and engineers could understand. Along the same lines, the documentation requirements, especially those related to purchase orders, were not consistent with standard business practices. The requirement to submit cost breakdowns that did not correspond to actual invoices, bills, or purchase orders created a burden for these vendors.

Some third parties found it difficult to keep up with Program changes that occurred during the application and approval process. Although the instructions were keeping up with changes, especially for vendors with few applications for which applications had to be resubmitted, these changes were burdensome.

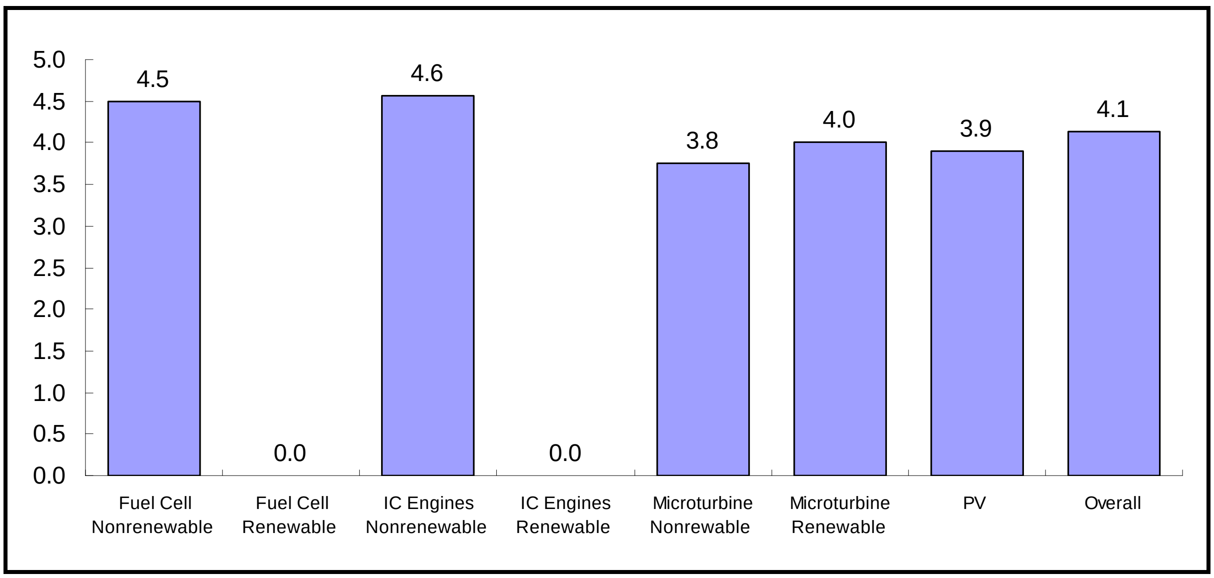
Some vendors felt that the instructions were good as far as they went, but did not completely spell out in advance all of the documentation that would eventually be needed. This resulted in numerous delays in gathering documentation, responding to Program Administrator requests, and gathering more documentation. For example, one respondent noted that the requirement that the host sign the purchase order was not specified in the instructions and resulted in delays. Another respondent suggested that instructions could provide more actual examples. A photovoltaic applicant suggested that the instruction could be made specific to photovoltaic, or at least organized with “skips” so that aspects of the instructions not applicable to photovoltaic (such as PURPA efficiency requirements) would be obvious.

In general, third parties who dealt with the Program regularly had a much easier time with the application instruction than those who were dealing with it for the first time.

Satisfaction with Program

Suppliers were asked to rate their satisfaction with the Program on a scale of 1 to 5, where 1 meant not at all satisfied and 5 meant very satisfied. On average, suppliers rated the Program 4.1. Figure 5-15 presents the results by technology.

Figure 5-15: Average Satisfaction with Program by Technology (5=very satisfied and 1=not at all satisfied)



Almost without exception, third-party microturbine and photovoltaic vendors appreciate the existence of the Program and thought it was helpful in developing the distributed generation market. This was especially true for photovoltaic suppliers during the last quarter of 2002 and the first quarter of 2003 when the CEC rebate program's funding had been exhausted, leaving the Self-Generation Incentive Program as the only option. Microturbine vendors were also appreciative of the Self-Generation Incentive Program as it is the only source of incentives for that technology and the incentive amount was sufficient to make otherwise infeasible projects economically viable, although a few microturbine vendors considered that their project might have been viable without the incentive. The renewable fueled microturbine projects were more likely to be viable even without the Program.

Among photovoltaic and microturbine vendors, satisfaction with the Program was limited primarily by three issues: incentive payment delay, interconnection issues, and the difficulty in meeting all of the documentation requirements. Some photovoltaic and microturbine third parties also downgraded the Program for inconsistencies within the utilities. While Program Administrators were almost always viewed as making a sincere effort to promote the Program, suppliers viewed actions by utility sales representatives and utility inspection personnel as working against the Program.

Marketing Efforts

When asked if they thought Program Administrators were doing a good job marketing the Program, approximately 44% of suppliers said no, 38% said yes, and 17% did not know. Some vendors were simply unaware of any marketing efforts on the part of Program Administrators. Others viewed the Program Administrators as doing a good job of educating third-party applicants and manufacturers about the Program through workshops and web site information and thought that level of marketing was adequate. Still others felt that the utilities were doing a generally poor job of raising awareness about the Program and felt there should be more effort made to target large account commercial and industrial customers.

Suggestions for improving host customer awareness included bill insert notices, holding workshops on the Self-Generation Incentive Program for potential host customers, radio and TV advertising, and having the utility account representatives advise potential host customers about the Program. Others noted that the account representatives were actively trying to undercut the Program by fallacious economic analysis. A common opinion was that the workshops and information is properly targeted to the third parties, and it is their responsibility to identify and market to potential host customers.

Third Party Market

This subsection summarizes suppliers' comments on the project development process and on the development of the market for ESCO services.

Project Development Process

Third-party applicants across all technologies provide design/engineering, installation, operational performance testing, and operation and maintenance services. The typical roles performed by third-party applicants in each of these project development phases is discussed below, accompanied by descriptions of other firms typically involved in each of the phases. The typical length of time required for each phase and typical risks and/or problems associated with each phase is also presented below. It should be noted that the time requirements discussed for each phase are not additive, because in many cases the phases can be done in parallel.

Design/Engineering

Roles of Third-Party Applicants. The majority of firms across all technologies represented in the Self-Generation Incentive Program were involved in the design/engineering process, whether as sole source providers of these services or as project managers with incremental involvement in the process. Approximately half of all third-party applicants surveyed indicated that they provided design/engineering services without any outside assistance. The remainder stated that other types of firms typically involved in the design/engineering process include the following:

- Distributed generation manufacturers,
- Engineering firms and subcontractors to engineering firms,
- Electricians,
- Air permit specialists for Level 3N technologies, and
- Other consultants.

Typical Lead Times. The amount of time required for the project design phase varied by technology, but typically ranged from one week to six months. The average length of time required for the design/engineering process was estimated to be approximately 3.25 months for fuel cells, 2.5 months for microturbines, 2 months for internal combustion engines, and 1.5 months for photovoltaics.

Typical Risks. One risk mentioned with regard to the design/engineering phase was that considerable time and effort could be expended in the design process only to have a client decide not to proceed with the project. Respondents also stated that hidden costs associated with equipment acquisition presented potential risks to the cost-effectiveness, and hence the viability of projects. Other design risks included roof structural issues (unknown at time of third party bid), and unforeseen electrical requirements.

Typical Difficulties. Typical difficulties encountered during the design/engineering phase cited by survey respondents include the following:

- Understanding customer requirements,
- Developing realistic project cost estimates,
- Obtaining design approval and/or permits from local building departments or regional review agencies,
- Negotiation over conflicting interpretations of interconnection and air emissions requirements,
- Meeting waste heat design requirements,
- Siting,
- Integration with existing systems, and
- Processing of paperwork by the utility.

Acquisition of Equipment and Components

Some third-party applicants place orders for equipment and/or components required for system installation on behalf of host customers. The typical lead times experienced by these third-party applicants and typical problems associated with the acquisition process are described below.

Typical Lead Times. The amount of time required for equipment and component acquisition varied by technology, but generally ranged from two to five months. On average, five months were required to acquire equipments and components for internal combustion engines and fuel cells, four months were required for microturbines, and two months were required for photovoltaics. The mean length of time needed to acquire equipment and components for internal combustion engines was, however, affected by a single third party outlier that reported that up to one year was required for this phase. All other internal combustion engine respondents indicated that five months or less was sufficient to complete this phase of project development.

These results are generally consistent with the results of the manufacturer surveys for photovoltaics and fuel cells. However, the time required for internal combustion engine and microturbine third-party applicants to obtain equipment and system components is approximately one to two months longer than the length of time stated between order placement and generation system shipment according to the manufacturer surveys. These longer lead times may be attributable to the fact that internal combustion engines and microturbines may require more additional equipment and/or components other than the distributed generation system itself prior to installation than fuel cells or photovoltaics. In addition, the longer lead times for internal combustion projects could also be due to their larger scale; in general, large-scale projects require longer acquisition lead times. Manufacturers indicated that while larger systems were typically shipped directly to the customer site, smaller systems were shipped to a dealer or wholesaler. The length of time between receipt of the system by the intermediary and delivery to the host customer site may account for a portion of the discrepancy.

Typical Problems. Typical problems encountered in equipment and component acquisition cited by respondents included the following:

- Difficulty obtaining financing,
- Lack of equipment or component availability,
- Unforeseen conditions at the host customer site,
- Long lead times for equipment and/or component delivery,
- Failure of factory certifications to meet design requirements, and
- Obtaining defective equipment and/or system components.

System Installation

As mentioned in Section 4, most third-party applicants provide installation services, whether as sole source providers or as project managers for subcontractors providing installation services. Other types of firms cited by respondents as typically involved in the system installation process include the following:

- Equipment rental companies,
- General contractors,
- Electrical, mechanical, and plumbing subcontractors,
- Mechanical and civil engineers,
- Water specialists, and
- Other consultants.

Lead Times. The amount of time required for system installation varied by technology, but all systems generally required two to six months to install. The amount of time required for installation was contingent upon system size. In general, however, six months were required to install fuel cells, three months were required to install internal combustion engines, 2.5 months were required to install microturbines, and two months were required to install photovoltaics.

Typical Problems. Typical problems associated with the installation process cited by respondents include the following:

- Difficulty locating experienced installation subcontractors,
- Additional costs caused by delays in equipment requisition,
- Structural issues for retrofits,
- Vibration and noise problems,
- Roof safety problems and possible damage to roofs caused by improper crane timing,
- Problems with interconnection,
- Permitting problems, and
- Meter location.

Operational Performance Testing

As stated in Section 4, most third-party applicants do not provide operational performance testing services. Thus, only a limited number of observations are available for this analysis. The third-party applicants who stated they were involved in the operational performance testing process stated that other types of firms also typically involved in this phase of project development included the following:

- Manufacturers and manufacturer subcontractors,
- Equipment suppliers,
- Electrical subcontractors,
- Air emissions control specialists, and
- Utilities.

Lead Times. The typical time required for operational performance testing varied by technology, but generally ranged from four days to four weeks. On average, fuel cells required four weeks per unit for operational performance testing, internal combustion engines required 22 days for operational performance testing, microturbines required 15 days for operational performance testing, and photovoltaics required four days for operational performance testing.

Typical Problems. Typical problems associated with operational performance testing cited by respondents include the following:

- Vibration and noise,
- Design deficiencies,
- Equipment performance problems,
- Poor electrical connections, and
- Problems meeting air emissions requirements,

Operation and Maintenance

Only a limited number of third-party applicants provide operation and maintenance services. However, the third-party applicants involved in system operation and maintenance stated that other types of firms typically involved in this phase include the following:

- Manufacturers and manufacturer subcontractors,
- Maintenance subcontractors, and
- Air emissions specialists.

Typical Risks and Problems. Inverter failure was one typical risk associated with system operation and maintenance cited by survey respondents. Typical problems associated with operation and maintenance cited by respondents included the following:

- Minimizing response time required to fulfill customer needs,
- Lack of host customer awareness regarding system maintenance requirements,
- The necessity of replacing certain system components frequently, and
- Timing of scheduled maintenance.

Disruptions to Project Development

Third-party applicants were also asked if any of the project development stages were altered or disrupted due to participation in the Self-Generation Incentive Program. Twenty-eight of the 34 third-party applicants surveyed stated that Program participation had not disrupted or altered any stage in the typical project development path.

Three of the dissenting third-party applicants stated that Program participation caused delays in the design phase as follows.

- One respondent stated that uncertainty regarding Program Administrator design requirements delayed the design/engineering process.
- One respondent stated that difficulties in financing delayed the design/engineering process, since incentives were not awarded up-front.
- One respondent stated that the design/engineering process was delayed by processing of the reservation confirmation, since the equipment required for the engineering process was not ordered until a reservation confirmation was issued.

Three other dissenting respondents indicated delays to the installation process caused by Program participation as follows.

- One respondent indicated that the Program Administrator's contractor's lack of technical knowledge delayed the installation process.

- One respondent stated that changes in equipment requirements delayed the installation process.
- One respondent stated that coordination of the net generation metering requirement with the Program Administrator delayed the installation process.

None of the respondents indicated that participation in the Program extended the typical length of time required for operational performance testing.

Summary of Project Development Stages

A variety of firms are involved in project design/engineering, equipment and component acquisition, system installation, operational performance testing, and system operation and maintenance. While third-party applicants across all technologies are involved in all phases of the project, third-party applicants across all technologies tend to have more involvement in the design/engineering and system installation phases of the project, as opposed to the operational performance testing and maintenance phases of the project.

The typical lengths of time required for each phase of project development varied by technology, but in general, photovoltaics required the least amount of time to complete each phase of project development. Fuel cells required the greatest length of time of all technologies to complete each phase of project development. Internal combustion engines and microturbines required intermediate lengths of time for each phase.

These results are consistent with the host customer results for typical project time to completion. In particular, photovoltaic systems may require less time to complete due to their lower level of system complexity and differences in processing and/or verification requirements since the majority of completed photovoltaic projects were awarded incentives based upon dollars per watt of eligible installed capacity rather than percent of eligible installed costs. Alternatively, these systems may require less time to complete due to the relatively widespread adoption of photovoltaics relative to the other technologies represented in the Program. Increased familiarity with these types of systems would minimize delays in the project development process since a short learning curve would be required for installation, testing, or other phases given the relative prevalence of contractors with experience with the technology. Finally, solar photovoltaic systems may require less time to complete all phases of the project development process relative to other technologies represented in the Program since these systems are not required to meet waste heat design requirements, which may delay some or all phases of project development. Also, photovoltaic systems have fewer components than other technologies and have no moving parts.

Other firms typically involved in the project development process included engineering, electrical, and plumbing firms, general contractors, air emissions specialists, manufacturers and other consultants. Typical problems associated with each of the phases included understanding and fulfilling customer requirements within a reasonable budget and reasonable amount of time, meeting waste heat, interconnection, and air emissions requirements, permitting, siting, and equipment difficulties. Interestingly, most of the third-party applicants surveyed did not cite delays caused by processing of paperwork by the Program Administrators, although third-party applicants did cite delays caused by differing interpretations of Program requirements, which led to system redesign or augmented project costs.

Overall, the mean length of time estimated by third-party applicants between system design/engineering and operational performance testing ranged from six to 15.25 months. According to the third-party applicant surveys, the mean length of time estimated for completion of a typical photovoltaics project was approximately six months. Microturbines required approximately 9.5 months between the design/engineering phase and the operational performance testing phase, internal combustion engines required 11 months and fuel cells required 15.25 months on average absent any time required for processing of paperwork or the fulfillment of other Program requirements, such as providing proof of insurance or detailed cost estimates. However, the majority of third-party applicants stated that participation in the Program did not alter or disrupt the project development process. Thus, from the perspective of the third-party applicants, the one-year project completion deadline may be sufficient for all technologies other than fuel cells.[5] Not surprisingly, larger scale systems required longer times for completion across all technologies. Note that the newly revised Program handbook (February 2002) now allows for submittal of a formal request of up to 180-day extensions on the project completion timeframe.

ESCO Market

ESCOs that participated in the Self-Generation Incentive Program in PY2002 were asked if they felt the Self-Generation Incentive Program has had an impact on the market for distributed generation. Specifically, the ESCOs were asked if the current development of the energy services industry in California would be different than it is today absent the existence of the Self-Generation Incentive Program.

[5] However, it is possible that other typical phases of project development, such as permitting, require extended lengths of time. Third-party applicants may not have classified these “other” typical activities into any of the categories discussed above, and hence the time required to complete those activities may not be included in the overall estimate of time to project completion. Additionally, actual time to project completion may be extended by the involvement of multiple parties in the project development process. The involvement of multiple parties introduces increased uncertainty regarding both time and cost required for project completion, as each party involved in the project development process may cause some sort of delay beyond the control of the other parties.

All of the ESCOs that responded to this question agreed that the market for energy services would be less developed absent the existence of the Self-Generation Incentive Program. One ESCO respondent estimated that only 30-40% of photovoltaics projects would be completed without the existence of the incentive, another ESCO respondent stated that only 25% of internal combustion engines would be completed without the incentive, and one ESCO respondent indicated that a mere 10% of microturbine projects would be completed absent the incentive. One ESCO respondent stated that the Self-Generation Incentive Program was one of the two genuine sources of funding for distributed generation. Another ESCO respondent, primarily involved with internal combustion engine projects, added that the energy services industry in California would not exist without the Program. This respondent felt that other parties were examining the success of distributed generation in California to determine the feasibility of cogeneration within their own states.

Additionally, the ESCOs were asked if they felt the Program had contributed to consumer education regarding self-generation technology. Five of the eight ESCOs that responded to this question agreed the Program did contribute to consumer awareness of distributed generation through seminars and workshops. One of these ESCOs was primarily involved in photovoltaic projects, two were primarily involved with microturbine projects, and two were primarily involved with internal combustion engine projects. Two of the three dissenting ESCOs that felt that the Program had made virtually no impact on customer awareness stated that they had been responsible for gathering all of the information related to distributed generation and presenting that information to clients. Two of the dissenting ESCOs were primarily involved with photovoltaic projects, and the third was primarily involved with internal combustion engine projects.

Finally, the ESCOs were asked if they felt the Program had provided support for the energy services industry to market the Program. The majority of ESCOs that responded to this question felt that little or no support had been provided to the energy services industry for marketing. Only two of the six ESCO respondents primarily involved with photovoltaic projects felt that some support had been provided, and these ESCOs stated that the support had been supplied in the form of content available over the Internet. Another ESCO respondent primarily involved with microturbine projects agreed that the primary form of support provided was provided via the Internet. One of the three ESCO respondents primarily involved with internal combustion engine projects stated that while the Program had increased consumer awareness of distributed generation technologies, it had not necessarily educated consumers. Finally, one of the internal combustion engine respondents stated that there was no indication of marketing support provided by the Program.

In general, the ESCOs that participated in the Self-Generation Incentive Program in PY2002 agreed the Program had made a positive impact on the development of the market for energy services in California, and that the Program had promoted awareness of self-generation among consumers. However, many of the ESCOs stated that while the Program had increased awareness of distributed generation technologies, the ESCO industry had made a greater impact upon consumer awareness. Additionally, the majority of ESCOs felt that little or no marketing support had been provided to their industry to market the Program. Thus, while the ESCOs felt the Self-Generation Incentive Program significantly impacted the market development of the energy services industry, they also felt that consumer education activities and Program marketing support could be enhanced to help support the continued development of the industry.

5.5 Nonparticipants

The following groups of nonparticipants were surveyed for this evaluation:

- Nonparticipant host customers from the general population,
- Nonparticipant host customers who attended a Program workshop, and
- Nonparticipant third parties who attended a Program workshop.

Results are presented below for each of these groups.

Nonparticipant Host Customers from the General Population

As explained in Section 3, a sample of commercial customers was stratified by business type and electric service territory. In particular, the sample of 300 was distributed across building types based on relative proportion of total kWh consumption. Respondents were surveyed regarding the following topics:

- Awareness of the Program and Self-Generation Incentive technology,
- Reasons for installing self-generation equipment,
- Reasons for not installing self-generation equipment, and
- Required payback periods.

Each stratum of survey respondents from the general population group was assigned a relative weight based on the electricity consumption of that stratum (i.e., business type and electric service territory), relative to the total electricity consumption across all strata. For example, Table 3-11 shows that offices in the PG&E electrical service territory consume 7,072 GWh annually. This is 4% of the total electricity consumed across all business types and service territories in Table 3-11.[6] Therefore, the PG&E office respondents receive a collective weight of 0.04. Respondents *within* a stratum were each weighted equally. To continue the example, since there were seven respondents from the PG&E office stratum,

[6] The total GW-Hrs is 161,311.

each respondent has a relative weight of 0.04/7. These relative weights are used when analyzing results across general nonparticipant strata in the subsequent sections of this report.

Weighted results are presented below.

Nonparticipants Knowledge of Programs and Technology

Nonparticipants were asked if they knew they could generate their own power, if they were aware of the Self-Generation Incentive Program, and if they were aware of the CEC Buydown Program. Of the 301 nonparticipant respondents in 2002, 63.9% indicated they were aware they could generate their own power. This represents a slight, but statistically insignificant increase over the 2001 findings, in which 60.8% stated that they knew they could generate their own power.

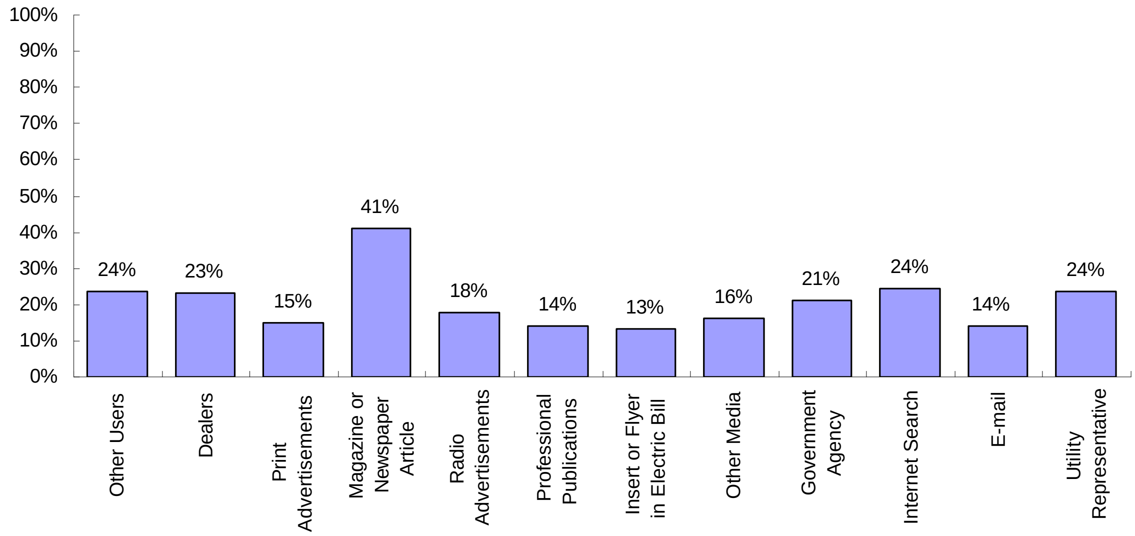
When asked if they were aware of the Self-Generation Incentive Program, 7.28% of nonparticipants stated that they were aware of the Self-Generation Incentive Program and 7.31% indicated they were aware of both the Self-Generation Incentive Program and the CEC Buydown Program. Combining these two groups, 14.59% of the nonparticipants were aware of the Self-Generation Incentive Program, a statistically insignificant improvement over the 12.3% awareness level from 2001.

How Nonparticipants are Learning about the Self-Generation Incentive Program

The insignificant change in the level of awareness of the Self-Generation Incentive Program indicates that Program Administrators must work to improve the public's knowledge of the Program. Survey respondents indicated that the most successful methods for reaching them include contact by a utility representative or government agency, flyers in utility bills, and local radio and news stations.

Figure 5-16 shows how nonparticipant hosts who were already aware of the Self-Generation Incentive Program learned about the Program. As shown, respondents identified magazine or newspaper articles (listed by 41% of respondents), utility representatives (24%), Internet searches (24%), other users of self-generation equipment (24%), and dealers of self-generation equipment (23%). Comparing the responses made by unaware and aware nonparticipants reveals that many of the methods that unaware hosts report as being the best for contacting them are methods that Program Administrators have previously employed.

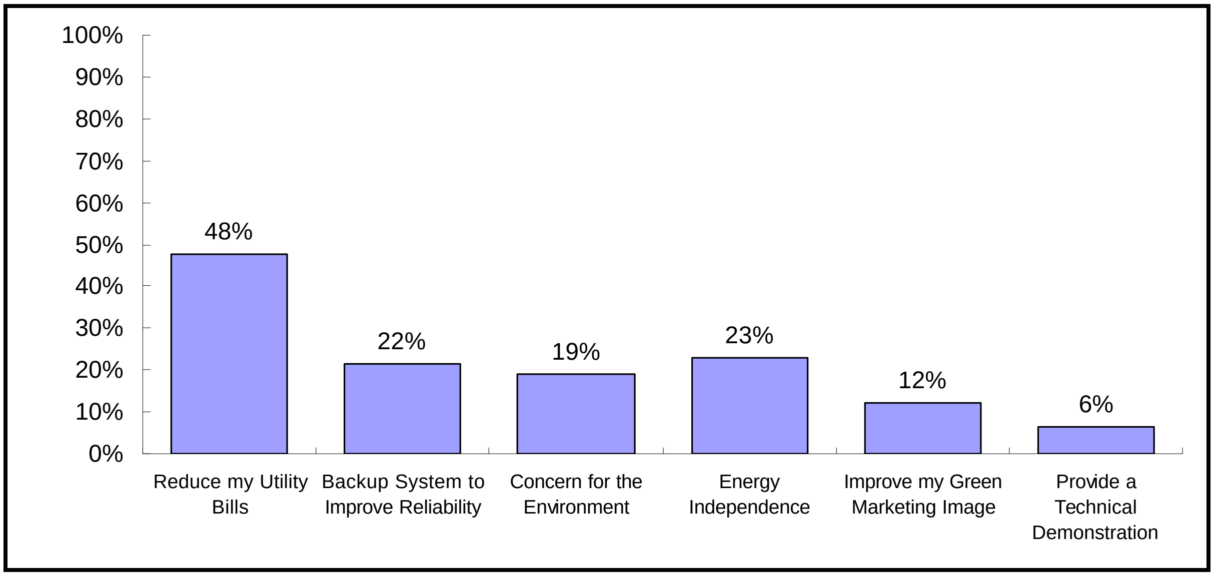
Figure 5-16: How Aware Nonparticipant Customers Learned About the Self-Generation Incentive Program



Why Nonparticipants Want Self-Generation Incentive

In addition to asking how nonparticipants found out about the Self-Generation Incentive Program, nonparticipants were also asked to rate a set of factors likely to influence their decision to consider on-site electricity generation. This information, when combined with an understanding of how to reach current nonparticipants, will help Program Administrators to better plan future marketing programs. Nonparticipant hosts were given a list of six factors commonly believed to influence investment in self-generation equipment. Nonparticipant hosts were asked to list the factors that would be very influential in their decision to participate. Figure 5-17 presents the percentages of respondents who reported the factor was very influential for them. As shown, almost 50% of hosts stated that reducing their utility bills would be a very influential factor in their decision-making process. Other factors that would be very influential in their decision include energy independence (22.8%), providing a backup system to improve reliability (21.6%), and concern for the environment (34%).

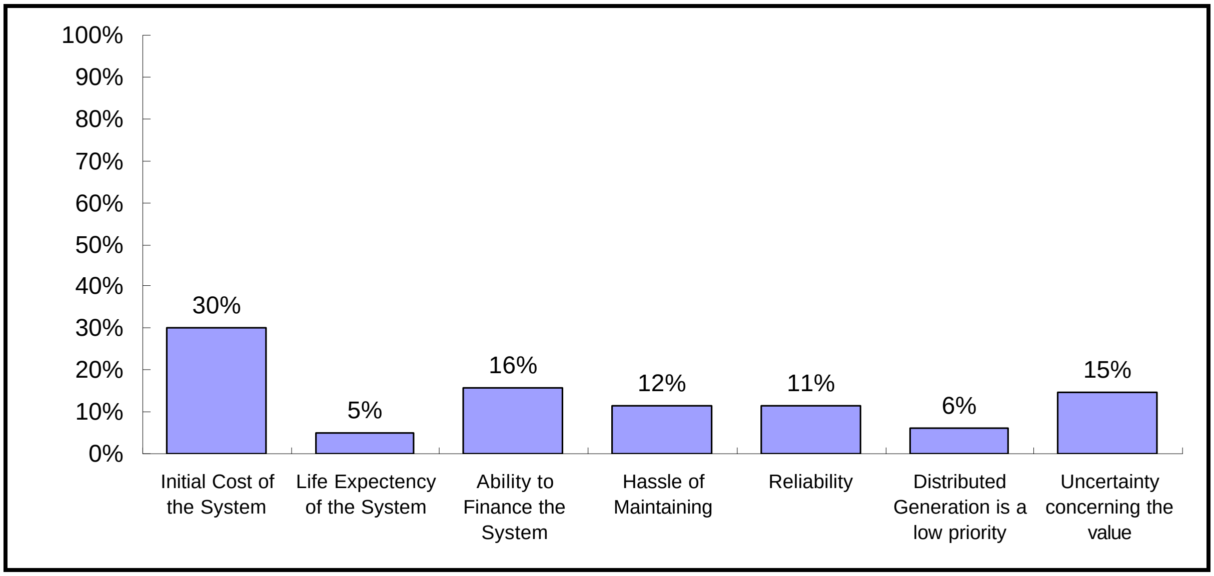
Figure 5-17: Why Nonparticipant Hosts Want Self-Generation Incentive



Why Nonparticipants Do Not Want Self-Generation Incentive – Barriers to Implementation

Several types of barriers could be impeding the implementation of Self-Generation Incentive systems for nonparticipant hosts. Survey nonparticipants were asked how influential seven commonly stated barriers were to their implementation of a self-generation system. Figure 5-18 shows that the most frequently stated barrier was the initial cost of the system. Approximately 30% of the 301 non-workshop hosts stated that initial costs played a major role in their decision not to participate in the Self-Generation Incentive Program. Concerns relating to financing and the value of a self-generation system also ranked high as barriers to implementation.

Figure 5-18: Barriers to Participation for Nonparticipant Hosts



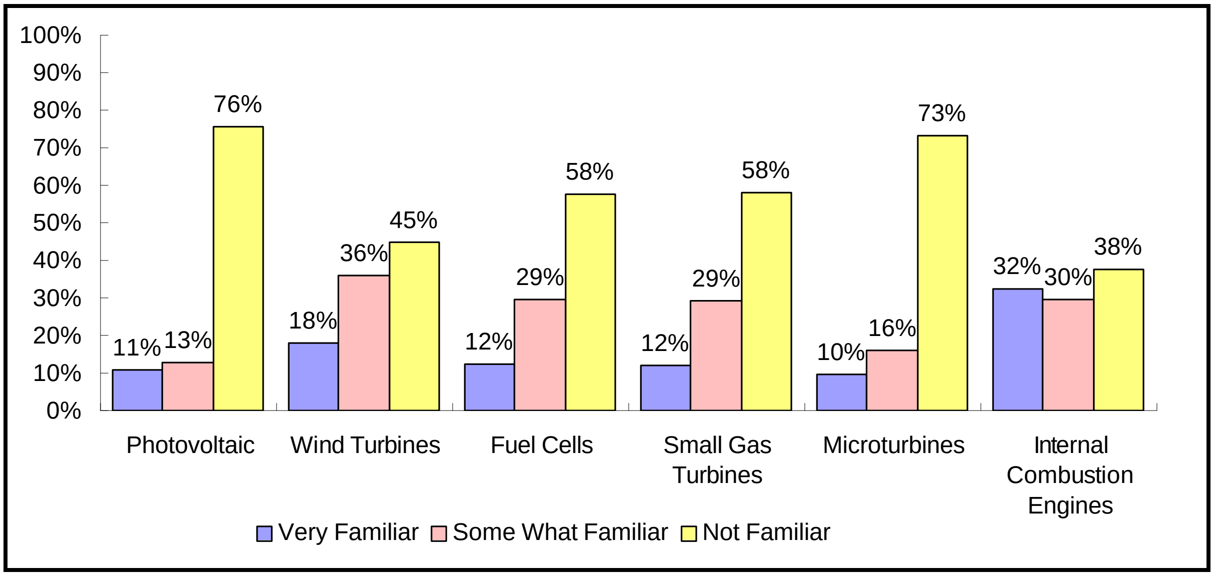
Awareness of Net Metering

The Net Metering Program allows host customers to receive credit for their excess electricity generation that flows back into the grid. The ability to produce excess electricity and receive credit for it should increase the value of self-generation incentive programs, helping to reduce this concern among host customers. Knowledge of Net Metering opportunities was very limited among nonparticipating hosts. Only 35.9% of nonparticipating hosts were aware of this program.

Familiarity with Self-Generation Technology

Lack of knowledge concerning self-generation technology can also play a role in a customer's nonparticipation decision. Nonparticipant hosts where asked to describe their degree of familiarity with various energy generating technologies. As shown in Figure 5-19, approximately 62% stated that they were either very or somewhat familiar with internal combustion engine technologies. For other technologies, familiarity was not as high. In fact, the majority reported being not familiar at all with photovoltaic, fuel cells, microturbines, or small gas turbines.

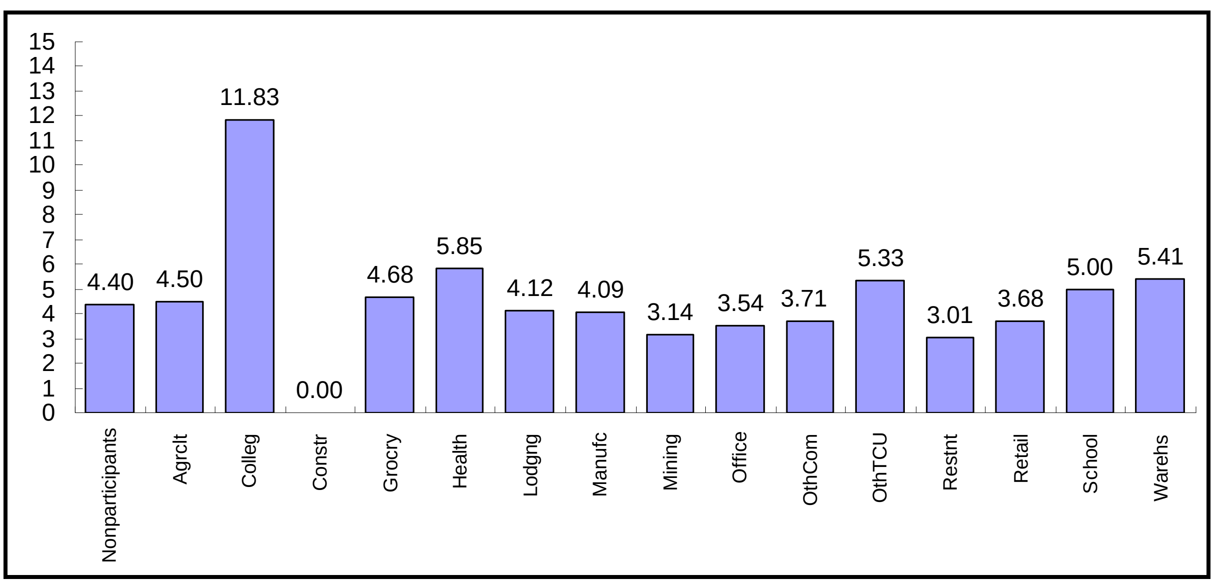
Figure 5-19: Nonparticipant Hosts' Familiarity with Self-Generation Technologies



Payback Requirements

Nonparticipant hosts were asked to list the maximum length of time that their firm would accept as a payback period for an investment in on-site electricity generating equipment. The mean response for all types of nonparticipant hosts is only 4.4 years. As shown in Figure 5-20, large institutional and government owned or regulated businesses (schools, colleges, and transportation, communication and utilities) are willing to accept a longer payback period than other types of businesses.

Figure 5-20: Payback Periods for Nonparticipant Hosts



Workshop Nonparticipant Hosts

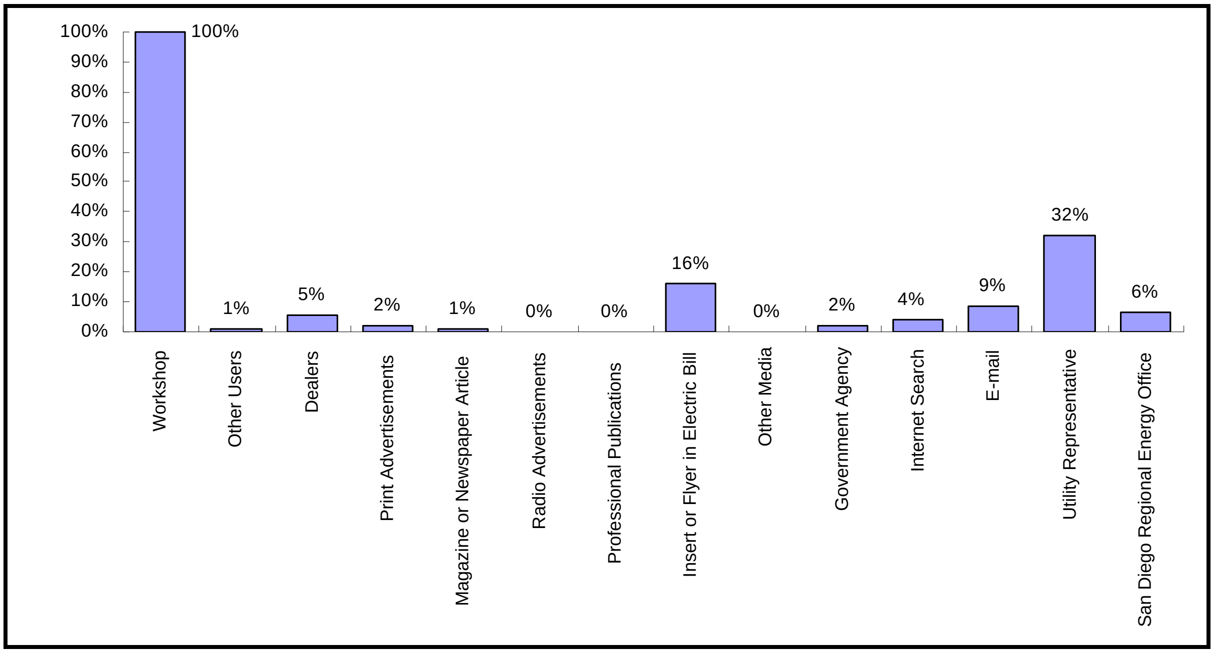
As described in Section 3, 94 potential host customers who attended at least one workshop on the Self-Generation Incentive Program were surveyed for this evaluation. Questions focused on their awareness and familiarity with the Program and with self-generation technology, and on reasons for nonparticipation. The workshops were designed to increase the understanding of the Self-Generation Incentive Program among nonparticipants; they may also have presented information about specific self-generation technologies.

The 94 workshop nonparticipant hosts differ from the general population nonparticipant hosts in that they showed sufficient interest in either the Self-Generation Incentive Program or in reducing their energy usage to attend a workshop. The additional knowledge and interest displayed by these individuals, however, did not translate into a decision to install self-generation technologies. A better understanding of information sources, level of familiarity with technologies, and potential barriers may help Program Administrators better design workshops and advertisements to encourage future workshop participants to install self-generation technologies.

How Workshop Nonparticipants Learned About the Self-Generation Incentive Program

Workshop nonparticipant hosts all listed the workshop as a source of Self-Generation Incentive Program information. Additional sources of information for workshop nonparticipant hosts included utility representatives and flyers in electric bills. These additional sources help to identify how workshop participants initially became informed about the Self-Generation Incentive Program. Figure 5-21 presents the results. Note that respondents were able to give more than one answer, thus percentages due not sum to 100.

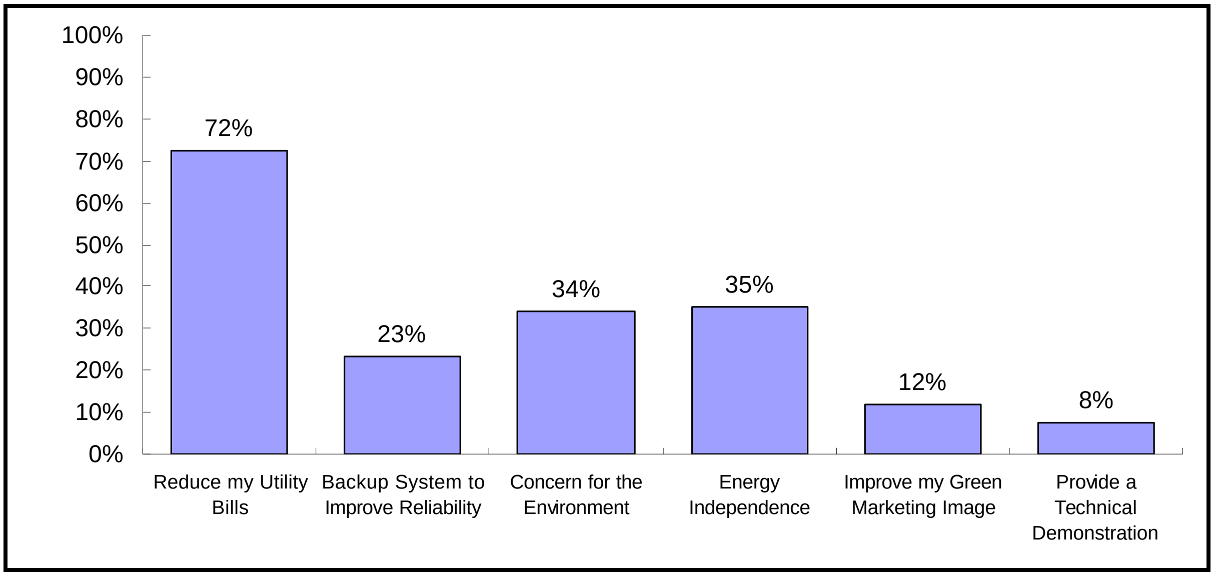
Figure 5-21: How Workshop Nonparticipant Hosts Learned About Self-Generation



Why Workshop Nonparticipant Hosts Want Self-Generation Incentive

Workshop nonparticipant hosts were asked to rate six factors that would be very influential in their decision to adopt self-generation technologies. Figure 5-22 presents the percentage of respondents who stated the factor was very influential.

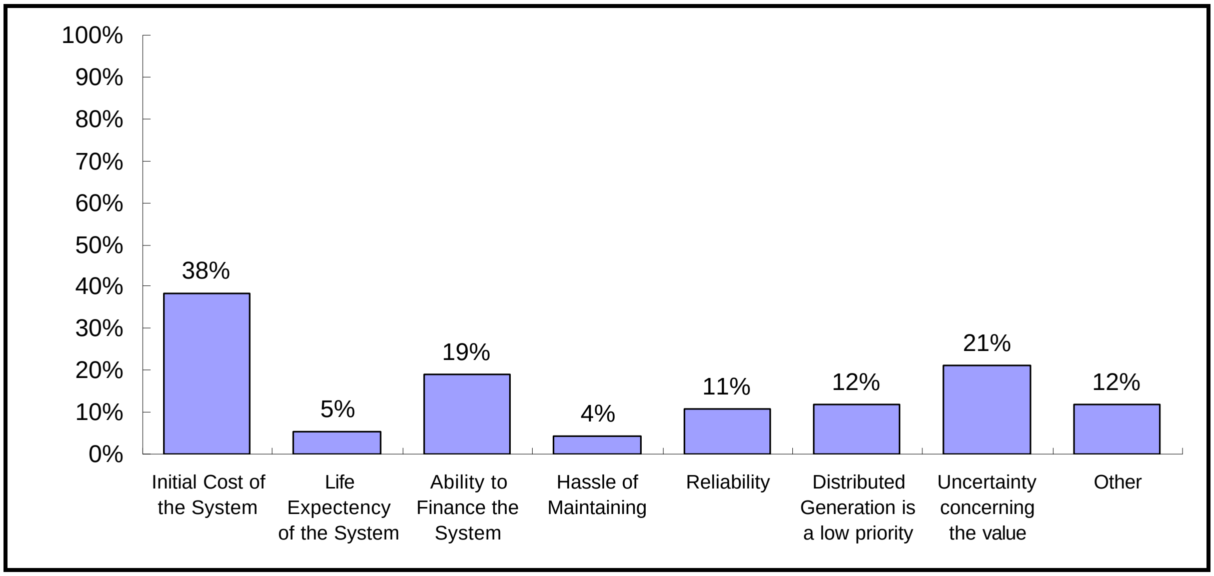
Figure 5-22: Why Workshop Nonparticipant Hosts Want Self-Generation Incentive



As shown, workshop nonparticipant hosts overwhelming stated that the desire to reduce their utility bills was a very influential factor in their adoption decision. Energy independence and concern for the environment were also very influential factors for approximately 35% of workshop nonparticipant hosts. These findings indicate that financial concerns are playing a primary role in self-generation decisions.

Workshop nonparticipant host customers were also asked to rate a list of possible reasons for why they chose to not install a self-generation system. Figure 5-23 presents the percentage of nonparticipants who stated the factor was a major reason why they have not installed self-generation equipment.

Figure 5-23: Reasons for Not Installing Self-Generation for Workshop Nonparticipant Hosts



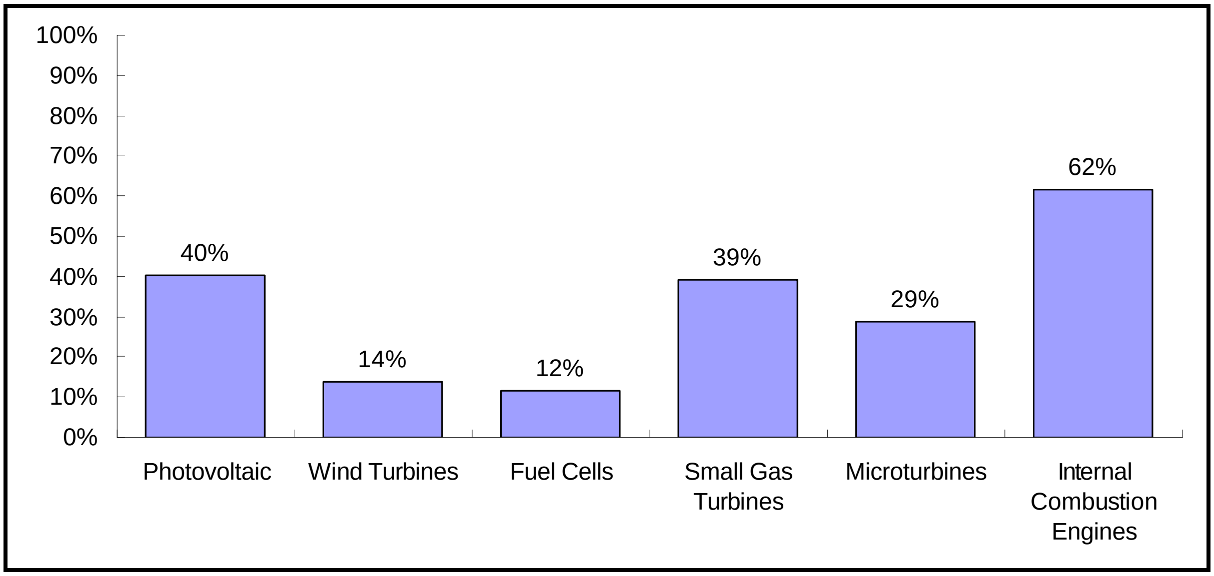
As shown, nearly 40% of the workshop nonparticipant hosts state that the initial cost of the system is a major barrier to the implementation of self-generation. Additional concerns are also largely financially based—ability to finance the system and uncertainty concerning the value of the self-generation systems.

Familiarity with Self-Generation Technologies

Workshop nonparticipant hosts were also questioned about their familiarity with self-generation technologies. Individuals and firms attending workshops may have previously known about self-generation technologies and/or information about specific technologies may have been presented at the workshop.

Figure 5-24 presents the percentage of customers who responded that they were very familiar with a certain technology. Not surprisingly, workshop nonparticipant hosts were more familiar with the technologies of self-generation than were the general population nonparticipant hosts. In fact, 62% of the workshop nonparticipant hosts, as compared to only 32% on non-workshop individuals, stated they were very familiar with internal combustion engines. Approximately 40% of workshop nonparticipants are also very familiar with photovoltaic and small gas turbine technologies.

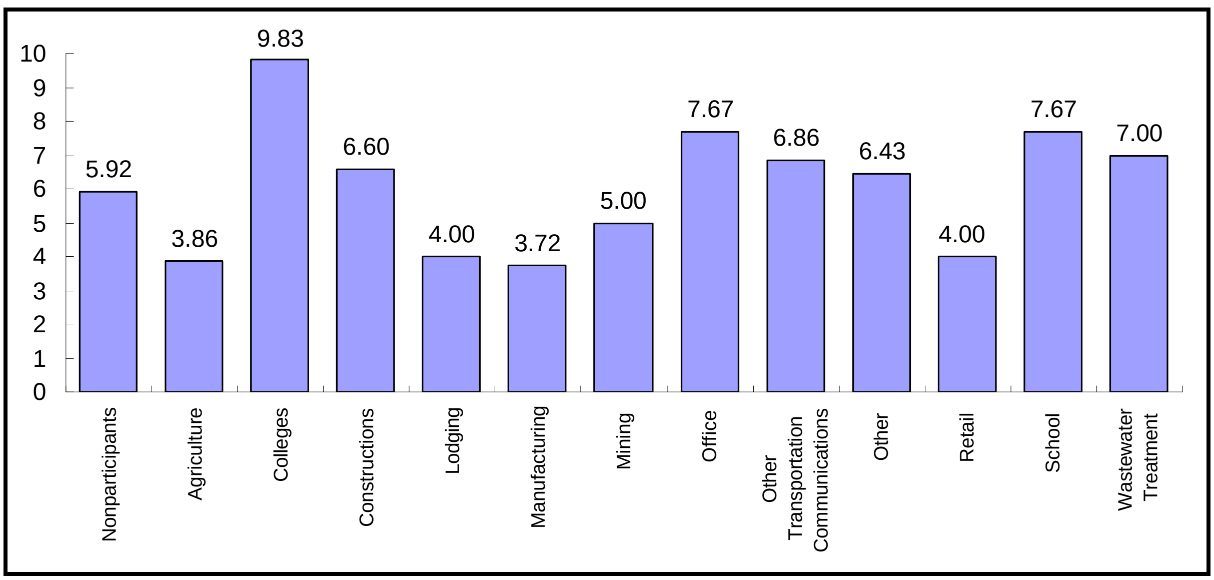
Figure 5-24: Very Familiar Technologies for Workshop Nonparticipant Hosts



Payback Periods for Workshop Nonparticipant Hosts

Workshop nonparticipant hosts were asked to list the maximum length of time that their firm would accept as a payback period for an investment in on-site electricity generating equipment. The mean for all types of nonparticipant hosts was nearly six years. Results were further broken down by business type and are shown in Figure 5-25. As shown, large institutional and government owned or regulated businesses (schools, colleges, and transportation, communication and utilities) are willing to accept a longer payback period than other types of businesses

Figure 5-25: Average Payback Periods for Workshop Nonparticipant Hosts

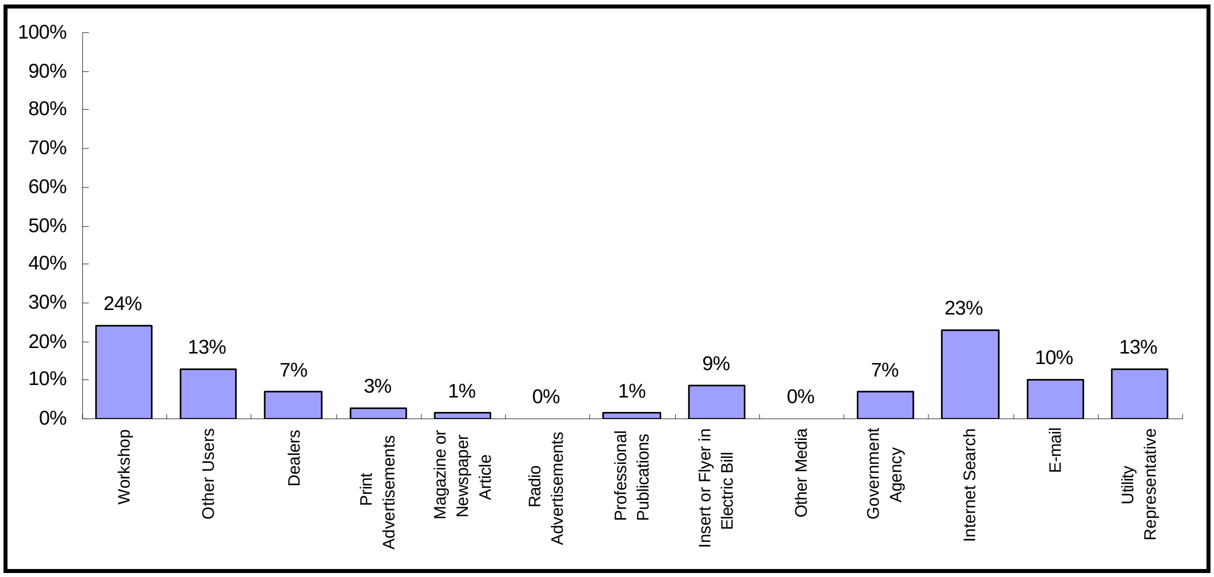


Workshop Nonparticipant Suppliers

As described in Section 3, 70 potential third parties who had attended at least one workshop presented by the utilities on the Self-Generation Incentive Program were surveyed for this evaluation. Questions focused on why they have not participated and their experience with Program Administrators.

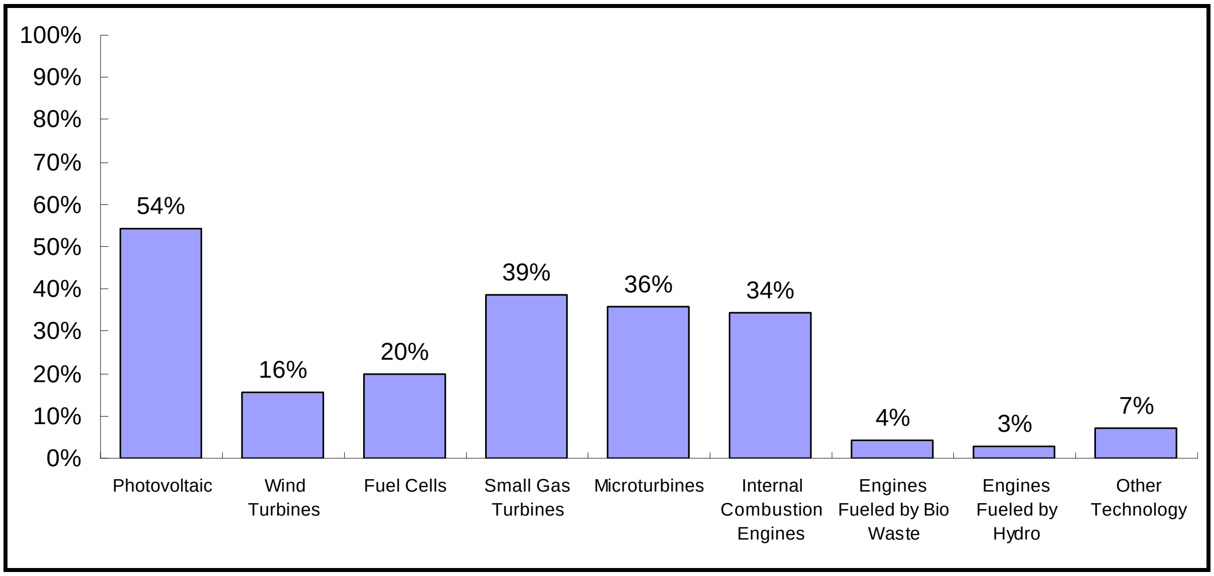
Figure 5-26 presents responses on how nonparticipant suppliers first heard about the Program. Not surprisingly, fewer suppliers (24%) indicate that they learned about the Self-Generation Incentive Program from the workshop than workshop hosts (100%). Suppliers of self-generation technologies are more likely than potential host customers to have learned about the incentive program before the workshop; it is their business to have information about programs that could reduce equipment costs for their clients. This information could potentially increase their client base, their revenues, and/or their profits.

Figure 5-26: How Workshop Nonparticipant Suppliers Learned About the Self-Generation Incentive Program



Nonparticipant suppliers were also questioned about their primary technologies. Slightly more than half of the nonparticipant suppliers were primarily involved with photovoltaic technology, over one-third were involved with microturbines, and over one-third were involved with internal combustion engines. Figure 5-27 shows the distribution of primary technologies for these suppliers.

Figure 5-27: Primary Technologies for Workshop Nonparticipant Suppliers



Perhaps the most interesting question for these nonparticipant suppliers is why they have not yet participated in the Program. For some, the sizes of their projects have been too small to qualify for incentives.[7] Furthermore, roughly 39% of the nonparticipant suppliers reported that they do not have any clients currently interested in the Self-Generation Incentive Program. Other reasons given include the following.

- A significant number stated they were in the planning stages of a project and that they planned to apply to the Program in the near future.
- Some were new companies and had not yet sold any systems.
- Some responded that they were manufacturers who sell the systems to other third parties; therefore, they would not apply to the Program.
- Two respondents stated that the complexity of the Program requirements kept them from applying.
- Several respondents stated that even with the incentive the systems were still too costly.

Experience with the Program Handbook and Program Administrators

To better evaluate the quality of information presented in the Program handbook and by Program Administrators, workshop nonparticipant suppliers were questioned about their exposure to the handbooks and Program Administrators. Sixty-one percent of nonparticipant suppliers indicated that they had looked at a Program handbook. Seventy-four percent of the individuals who stated they had looked at the handbook rated it as a 4 or a 5 on a scale of 1 to

[7] Five of the seventy workshop nonparticipant suppliers explicitly stated that their projects were too small to qualify for the Self-Generation Incentive Program.

5, with 5 implying the handbook was "very helpful." Only 37% of nonparticipant suppliers said they had talked with a Program Administrator. Furthermore, suppliers who talked with a Program Administrator found the Program Administrator to be helpful or very helpful 88% of the time.

5.6 Free Ridership

The free ridership analysis focuses on estimating the net impact of the Self-Generation Incentive Program on energy savings. Free ridership occurs if a host customer would have adopted the technology even in the absence of the Self-Generation Incentive Program.

Various approaches could be used to estimate free ridership. Four options are participant customer self-reports, simple comparisons of participants and nonparticipants, efficiency modeling, and supplier self-reports of the customers' behaviors. This study used both the host and the supplier self-reported free ridership approach described below.

Host Self-Reported Free Ridership

Participant host customers surveyed were asked several questions to determine free ridership. In particular, they were asked about their intent to install self-generation equipment and about the influence of the Self-Generation Incentive Program on their decision. For the purposes of this study, customers were identified as free riders if their survey responses indicated that they met the following criteria:

- The Self-Generation Incentive Program incentive had very little or no influence on their decision to install their technology,
- They would have been very likely to install the exact same technology without the Self-Generation Incentive Program incentive, and
- They reported they heard about the Self-Generation Incentive Program after they selected or decided on the exact specifications for their technology.

For customers who had contradictory responses or could not clearly be designated as meeting or not meeting these criteria, an additional set of questions was used for classification. To be designated a free rider, these customers had to indicate that they agreed with all of the following statements:

- The rebate was nice, but it did not affect their decision to go ahead with the project,
- The rebate was *not* a critical factor in doing the version of the project they did, and

- They *would have* done the exact same project without the rebate.[8]

Table 5-4 presents the free ridership results for participant host customers and is presented by primary technology.

Table 5-4: Free Ridership Rates by Technology

Self Generation Technology	Mean	Standard Error	Number of Observations
All	13.60%	0.04	81[9]
Internal Combustion Engines Nonrenewable Level 3 Technology	26.60%	0.09	24
Microturbines Nonrenewable Level 3 Technology	2.50%	0.04	17
Photovoltaic Level 1 Technology	4.08%	0.03	35

As shown, the free ridership rate for all participant host customers is 13.60%. This was shown to be significantly different from zero with a 10% confidence interval.[10] Furthermore, of the observations for the specific technologies, only the result of 26.6% for customers with nonrenewable internal combustion engine projects was significantly different from zero. Moreover, it is not surprising that customers with nonrenewable internal combustion engine projects have a higher rate of free ridership than those with other technology projects. When comparing these projects to photovoltaic and microturbine projects, the initial capital cost per kWh is usually lower for internal combustion engine projects, the technology is more mature, and the systems are often viewed as more reliable than either photovoltaic or microturbines.

The instance of free ridership was further examined by the stage of the project. In this analysis, two hypotheses were tested. As the project progressed to completion, the customer may have found they were either very satisfied or dissatisfied with the self-generation project, leading them to an increase or a decrease in their reported rate of free ridership. Similarly, customers in the early stage of the process may have been more speculative at the beginning of their project regarding such a capital-intensive investment, leading them to report a lower rate of free ridership.

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8 The survey instruments are provided in Appendix A. The first set of free ridership questions correspond to question 6, 7, and 4. The second set of free ridership questions corresponds to question 9a, b, and c.

9 The 81 customers include two with fuel cell nonrenewable projects, one with an internal combustion renewable project, and two with microturbine renewable projects who have not been broken out separately due to their small sample size.

10 The statistically significant difference is a difference of sample proportions at the 10% level. The proportions are statistically different using both large and small sample tests.

Table 5-5 presents the rate of free ridership for customers with internal combustion engine projects and photovoltaic and microturbine projects broken down by project stage. As shown, the reported rates of free ridership for photovoltaic and microturbine technologies is lower in the early and advanced stages than after the project is complete, however, these differences are not statistically significant. The rate of free ridership is also not statistically different for alternative project stages for internal combustion engine technologies.

Table 5-5: Free ridership for Internal Combustion Engine, Photovoltaic, and Microturbine by Project Stage

Technology and Stage of Project	Mean	Standard Error	Number of Observations
IC Engine			
All	26.60%	0.09	24
Early stage	29.41%	0.19	7
Advanced stage	22.81%	0.12	13
Complete	23.08%	0.24	4
PV and Microturbine			
All	3.74%	0.03	52
Early stage	0.00%	0.00	6
Advanced stage	4.01%	0.04	29
Complete	7.41%	0.07	17

The impact of host involvement on free ridership was also examined.[11] As shown in Table 5-6, customers who were uninvolved in the Program application process were significantly less likely to be free riders than customers who were involved. None of the customers who identified themselves as uninvolved was found to be a free rider. It may be argued that customers who are involved in the application process of the Program are more knowledgeable about their firms' energy usage, needs, and the available programs. Further, these customers may be more likely to have been planning a self-generation project prior to their involvement in the Self-Generation Incentive Program.

[11] This may be viewed as similar to Xenergy's analysis of the impact of EESP-sponsorship verses self-sponsorship on the free ridership rate in the SPC program. Xenergy found that involved or self-sponsored customers had a higher rate of free ridership. See Xenergy, "Improving the Standard Performance Contracting program: an Examination of the Historical Evidence and Directions for the Future," November, 2001.

Table 5-6: Free Ridership by Host Customer Involvement

Technology	Involved	Mean	Standard Error	Number of Observations
All Technologies	Yes	18.92%	0.05	58
	No	0.00%	0	23
Internal Combustion Engines	Yes	28.21%	0.10	22
	No	0.00%	0	2
Photovoltaic	Yes	6.51%	0.05	23
	No	0.00%	0	12
Microturbines	Yes	5.66%	0.08	9
	No	0.00%	0	8

Taking this one step further, by breaking down the impact of involvement by technology it was found that most of the uninvolved customers' projects involved either photovoltaic or microturbine technology. However, when comparing these results with the rate of free ridership of involved internal combustion engine customers and photovoltaic and/or microturbine customers, the difference is not statistically significant.

Supplier Reported Free Ridership

Participant suppliers surveyed for this evaluation were asked to report the percentage of self-generation projects they thought would have been completed even without the Self-Generation Incentive Program incentive. Responses were given by Program incentive levels. The results are shown in Table 5-7. As shown, suppliers reported that 4.47% of Level 1 projects, 0.0% of Level 2, and 1.00% of Level 3 projects would have been completed without the financial support of the Program.

Table 5-7: Suppliers Perception of Free Ridership by Incentive Level

Technology	Mean	Standard Error	Number of Observations
Level 1	4.47%	0.03	23
Level 2	0.00%	.	1
Level 3	1.00%	0.02	12

Interestingly, the suppliers' free ridership rate for Level 1 technology is very similar to the customers' report of free ridership for photovoltaic technology (4.08%). Given these similarities, it may be surprising that the customers' reported rate of free ridership for internal combustion engines (26.6%) differs so dramatically from the suppliers' perception for Level 3 technology. Furthermore, Level 3 technologies included internal combustion engines and microturbines, two technologies with statistically significant different rates of host customer free ridership. However, breaking out the suppliers' results for Level 3 into these two technologies did not lead to findings any more consistent with the results presented above for host customers. In particular, suppliers reported that 1.22% of internal combustion engine projects and 1.67% of microturbine projects would have been undertaken without the Self-Generation Incentive Program.

These results provide an estimate of the customers' free ridership rate as perceived by the suppliers. The results from Table 5-7 indicate that suppliers believe only a very small percentage of self-generation projects would continue without incentives from the Self-Generation Incentive Program. Therefore, the similarity between the host customers' and the suppliers' reported free ridership rates for photovoltaic and microturbine projects might be due to suppliers' perceptions that few projects in general would go forward without incentives rather than a true understanding of the free ridership rate among host customers. In particular, this is suggested by the marked difference between host customers' and suppliers' reports of free ridership for internal combustion engine projects.

Alternatively, suppliers may be better able to judge the free ridership rate of customers with photovoltaic and microturbine projects since fewer of these customers are involved in the Program application process. In particular, uninvolved photovoltaic and microturbine customers may communicate more with their supplier and rely more heavily on the knowledge of suppliers. This higher level of communication may enable suppliers to more accurately judge the free ridership rate of these two technology classes.

5.7 Summary of Major Findings

Interviews were collected from a variety of market actors for this evaluation. Presented below is a summary of the key overarching issues reported by each group. In addition, some common themes that emerged throughout the process are discussed. Section 8 discusses recommendations for Program improvements based on these results.

Key Issues

Summarized below are the major findings from each group of market actor interviews.

Program Administrators

Program Administrators were positive about changes made to the Program in 2002. Changes in staff arrangements were reported in order to accommodate the increased need for a dedicated person to process incentive claims. Changes to the Program design included the new 3-R and 3-N incentive levels and the additional requirements of 3-N for waste heat recovery and reliability criteria. In addition, the handbook had been revised, the proof of professional liability insurance requirement had been eliminated, and a new policy was in effect for carport structures. Changes to the application process were also reported, including refinements to the tracking database, procedures for contacting applicants, and additional information for applicants provided on web sites.

Overall, Program Administrators reported favorable improvements to the application process. For example, applicants were perceived to be more educated and fewer were withdrawing from the Program before reaching the Proof of Project Advancement stage. Program Administrators described extensive efforts made in 2002 to ease the interconnection process for customers. They also reported that customers and suppliers were apprehensive over possible rate changes and exit fees.

The incentive structure remains an unresolved issue for the working group. After considering a number of alternative arrangements, Program Administrators are still undecided as to appropriate changes to the incentives structure. Several concerns were expressed and a subcommittee continues to discuss the issue, although they are reportedly unable to reach a consensus on any particular recommendation.

Program Administrators described how their marketing efforts had increased in 2002. Most continue to target third parties with workshops and promotional materials. In addition, improvements to the web sites were described. Some have implemented advertising with radio and other media.

Program Administrators reported they would like to see some Program requirements simplified. In particular, insurance requirements continue to be onerous. Other suggested improvements included extending the deadline for new construction projects, having information for customers and suppliers on whether the Program will extend beyond 2004, and arriving at a resolution on exit fees that will eliminate some uncertainty for potential applicants.

Participant Host Customers

Participant host customers reported learning most about the Program from third parties. In addition, those who seemed most satisfied with their project had worked with a third party on a turnkey basis. Host customers who did become involved in the application process often commented on the complexity of the Program and on difficulties in reaching various milestones. Despite these difficulties, all reported a relatively high rate of satisfaction with the Program.

Primary areas of difficulty reported were interconnection, air pollution permits, building permits, and installing net generation meters. In addition, host customers whose projects involved hospitals, schools, or government buildings, or that involved new construction, had difficulty with a one-year completion date. Moreover, project financing continues to be a problem for customers, even with the incentive. Respondents mentioned barriers of a high capital outlay, problems obtaining financing, and uncertainty over exit fees.

Participant Suppliers

Suppliers reported that customer awareness continues to be low about self-generation opportunities. Barriers mentioned included uncertainty over exit fees, the high capital cost of equipment, length of time before receiving incentive payment, heat recovery requirements, and power factor limits. Burdensome insurance requirements, financing problems, and complex paperwork were also mentioned as difficulties.

Most suppliers reported that Program Administrators had been helpful and responsive. In addition, most reported that application materials and the handbook were useable and helpful. Furthermore, satisfaction overall with the Program was reportedly very high. Despite these favorable impressions, some suppliers expressed concerns. These primarily involved delay with incentive payments, problems with the interconnection process, and the excessive documentation required by the Program. In addition, some comments surfaced regarding utility field personnel not adequately representing the Program or, in some cases, giving conflicting information to customers.

ESCOs reported overwhelmingly that the Program has had a positive impact on the development of the market for distributed generation. This was reportedly especially true for the photovoltaic industry. They also reported that they had not received support for marketing the Program and that the Program was doing little to educate consumers about self-generation opportunities.

Nonparticipants

Awareness levels among nonparticipant customers from the general public remained unchanged from last year. Most reported learning about the Program from magazine or news articles. When asked why they do not participate, the predominant reason was the high initial cost of the system. Overall, nonparticipants reported having a payback of about four years for self-generation equipment, although this was as high as 12 years for colleges.

Nonparticipant customers who attended workshops gave similar responses about reasons for not participating. Not surprisingly, the primary source they identified for information about the Program was the workshops. Their familiarity with self-generation technology was reportedly higher than that of the general public nonparticipants, and they reported higher payback years.

Nonparticipant suppliers who attended workshops reported hearing about the Program from the workshops or from web sites. A broad range of technology experience was represented among them, with over half of them involved primarily with photovoltaics. Nearly three-fourths had looked at the Program handbook, which they described as very helpful. When asked why they had not participated, the two dominant reasons reported were that they dealt mostly with projects too small to qualify for the Program and that they did not have any interested clients.

Common Themes

Several issues were heard from both customers and suppliers and some common themes emerged. These are presented below.

Low Customer Awareness

Awareness among host customers continues to be relatively low. Suppliers reported that marketing efforts made by the utilities are not reaching the customers. Comments were also heard from both suppliers and customers on the difficulty of locating Program information when doing Internet searches. Even when starting from a utility's home page or from the CPUC home page, the process is not intuitive. Some suppliers thought that the utilities did not do any marketing at all because customer awareness was so low.

The dominant source of information on this Program for host customers continues to be third-party suppliers. Responses from both supplier and customer interviews confirmed this finding. Furthermore, it has not changed from the first year evaluation results. Interestingly, however, nonparticipants reported that they were just as likely to hear about the Program from utility representatives or Internet searches as they were from third-party suppliers. In fact, the dominant source of Program information identified by nonparticipants was newspaper or magazine articles. This finding suggests that third parties are much more influential than utility representatives or other sources of information, since education by third parties leads to participation much more often than does education by utility representatives or media sources. Furthermore, it supports a second finding that is discussed next: the quality of promotion and representation provided for the Program by utility personnel.

Utility Representation

Responses from Program Administrators suggest they have made efforts over the past year to educate customers about the Program using utility account representatives. In some cases, they have conducted workshops to educate their representatives on the Program. Furthermore, one utility pays an incentive to their representatives to market the Program.

Comments from participant host customers and suppliers, however, revealed that, in some cases, representatives are not always helpful in influencing the customer to participate in the Program. For example, in some cases, it was reported that customers heard conflicting information from suppliers and utility representatives.

Uncertainty Over Exit Fees

Both customers and suppliers mentioned that the uncertainty related to exit fees was causing some customers to “hold back” from participating in the Program. In particular, with potential exit fees and other charges, some customers simply thought there was too much risk involved. In fact, many respondents were angry at being assessed, or the prospect of being assessed, standby charges and exit fees. They felt the utilities really intended to discourage distributed generation through the assessment of standby charges and exit fees. Furthermore, customers were angry upon discovering this potential cost after already committing to the project based on a payback that did not include this extra cost.

Recently, the CPUC decided to exempt the fees for photovoltaic projects smaller than 1 MW that are net metered or eligible for either CPUC or CEC incentives. Therefore, the issue for customers with these types of projects is now resolved. Given what was learned about low customer awareness, however, it would certainly help the situation if Program Administrators took it upon themselves to disseminate this information in an effective way among their participants, as well as include it in marketing efforts for the Program.

Application Process

It is interesting to note that while Program Administrators reported making extensive improvements to the application process and in the handbook in 2002, customers and suppliers continue to report experiencing frustrating problems in these areas. For example, both suppliers and customers commented on the complexity of the handbook. In addition, a number of application requirements are still problematic for both customers and suppliers. In particular, insurance requirements continue to be burdensome. Even Program Administrators interviewed were not sure why the Program requires the extent of insurance documentation that it does.[12]

[12] While the application process can be difficult at times, it should be noted that a minimum level of bureaucracy is required since the Program Administrators are awarding incentives of considerable magnitude. For example, a single incentive could be as large as $4.5 million. Thus, due to: 1) the potential value of the incentives, 2) the efforts of the Program Administrators to treat all applicants and host customers consistently, and 3) the propensity of some applicants and/or host customers to artificially inflate project costs to increase incentives, the application process requires a minimum level of checks and balances to verify accurate and appropriate project authenticity and costs.

Program Deadlines

Program Administrators reported that most applicants do not have difficulty meeting the 90-day Proof of Project Advancement deadline. However, an analysis of projects in the Program Administrators' databases indicates that, on average, this is not the case (see Table 4-30 in Section 4). In fact, on average, projects required from 112 to 154 days from the Conditional Reservation Notice issuance to Proof of Project Advancement approval. The reason for this disconnect may be that applicants are liberally issued extensions in order to reach the Proof of Project Advancement stage. About half of host customers and three-fourths of suppliers reported the deadline was adequate. This perception, however, may be largely due to having received an extension or to Program Administrators overlooking deadlines as they approached.

One reason the deadline is not more strictly enforced may be that incentive funds are still adequate for current demand. As funding levels start to run out, however, this may become an issue. For now, the deadline seems to act as an incentive to push the project forward. It may become a significant issue when budget constraints develop.

The one-year completion deadline also did not seem to be an issue among participants or Program Administrators, except for two situations. First, the deadline may not be adequate for new construction projects. These projects have additional needs that involve design issues, permit needs, and construction delays, and they may in fact require at least another year to complete. Second, projects with companies that need to obtain approval from OSHPOD, such as hospitals and government buildings, may need additional time. Suppliers reported that obtaining approval from OSHPOD could take six months.

Interconnection and Net Metering Problems

Program Administrators reported making efforts during 2002 to smooth this process for customers. However, both suppliers and customers still report that the interconnection process is still problematic. In addition, net metering customers often are unhappy because their meters are not installed in a timely manner or, even if they are, they do not understand how their credits for contributions to the grid are calculated. It is interesting to note, however, that even though complaints about these processes were numerous, overall satisfaction with the Program was still reportedly high among all participants. Therefore, while the processes are frustrating to participants and should be improved, it does not seem to be stopping them from completing their projects.

Third Party Development

The Program is reportedly having a significant effect on the development of the third party market, and this is especially true for photovoltaic suppliers. ESCOs who were interviewed said they valued it to the extent that "the energy services industry in California would not exist without the Program." In addition, some felt the Program had contributed to customer awareness, although some reported it had not done so at all, especially for photovoltaics. Furthermore, most reported that little or no support had been provided by the Program to the energy services industry for marketing, and what was provided was in the form of web site content. Thus, while ESCOs reported the Program had contributed to the development of the market, it was the ESCOs and not the Program that were effectively marketing and educating consumers on the benefits of self-generation.

These comments are consistent with the survey responses of customers, most of who reported learning of the Program and of self-generation opportunities from their third party. In fact, the customers happiest with the Program and their self-generation projects were those with turnkey projects where a third party took care of the Program requirements. Furthermore, many suppliers interviewed reported that they did not think the Program marketed effectively to customers; some were surprised that it did so at all. These results suggest the Program is, in fact, targeting third parties and ESCOs and that customers reached by experienced third parties offering turnkey projects are the most satisfied with their experience.

6

Coordination with Other Incentive Programs

6.1 Introduction

Distributed generation projects in California may be eligible for support from a variety of programs established by federal, state, utility, or local authorities. Individual Self-Generation Incentive Program projects may receive funding support from multiple programs. For the Other Program Participation Evaluation Task, the main objectives are to compile participation information for other distributed generation support programs and to summarize crossover between these programs and the California Public Utilities Commission (CPUC) Self-Generation Incentive Program.

Complete information related to program participation is valuable for two primary purposes. First, information concerning receipt of support from other programs is necessary to determine compliance with program guidelines. Second, future benefit-cost analyses of the program will require information necessary to allocate costs and benefits to stakeholder groups. This section begins with a discussion of background issues related to other programs. Next, the range of possible programs affecting distributed generation projects is described. Finally, other programs that the Self-Generation Incentive Program participants have been involved with are summarized.

6.2 Background

A key element of the Self-Generation Incentive Program's design is a schedule of incentive magnitude caps expressed in terms of dollars per watt or percentage of total project costs. The intent of the program is for qualifying distributed generation projects to be supported just up to these caps, regardless of whether funding is received from multiple programs. This intent is clearly delineated in Section 3.4.3 of the January 18, 2003 SoCalGas base version of the Self-Generation Incentive Program Handbook.[1] The handbook states, "in no event, can the combined incentives received under this program and other funding sources exceed the out-of-pocket expenses (i.e., Total Eligible Project Cost) for the project." The Working

[1] The Program Handbook was revised to include Working Group Interim Changes 1-5, CPUC Decision 02-02-026 of February 7, 2002, CPUC Decision 02-04-004 of April 4, 2002, CPUC Reliability Criteria, and other minor clarifications.

Group has expended considerable effort in discussing, evaluating and providing examples of incentive calculations and calculations of eligible costs for projects with multiple sources of funding. These examples are presented in detail in the Self-Generation Incentive Program Handbook.

To facilitate adherence to the total incentive limits, Self-Generation Incentive Program participants are required to disclose information about any other incentives they receive.[2] A statewide compliance database was developed for the program and is being used to support these efforts. The statewide compliance database contains selected participant information from the four Self-Generation Incentive Program Administrators, as well as selected participant information for programs administered by the California Energy Commission (CEC).

To satisfy the requirements of the Other Program Participation Evaluation Task, data from the statewide compliance database were combined with information resulting from interviews of program participants and with participation information for other programs, including the Department of Defense's Climate Change Fuel Cell Program, the Air Quality Management District's Microturbine Giveaway Program, and several statewide programs funded by Assembly Bills 970, 29x, and SB 5x.

During program implementation, attention is focused on initial installed costs and incentives that reduce those costs. In the future, more complete information may be required to complete benefit cost analyses. While the details of benefit/cost analysis methods for the Self-Generation Incentive Program have yet to be finalized, information needs may extend into a variety of areas affecting the allocation of project costs. Other types of programs for which participation information may be required by cost/benefit analysis methods include those related to taxes and financing costs.

6.3 Identification of Other Potential Incentive Programs

An Internet review was used to identify and categorize incentive programs into three broad areas: federally funded, state funded, and utility- and/or local government-funded incentive programs. It is important to note that many of these programs provide rebates on the purchase, construction, and installation costs of renewable energy equipment. These programs clearly overlap with the Self-Generation Incentive Program and, therefore, combined incentive payments from these programs should not exceed the incentives offered by the Self-Generation Incentive Program.

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[2] According to the program handbook, tax credits are not considered an incentive that must be disclosed under this requirement.

In addition to grant and buydown programs, a number of programs encourage investments in renewable energy through investment tax credits, accelerated depreciation, or subsidized financing terms. While program participants are not required to disclose participation in these types of programs as a condition of program eligibility, information related to taxes and financing may be necessary to complete a benefit/cost analysis of the program.

Below is a listing and brief description of each program identified as having potential overlap with the Self-Generation Incentive Program.[3]

Federally Funded Incentive Programs

The following programs are federally funded or were federally approved.

- ***Climate Change Fuel Cell Rebate Program.*** Implemented by the Department of Defense, the Climate Change Fuel Cell Rebate Program is designed to expedite the market introduction of fuel cell systems. The program provides up to $1,000 per kW (not to exceed one-third of the total installed cost). While priority is given to systems installed at Department of Defense sites, systems installed elsewhere are also eligible for funding under the program. The program began in 1995 and funding is allocated annually. Funding levels have been highly variable, ranging from $8.4 million in 1995 to $0 million in fiscal year 2001. In fiscal year 2002, $2.8 million was allocated for the program.[4]
- ***Federal Modified Accelerated Cost Recovery System.*** According to the U.S. Internal Revenue Code, section 168, investors are allowed a five-year accelerated capital depreciation for commercial entities that invest in or purchase qualified solar, wind or geothermal energy property placed in service after 1986.[5]
- ***Investment Tax Credit.*** This tax credit was established by the Energy Policy Act of 1992 and extended permanently. Ten percent of the investment or purchase and installation amount of solar and geothermal energy equipment can be used as a tax credit. The allowable tax credit in any given fiscal year is limited to $25,000 plus 25% of the tax remaining after the credit is taken. Additionally, within any given tax year, a taxpayer may not receive a tax credit larger than the amount of tax owed. Additionally, if property is financed using subsidized energy financing, only 10% of the amount not subsidized can be used as a tax credit. The tax credit applies only to for-profit commercial and industrial organizations.
- ***Renewable Energy Production Incentive (REPI).*** Established by the Energy Policy Act of 1992, this incentive is available to state and local

[3] Other incentive programs potentially overlapping with the Self-Generation Incentive Program are summarized in Appendix B.

[4] For further information, please visit the Department of Defense rebate program website at www.dodfuelcell.com/climate/.

[5] For further information, please see IRS Form 4562: Depreciation and Amortization and Instructions for Form 4562, and Internal Revenue Code Section 168(e)(3)(B)(vi).

government entities and not-for-profit electric cooperatives that commenced operation between October 1993 and September 2003. Participants receive 1.5¢/kWh (inflation adjusted) for the first ten years of operation (subject to annual appropriations in each federal fiscal year of operation) for electricity produced from renewable resources. Energy sources that have qualified in the past include solar, wind, landfill and sewage methane, biomass, digester gas, fuel cell, and wood waste. The REPI program awarded $3-4 million in incentives each year between 1995 and 2002.[6]

- ***Renewable Electricity Production Credit (REPC).*** Established by the Energy Policy Act of 1992, this program commenced in 1993. A 1.5¢/kWh (inflation adjusted) credit is applied to wind and closed loop biomass power plants, and is available to private entities that generated electricity from qualifying facilities through 2003. The REPC may be extended in the current session.
- ***Small Business Administration 7A Standard Small Business Loan.*** Through this program, the SBA provides loans to small businesses with photovoltaic and solar thermal system projects with ten-year payback periods or less. The maximum interest rates applicable under this program are prime plus 4.75% for loans under $25,000, prime plus 3.75% for loans between $25,000 and $50,000, and prime plus 2.75% for loans that exceed $50,000.[7]
- ***NICE^3 Program.*** Through this program, the Department of Energy's Office of Industrial Technologies provides one-time grants for eligible innovations. Projects that demonstrate advances in energy efficiency and clean production technologies are eligible for funding under the program. A one-time grant of up to $525,000 is awarded to state and industry partnerships. A one-time grant of up to $500,000 is awarded to the industrial partner, with a required minimum of 50% cost sharing.[8]
- ***USDA Rural Utilities Service (RUS) & Natural Resources Conservation Service (NRCS).*** The RUS has the authority to finance on- and off-grid renewable energy resources, particularly photovoltaic and wind powered projects. Only nonprofit utility organizations, such as electric cooperatives and public utility districts, are eligible. Individuals cannot participate in this program.[9]
- ***AgSTAR Program.*** Sponsored by the U.S. Environmental Protection Agency (EPA), the U.S. Department of Agriculture, and the U.S. Department of Energy (DOE), the AgSTAR Program encourages the use of methane recovery (biogas) technologies at confined animal feeding operations that manage manure as liquid or slurries.[10]

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6 For further information, please contact the Office of Power Technologies at the US Department of Energy.

7 For further information, please visit http://www.sbaonline.sba.gov/

8 For further information, please visit http://www.oit.doe.gov/nice3/. Proposals for solicitations for FY2002 were due June 28, 2002.

9 For further information, please visit http://www.usda.gov/rus/electric/renewables/index.htm.

10 For further information, please visit http://www.epa.gov/agstar/.

State-Funded Incentive Programs

The following programs are funded and/or approved by the State of California.

- ***Emerging Renewables Buydown Program.*** The Emerging Renewables Buydown Program provides the lesser of $4.50/watt or 50% of the purchase price for the installation of renewable energy equipment. Production of participant systems cannot exceed 200% of the site's historical or current needs, and systems funded by the program are required to possess a minimum five-year warranty. Photovoltaic, small wind turbines (10 kW or less), fuel cells using renewable fuels, and solar thermal electric systems are eligible for funding under the program. The program, which spanned 1998-2003, has awarded $8 million in incentives per year since its inception.[11]
- ***Emerging Renewables Program.*** On March 3, 2003, the Emerging Renewables Program replaced the Emerging Renewables Buydown Program. A total of $118 million has been allocated for the duration of the program, and an additional $10 million has been reserved for the development of a program funding renewable energy systems larger than 30 kW. Photovoltaics, small wind turbines (50 kW or less), fuel cells using renewable fuels, and solar thermal electric systems are eligible for funding under the program. All types of consumers are eligible for funding, including business, residential, schools, agricultural and industrial organizations; however, the participant system must remain interconnected with Southern California Edison, Pacific Gas & Electric, or San Diego Gas & Electric. As with the Emerging Renewables Buydown Program, production by participant systems cannot exceed 200% of the site's historical or current needs, and systems are required to possess a minimum five-year warranty. The initial incentive awarded by the program is $4/watt for photovoltaics systems and $2.50/watt for small wind turbine systems. The incentive amount decreases by 15% for systems installed by their owners. Additionally, incentives decline by $0.20/watt every six months, with the first decline scheduled to occur on July 1, 2003.[12]
- ***Energy Efficiency Financing.*** Approximately $10 million in funding was approved for the duration of this program, which funds renewable energy projects with a simple payback of less than 8.5 years. Schools, hospitals, cities, counties, special districts, and public care institutions are eligible for funding under the program, which provides low-interest (4% as of March 2002) loans of up to 100% of the cost of energy efficiency projects. No minimum principal amount was established for these loans, although the principal amount was capped at $2 million per organization.
- ***Innovative Peak Load Reduction Program.*** Commercial/industrial organizations, local governments, municipal water and wastewater facilities, and groups of single or multifamily homes are eligible for funding under this program.

[11] For further information, please visit http://www.consumerenergycenter.org/buydown/index.html.

[12] For further information, please visit http://www.consumerenergycenter.org/erprebate.

Eligible projects exclude those that employ fossil fuels, solar or wind turbines. Systems 15 kW or larger are eligible for incentives of $250/kW, up to $1 million. Incentives are awarded based on reduction of summer kW peak demand.[13]

- ***Landfill Gas Electricity Generation Incentive Program.*** A total of $622,500 was allocated for funding under this program, which awarded $250 per net kW to owners of microturbines utilizing flared landfill gas. Systems were required to have been operational by June 1, 2002.
- ***Waste and Wastewater Peak Load Reduction/Energy Efficiency Program.*** Approximately $4 million is available under this program, which is designed for public water system and wastewater treatment plant owners and administrators. Applications to the program were accepted until June 30, 2002 and projects must be completed by June 1, 2003. Incentives of $250/kW are awarded to projects that reduce peak load during the summer season.[14]
- ***Dairy Power Production Program.*** Approximately $9.64 million is available under this program, which is designed to support systems generating power from biogas. Projects must be installed and producing electricity before December 2003. Buydown grants awarded under the program cover the lesser of up to 50% of capital costs or $2,000 per kilowatt. Progress payments are made in four installments based upon percentage of project completion. Electricity generation incentives are awarded on a basis of 5.7 cents per kilowatt-hour of electricity generated over a maximum period of five years.
- ***Agricultural Peak Load Reduction Program.*** Approximately $75 million has been allocated for this program, which was created by SB 5X and is administered by California State University at Fresno and California Polytechnic Institute. Applications to the program will be accepted until December 31, 2003 and all systems funded by the program must be operational by May 31, 2004. Projects must provide promised energy savings through September 30, 2004. Water agencies or irrigation districts, confined animal feeding operations, greenhouses, food processors and refrigerated warehouses storing agricultural commodities are eligible for funding under the program. Projects eligible for funding include high efficiency electrical equipment or other conservation efforts, pump retrofits/repairs, and natural gas-powered equipment retrofits. Grants of $250/kW are awarded for projects that reduce summer peak electrical demand. Grant amounts are based on kW reduced; however, grants are capped at 65% of project cost. Additionally, the maximum grant amount that can be awarded to any individual organization is $2 million.[15]
- ***Air Quality Management District Microturbine Giveaway Program.*** This program provided microturbines to public facilities at no cost. The program's objective was to reduce emissions of air pollutants from backup diesel generators

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[13] For further information, please visit http://www.energy.ca.gov/peakload/bring_watt.html.

[14] For further information, please visit http://www.energy.ca.gov/peakload/water_retrofit.html.

[15] For further information, please visit http://cati.csufresno.edu/cit/load_reduction/aplrpdesc.doc.

during electrical shortages. Fifty-three natural gas or propane-fueled 60-kW Capstone microturbines were to be distributed by the program. Unless the host customer paid for installation, preference was given to facilities requesting three or more microturbines. One criterion for selection of a facility as a host customer site was that the minimum electrical load during normal operation was greater than the output from the number of microturbines requested. Whereas the Self-Generation Incentive Program requires heat recovery, cogeneration was an option in the Giveaway Program. This program was open only to customers in the South Coast Air Quality Management District, which comprises Los Angeles and Orange counties and parts of Riverside and San Bernardino counties. Applications to the program must have been submitted by April 29, 2002.[16]

- ***California Property Tax Exemption for Solar Systems.*** Under this tax incentive, enacted in January 1999 and due for expiration in January 2006, solar systems are not subject to property tax.[17]
- ***Commercial and Institutional Financing Options.*** The California Energy Commission has compiled financing-related information for commercial enterprises and institutions planning to make investments in renewable energy equipment. Financing Options Fact Sheet – Institutional Financing Options for Renewable Energy Systems (P500-01-017).[18]
- ***Solar and Wind Energy Tax Credit.*** Funding for this credit was authorized from 2001 to 2006, to the extent funds are appropriated under the state's annual Budget Act. Since no funds were allocated to the program for the 2002/2003 fiscal year, the program is no longer accepting applications for funding for the fiscal year. California residents who are purchasers, sellers, owner-builders, or owner-developers of solar or distributed generation systems are eligible for the tax credit. Taxpayers are eligible for up to$2,000 or 10% of system costs for eligible distributed generation projects.
- ***California Communities' CaLease Finance Program for Alternative Energy.*** Local governments and school districts in California installing photovoltaics systems are eligible for funding under this program, which offers leases of at least $500,000 to be funded with a fixed tax-exempt rate of approximately 5-6% for a three to ten-year lease term.
- ***Rural Alliance, Inc. Alternative Generation Financing.*** Rural Alliance, Inc. offers low-cost capital for alternative energy generation such as microturbines, solar photovoltaic, solar thermal, wind energy, and fuel cells. Current rates are approximately 5.15% to 5.9% for terms up to 20 years and a minimum finance amount of $10,000.

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16 For further information, please visit http://www.aqmd.gov/tao/microturbine_general_info.doc.

17 For further information, please visit http://www.ftb.ca.gov.

18 For further information, please visit http://www.energy.ca.gov/renewables/marketing.

IOU, Local Utility, and/or Local Government Funded Programs

The following programs are predominantly funded and/or approved by investor-owned utilities (IOUs), local utilities, and local governments.

- ***Burbank Water and Power.*** Business customers are eligible for $3/watt up to a maximum of $9,000 for the purchase and installation of photovoltaic systems.[19]
- ***Los Angeles Department of Water and Power (LADWP) Solar Incentive Program.*** LADWP commercial and residential customers with photovoltaic systems that produce at least 300 watts but not more than 100% of their annual power needs are eligible for funding under this program, which was authorized by AB 1890. Participants must remain connected to the LADWP grid and systems must remain connected to the LADWP grid. The program was originally slated to reimburse $6 million in its first year and $8-12 million per year for the next four years (2001 to 2005). In 2001, rebate amounts were increased in order to stimulate local manufacturing. Additionally, in 2002 the program was extended to December 30, 2010. Incentives provided under the program include a maximum of $4.50/watt for systems manufactured outside the city of Los Angeles, up to $1 million, and a maximum of $6/watt for systems manufactured within the city of Los Angeles, up to $2 million. The maximum payment is capped at 85% of installed cost for locally manufactured systems, and 75% of installed costs for all other systems.[20]
- ***Pasadena Solar Power Installation Rebate.*** Commercial and residential customers with photovoltaic systems are eligible on a first-come, first-serve basis for up to $5/watt or $10,000 in incentives based on available funding. Rebate amounts awarded under the program are expected to decrease over the coming years.[21]
- ***Silicon Valley Power Renewable Energy Rebate.*** Customers residing in the city of Santa Clara are eligible for a $4/watt rebate under this program. Eligible projects include photovoltaics, wind turbines, and fuel cells under 100 kW.[22]

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19 For further information, please visit http://www.burbank-utilities.com/businessrebate.htm.

20 For further information, please visit http://www.greenla.com/.

21 For further information, please visit http://www.ci.pasadena.ca.us/waterandpower/program_solar.asp.

22 For further information, please visit http://www.siliconvalleypower.com/Business/ProductsAndServices/.PublicBenefitsProgramsMoneyInYourPocket.html.

6.4 Summary of Other Program Participation

Photovoltaics

According to the tracking data, eight Level 1 photovoltaic projects reported receiving funding from CEC-administered programs such as the Emerging Renewables Buydown Program and the Innovative Peak Load Reduction Program. One Level 1 photovoltaic project reported receipt of funding from the California State University at Fresno-administered Agricultural Peak Load Reduction Program. Additionally, 51 Level 1 photovoltaic projects reported receiving incentives from the LADWP Solar Incentive Program.

Thirteen of the 38 surveyed host customers installing photovoltaic systems indicated receipt of, or the intent to receive, funding from other programs:

- Five respondents indicated receipt of grants from the LADWP,
- Three respondents indicated receipt of loans from the California Fairs and Expositions Board,
- Two respondents indicated receipt of low-interest loans from the CEC,
- One respondent indicated receiving a grant under the CEC Emerging Renewables Buydown Program,
- One respondent indicated receiving a grant from a private foundation, and
- One respondent indicated receipt of funding from a Congressional appropriation.

Thus, a significant portion (approximately one-third) of surveyed host customers installing photovoltaic systems indicated receipt of funding from other sources. Most respondents reported receipt of grants from a municipal electric utility or the CEC, followed by a significant number of respondents reporting receipt of low-interest loans from state-sponsored programs. All surveyed photovoltaic respondents receiving funding from CEC or LADWP grants disclosed receipt of these funds to the Program Administrators, as confirmed by the tracking data.

Fuel Cells

According to the tracking data, four Level 2 fuel cells using non-renewable fuels reported receipt of funding from the Department of Defense Climate Change Fuel Cell Rebate Program. One of these Level 2 fuel cell host customers, when surveyed, confirmed receipt of funding from another program, but declined to state the source of the funding. Analysis of the tracking data revealed that this respondent was one of the four projects that had indicated receipt of funding from the Department of Defense Climate Change Fuel Cell Rebate Program.

Microturbines

According to the tracking data, four Level 3R microturbines reported receiving funds from programs administered by the CEC, such as the Innovative Peak Load Reduction Program. Additionally, two Level 3N microturbines reported receiving funds from CEC-administered programs such as the Wastewater Distributed Generation Program. One Level 3N microturbine reported receiving an incentive from SoCalGas.

Three of the 33 surveyed Level 3N host customers installing microturbines indicated receipt of funding from the CEC. Two of these respondents indicated receipt of grants from the CEC, and the remaining respondent indicated receiving a low-interest loan from the CEC.

Internal Combustion Engines

According to the tracking data, six Level 3N internal combustion engines reported receipt of funding from other incentive programs administered by the CEC. Only one internal combustion engine project specifically mentioned the name of the program from which other incentive funds were received (the Innovative Peak Load Reduction Program).

Four of the 39 surveyed host customers installing internal combustion engines reported receipt of, or the intent to receive, system financing from other sources. One respondent indicated receipt of a low-interest loan from the CEC. Another respondent indicated receipt of a low-interest loan from their local municipality. One respondent indicated an intent to pursue financing, but had not yet selected a lender. Additionally, one respondent indicated that a local bond had been issued to cover a portion of the project's costs.

Other rebate programs influencing the first costs of Self-Generation Incentive Program projects are summarized in Table 6-1.

Table 6-1: Other Programs Influencing Self-Generation Incentive Program Projects' First Costs

Technology	Incentives/Rebate Program
Photovoltaics	Innovative Peak Load Reduction Program Emerging Renewables Buydown Program Agricultural Peak Load Reduction Program LADWP Solar Incentive Program
Fuel Cells, Nonrenewable Fuel	Climate Change Fuel Cell Rebate Program
Microturbines	Innovative Peak Load Reduction Program Wastewater Distributed Generation Program SoCalGas-administered program
Internal Combustion Engines	Innovative Peak Load Reduction Program

6.5 Statewide Compliance Database

As mentioned in Section 3, the statewide compliance database tracks incentive reservations filed by applicants to the Self-Generation Incentive Program. The compliance database tracks reservations for CEC-administered incentive programs as well as the Self-Generation Incentive Program. The Self-Generation Incentive Program Administrators and the CEC periodically enter data from Reservation Request Forms received from applicants into the compliance database. Each reservation request, when entered, is assigned a point score based on the recurrence of variables within the compliance database. Suspected duplications occur when two or more reservations in the compliance database appear to be similar based on a point score of 60 or greater. Those reservations assigned a point score of 60 or greater are marked as "Possible Duplicates." Each Program Administrator is responsible for reviewing the reservations marked as possible duplicates to ensure compliance with the Self-Generation Incentive Program requirements.

If, after a manual review of the reservations marked as possible duplicates, the Program Administrator determines that the reservations are in fact for distinct projects, the Program Administrator marks these reservations as non-duplicates. This ensures that the reservations will never again be marked as possible duplicates of one another. The reservations are then marked as "Compliance Checked."

If, however, the Program Administrator determines that the reservations are in fact duplicates, the Program Administrator is authorized to delete the duplicate record from the database. If the reservations are not duplicates, but indicate an overlap in funding between incentive programs for the same project at the same site, the Program Administrator notifies the applicant of the situation. The applicant then takes the necessary steps to ensure compliance with the Self-Generation Incentive Program requirements. When it has been determined that the applicant has achieved compliance with program requirements, the Program Administrator assigns the reservation a status of "Compliance Checked."

A review of the reservations recorded in the compliance database indicated that all reservations that should have been flagged as duplicates under the point system were indeed marked as "Compliance Checked," "Possible Duplicates," "Reservation Suspended," or "Reservation Cancelled." Cancellations or suspensions could have occurred as a result of non-compliance with program requirements or as a result of other factors. Regardless of the reasons for cancellation or suspension, however, it is apparent that any duplicate reservations that were identified are no longer active in the Self-Generation Incentive Program.

The Program Administrators were contacted to verify the status of the 2002 reservations identified by the compliance database as Possible Duplicates.[23] The compliance status of all of the reservations marked as "Possible Duplicates" was verified by each of the Program Administrators, who indicated that all of the reservations were indeed compliant with program requirements. The single applicant that submitted a non-compliant reservation marked as "Possible Duplicate" withdrew the duplicate reservation filed with the CEC after learning of the situation from the Program Administrator. However, the status of these reservations had not yet been updated in the compliance database. Thus, regardless of the status indicated in the compliance database, the actual compliance status of all 2001 and 2002 Self-Generation Incentive Program reservations was verified, and all possible duplicates had been eliminated as of March 2003.

The database is, however, also employed to ensure that program participants maintain compliance with maximum capacity limits. As described in Section 3, one problem was identified with respect to the tracking system employed by the statewide compliance database. Since the statewide compliance database does not track identities of corporate or government parents, reservations filed by subsidiaries of the same corporate parent may not be identified as possible duplicates if the reservations were filed under each subsidiary's name rather than the name of the corporate parent. If the reservations are not flagged as possible duplicates, there is no reason for a Program Administrator to suspect that the applications might be filed by a common corporate parent, and the Program Administrator would not check to ensure that the corporate parent was in compliance with the capacity limit for the program year. Thus, some corporate parent host customers may have attempted to circumvent imposed capacity limits by submitting multiple applications under different subsidiary names.[24]

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23 Program Administrators were not contacted regarding certain reservations marked as Possible Duplicates if, after the host customer surveys, it was apparent that the reservations were filed for distinct systems.

24 As of the time of this report, the Program Administrators have been discussing the possibility of adding a variable tracking corporate or government parent name to the tracking database.

This problem, however, is believed to be relatively minor. Due to the method in which reservations are flagged as possible duplicates in the compliance database, it is highly likely that such reservations filed under different subsidiary names would nevertheless be flagged as possible duplicates since many other variables (such as taxpayer ID) would be identical. Based on a cross-comparison of the statewide compliance database, the Program Administrator tracking data, and the results of the host customer surveys, only one host customer was identified that violated the capacity requirements due to this problem.[25]

Thus, in general, the statewide compliance database has been used effectively to identify Self-Generation Incentive Program projects also supported by the CEC, or that might be involved with the program through multiple administrators. Review of participation data for other programs submitted by the individual Program Administrators from the original tracking data requests suggest that Self-Generation Incentive Program participants are typically satisfying the program requirement to disclose involvement with other programs affecting end-user first costs. Cross-comparison of the host customer survey data with the statewide compliance database and the Program Administrator tracking data confirm this result.

6.6 Summary and Conclusions

A multitude of funding options exists for distributed generation projects, including rebate, loan and buydown programs offered by federal and state agencies, municipalities, and utilities. Such programs typically affect project first costs, providing rebates for the purchase, construction, and installation costs of renewable energy equipment. There also exists a multitude of other federal, state, or local government-funded programs that encourage investments in renewable energy through tax credits, accelerated depreciation, or subsidized financing terms. Additionally, some private foundations offer grants and/or low-interest loans to encourage distributed generation.

The Self-Generation Incentive Program requires that participants disclose other sources and amounts of funding received for projects funded by the program to ensure that participants have not received funding in excess of eligible project costs, and to ensure that no overlaps of funding occur between Self-Generation Incentive Program Administrators for a given project. As such, the Self-Generation Incentive Program Administrators compile data on other rebate program sources and amounts for host customers in their respective jurisdictions.

[25] The Program Administrator for the host customer corporate parent with the two reservations that jointly exceeded the maximum capacity limit for the program year stated that the host customer would be asked to withdraw and re-submit one of the applications for consideration for funding for the subsequent program year.

The Program Administrators and the CEC enter this information on reservation requests in a statewide database that tracks compliance with Self-Generation Incentive Program requirements. Reservations that may violate program requirements are flagged. It is the responsibility of the respective Program Administrators to research the program participation of the flagged reservations and to bring violators into compliance (or, alternatively, to cancel the offending reservations). Based on discussions with the Program Administrators, results of the host customer surveys, and a review of the statewide compliance database, it appears that in general, Self-Generation Incentive Program participants are fulfilling disclosure requirements. The statewide compliance database is being used effectively to track participation in other incentive programs.

According to the host customer surveys, statewide compliance database and Program Administrator tracking data, a large proportion of host customers installing fuel cells indicated receipt of funding from other program sources. Interestingly, the Department of Defense's Climate Change Fuel Cell Rebate Program was the only other source of project funding reported by host customers installing fuel cells. This phenomenon may indicate that host customers installing fuel cells may find it difficult to obtain other sources of funding, or that the funding provided by the Climate Change and Self-Generation Incentive Programs jointly covers most of their project costs, decreasing the motivation and/or ability to apply for funding from other incentive programs.

Additionally, according to the host customer surveys, statewide compliance database, and Program Administrator tracking data, host customers installing solar photovoltaic systems were more likely to obtain project funding from other sources than internal combustion engines or microturbines. These differences may arise due to one or more of the following reasons.

- Eligibility requirements vary, as other rebate programs may limit funding to participants installing cleaner technologies such as photovoltaics and fuel cells, as opposed to internal combustion engines and microturbines that utilize non-renewable fuels.
- Similarly, the level of difficulty associated with applying to, and receiving funding for, internal combustion engines and microturbines is higher relative to other technologies. The enhanced level of difficulty could be attributable to stricter monitoring and/or compliance requirements on levels of non-renewable fuel consumption, among other factors.
- Host customers installing photovoltaics and fuel cells may simply be more motivated to seek funding from more sources, since these technologies are relatively more expensive than microturbines and internal combustion engines on a dollar per watt basis.

7

On-Site Field Verification and Inspection Activities

CPUC Decision 01-03-073 requires that Program Administrators conduct program verifications to "ensure that the self-generation units installed at customer sites are installed and operating properly and have the potential to deliver electric generation."[1] A key part of this verification process involves on-site inspections, conducted to "verify that the funded self-generation systems are actually installed and operating."[2] In compliance with the inspection requirement, each Program Administrator retained a third party to conduct on-site field verifications, as shown in Table 7-1. In preparing this process evaluation, the project team interviewed representatives from each on-site inspection contractor and obtained sample copies of inspection forms and checklists.

Table 7-1: On-Site Inspectors

Program Administrator	Area	On-Site Inspector
San Diego Regional Energy Office	SDG&E	AESC
Southern California Gas	SoCalGas	Energy Nexus
Southern California Edison	SCE	AESC[3]
Pacific Gas and Electric	PG&E	KW Engineering

While initial review of reservation materials began in late 2001, the first self-generation installations were not completed and ready for on-site inspections until mid-2002. During 2002, 40-45 on-site inspections were conducted statewide. Over half of these inspections were for photovoltaic installations, with most of the remainder for installations of internal combustion engines. On-site inspections also included a small number of micro-turbines and fuel cells.

As described in Section 4, the time required for the on-site verification process varies by technology and by status of the application (active or completed). However, in the most

[1] Decision 01-03-073, pg. 28.

[2] Decision 01-03-073, pg. 19.

[3] AESC also provides review of waste heat calculations in the PG&E area, with KW Engineering providing on-site verification of waste heat operation, where possible.

common instance (completed photovoltaic projects) the median was found to be 19 days from receipt of a claim form to on-site verification. This included time prior to requests being sent to the verification contractors plus time required to schedule and conduct the on-site verifications.

7.1 On-Site Verification Objectives

As required in CPUC Decision 01-03-073, the overall on-site verification objectives are to ensure that the self-generation units are installed and operating properly, and have the potential to deliver electric generation. The specific objective, as described in the program handbook, is to "verify that the project system is operational, interconnected, and conforms to the eligibility criteria of the program.[4]" To do this, the inspection contractors verify that the as-installed self-generation equipment and operation matches applications, and that, to the extent that they can be verified, the key program requirements have been met.

7.2 Review of Field Verification and Inspection Activities

Summary

Early in 2002 the inspection procedures and documentation processes, which were still evolving in 2001, were finalized and put into regular practice. The general procedures are now largely standard across the state, although each inspection contractor uses different forms and individual processes vary somewhat from the steps and details described below.

Verification contractors reported that they have five business days after receipt of a request from an administrator to complete an on-site verification. However, this period may be, and often is, extended when the applicant and/or host customer is not available to accompany the inspector during that five-day period.

On-Site Verification Process

Following are the generic steps identified in the on-site verification process.

Step 1: Verification Contractor Sent Documentation. The on-site verification contractor is first provided by the Program Administrator with documentation of the proposed installation. Generally, the verification contractor first becomes aware of the project when the generation is reported to be installed and operational and when the applicant submits an Incentive Claim Form. However, in at least one case the verification contractor receives the Reservation Request Form before installation and may, at that time, provide

[4] Self-Generation Program Incentive Handbook, Section 4.4.9.

comments to the Program Administrator on the adequacy of the documentation and apparent program eligibility.

Step 2: Key Information Transferred to On-Site Verification Forms. Prior to conducting the on-site inspections, the general approach is to transfer key equipment and operation information from the Reservation Request Form and Claim Form to inspection forms. This information will in turn be compared with the equipment and operation found at the site.

Step 3: Site Visit Schedules. The applicant is contacted and a time is arranged for the on-site inspection.

Step 4: On-Site Verifications Conducted. The central activity in the process is the on-site inspection. Tasks include the following:

- Verifying that equipment model numbers and ratings match those in the application material.
- Verifying that actual quantities (e.g., number of photovoltaic modules) match those in the application.
- Verifying that equipment is operational and permanently installed.
- Going through a checklist to help verify eligibility and document the characteristics of the installation. (These checklists vary significantly among the inspection contractors, although each appears to collect the information needed to help assure compliance.)
- Photographing the generator, other associated equipment, and nameplates (e.g., inverter, switchgear, heat exchanger, metering).
- Verifying outputs at the time of the inspection (kW, and BTU and power factor where metered).
- Verifying power factor control where applicable.[5]
- Verifying waste heat recovery operation where applicable.[6]
- Verifying how the generator is controlled (e.g., load following).
- Verifying and documenting monitoring equipment.
- Looking out for apparent safety hazards.

[5] Applicants for Level 2 and 3-N technologies must show that the systems are capable of operating between 0.95 PF lagging and 0.90 PF leading.

[6] Applicants for Level 3N technologies, which rely on non-renewable fuel, must produce at least 5% of the total output as useful thermal energy, with the total annual power output plus one-half of the useful thermal energy out equaling at least 42.5% of fossil fuel inputs.

- Asking clarifying questions of site personnel, when necessary and possible.

Step 5: Analyses Conducted and Reports Prepared. Steps in the analysis stage may include (1) transferring on-site information to a clean report, (2) using available site data and/or engineering assumptions to estimate waster heat recovery (where required), and (3) using available data and other assumptions to calculate system efficiency (where required).

Step 6: Report Delivered to Program Administrator. At this point, the general approach is to prepare a cover letter to the inspection report and to submit the report to the Program Administrator with a finding that the installation has passed inspection or has one or more specified deficiencies. In at least one case, standard practice when the installation has been inadequate is to first send an e-mail to the Program Administrator describing the problem(s) and suggesting that it (they) be corrected before conducting a follow-up inspection.

Step 7: Determination Made by Program Administrator. The program Administrator makes a determination, based on the inspection report, whether to pay an incentive or to request that the Applicant first make changes to the installation.

Step 8: Follow-Up Inspections Performed (When Needed). When problems are found in the initial inspections, the applicant may correct those problems and a follow-up inspection conducted. The verification contractors reported that this occurred in about 10% of the cases.

7.3 Analysis and Results

On-site verification contractors all report that procedures are now working very well, with one interviewee noting that their role has now become a “well-oiled, flexible process.” This is partially because the Program changes that took place during 2002 were few and had only limited impact on the inspection process for the majority of sites. Depending on inspection contractor and the technology, such changes included making slight changes to forms, adding heat recovery verification, adding power factor checks, looking closer at instrumentation and readings, performing efficiency calculations, and evaluating renewable fuels.

The only significant problem identified (by two of the contractors) was on occasion setting up inspections and traveling to the site only to find that equipment was not yet fully operational or there is incomplete monitoring equipment. The verification contractors report that these problems, which involved about 10% of the on-site visits, have more recently been reduced in number by asking pointed questions at the time that on-site visits are being set up.

Interviewees were also asked if they perceived that the inspections provided any benefits to the host customers. The general response to that question was “usually not,” partly because host customers often are not present during inspections (contractors or equipment suppliers are more likely to attend). However, the host customer has benefited in a few cases, such as one in which the inspector pointed out the incorrect orientation of auxiliary equipment.

7.4 Summary and Recommendations

The on-site verification processes and forms varied somewhat from area to area in 2002, but in all areas appeared to meet the requirements of CPUC Decision 01-03-073, including subsequent program specifications and amendments. Therefore, it appears the process is functioning effectively and as intended.

It is believed that the inspection process will meet all verification needs during 2003 without change. However, in order to provide added customer benefits, Program Administrators may wish to forward information to inspection contractors at the Reservation Request stage. Bringing the inspection contractors in at this earlier stage, which is already done in at least one case, can provide an extra level of early review to help identify problems at a point in the process when changes in plans are not difficult.

8

Recommendations

8.1 Introduction

This concluding section of the Second Year Process Evaluation consists of two parts. First, the effects of the program relative to the evaluation criteria are discussed. These evaluation criteria were used at the outset of the evaluation to design research questions and survey topics. Findings from the evaluation provide insight on how the program is meeting the related goals and objectives. Second, a number of recommendations are presented stemming from the results of the evaluation. In particular, recommendations are made in the areas of program design, implementation, and marketing.

8.2 Evaluation Criteria

Overview

This second year process evaluation of the Self-Generation Incentive Program was performed to support the completion of the specific requirements identified in CPUC Decision 01-03-073 (Interim Opinion: Implementation of Public Utilities Code Section 399.15(b); Load Control and Distributed Generation Initiatives, March 27, 2001). To summarize the activity in the process assessment, Decision 01-03-073 presented the rationale and goals of the program as listed in Table 8-1 below. Evaluation criteria were then developed for meeting each goal and incorporated into the process evaluation. These criteria were then adopted in ALJ Gottstein's April 24, 2002 Ruling on Schedule for Evaluation Reports.

Table 8-1: Evaluation Criteria of the California Self-Generation Incentive Program

Program Goal/Rationale/Objective		Criteria for Meeting Goal
G1 Encourage the deployment of distributed generation in CA to reduce peak electrical demand	**C1.A**	Increased customer awareness of available distributed generation technology and incentive programs
	C1.B	Fully subscribed participation in program (i.e., total installed capacity, number of participants)
	C1.C	Participants' demand for grid power during peak demand periods is reduced
G2 Give preference to new (incremental) renewable energy capacity	**C2.A**	Development and provision of substantially greater incentive levels (both in terms of $ per watt and maximum percentage of system cost)
	C2.B	Provision of fully adequate lead-times for key program milestones (i.e. 90 day and 12 month)
G3 Ensure deployment of clean self-generation technologies having low and zero operational emissions	**C3.A**	Maximum allocation of combined budget allocations for Level 1 and Level 2 technologies
	C3.B	A high percentage of Level 1 and Level 2 projects are successfully installed with sufficient performance
G4 Use an existing network of service providers and customers to provide access to self-generation technologies quickly	**C4.A**	Demonstration of customer delivery channels for program participation to include distributed generation service providers and existing utility C-I customers networks
G5 Provide access at subsidized costs that reflect the value to the electricity system as a whole, and not just to individual customers	**C5.A**	Demonstrate that the combined Incentive level subscription, on an overall statewide program basis (i.e. the participant mix of Levels 1, 2, and 3 across service areas), provides an inherent generation value to the electricity system (avoided generation, capacity and T&D support benefits).
G6 Help support continued market development of the energy services industry	**C6.A**	Quantifiable program impact on market development needs of the energy services industry
	C6.B	Demonstrated consumer education and program marketing support as needed
	C6.C	Tracking of energy services industry market activity and participation in the program
G7 Provide access through existing infrastructure, administered by the entities (i.e. utilities and SDREO) with direct connections to, and the trust of small consumers	**C7.A**	Ensure that program delivery channels include communications, marketing and administration of the program, providing outreach support to small consumers
G8 Take advantage of customers' heightened awareness of electricity, reliability and cost	**C8.A**	Use existing consumer awareness and interact with other consumer education/marketing support related to past energy issues to market the program benefits.

The remainder of this subsection discusses the findings from the second year process evaluation as they pertain to the specific goals and criteria listed in Table 8-1.

G1. Encourage the Deployment of Distributed Generation in CA to Reduce Peak Electrical Demand

C1.A Increased customer awareness of available distributed generation technology and Incentive Programs

One way of gauging customer awareness relative to the program is to assess the awareness of nonparticipant potential host customers from the general population. Results from this evaluation suggest that roughly 64% of nonparticipant customers are aware that they can generate their own power. However, this is roughly the same result found in last year's evaluation, indicating that no significant change occurred during the year in customer awareness. In addition, awareness of self-generation programs (specifically the Self-Generation Incentive Program and the California Energy Commission (CEC) Buydown Program) was low and had not changed significantly from last year's results. Furthermore, when asked to describe their familiarity with self-generation technology, most nonparticipant customers reported being "not at all familiar" with photovoltaic, fuel cell, microturbine, and small gas turbine technologies, and more than one-third responded similarly for wind turbines and internal combustion engines.

These results suggest that the program is not having an effect on awareness of distributed generation technology and/or related programs in the general public. It is worth noting, however, that when the Program Administrators commenced marketing efforts to promote awareness of distributed generation and the Self-Generation Incentive Program, they explored a variety of channels intended to promote awareness within the general population. These channels included mass mailings and radio and television advertisements. However, since response rates from these efforts were quite low, the Program Administrators sought to better target marketing efforts toward existing customer networks. As a result, they focused their attention on educating third parties such as energy service companies (ESCOs) and other contractors and vendors likely to provide services to potential host customers, such as managing the application and/or project development process. The third parties, in turn, marketed the program to their customers. These efforts produced greater success in promoting awareness of distributed generation and the Self-Generation Incentive Program, as discussed below.

In summary, the findings suggest that progress toward increasing customer awareness of distributed generation technology and programs is not significant. However, the result is not surprising since the majority of marketing efforts have been targeted at third parties, and this effort has been successful in soliciting participation. Moreover, this is consistent with the approach mandated by the California Public Utilities Commission (CPUC) to encourage and support third party applicants in marketing the program (based on the Standard Performance Contract Program model).

C1.B Fully subscribed participation in program (i.e., total installed capacity, number of participants)

According to the January 18, 2003 version of the program handbook, the annual incentive budgets authorized by the CPUC for each Program Administrator are as follows:

Pacific Gas and Electric Company	$48.0 million
Southern California Edison	$26.0 million
Southern California Gas Company	$13.6 million
San Diego Regional Energy Office	$12.4 million
Total	**$100.0 million**

One-third of the incentive budget for each administrator was initially allocated to Levels 1, 2 and 3. However, the Program Administrators are authorized to transfer funds between incentive level categories once approval is granted by the CPUC. The Program Administrators are also authorized to transfer funds from their administrative budgets for the program year to incentive level categories once approval is granted by the CPUC. Additionally, unused budget available from prior program years is carried over and can be used to meet current program year incentive requests.

Table 8-2 presents the statewide incentive budgets for PY2001 and PY2002, based upon data provided by the Program Administrators in April 2003.[1]

Table 8-2: Statewide Incentive Budgets for PY2001 and PY2002

Incentive Level	PY2001 Original CPUC Allocation	PY2001 Budget Transfer	Final PY2001 Budget (includes transfer)	PY2001 Reserved and Paid Incentives	PY2001 Carryover Budget	PY2002 Original CPUC Allocation	PY2002 Budget Transfer	Final PY2002 Budget (includes carryover, transfer)	PY2002 Reserved and Paid Incentives	PY2002 Carryover Budget
Level 1	$33.3	$21.4	$54.7	$12.5	$42.2	$33.3	$35.5	$111.1	$79.1	$32.0
Level 2	$33.3	$(8.1)	$25.2	$0.9	$24.3	$33.3	$(28.5)	$29.2	$1.5	$27.7
Level 3	$33.3	$4.5	$37.8	$12.0	$25.9	$33.3	$-	$59.2	$32.8	$26.5
Total	**$100.0**	**$17.8**	**$117.8**	**$25.3**	**$92.5**	**$100.0**	**$7.0**	**$199.5**	**$113.4**	**$86.1**

[1] The sum of budget transfers within any given program year does not equal to zero due to shifting of funds from the Program Administrators' incentive budgets to program funding for the various incentive levels.

As shown in Table 8-2, Incentive Level 1 came closest to meeting Evaluation Criteria C1.B that the Self-Generation Incentive Program be fully subscribed. Incentive Level 1 reservations totaled $12.5 million of the original $33.3 million PY2001 budget. Incentive Level 3 reservations totaled $12.0 million of the original $33.3 million PY2001 budget, and Incentive Level 2 potential reservations totaled $0.9 million of the original $33.3 million budget.

In PY2002, Incentive Level 1 reservations totaled $79.1 million, and would have exceeded the original CPUC allocation for PY2002 of $33.3 million absent the budget for incentive Level 1 carried over from PY2001 and budget reallocations from Incentive Level 2 and the administrative budgets in PY2002. In PY2002, Incentive Level 3 reservations totaled $32.8 million, and would have been very close to the original CPUC allocation of $33.3 million absent the carryover budget from PY2001. Finally, in PY2002, Incentive Level 2 reservations totaled $1.5 million, which is substantially less than the original CPUC allocation of $33.3 million.

Thus, Incentive Level 1 had the highest levels of subscription for PY2001 and PY2002, followed by Incentive Level 3 and Incentive Level 2. Incentive Level 1 would have been oversubscribed in PY2002 absent budget carried over from PY2001 and reallocation of funds from Incentive Level 2 to Incentive Level 1 in PY2002. Incentive Level 3 would have been very close to full subscription absent budget carried over from PY2001. Incentive Level 2 possessed a very low subscription rate relative to the other incentive levels in both program years.[2]

C1.C Participants' demand for grid power during peak demand periods is reduced

This criterion is more appropriately addressed by the second year impact evaluation.[3,4] Preliminary results of the analysis of operational systems as of December 31, 2002, taken from that evaluation, are presented in Table 8-3. In addition to the on-line and peak demand impacts noted in Table 8-3, there are added reductions to both capacity and peak demand due to the program. These reductions, which have not yet been estimated, are the result of substitution of waste heat from internal combustion engines used for absorption chilling. By

2 Low levels of subscription within Incentive Level 2, however, should not be interpreted as a failure of the Program Administrators to effectively market the program to potential host customers. Other barriers associated with the adoption of fuel cells hinder the adoption of this technology, and are discussed in further detail in the "Marketing Recommendations" section of this report.

3 Itron. Self-Generation Incentive Program Second year Impact Evaluation. Submitted to Southern California Edison. April 18, 2003.

4 This issue will be addressed in further detail relative to the impacts on host customer monthly peak demand when the net generator output-connected facility billing interval data is made available by the electric utilities.

using waste heat from distributed generation systems in this manner, which previously required grid electricity, effective capacity is increased and peak demand on the grid is reduced.

Table 8-3: Overall Impacts on 2002 ISO System Peak Demand

Basis	On-Line Systems (n)	On-Line Capacity (kW)	Peak Demand Impact (kW_P)
Level 1 Photovoltaic	11	1,130	790
Level 2 Fuel Cell	2	400	400
Level 3 IC Engines/Microturbines	17	6,752	5,472
Total Estimated Impact	30	8,282	6,662

In addition, it is worth noting that the incentive, by design, does not tie directly to system peak but is meant to address the upfront cost of equipment installation. One way to ensure peak load reduction would be to redesign the incentive payment structure with a pay-for-performance arrangement. However, this alternative has been discussed at length, first during the CPUC proceedings resulting in D.01-03-073, and then later by the working group without acceptance. Most parties stated that sufficient financial incentives are already in place with the current retail rate structure to ensure that systems funded by the program will operate during the peak demand periods. Therefore, a recommendation is not made in this report to introduce such an alternative incentive plan.

G2. Give Preference to New (incremental) Renewable Energy Capacity

C2.A Development and provision of substantially greater incentive levels (both in terms of $ per watt and maximum percentage of system cost)

During PY2002, Incentive level 3 was bifurcated into Levels 3N and 3R, according to the type of fuels (nonrenewable or renewable) used.[5] Level 3R distributed generation systems using renewable fuels became eligible for larger financial incentives on both a dollar per watt and percentage of eligible cost basis than similar systems using nonrenewable fuels. In addition, Level 3N systems were required to continue to use sufficient waste heat recovery and meet program reliability criteria. Furthermore, Level 3R technologies are capped at a higher percentage of project costs.

Therefore, the present design is meeting this criterion due to the higher dollar per watt incentive and the higher project cost percentage cap offered with renewable fuels for Level 3 technologies.

[5] CPUC D.02-09-051

C2.B Provision of fully adequate lead-times for key program Milestones (i.e. 90 day and 12 month)

According to the tracking data provided by the Program Administrators, the mean length of time required for Proof of Project Advancement approval exceeded 90 days for applicants across all technologies in both program years, with the exception of a single active PY2002 fuel cell project. Multiple extensions were granted to the 90-day deadline in PY2001 and PY2002. Difficulties meeting the 90-day deadline primarily involve securing the necessary approvals within the host customer organization to commit to project development (i.e., signing purchase orders, and submitting interconnection and air permit applications).

However, regardless of extensions granted to the 90-day deadline, nearly all applicants were able to submit the Reservation Confirmation and Incentive Claim Form within one year of the original Conditional Reservation Notice issuance date. The mean length of time required for applicants across all technologies to submit the Reservation Confirmation and Incentive Claim Form was well within the prescribed deadline. Once claim forms were submitted, on-site verifications and check issuance proceeded fairly rapidly across all technologies. Thus, while applicants found meeting the 90-day Proof of Project Advancement milestone deadline difficult, the one-year Reservation Confirmation and Incentive Claim Form did not appear overly difficult for applicants to meet, with the exception of projects involving new construction and certain public sector institutional customers.

The mean lengths of time required for applicants across all technologies to reach the 90-day Proof of Project Advancement and one-year project completion deadlines have decreased between program years, indicating that the deadlines may be more realistic as applicants and/or Program Administrators gain increased experience with the program. However, all parties involved in the project development process (Program Administrators, suppliers, and host customers) have acknowledged that the 90-day and one-year deadlines remain difficult to meet for institutional customers (such as schools, hospitals, or government agencies) and for new construction projects. This suggests that improvements could be made to make the timing of these deadlines a more appropriate length. Such a change is recommended later in this chapter.

G3. Ensure Deployment of Clean Self-Generation Technologies having Low and Zero Operational Emissions

C3.A Maximum allocation of combined budget allocations for Level 1 and Level 2 technologies

The Program Administrators face a difficult task in allocating program funds among incentive level categories. While the Program Administrators aim to provide preference to cleaner technologies such as photovoltaic and fuel cells, significant technological and market barriers unrelated to the program hinder the adoption of fuel cells, and limit the potential subscription rate for Incentive Level 2. If it is not possible to attain full subscription of Incentive Level 2, it is preferable that the Program Administrators shift funds out of Incentive Level 2 to other incentive level categories that might otherwise risk over-subscription. A major reason for doing this is that applicants who learn they have been wait-listed for funds may opt not to install their distributed generation systems for fear they will never receive program funding, or may opt to postpone otherwise financially feasible projects until program funding is available.[6]

It is more in line with the objectives of the original Decision to encourage the installation of any other eligible distributed generation system through the Self-Generation Incentive Program rather than allowing funds to remain unused under Incentive Level 2. Thus, while the Program Administrators aim to provide preference to the cleanest distributed generation systems eligible for funding, it has been necessary to shift some budget out of Incentive Level 2 fuel cells. The large share of program funding occupied by Level 1 photovoltaics, however, demonstrates the Program Administrators' commitment to the goal of providing preference to low or zero-emissions technologies, and the Program Administrators have reallocated funds between incentive level categories to maximize the total number of renewable and non-renewable fueled projects combined. In summary, progress was made in meeting this criterion.

C3.B A high percentage of Level 1 and Level 2 projects are successfully installed with sufficient performance

Table 8-4 presents a summary of Level 1 and Level 2 projects for PY2001 and PY2002 as of January 2003. As shown, completed Level 1 projects make up 23% of advanced Level 1 projects, and completed Level 2 projects make up 33% of advanced Level 2 projects. Furthermore, when looking at system capacity, completed Level 1 projects make up 21% of installed capacity of advanced projects, and completed Level 2 projects make up 20% of installed capacity of advanced projects.

[6] Reservations received after total funds have been committed for a calendar year are placed on a waiting list in the event that more funding becomes available (either through an approved shift in funds between categories or project cancellations). Applicants on the waiting list who are not made eligible for funding in the program year in which they applied must reapply the following program year.

Table 8-4: Level 1 and Level 2 Projects

Incentive Level	Technology	Completed Projects: Number	Completed Projects: % of Total Projects	Completed Projects: Installed Capacity (kW)	Completed Projects: % of Total kW	Projects That Reached An Advanced Stage[1]: Number	Projects That Reached An Advanced Stage[1]: Installed Capacity (kW)
1	Photovoltaics	21	23%	2,300	21%	90	11,182
	Fuel Cell, Renewable Fuel	0	0%	0	0%	0	0
2	Fuel Cell, Nonrenewable Fuel	1	33%	200	20%	3	1,000
Total Level 1 and Level 2 Projects		**22**	**24%**	**2,500**	**21%**	**93**	**12,182**

[1] Includes active projects for which Proof of Project Advancement has been submitted and completed projects.

Additionally, the impacts of 11 operational Level 1 systems and two operational Level 2 systems were estimated. Table 8-5 presents the estimated impacts of operational Level 1 photovoltaic and Level 2 fuel cell systems upon the 2002 Independent System Operator Peak Demand from the Second Year Impact Evaluation.

Table 8-5: Impacts of Level 1 and Level 2 Projects on 2002 ISO System Peak Demand

Level	On-Line Systems (a)	On-Line Capacity (b)	Peak Demand Impact (c)	ISO Peak Ratio (b/c)
Level 1 Photovoltaic	11	1,130 kW	790 kW	0.70
Level 2 Fuel Cells	2	400 kW	400 kW	1.00

Based on the limited available operational data for Level 1 projects, the monitored photovoltaic projects appear to be performing within the expected range of output, based upon previous assessments. Metered data has not yet been reported for the fuel cell projects in PY2002. Based on the status of these projects to date, it is premature to determine if this criterion is being met in terms of achieving a high rate of successful installations.

G4. Use an Existing Network of Service Providers and Customers to Provide Access to Self-Generation Technologies Quickly

C4.A Demonstration of customer delivery channels for program participation to include distributed generation service providers and existing utility C-I customer networks

As mentioned in the Program Administrators' marketing plans, the Program Administrators have aggressively marketed workshops promoting distributed generation and the Self-Generation Incentive Program to third party vendors likely to market the program to their existing customers. The Program Administrators have focused marketing efforts for distributed generation and incentive program workshops and seminars on third party vendors, and have expended considerable effort in developing marketing materials for distribution at conferences, trade shows, and other events sponsored by members of the energy service industry. The Program Administrators' efforts were highly successful, as most host customers indicated they first heard of the Self-Generation Incentive Program through a third party vendor. Therefore, progress continues to be made towards meeting this criterion.

G5. Provide Access at Subsidized Costs that Reflect the Value to the Electricity System as a Whole, and Not Just to Individual Customers

C5.A Demonstrate that the combined incentive level subscription, on an overall statewide program basis (i.e. the participant mix of Levels 1, 2, and 3 across service areas), provides an inherent generation value to the electricity system (avoided generation, capacity and T&D support benefits).

This criterion was not addressed in the scope of this PY2002 process evaluation or in the initial program impact evaluation. While avoided ISO peak generation capacity was provided, it cannot be valued from avoided capacity and T&D costs. This issue will be addressed when a cost effectiveness methodology is finalized for all Load reduction programs under AB970.

G6. Help Support Continued Market Development of the Energy Services Industry

C6.A Quantifiable program impact on market development needs of the energy services industry

Comments from suppliers during this evaluation suggest that the program has had an impact on the industry. In an effort to quantify this issue, an analysis of free ridership was conducted as part of the evaluation. In particular, participant host customers were asked a series of questions to assess whether they would have installed their systems without the benefit of the program. The self-reported free-ridership rates for participant host customers overall was less than 14%. However, when broken down by technology, only the rate for customers installing internal combustion engines, roughly 27%, was shown to be statistically significant.[7] In short, there are too few projects using some of the technologies to reliably determine whether there is much free-ridership in the program. Even for the most popular technology—internal combustion engines—about three-fourths of the projects reportedly would not have been undertaken without the program's incentive.

Suppliers were also asked to estimate the rate of customer free ridership. On average, they reported 4.5% and 1% for Levels 1 and 3, respectively. Additional comments given by ESCOs indicated a similar rate of free ridership as that reported by customers, although they also indicated higher rates for microturbine and photovoltaic technologies. These results *suggest* a discrepancy between customer and supplier perceptions on just how influential the incentive really is to customers. Alternatively, it may suggest that ESCOs or other third parties might be willing to negotiate other financial arrangements with customers in the absence of the program that would encourage them to go ahead with the project.

Regardless of differences between reported levels of free ridership across distributed generation technologies, the overall self-reported rate of 14% free ridership suggests the program incentive highly influenced the decision of most host customers to install a distributed generation system. This indicates that the existence of the Self-Generation Incentive Program has significantly promoted the adoption of distributed generation.

C6.B Demonstrated consumer education and program marketing support as needed

According to the results of the supply channel surveys, manufacturers and third party vendors' perceptions of Program Administrators' marketing efforts varied. Some vendors were unaware of any marketing efforts on the part of the Program Administrators, while others felt that the level of marketing was adequate. Further, most customers reported that they relied on their supplier to inform them about the program and self-generation opportunities; few reported learning about them from their utility.

Additionally, when asked whether they felt the program had provided support for the energy services industry to market the Self-Generation Incentive Program, most ESCOs responded that little or no support had been provided to the energy services industry for marketing. Only half of the ESCO respondents felt some support had been provided, and these ESCOs stated that the support had been supplied in the form of content available over the Internet.

The results of the ESCO surveys, however, should be considered along with the results of the Program Administrator surveys. The Program Administrators indicated they have targeted their marketing efforts to third parties, including ESCOs. Thus, while the Program Administrators may have attempted to promote program awareness among the ESCOs, the

[7] The statistically significant difference is a difference of sample proportions at the 10% level. The proportions are statistically different using both large and small sample tests.

Program Administrators appear to have provided only limited support for the ESCOs, in turn, to market the program to their customers.

Overall, administrators' reported expenditures on marketing activities for PY2002 amounted to 1.8% of their overall budget allocation for administration and M&E activities for that year. It should be possible, therefore, to improve Program Administrator marketing support to the energy services industry. In summary, then, results from this evaluation suggest that significant progress towards meeting this criterion was not found.

C6.C Tracking of energy services industry market activity and participation in the program

All Program Administrators currently track certain project-level characteristics for each Reservation Request Form filed to the Self-Generation Incentive Program. Those characteristics include names of third party vendors who apply for funding on behalf of host customers, and names of participating distributed generation system manufacturers. The Program Administrators do not, however, appear to track installation subcontractors or construction and engineering firms separately even though they may also be involved in certain phases of a project funded by the program. It may be helpful for the Program Administrators to gather information regarding installation contractors since those market actors could also serve as potential marketing channels for the program. In summary, then, results from this evaluation suggest that more work is needed for meeting this criterion. While ultimately this is the responsibility of the Program Administrators, their project tracking systems may need to be augmented with some other mechanism for gathering and monitoring such data.

G7. Provide Access through Existing Infrastructure, Administered by the Entities (i.e. utilities and SDREO) with Direct Connections to, and the Trust of Small Consumers

C7.A Ensure that program delivery channels include communications, marketing and administration of the program, providing outreach support to small consumers

As stated above, Program Administrators have concentrated their outreach efforts to third parties rather than to customers. While some efforts at consumer outreach have been employed (such as field representative contact, workshops, web site content, and radio advertisements), no specific targeted outreach to "small"[8] customers was reported. However, looking at the distribution of number of employees or cost of electric bill over survey respondents, it is clear that a small percentage of "small" customers are in the program.

[8] Note the criteria for determining a "small" customer was not provided.

In summary, the evaluation results suggest that significant progress towards meeting this criterion was not found. However, since outreach efforts have been focused on third parties and those parties in turn have influenced participation, it seems that the lack of outreach to "small" consumers has not kept them from participating in the program.

G8. Take Advantage of Customers' Heightened Awareness of Electricity, Reliability and Cost

C8.A Use existing consumer awareness and interact with other consumer education/marketing support related to past energy issues to market the program benefits.

Program Administrators have reportedly used existing consumer awareness and marketing channels to promote the benefits of the Self-Generation Incentive Program. One Program Administrator met with administrators of similar rebate programs in PY2002 to discuss coordination between the Self-Generation Incentive Program and other incentive programs, to answer questions regarding the program, and to investigate other marketing opportunities. Additionally, according to the marketing plans developed by the Program Administrators for PY2003, the Program Administrators are considering forging joint marketing alliances with other distributed generation program administrators in PY2003 and intend to participate in other outside committees to increase awareness within the renewable energy community.

However, some customers reported not being able to find information on the program on their own with Internet searches. Moreover, the program does not appear to be listed in the database of the Flex Your Power web site. In addition, host customers who attend workshops often do not participate because they perceive the systems as too costly even with the incentives.

In summary, the findings suggest that more work needs to be done towards meeting this criterion. However, since outreach efforts have been focused on third parties and those parties in turn have influenced participation, the lack of outreach to consumers has not hurt participation.

8.3 Program Recommendations

This section presents recommendations for improvement of the Self-Generation Incentive Program based on results of the second year process evaluation. Recommendations are presented for each of the following areas:

- Program design,
- Program implementation, and
- Program marketing.

Each of these areas has varying levels of ease of implementation. For example, changes to program design may involve consensus of the working group and updates to the program handbook and application materials, while enhancements to marketing efforts may be doable without delay. Furthermore, some action items (in particular, those related to program design issues) may make sense to implement only if the current sunset date of the program is extended, as their impacts may not be measurable for at least a year.

Program Design Recommendations

The following recommendations are provided:

- Resolve incentive structures and payment mechanisms for the program,
- Develop and communicate an exit strategy for the program,
- Reduce, postpone or eliminate certain requirements of Proof of Project Advancement,
- Extend the one-year deadline for projects involving new construction, and
- Reduce or eliminate certain requirements of the one-year deadline.

These program design recommendations are discussed briefly below.

Resolve Incentive Structures and Payment Mechanism

The program incentive structure is presently based on a project cost cap and/or dollar per watt rather than generation system performance. This structure does not reward efficient distributed generation suppliers and thus reduces the effectiveness of the Self-Generation Incentive Program in developing a self-sustaining distributed generation market. At the same time, the present incentive structure creates a need for detailed cost reporting to justify the incentive payment, which burdens both applicants and administrators and, in many cases, delays payment.

The Self-Generation Incentive Program Working Group has been reviewing the incentive structures and payment mechanisms for some time and has not yet reached a consensus.[9] The evaluation team strongly recommends that this situation be addressed and resolved within the next few months in the following manner.

- Develop separate incentive levels for microturbines and internal combustion engines. The markets, costs, and environmental impacts for these technologies are dissimilar, and it makes sense to incentivize them at different levels. In addition, the differential incentives for Level 3R projects should be reassessed in light of the recent data on fuel clean-up costs.

[9] Part of this effort involved reviewing the following report: AESC, Inc. Review of SGIP Incentives. December 2002.

- Eliminate the percentage of project cost limit and pay all incentives on a dollar per watt basis. This change should have a positive impact on overall project costs and will alleviate some of the burdensome administrative effort for both applicants and Program Administrators. In addition, it will help shorten the processing time of incentive claims, so applicants can be paid in a more timely manner. Furthermore, it will mitigate the appearance of cost gaming on the part of suppliers.

The elimination of the percentage of project cost limit may create some concern with how the program will deal with projects that receive incentives from multiple programs. However, by limiting the total incentive paid per project to a particular dollar per watt, no project will receive funding from the Self-Generation Incentive Program beyond that limit. For example, if the program pays $4.00 per watt for photovoltaic systems, and a photovoltaic project already receiving an incentive from another program applies for additional funding from the Self-Generation Incentive Program, the total incentive received from the other program would first be deducted from the Self-Generation Incentive Program incentive and only the difference would be paid. In the case where the other program's incentive exceeds $4.00 per watt, no incentive would be available from the Self-Generation Incentive Program.

To facilitate these incentive structure improvements, the M&E team will develop recommendations to modify the program incentive structure. The recommendations should be finalized by the end of June 2003, and the working group should act on it directly following a review and approval by the CPUC.

Develop and Communicate an Exit Strategy

The lack of a transitional exit strategy for the program leaves the impression the program will abruptly end on or before December 31, 2004 with incentive levels dropping from their current levels to zero.[10] Such a strategy does not provide the emerging distributed generation market with support to continue. Moreover, no plan is in place to assist the market in developing in an efficient manner. Therefore, the following is recommended.

- The Working Group should discuss and develop a plan to be submitted to the CPUC Energy Division to extend the program's current sunset date in order to allow a transitional strategy to be put into effect. The plan should address why the program should continue beyond 2004 and present an exit strategy that could include, for example, trigger criteria for lowering rebates over time.
- Once in effect, the plan should be communicated to participants and interested parties in order to diffuse confusion and anxiety over a drop-off of incentives.
- The Working Group should consider the value of having a third year process evaluation for the Self-Generation Incentive Program.

[10] Note that Assembly Bill 1685, as amended on April 10, 2003, requires a self-generation incentive program for solar electricity generation to exist through 2016 in the same form as the current program.

Note that implementation of this recommendation would require action from the CPUC, as it is outside the parameters of the Working Group to mandate such a change.

Reduce, Postpone, or Eliminate Certain Requirements of Proof of Project Advancement

As discussed previously, the majority of applicants across all technologies were unable to obtain approval of Proof of Project Advancement within the required 90-day period in PY2001 and PY2002. While this intermediate milestone may be necessary to compel host customers to make a serious commitment to the project and may be helpful in keeping projects on track, it may be optimal to reduce, postpone, or eliminate certain requirements of the 90-day deadline in order to render the deadline more realistic. Furthermore, attention to this deadline may become more important as program funding is expended.

For instance, host customers are currently required to provide a copy of air pollution permit applications, electrical interconnection applications, and equipment purchase orders to demonstrate sufficient commitment to the project. It may be sufficient for the host customer to submit a copy of the equipment purchase order to demonstrate sufficient commitment to the project at the 90-day mark, as the Program Administrators will have the opportunity to review the final air pollution and interconnection permits when the Reservation Confirmation and Incentive Claim Form and required attachments are submitted. Host customers could be required to submit applications for air pollution and interconnection permits after the 90-day deadline, or these requirements could be eliminated. The following action item is recommended.

- Eliminate the requirement to submit a copy of the air pollution permit application and the electrical interconnection application before the 90-day PPA deadline.

Extend the One-Year Deadline for Projects Involving New Construction

While the majority of program participants were able to complete their projects within the original one-year period during PY2001 and PY2002, the one-year deadline was especially difficult to meet for institutional organizations such as hospitals, schools and municipalities, and for projects involving new construction. Since most applicants have been able to meet the deadline, a permanent extension of the one-year deadline is not necessary. The PY2002 decision to grant the Program Administrators authority to extend the one-year deadline by six months was a positive step in providing a more realistic timeframe for completion of projects involving institutional customers.

Customers with new construction projects, however, face an additional hurdle. Due to the length of the construction process spanning more than one year for most projects, they are unable to reserve funding for self-generation installations until they are already some time into the construction process. This creates uncertainty as to whether the funds will be available when they are within the appropriate timeframe to apply to the program.

Changing the program requirements to provide an automatic extended completion deadline for new construction projects may appear to grant favoritism to such projects, as dollars may be tied up longer for these projects. However, not providing such a deadline may create deterrability for companies considering the installation of self-generation equipment. In addition, the experience of new construction programs in the energy efficiency arena suggests that a period of three to four years is more appropriate for these types of projects. Therefore, the following is recommended.

- Change the one-year project completion deadline to two years for projects involving new construction.
- Require an additional interim deadline for these projects at the one-year point in which they are required to submit proof of progress on their project in order to continue the reservation of funding.

<u>Reduce or Eliminate Certain Requirements of the One-Year Deadline</u>

Submittals required in conjunction with the Reservation and Confirmation Form are extensive, and include the following:

- Proof of system interconnection,
- A final building inspection report,
- A final Permit to Operate issued by the local air pollution control district,
- A final project cost breakdown (and corresponding documentation),
- Proof of warranty, and
- A planned maintenance coordination letter (for Level 3N systems > 200 kW).

Two items are recommended:

- Eliminate as appropriate the final project cost breakdown requirement in accordance with the first recommendation above, resolving the incentive structure. Even if that first recommendation is not implemented, it still seems unnecessary to require the cost breakdown for those projects receiving incentives based solely upon dollars per watt of eligible installed system capacity.
- Accept an Authority to Construct Permit that includes a temporary Permit to Operate rather than the final Permit to Operate, which requires a greater length of time to obtain.

Implementation Recommendations

The following recommendations are suggested:

- Assign a Working Group representative/subcommittee to educate and coordinate with outside agencies,
- Clarify net metering requirements and improve meter installation/net meter-related billing processing, and
- Revise Self-Generation Incentive Program Handbook and Program Contractual Documents to address the M&E Team's need for (and PA right to) Third party's own Monitoring Data Upon written request

Each recommendation is discussed briefly below.

Assign a Working Group Representative/Subcommittee to Educate and Coordinate with Outside Agencies

Participants reported frustration and confusion in dealing with air quality permit offices, local building permit offices, and utility interconnection staff. Further, they indicated that their projects had been delayed by a lack of knowledge demonstrated by these outside agencies regarding compliance with program requirements, or by differences in opinion between these entities and the Program Administrators. Enhancing the education of these entities and developing favorable relationships should mitigate delays and problems in the air emissions, building permitting, and interconnection processes. Therefore, the following is recommended.

- Assign a Working Group representative/subcommittee to develop favorable relationships with air quality permit offices, local building permit offices, utility interconnection staff, and other relevant agencies. This effort should include the following:
  - Educate outside parties as to the requirements of the program so they understand the time constraints participants face.
  - Provide each participant timely access to the representative/subcommittee via phone and email for the purpose of answering questions and resolving conflicts.
  - Assign the representative/subcommittee the responsibility and authority to act on behalf of the program to resolve problems between participants and above agencies.

Clarify Net Metering Requirements and Improve Meter Installation/Net Meter-Related Billing Processing

This recommendation applies only to Level 1 photovoltaic and wind projects. Some host customers who installed photovoltaic systems indicated they had not received credit for contributions to the grid due to delays in obtaining meters. In addition, some customers who were being credited for their contributions to the grid indicated they were frustrated because they did not understand how credits were being applied to their bills. However, the nature of this problem is actually related to the utility and not the Program. Therefore, the following is recommended.

- Although Program Administrators have recognized this is an issue, they should continue to talk to the appropriate representative(s) at their utility regarding the time required for net meter installation and the nature of the problems that have caused delays. If there is a way to ease this problem by educating the installing metering technicians or by providing them with additional lead-time, they should continue their efforts in this area.
- Advise Level 1 applicants with projects involving net metering at the outset of their projects of a more realistic timeframe needed for meter installation.

Revise Self-Generation Incentive Program Handbook and Program Contractual Documents to address the M&E Team's need for (and PA right to) Third party's own Monitoring Data Upon written request

During the course of the initial program impacts assessment, it became apparent that a number of operational projects are collecting useful operational data for the M&E assessment; however, such data were not being made available to the M&E team for various reasons. The most common motive for not submitting these data to the M&E team was the fact that the Program Administrator had not yet paid the incentive to the applicant. This situation greatly reduced the volume of data made available to the PY2002 impacts assessment. Moreover, because of the reasoning involved, it will likely continue to impact third party metered operational data availability in future year assessments. Therefore, the following is recommended.

- The Self-Generation Incentive Program Handbook, the program's contract, and the incentive claim form submittal documents should be revised to obligate applicants and their third party provider(s) to download and transfer electronically raw project operational interval data (i.e., NGO/gross generator kW, thermal energy, photovoltaic environmental data, etc.) upon written request in order to address the M&E team's need for monitoring data. This should be done in all cases where such host applicant or third party monitoring equipment is deemed to be useful for M&E purposes.
- There should also be provisions for allowing appropriate and reasonable compensation from the program to the host customer or third party for their cost of

setting up necessary data management controls and system programming procedures to provide the requested data.

Marketing Recommendations

The following recommendations are suggested:

- Address standby charges and exit fees, and
- Improve public access via website links to program information.

Each recommendation is discussed briefly below.

Address Standby Charges and Exit Fees

Though not specifically surveyed regarding their opinions on these concerns, both host customers and suppliers mentioned uncertainty over these issues as a barrier to program participation and reasons for withdrawal from the program. Information on the recent CPUC decision on exemption of exit fees for photovoltaic systems that qualify under the program should be disseminated to participants. Therefore, the following recommendations are made:

- Program Administrators should proactively contact current program participants to address this issue. This contact could be in the form of a brief letter describing the relevant legislation and the impacts of such legislation upon program participants.
- Administrators could also invite participants to informational seminars to address these issues in a question-and-answer type of forum. These informational seminars should also be made available to the general public to address the concerns of nonparticipants who would have considered participating in the program absent these issues.

Improve Website Links

Some surveyed customers reported that they could not find information on the program, even when doing web site searches. The first year process evaluation recommended that the working group develop a centralized web-based self-generation information clearinghouse for applicants. Such a tool might also mitigate the frustration of suppliers who work with more than one administrator and have to deal with inconsistencies among them. However, this recommendation was not implemented. The following is therefore recommended.

- Provide information on the program to key web sites and industry information sources so that customers can readily identify who to contact in order to participate.

Appendix A

Interview Guides

PY2002 PROGRAM ADMINISTRATOR INTERVIEW GUIDE
SELF-GENERATION INCENTIVE PROGRAM EVALUATION

Date ______________________________

Name ____

Title ____

Organization and
Department__________________________/__________________________________

Address ____

____

Phone Number ____

E-mail ____

OTHER ATTENDEES:
Name _______________________________ **Title**______________________________
Name _______________________________ **Title**______________________________
Name _______________________________ **Title**______________________________

MATERIALS REQUESTED AHEAD OF TIME

- ☐ List of manufacturers by technology
- ☐ Training or technical support materials for installers/integrators
- ☐ List of attendees at training sessions
- ☐ Criteria used to classify Withdrawals, Rejections, and Suspensions
- ☐ Table of other programs that overlap or dovetail with the SelfGen program
- ☐ Number of systems completed and verified by on-site inspectors as of the end of 2002
- ☐ Contact info for person in charge of on-site verification
- ☐ Copies or examples of on-site verification documentation
- ☐ Total marketing expenditures in 2002, including internal labor and outside services.
- ☐ Marketing budget for 2003
- ☐ Samples of marketing materials
- ☐ Copies of gas cleaning equipment/installation cost data associated with any renewable fueled fuel cells or renewable fueled Level 3 projects received to date.

Introduction

The purpose of this interview is to understand your experience to date, implementing the Self-Generation Incentives Program. [(*Read next two sentences only if respondent was interviewed last year*:) You may recognize some of these questions from last year's interview. We're asking them again to see if another year's experience has made a difference. When I ask for your opinion on a subject, please base your response on the experiences you've had with your customers, applicants, contractors, and other parties in the program. As you may know, we are conducting this review to help the Program Administrators and CPUC determine how to most effectively implement the Program and improve the current awareness and Program promotion efforts for distributed generation.

Overview

The purpose of this section is to find out the respondent's role in the program administration, and their views about overall program performance to date relative to the CPUC's goals.

Focus is on changes in the organization of Administrators. Also changes in roles of staff within the Administrators and changes in organization as far as responsibilities amongst staff. More importantly were the changes in organization/responsibilities brought on by features of the program or were they due to other reasons.

1. Please briefly describe your primary role in administering the Self-Generation Incentive Program. Has this role changed in the last year. If so why?:

2. Has there been any change in your Administrator Staffing, either in number or in changes in responsibilities, or both. (*Probe for the addition of staff or for a redistribution of program responsibilities. More importantly --* ***the reasons for these changes*** *whether they are program driven or driven by internal changes at the Administrator's company*).

3. Last year you said the primary goals for the program were: [STATE PY2001 RESPONSE :________________________________
   ____]
   Have these changed at all in the last year? If so why and how?

4. How has the program performed to date against these goals?

5. Based on your experience to date, do these goals need to be altered? __________
If yes, How?

6. What are the key lessons (if any) that you've learned about transforming the distributed generation market as a result of the program? (*Probe for a focus on lessons from the last year*.)

Program Design Issues

The purpose of this section is to discuss Administrator views about the overall design of the program, such as the appropriateness of the 90-day Proof of Project Advancement and 1-year Project Completion deadlines; budget allocations across technology/incentive categories; and the design basis and magnitude of the incentive levels.

More importantly, we want to discuss the changes in the design of the program. Why they were instituted and have they been effective. Further, are there persistent problems or barriers related to the Program requirements that applicants have been unable to overcome? For instance is meeting the 90-day Proof of Project Advancement or documenting the applicant/host insurance requirements still an issue?

7. What have been the main changes in the program design since March of 2001? In your opinion why were these changes made? Have they been effective?

8. Based on your experience, what is your opinion of the overall design of the program? Has your opinion changed in the last year?

9. Do you think the project milestone deadlines (i.e., the 90-day *Proof of Project Advancement* and 1-year *Project Completion* milestone deadlines) are appropriate for each technology?

☐ Yes
☐ No
If No, please explain, differentiating between technologies if necessary.

10. Approximately what portion of the applicants within your service area is having difficulty meeting these two key program milestone deadlines?

PY 2001 Applicants:
90 Day Proof of Project Advancement Milestone: _________%
1-year Project Completion Deadline: ________%

PY 2002 Applicants:
90 Day Proof of Project Advancement Milestone: _________%
1-year Project Completion Deadline: ________%

11. Has this Milestone *difficulty* percentage increased or decreased in the last twelve months?

    90 Day Proof of Project Advancement Milestone *difficulty*:
    - ☐ Increased
    - ☐ Decreased
    - ☐ About the same

    If increase or decrease please explain, differentiating between technologies if necessary.

    1-year Project Completion Deadline *difficulty*:
    - ☐ Increased
    - ☐ Decreased
    - ☐ About the same

    If increase or decrease please explain, differentiating between technologies if necessary.

12. Overall, why are applicants within your service area having trouble meeting these deadlines? (*Probe for changes over the past twelve months and why things are better or worse*)

    90 Day Proof of Project Advancement Milestone:

    1-year Project Completion Deadline:

13. Do the applicants who have trouble meeting these deadlines tend to be of a certain type (e.g. government entities, universities/colleges, hospitals/health care institutions, specific industrial groups, commercial office buildings, etc.)? (*Probe for changes in applicant type over the past twelve months)*

    - ☐ Yes
    - ☐ No

    Please explain

14. As you know, the program is administered through SCE, PGE, SoCalGas, and SDREO. What do you think are the advantages and disadvantages of a utility versus a non-utility administrator?

15. For example, what are some Program implementation activities that are accomplished more effectively by having a utility administrator? Please tell us why you feel this is the case.

16. And what are some Program implementation activities that are accomplished more effectively by having a nonutility administrator? Please tell us why you feel this is the case.

17. Given that one of the CPUC's main goals of the program is to reduce peak demand on the electric grid, do you think the one-time cash incentive is the best way to achieve this goal with self-generation projects?

☐ Yes
☐ No
If No, how should the Program assistance and/or incentives be structured?

18. The program initially allocated 1/3 of the incentive budget to each of the technology levels *[NOTE: ACTUAL $ AMOUNT VARIES BY ADMINISTRATOR]*, allowing the administrator to freely move funds from nonrenewable categories over to the Level 1 renewable category. Based upon your experience in the first 2 Program Years, do you think this allocation approach is still appropriate?

☐ Yes
☐ No

Why or Why not? ____
____
____

19. As you know, the program offered $4.50/Watt for Level 1, $2.50/Watt for Level 2, $1.50/watt for Level 3-R and $1.00/Watt for Level 3-N technologies in the latter part of Year 2. These incentives are also capped at a maximum of 50% / 40% /40%/ 30% of eligible installed costs for Incentive Levels 1, 2, 3-R & 3-N respectively. Do you think these current PY2002-2003 incentive levels remain appropriate or should they be changed?

☐ Yes
☐ No

Why or Why not? (Please discuss by technology as appropriate)
____
____
____

20. Do you have any other comments about how the program and incentive annual budgets have been established by the CPUC (e.g., total funding levels, restrictions or requirements on moving funds from renewable to nonrenewable categories; 5% cap on administrative costs, etc.)?

21. What do you think about the decision to include non-renewable technologies in the program at the lower incentive levels (i.e., $1.00 watt/30% cap for Level 3-N))?

22. What is your opinion of having a straight dollar per watt incentive as opposed to the current system? What are the advantages and disadvantages? (*Probe for differences across technologies*)

23. What is your opinion of adding the Renewable fuel component for the Level 3-R technology incentives?

24. Do you track cleaning costs for renewable fuels separately from other equipment costs?

25. What is your opinion about the requirement to report renewable fuel cleanup costs?

26. How do you review these and/or track them when they are submitted to you?

27. What is your opinion about the reliability compliance requirement for Level 3 projects?

Supply Channels and Installation

The purpose of this section is to understand the structure of the supply channel for each technology; to find out what training and technical support for suppliers is offered by the administrator (if any).

[We probably have a pretty good handle on this. We need to probe for changes in (their understanding of the supply channel structure) and changes in the mix of players/market shares for Level 1 (PV) and Level 3 technologies.]

28. We gave you a list of the manufacturers, by technology, active in your program, based on the PY2002 tracking data. After reviewing this updated list, are you aware of any more manufacturers not on that list?

29. For each eligible technology, does the program provide any training or technical support for system vendors/installers/integrators? *[PROBE FOR DESCRIPTION OF TRAINING/SUPPORT, AND HOW IT DIFFERS ACROSS TECHNOLOGY]*

30. Has there been a major change over the past twelve months in the supply channel for any of the technologies covered by the program. If so please describe the changes.

31. Has there been any change in the market shares of the major players in the market and/or have there been any new entrants into the market place.

32. Are you seeing more interest from any particular third party or equipment supplier over the past twelve months? If so who and why?

Application Process

The purpose of this section is to find out how the administrator keeps track of applicants, how they handle issues that aren't directly addressed in the Program Handbook, and typical problems faced by applicants and the administrator. This includes application tracking (electronic and other means); how dormant/unresponsive applicants are handled; typical reasons for Withdrawals, Rejections, and Suspensions; problems/misunderstandings of applicants; identification of other, overlapping incentive programs; and [SCE and SoCalGas only] how applicant tracking is coordinated between SCE and SoCalGas.

These issues were essentially handled in last year's discussion. As such, we are looking for redesigns/refinements of the tracking system or new issues resulting from Program changes.

I would like to start with some very general questions.

33. Did you make any changes to the application process in 2002? If so please explain the changes. (Probe for reasons why these changes were made and if they have been effective in meeting the objectives of the change. Are there any technology specific changes)

34. Did you make any changes in 2002 in the way that you track program participation for either PY 2001 or PY 2002 applicants? If so please describe the changes and the reasons for the changes. (*We need to get details of these changes although it is likely that we have dealt with most of these changes in the exchange of their participant database*.)

35. Have you experienced a significant increase or decrease in the number of rejections, suspensions and withdrawals in 2002 relative to 2001? If so please describe these trends and why you think that they occurred. (*Probe for by*

technology trends).

36. Do you have any suggestions on how the application process or tracking data base can be improved?

Next we would like to ask more detailed questions about the application process. Again, as we go through these questions please highlight cases where you have seen significant differences between the first and second year of the program.

37. Based on your experience in the last twelve months with the program,

    35(a) what are some common problems that you face in handling applications and dealing with applicants? *[PROBE FOR AREAS OF CONCERN]*

    35(b) what are some common problems/misunderstandings of the applicants? (e.g. not understanding that backup generators are ineligible, etc.)? *[PROBE FOR AREAS OF CONCERN]*

38. What stakeholder groups (e.g., ESCOs, end-users, manufacturers, utilities, installers/integrators) have played significant roles in initiating applications to the program in the second Program Year?

39. Again focusing upon primarily on changes from last year, do you follow up periodically with the applicants to check the status of the project? If so, how often is this done?

    37(a) What action do you take if you haven't heard at all from an applicant by the 90-day *Proof of Project Advancement* deadline?

    37(b) What action do you take if you haven't heard back from an approved PPA applicant by the 1-year Project Completion deadline?

40. What are the major causes of applicant withdrawals from the program?

41. Is the reason for each applicant withdrawal documented? How?

42. What are the major causes of applicant rejections?

43. Is the reason for each applicant rejection documented? How?

44. What are the major causes of applicant suspensions?

45. Is the reason for each applicant suspension documented? How?

46. How useful do you think the Statewide Program Compliance database system is for identifying other programs that potentially overlap or dovetail with the Self Generation program?

47. *[SCE and SoCalGas only]* How do you ensure that a customer does not reserve incentive funds from both SCE and SoCalGas and/or LADWP (Level 1 PV) for the same project?

48. Based on your experience with Program Participants in 2002, how difficult was it for customers to meet the following milestone for each technology? Please rank the difficulty of the following project milestones on a scale of 1 to 5, [with 1 being "*not difficult at all*" and 5 being "*very difficult*."] *[HAND OVER TO THEM TO FILL OUT THIS TABLE]*

Project Development Milestone	**PV**	**Wind**	**Fuel Cell**	**Small Gas Turbine**	**Micro-turbine**	**IC Engine**
Selecting a manufacturer						
Selecting an installer/integrator/contractor						
Interconnection with utility						
Meeting Insurance requirements						
Meeting Waste Heat design requirements	n/a	n/a				
Providing detailed cost estimates						
Obtaining air emissions permits						
Obtaining a warranty for the system						
Project construction						
Utility pre-parallel inspection						
System Operational Performance Tests						

49. *[PROBE FOR REASONS FOR EACH "5" GIVEN IN THE CHART] [ARE THESE PROBLEMS MORE PRONOUNCED FOR CERTAIN TYPES OF BUSINESSES, BUILDING TYPES, ETC.]*

Barriers to Program Participation

The purpose of this section is to identify barriers to program participation.

50. Please identify whether there are any market barriers that are not currently being effectively addressed by the Program for the eligible technologies: (such market barriers may include: uncertainty of DWR bypass charges or changes in net metering laws, unavailability of products, installers, or maintenance; lack of product information; obtaining permits; utility interconnection requirements; and waste heat utilization compliance) *[PROBE FOR EXPLANATION OF MARKET BARRIERS AND A PROGRAM SOLUTION TO EFFECTIVELY ADDRESS THEM]*

PV:
Wind:[Note – there were currently no applications in the Program to date]
Fuel Cells:
Small gas turbines: [Note – there were currently no applications in the Program to date]
Microturbines:
Internal Combustion engines:

51. Are you aware of any key regulatory barriers that are not addressed by the Program for the eligible technologies?

Project Verification and Metering

The purpose of this section is to understand the self-generation project on-site verification process. The main topics include: how the data is recorded and transmitted; who conducts the verification for your projects; any noted resistance from applicants; and the details of the interval metering procedure.

52. Please give a brief description of the site-verification process. (*Ask for a write up of the verification plan if it exists. Also probe for differences across technologies*)

53. Approximately how many systems in your Program/Service Area were verified on-site during 2002?

    # of Systems Verified during 2002:______________

54. Approximately how many additional systems in your Program/Service Area have been verified to-date during 2003?

    # of Systems Verified during 2003:______________

55. Who conducts the on-site system verification (request: name/title/firm/department)?

56. How does the on-site inspector record the results of the system verification?

57. Do you know if on-site inspectors have encountered any resistance from the applicants?

    ☐ Yes What has been the source of concern? ________________________

    ____

    ☐ No

58. How is the on-site inspection data delivered to you? In what format (i.e., hardcopy, electronic, or other)?

59. Who else receives a copy of the data? (i.e., the applicant, other parties)

60. What procedures do you follow after the inspection, but before you issue an incentive check?

61. Have you made changes in 2002 to your on-site inspection process or have you always done it this way?

Now we will ask some questions related to monitoring and data collection of your operational projects.

62. Who is conducting the design specifications, installation and data retrieval for the Net Generator Output (NGO) interval metering of completed projects?

63. Does the design of metering and data collection tracking spreadsheet meet your needs in terms of managing this aspect of the Program?

64. How could the electric NGO interval metering and data management process be improved?

65. Who is responsible for reviewing and storing the electric interval metering data?

66. Have you made changes to the electric interval metering process in 2002 or have you always done it this way?

Marketing and Consumer Education

The purpose of this section is to find out how the program is being marketed to business consumers, such as media used for marketing; target groups; and total expenditures on marketing. Also, we ask for their opinions about the success/failure of marketing efforts.

First, can you provide us with a brief overview of your marketing approach, accomplishments during 2002, and plans for 2003. Also, please discuss these issues relative to what was undertaken during 2001. That is, lessons learned in 2001 that were the reasons for changes in the 2002 and or 2003 marketing strategy.

Next we would like to focus in on some specific questions (Ask the following questions as appropriate give the extent of the discussion in response to the preceding marketing overview question.

67. Please describe, in general terms, your marketing and Consumer Education efforts implemented during 2002. As appropriate, indicate the media used (i.e., TV, radio, direct mail, ads, inserts in utility bills, internet, etc.) *[DIFFERENTIATE BETWEEN MARKETING AND CONSUMER EDUCATION]*

68. How are these different from your marketing and education efforts in 2001?

69. Are these changes due to planned activities or were certain activities discontinued due to being ineffective? Please explain

70. If you haven't already sent samples of your marketing materials, can you provide us with these materials today? This may include brochures, videos, scripts for radio

ads, or anything else you have used to market the program. If not available now, please mail to:

Brenda Gettig
RER / Itron
11236 El Camino Real
San Diego, CA 92130
brenda@rer.com
858-481-0081

71. Do these marketing efforts target any particular stakeholder group(s) (e.g., ESCOs, Renewable energy system retailers, institutional customers, industrial end-users, etc.)?

72. Are any of your marketing efforts differentiated by renewable vs. nonrenewable technologies? Please explain. (i.e., do some marketing materials promote only renewables while others promote nonrenewables? Are pieces segmented according to technology?)

73. What marketing activities have you implemented that have seemed particularly successful? Why? (i.e., response, brand recognition, etc.)

74. What marketing activities, if any, have seemed particularly ineffective (i.e., have not achieved marketing goals)? Why?

75. *[SCE and SoCalGas only]* How are marketing efforts coordinated between SCE and SoCalGas, given that they service much of the same area?

76. Other than through the Program's efforts, how are your customers being educated about distributed generation opportunities in their facilities?

77. What other organizations, if any, are *effectively* providing the public with information about distributed generation?

78. What methods do those organizations use to get this information out (i.e., TV, radio, direct mail, public service announcements, internet, press releases, etc.)?

79. What makes these methods effective? (i.e., the message, the delivery, trustworthiness/reliability of the source, etc.)

Closing Questions

These are very broad questions about the program, intended to provide closure to the interview. *[RE-ITERATE: When you ask their opinion, their opinion should be based on their experience as the program administrator.]*

80. What have been the greatest accomplishments of the program during 2002?

81. How would you change your own role in the administration of the program, based on your experience?

82. Generally speaking, what would you change about the program? Feel free to comment on *any* aspect of the program.

83. What are the primary concerns you have for the next year of the program?

84. Has the CPUC (or any other appropriate parties) provided adequate feedback for your questions and concerns?

EARLY STAGE PARTICIPANT INTERVIEW GUIDE– (Pre-90 Day Applicants)
CALIFORNIA SELF-GENERATION INCENTIVE PROGRAM EVALUATION
[NOTE: This survey applies only to applicants who have NOT yet met the 90-day Proof of Project Advancement deadline]

Interview Date ______________________________

Introduction

Hello, my name is ______________ and I work for Regional Economic Research of San Diego, California. We are conducting an evaluation of the State of California's Self-Generation Incentive Program, to which your organization has applied for funding. May I speak with ______________*contact name*** __________ ?**

[Once contact is on the phone]
Hello, my name is ______________ and I work for Regional Economic Research of San Diego, California. We are conducting an evaluation of the State of California's Self-Generation Incentive Program, to which your organization has applied for funding.
Are you the person most familiar with your organization's participation in the Program?

YES_____
NO _____ --*[record the person's name and title, and ask to speak to them]*
Name_____________________Title_________________________________I'd like to obtain your views on the Program based on your experience to date. This survey is for research purposes only, and will not affect your application status in the program or the incentive you will receive.
[IF RESPONDENT QUESTIONS THE LEGITIMACY OF THE SURVEY, YOU MAY GIVE THEM PIERRE LANDRY'S CONTACT INFORMATION]

Pierre Landry
Southern California Edison
626-302-8288
Pierre.Landry@sce.com

First, I'd like to confirm some basic information regarding your application. *[Correct this information if necessary]*

Contact's Name____
Contact's Title ____
Firm/Organization Name____
Technology Employed____
Technology Incentive Level ____
Applicant (if different from customer/ system owner)________________________________
Serving Utilities: Electric __________________ Natural Gas _______________________

Administrator-Application submitted to (for those in SCE/SoCalGas territory): _______________________

Confirm the farthest stage reached in application process:

- ☐ Submitted a Reservation Request (but haven't received confirmation of reservation)
- ☐ Received Conditional Reservation Notice Letter from Administrator
- ☐ Submitted Proof of Project Advancement (but has not yet been approved by Administrator)
- ☐ Submitted Proof of Project Advancement (has been approved)
- ☐ Submitted claim for incentive payment; awaiting on-site verification
- ☐ On-site verification has been conducted
- ☐ Incentive has been paid
- ☐ Don't know

Our records show that your application to the Self-Generation Incentive Program is still active. Is this correct?

- ☐ Yes
- ☐ No *[ask why; if they have been rejected, suspended, or withdrawn, then switch to the Withdrawals/Rejections/Suspensions survey instrument]*

General Program Questions

I'd like to ask you a few general questions about the program and your reasons for applying.

1. How did you first find out about the Self-Generation Incentives program? [*MARK ALL THAT APPLY; READ FROM LIST IF NECESSARY]*

- ☐ Other Users of self-generation systems Identify: _____________________
- ☐ Equipment/system Dealer/vendor Identify: _____________________
- ☐ Print advertisements Identify: _____________________
- ☐ Magazine or Newspaper article Identify: _____________________
- ☐ Radio Advertisement. Identify: ___________________________
- ☐ Other media (e.g., TV, news press releases) Identify: _________________
- ☐ Professional publications Identify: _____________________
- ☐ Insert or flyer in your electric bill
- ☐ Government agency (CPUC, CEC or DOE) Identify: _____________________
- ☐ Internet Search/Web Site Identify: _____________________
- ☐ E-mail notice or advertisement Identify: _____________________
- ☐ Utility Representative Identify: _____________________
- ☐ Other_________________

2. Now keeping that in mind, did you first hear about the Self-generation Incentive Program BEFORE you began to think about (*name technology applied for*) or was it AFTER you began to think about it?

____ Before (***Go to Q. 6***)
____ After (*continue with next question*)
____ Don't Know (***Go to Q.6***)

3. Was it BEFORE or AFTER you began to actually look at or collect information about the (*technology applied for*)?

____ Before (***Go to Q. 6***)
____ After (*continue with next question*)
____ Don't Know (***Go to Q. 6***)

4. Did you hear about the program BEFORE or AFTER you selected or decided on the exact specifications for (*technology applied for*)?

____ Before (***Go to Q. 6***)
____ After (*continue with next question*)
____ Don't Know (***Go to Q. 6***)

5. Finally, did you hear about the program BEFORE or AFTER you installed (*technology applied for*)?

____ Before
____ After
____ Don't Know

6. There is more than one way that the incentive might have influenced your decision to install (*technology applied for*). It might have influenced *what* you installed (**the type of equipment or its efficiency**) or the influence might have been just on *when* you installed it. Now, when answering the next few questions, please consider only the rebate's possible influence on *what* you installed, *not* the rebate's possible influence on *when* you installed it. After that, we will ask you about possible influence on the timing of the project.

How much influence did the self-generation incentive have on your decision to install (*technology applied for*)? Please use a scale from 0 to 10, with 0 being no influence at all and 10 being a lot of influence.

7. If the self-generation incentive had not been available, how likely is it you would have decided to install exactly the same (*technology applied for*) anyway? Please use a scale from 0 to 10, with 0 being not at all likely and 10 being very likely.

Special Instruction for Contradictory Responses: *If [Q. 6 is 0,1,2 and Q7 is 0,1,2] or [Q. 6 is 8,9,10 and Q. 7 is 8,9,10]. Probe for the reason. However, it is important not to communicate a challenging attitude when posing the question. For example, say,*
When you answered "8" for the question about the influence of the rebate, I would interpret that to mean that the rebate was quite important to your decision to install; then, when you answered "8" for how likely you would be to install the same equipment without the rebate, it sounds like

the rebate was not very important in your installation decision. I want to check to see if I am misunderstanding your answers or if the questions may have been unclear.
If they volunteer a helpful answer at this point, respond by changing the appropriate answer. If not, follow up with something like: Will you explain in your own words, the role the rebate played in your decision to install this efficient equipment? If possible, translate the answer into a question 6 or 7 response that makes them consistent with each other, and check the response with the respondent for accuracy. If the answer doesn't allow you to decide what answer should be changed, write the answer down and continue the interview.
Answer: ____

8. Now I would like to ask you about what [*technology applied for*] projects you might have been planning to do before you applied for the rebate. Before you talked to someone about the Self-Generation incentive Program, were you planning to do a [*technology applied for*] project?

9. Here are three statements that may be more or less true for your company about this project. Please assign a number between 0 and 10 to register how true it is. Please use a 10 to indicate that it is completely true, and a 0 to indicate that it is completely untrue. When thinking about these three statements, please consider only *what* you installed, *not when* you installed it.

a) The rebate is nice but it did not affect our decision to go ahead with this project.

_____ Response (0-10)

b) The rebate was a critical factor in deciding to do the version of the project that we chose. Response (0-10)

c) We would not be doing the project exactly as we are without the rebate. Response (0-10)

10. To what extent has the Program increased your awareness of available distributed generation technology?

____ Not at all
____ Somewhat
____ Significantly

11. Who was most influential in getting your company to apply to the program? *[READ FROM LIST IF NECESSARY]*

- ☐ Interviewee
- ☐ Other employee of your company
- ☐ A current user of similar technology
- ☐ ESCO/Retailer/installer/integrator of the self-generating equipment
  Identify: ______________________
- ☐ Utility Representative Identify: ______________________
- ☐ Manufacturer of the generating equipment Identify: ______________________
- ☐ Other ___________________

12. Will the system include hardware (e.g. transfer switches, anti-islanding devices, batteries, UPS) necessary to support continued operation if the power from the grid is interrupted?

- ☐ Yes
- ☐ No

13. [IF "YES"] When power from the grid is interrupted, will your generating system supply power to your entire facility, or only to a limited number of critical loads?

- ☐ Entire facility
- ☐ Critical loads only
  Identify:
  ____

13. On a scale of 1 to 5, with 1 being "not influential at all" and 5 being "very influential," please indicate how much each of the following factors influenced your decision to purchase and use the technology you chose. *[CIRCLE A NUMBER FOR EACH FACTOR]*

Factor	Ranking				
Wanted to reduce utility bills	1	2	3	4	5
Wanted a backup system to improve the overall reliability of my electricity supply	1	2	3	4	5
Concern for the environment	1	2	3	4	5
Energy supply independence	1	2	3	4	5
Improve my business image—green marketing	1	2	3	4	5
Provide Technical Demonstration	1	2	3	4	5
Other:____________________ ___________________________	1	2	3	4	5

14. [If Level 2 or 3] What thermal loads do you plan to have the generation system supply (i.e. how do you plan to use the waste heat)?

- ☐ Hot water
- ☐ Industrial processes (steam)
- ☐ Space Heating and cooling loads
- ☐ Other thermal loads (specify) _______________

15. *[DO NOT ASK FOR PV OR WIND SYSTEMS]* Do you plan to run the generation system at all times, during utility off-peak times only, during utility on-peak times only, or during utility on-peak and mid-peak periods only? *[NOTE: BE PREPARED TO DEFINE UTILITY ON-PEAK, MID-PEAK, AND OFF-PEAK TIMES: HAVE SAMPLE RATE SCHEDULES AVAILABLE]*

- ☐ All times
- ☐ Utility off-peak times only
- ☐ Utility on-peak times only
- ☐ Utility on-peak and mid-peak periods only
- ☐ Don’t know

16. *[ASK ONLY PV AND WIND SYSTEMS]* Are you aware of the **Net Metering Requirements** that are now provided by electric utilities in California? [NOTE: this is the recently approved requirement which allows you to receive credit for your excess generated electricity which flows back into the grid.]

- ☐ Yes
- ☐ No

17. Please rate the likelihood that your project will be completed, with 1 being "very unlikely to be completed" and 5 being "very likely to be completed."

very unlikely   very likely
1   2   3   4   5

☐ (check here if the system is already complete)

18. [IF LESS THAN A "5" RANKING ON PREVIOUS QUESTION] What is the **primary reason** for the lack of certainty about your project's completion? *[PROBE ONLY IF NEEDED*]

- ☐ System cost too high, even with incentive
- ☐ Permitting issues
  Please explain which permits, and the problems you had with each one.
  ____
  ____
- ☐ Problems in obtaining or installing equipment
  Please explain
  ____
  ____
- ☐ Problems in obtaining Project financing
  Please explain
  ____
  ____
- ☐ Problems with application process
  What part(s) of the application process?
  ____
  ____
- ☐ My system may not qualify for the program.   Why not?______________________
- ☐ My system is only for emergency backup generation
- ☐ The internal priorities of my company/organization have changed
- ☐ Owning, operating, and/or maintaining the DG system may be a hassle
- ☐ Uncertainty of the investment
  Source of uncertainty (e.g. future fuel costs, changes in utility rate design, potential reversal of legislative/regulatory support of DG)
  ____
- ☐ Other____
  ____
- ☐ Don't know

Business Characterization

19. What type of business is this? [TRY TO FILL THIS IN AHEAD OF TIME, FROM COMPANY NAME—THEN CONFIRM WITH RESPONDENT] [READ FROM LIST IF NECESSARY]

- ☐ Office
- ☐ Restaurant
- ☐ Retail
- ☐ Grocery
- ☐ Warehouse
- ☐ School
- ☐ College
- ☐ Hospital
- ☐ Lodging
- ☐ Public assembly
- ☐ Services
- ☐ Transportation, communications, or utilities
- ☐ Pipelines
- ☐ Agriculture
- ☐ Mining
- ☐ Construction
- ☐ Manufacturing
- ☐ Other ______________________

20. [NOTE: the following questions refer to only the building(s) that will be on the same meter as the DG system--not necessarily all the company's buildings]

21. Does your business at this location occupy part of one building, one building, or more than one building? If more than one building, how many?

- ☐ Part of one building
- ☐ One building
- ☐ More than one building
  How many buildings?_____________

22. Approximately how much enclosed floor space is occupied at this location? ____sq ft.

23. Do you own or lease the building?

- ☐ Own
- ☐ Lease

24. What is the approximate age of your building? _____________years

25. How many people usually are employed at this business? _________people

26. What is your approximate average total electric monthly bill? $_______________

27. Approximately what percentage of this bill do you think will be offset by your self-generation system during a typical month? [If they give you other measures of savings, enter those instead]

________________%

[*or:* approximate average total electric monthly bill, after system is installed: $_______]
[*or:* payback period for the system: ___________________]

Process-Related Questions

Now I'd like your feedback on your experience dealing with the Program Administrator [SCE/PGE/SOCALGAS/SDREO]. We'll use this information to improve the program. I'm going to ask you a few detailed questions about the application process. But first I'd like to know how involved you are in this process personally.

28. Please tell me which of these three scenarios most closely describes your involvement in the application process:

a) I am completing and submitting all the application forms myself, and have direct contact with the program administrators
b) An energy service company, contractor, or some other party is completing and submitting the application forms, but only after thorough consultation with me.
c) An energy service company, contractor, or some other party is completing and submitting the application forms without much help from me *[If the Respondent is the Applicant, probe to find out why they didn't have the ESCO/contractor/other party serve as the Applicant for the project]*

[THESE ARE REFERRED TO AS TYPE A, TYPE B, AND TYPE C APPLICANTS IN THIS SECTION]

[If the applicant is classified as a type "C" applicant, then say, "Since you are not very involved in the application process, feel free to say, "I don't know" for any of the following questions that may not apply to you"]

29. Have you applied for this Program more than once?

- ☐ Yes
- ☐ No
- ☐ Don't know

(If Yes :) Was it for this project or for another project at the same facility or for the same company
(If yes and for the same project:) Why did you have to reapply to the Program?

a) Program PPA requirements could not be met in the required timeframe

b) Wanted to put the project out to a competitive bid – requiring a change in applicant identity or more time
c) Project planning/design criteria substantially changed project definition
d) Other ____

30. Have you reviewed the Program application materials and instructions?

- ☐ Yes
- ☐ No
- ☐ Don't know

31. [*IF YES TO PREVIOUS QUESTION]* Were these materials and instructions clear?

- ☐ Yes
- ☐ No
  Please explain what wasn't clear to you
  ____
- ☐ Don't know

32. Has the program administrator [SCE/PGE/SDREO/SOCALGAS] provided satisfactory answers to your questions about the program?

- ☐ Yes
- ☐ No
  Please explain ____
  ____
- ☐ I did not have any questions

33. Did the administrator contact you after you submitted your application, but before they approved it?

- ☐ Yes
  Please tell me what they contacted you about, and whether or not they were helpful.____
  ____
- ☐ No
- ☐ Don't know / I'm not very involved in process

34. In your case, do you think the initial 90-day deadline will provide sufficient time for providing proof of project advancement?

- ☐ Yes
- ☐ No

  Which requirement(s) of the proof of project advancement made it difficult to meet the 90-day deadline? *[SELECT ALL THAT APPLY; DO **NOT** READ OPTIONS]*

  - ☐ Submitting an air pollution permit application
  - ☐ Submitting an electrical interconnection application
  - ☐ Ordering the generating equipment
  - ☐ Obtaining proof of insurance
  - ☐ Providing waste heat recovery calculations
  - ☐ Providing project cost breakdown
  - ☐ Other _______________________
- ☐ Don't know / not applicable

35. Do you think the 1-year deadline will be sufficient for completing the installation of your system?

- ☐ Yes
- ☐ No

  Why is the deadline hard to meet? [*SELECT ALL THAT APPLY; DO **NOT** READ OPTIONS*]

  - ☐ Takes long time for manufacturer to ship equipment
    - o Type of equipment impacted by long lead times ______________________________________
  - ☐ Installation delays by the contractor
  - ☐ Air pollution permitting issues
  - ☐ Other local permit issues (Conditional Use Permit, Negative Declaration, etc.)
  - ☐ Building Permit issues
  - ☐ Meeting waste heat requirements
  - ☐ Interconnection with utility
  - ☐ Financing the purchase/installation of equipment
  - ☐ Other ______________________
- ☐ Don't know / not applicable

36. Have you received, or are you receiving financial assistance for this system from any other program or source of funding (such as a grant, tax credits, or buydowns/rebate)?

- ☐ Yes
- ☐ No
- ☐ Don't know

37. *[IF YES TO PREVIOUS QUESTION]* What kinds of funding are you receiving? *[READ OPTIONS IF NECESSARY]*

- ☐ Grant or rebate
  - Name of source/program:________________________________
  - Expected Amount of grant/rebate: $___________
- ☐ Loan
  - Name of source/program:________________________________
  - Expected Amount of loan: $___________
- ☐ Tax credit
  - Name of source/program:________________________________
  - Expected Amount of credit: $___________

38. Based on your experience with your project so far, please rank the difficulty of the following project milestones on a scale of 1 to 5, with 1 being "*not difficult at all*" and 5 being "*very difficult*."

Project Development Milestone	**Ranking (1 to 5)**	**Explanation/Comments**
Selecting a manufacturer		
Selecting an installer/integrator/contractor		
Interconnection engineering with utility		
[LEVEL 2 AND 3 ONLY] Meeting Waste Heat design requirements		
Providing detailed cost estimates		
Obtaining air emissions permits		
Obtaining a warranty for the system		
Project construction		
Utility pre-parallel inspection		
System Operational Performance Tests		

39. *[TYPE "A" APPLICANTS ONLY]* Based on your experience with your project so far, have there been any unnecessary delays caused by the program administrator [SCE/SDREO/PG&E/SoCalGas]?

- ☐ Yes
- ☐ No
- ☐ Don't know

40. *[TYPE "B" AND TYPE "C" APPLICANTS ONLY]* Based on your experience with your project so far, have there been any unnecessary delays caused by *either* the 3rd party *or* the program administrator [SCE/SDREO/PG&E/SoCalGas]?

- ☐ 3rd party applicant *only*
- ☐ Program Administrator *only*
- ☐ *Both* the 3rd party applicant *and* the Program Administrator
- ☐ Neither

41. *[IF THEY INDICATE DELAYS BY 3RD PARTY APPLICANT]* Please describe the unnecessary delays caused by the 3rd party applicant.

42. *[IF THEY INDICATE DELAYS BY PROGRAM ADMINISTRATOR]* Please describe the unnecessary delays caused by the Program Administrator.

43. Do you have any experiences with the Program or your Program Administrator that you are unhappy about? Please explain.

44. Do you have any experiences with the Program or your Program Administrator that you are particularly pleased about? Please explain.

System Installation

Now I'd like to ask you a few questions about the installation of your self-generation system. Depending on where you are in the process, some of these questions may not apply to you. If a question doesn't apply to you, please tell me.

45. Who is installing your system, or who do you think will install it? [READ CHOICES IF NECESSARY. IF THEY GIVE A COMPANY NAME, PROBE THEM TO SEE WHAT TYPE OF COMPANY IT IS; TO DIFFERENTIATE BETWEEN INDEPENDENT CONTRACTORS AND ESCOs, ASK THEM WHO WILL OWN AND OPERATE THE SYSTEM AFTER IT'S COMPLETED]

- ☐ Independent Engineering &Construction contractor
  - Name ____
  - City & State____
- ☐ Energy Service Company (ESCO)
  - Name ____
  - City & State____
- ☐ Manufacturer representative
  - Name ____
  - City & State____

- ☐ Owner of the system
- ☐ Other___________________
- ☐ Don't know

46. Was the installation process put out to bid (or do you plan on putting it out to bid)?
    - ☐ Yes
    - ☐ No
    - ☐ Don't know

47. Has construction on your project begun?
    - ☐ Yes
    - ☐ No
    - ☐ Don't know

48. Who will own the system immediately after it is completed?
    - ☐ Self/Host Customer
    - ☐ Installation Contractor / ESCO / Maintenance firm. Identify: _______________
    - ☐ Other: ________________
    - ☐ Don't know

49. Who will handle maintenance and repairs for your system, once it's completed?
    - ☐ Self/Customer
    - ☐ Installation Contractor. Identify: _______________________
    - ☐ Maintenance firm. Identify: _______________________
    - ☐ Other: ________________
    - ☐ Don't know

50. [*IF LEVEL 1 OR 3 APPLICANT USING RENEWABLE FUEL*] Is/Will your project be using a renewable fuel in its operation?

51. [*IF YES*] What is the cost of the (bio-gas) fuel clean-up equipment (including installation costs) that was included in your project installation cost estimate?

52. Please rate your overall satisfaction with the SELFGEN program on a scale of 1 to 5, with 1 being "very dissatisfied" and 5 being "very satisfied."

    1 2 3 4 5

Closing Comments

Thank you for participating in this discussion about your experiences in the Program to date. Are there any changes that you think need to be made to the Program, in addition to what we've already talked about?

ADVANCED STAGE PARTICIPANT INTERVIEW GUIDE– (Post-90 Day Applicants)
CALIFORNIA SELF-GENERATION INCENTIVE PROGRAM EVALUATION
[NOTE: This survey applies only to applicants who have already met the 90-day Proof of Project Advancement deadline]

Interview Date ______________________________

Introduction

Hello, my name is ______________ and I work for Regional Economic Research of San Diego, California. We are conducting an evaluation of the State of California's Self-Generation Incentive Program, to which your organization has applied for funding. May I speak with _______________contact name_**__________ ?**

[Once contact is on the phone]
Hello, my name is ______________ and I work for Regional Economic Research of San Diego, California. We are conducting an evaluation of the State of California's Self-Generation Incentive Program, to which your organization has applied for funding.
Are you the person most familiar with your organization's participation in the Program?

YES_____
NO _____ --*[record the person's name and title, and ask to speak to them]*
Name_____________________Title_________________________________I'd like to obtain your views on the Program based on your experience to date. This survey is for research purposes only, and will not affect your application status in the program or the incentive you will receive.
[IF RESPONDENT QUESTIONS THE LEGITIMACY OF THE SURVEY, YOU MAY GIVE THEM PIERRE LANDRY'S CONTACT INFORMATION]

Pierre Landry
Southern California Edison
626-302-8288
Pierre.Landry@sce.com

First, I'd like to confirm some basic information regarding your application. *[Correct this information if necessary]*

Contact's Name____
Contact's Title ____
Firm/Organization Name____
Technology Employed____
Technology Incentive Level ____
Applicant (if different from customer/ system owner)__________________________________
Serving Utilities: Electric ___________________ Natural Gas _______________________
Administrator-Application submitted to (for those in SCE/SoCalGas territory):________________________

Confirm the farthest stage reached in application process:

- ☐ Submitted Proof of Project Advancement (has been approved by Administrator) — *[NOTE –IF THEY HAVE NOT REACHED THIS STAGE, THEY SHOULD GET THE "EARLY STAGE" SURVEY]*
- ☐ Submitted claim for incentive payment; awaiting on-site verification
- ☐ On-site verification has been conducted
- ☐ Incentive has been paid
- ☐ Don't know

Our records show that your application to the Self-Generation Incentive Program is still active. Is this correct?

- ☐ Yes
- ☐ No *[ask why; if they have been rejected, suspended, or withdrawn, then switch to the Withdrawals/Rejections/Suspensions survey instrument]*

General Program Questions

I'd like to ask you a few general questions about the program and your reasons for applying.

1. How did you first find out about the Self-Generation Incentives program? [*MARK ALL THAT APPLY; READ FROM LIST IF NECESSARY]*

   - ☐ Other Users of self-generation systems Identify: ____________________
   - ☐ Equipment/system Dealer/vendor Identify: ________________________
   - ☐ Print advertisements Identify: ___________________________________
   - ☐ Magazine or Newspaper article Identify: ___________________________
   - ☐ Radio advertisement. Identify: ___________________________________
   - ☐ Other media (e.g., TV, radio news press releases) Identify: _____________
   - ☐ Professional publications Identify: _________________________________
   - ☐ Insert or flyer in your electric bill Identify: ___________________________
   - ☐ Government agency (CPUC, CEC or DOE) Identify: _____________________
   - ☐ Internet Search/Web Site Identify: ____________________________________
   - ☐ E-mail notice or advertisement Identify: _______________________________
   - ☐ Utility representative Identify: ____
   - ☐ Other_________________

2. Now keeping that in mind, did you first hear about the Self-generation Incentive Program BEFORE you began to think about (*name technology applied for*) or was it AFTER you began to think about it?

   ____ Before (***Go to Q. 6***)
   ____ After (*continue with next question*)
   ____ Don't Know (***Go to Q.6***)

3. Was it BEFORE or AFTER you began to actually look at or collect information about the (*technology applied for*)?

____ Before (***Go to Q. 6***)
____ After (*continue with next question*)
____ Don't Know (***Go to Q. 6***)

4. Did you hear about the program BEFORE or AFTER you selected or decided on the exact specifications for (*technology applied for*)?

____ Before (***Go to Q. 6***)
____ After (*continue with next question*)
____ Don't Know (***Go to Q. 6***)

5. Finally, did you hear about the program BEFORE or AFTER you installed (*technology applied for*)?

____ Before
____ After
____ Don't Know

6. There is more than one way that the rebate might have influenced your decision to install (*technology applied for*). It might have influenced *what* you installed (**the type of equipment or its efficiency**) or the influence might have been just on *when* you installed it. Now, when answering the next few questions, please consider only the rebate's possible influence on *what* you installed, *not* the rebate's possible influence on *when* you installed it. After that, we will ask you about possible influence on the timing of the project.

How much influence did the self-generation incentive have on your decision to install (*technology applied for*)? Please use a scale from 0 to 10, with 0 being no influence at all and 10 being a lot of influence.

7. If the self-generation incentive had not been available, how likely is it that you would have installed exactly the same (*technology applied for*) anyway? Please use a scale from 0 to 10, with 0 being not at all likely and 10 being very likely.

Special Instruction for Contradictory Responses: *If [Q. 6 is 0,1,2 and Q7 is 0,1,2] or [Q. 6 is <u>8,9,10 and Q. 7 is 8,9,10]</u>. Probe for the reason. However, it is important not to communicate a challenging attitude when posing the question. For example, say,*
When you answered "8" for the question about the influence of the rebate, I would interpret that to mean that the rebate was quite important to your decision to install; then, when you answered "8" for how likely you would be to install the same equipment without the rebate, it sounds like the rebate was not very important in your installation decision. I want to check to see if I am misunderstanding your answers or if the questions may have been unclear.

If they volunteer a helpful answer at this point, respond by changing the appropriate answer. If not, follow up with something like: Will you explain in your own words, the role the rebate played in your decision to install this efficient equipment? If possible, translate the answer into a question 6 or 7 response that makes them consistent with each other, and check the response with the respondent for accuracy. If the answer doesn't allow you to decide what answer should be changed, write the answer down and continue the interview.
Answer: ____

8. Now I would like to ask you about what [*technology applied for*] projects you might have been planning to do before you applied for the rebate. Before you talked to someone about the Self-Generation incentive Program, were you planning to do a [*technology applied for*] project?

9. Here are three statements that may be more or less true for your company about this project. Please assign a number between 0 and 10 to register how true it is. Please use a 10 to indicate that it is completely true, and a 0 to indicate that it is completely untrue. When thinking about these three statements, please consider only *what* you installed, *not when* you installed it.

The rebate is nice but it did not affect our decision to go ahead with this project.

_____ Response (0-10)

The rebate was a critical factor in doing the version of the project that we did. Response (0-10)

We would not have done the project exactly as it was finally done without the rebate. Response (0-10)

10. To what extent has the Program increased your awareness of available distributed generation technology?

____ Not at all
____ Somewhat
____ Significantly

11. Who was most influential in getting your company to apply to the program? *[READ FROM LIST IF NECESSARY]*

- ☐ Interviewee
- ☐ Other employee of your company
- ☐ A current user of similar technology
- ☐ ESCO/Retailer/installer/integrator of the self-generating equipment
  Identify:____
- ☐ Utility Representative. Identify:___________________________________
- ☐ Manufacturer of the generating equipment. Identify:___________________
- ☐ Other _________________

12. Will the system include hardware (e.g. transfer switches, anti-islanding devices, batteries, UPS) necessary to support continued operation if the power from the grid is interrupted?

- ☐ Yes
- ☐ No

13. [IF "YES"] When power from the grid is interrupted, will your generating system supply power to your entire facility, or only to a limited number of critical loads?

- ☐ Entire Facility
- ☐ Critical Loads only
  Identify: ____

14. On a scale of 1 to 5, with 1 being "not influential at all" and 5 being "very influential," please indicate how much each of the following factors influenced your decision to purchase and use the technology you chose. *[CIRCLE A NUMBER FOR EACH FACTOR]*

Factor	**Ranking**				
Wanted to reduce utility bills	1	2	3	4	5
Wanted a backup system to improve the overall reliability of my electricity supply	1	2	3	4	5
Concern for the environment	1	2	3	4	5
Energy supply independence	1	2	3	4	5
Improve my business image—green marketing	1	2	3	4	5
Provide technical demonstration	1	2	3	4	5
Other:____________________ __________________________	1	2	3	4	5

15. [If Level 2 or 3] What thermal loads do you plan to have the generation system supply? (i.e. how do you plan to use the waste heat?)

- ☐ Hot water
- ☐ Industrial processes (steam)
- ☐ Space Heating and cooling loads
- ☐ Other thermal loads (specify) ________________

16. *[DO NOT ASK FOR PV OR WIND SYSTEMS]* Do you plan to run the generation system at all times, during utility off-peak times only, during utility on-peak times only, or during utility on-peak and mid-peak periods only? *[NOTE: BE PREPARED TO DEFINE UTILITY ON-PEAK, MID-PEAK, AND OFF-PEAK TIMES: HAVE SAMPLE RATE SCHEDULES AVAILABLE]*

- ☐ All times
- ☐ Utility off-peak times only
- ☐ Utility on-peak times only
- ☐ Utility on-peak and mid-peak periods only
- ☐ Don't know

17. [*ASK THIS QUESTION FOR ONLY PV OR WIND SYSTEMS]* Are you aware of the **Net Metering Requirements** that are now provided by electric utilities in California? [NOTE: this is the recently approved requirement which allows you to receive the full retail credit for your excess generated electricity which you cannot use, and therefore flows back into the utility electric system.]

- ☐ Yes
- ☐ No

18. Please rate the likelihood that your project will be completed, with 1 being "very unlikely to be completed" and 5 being "very likely to be completed."

very unlikely very likely
1 2 3 4 5

☐ (check here if the system is already complete)

19. [IF LESS THAN A "5" RANKING ON PREVIOUS QUESTION] What is the primary reason for the lack of certainty about your project's completion?

- ☐ System cost too high, even with incentive
- ☐ Permitting issues
  Please explain which permits, and the problems you had with each one.
  ____
  ____
- ☐ Problems in obtaining or installing equipment
  Please explain ____
  ____
- ☐ Problems in obtaining Project financing
  Please explain ____
  ____
- ☐ Problems with application process
  What part(s) of the application process? ______________________________
  ____
- ☐ My system may not qualify for the program. Why not?____________________
- ☐ My system is only for emergency backup generation
- ☐ The internal priorities of my company/organization have changed
- ☐ Owning, operating, and/or maintaining the DG system may be a hassle
- ☐ Uncertainty of the investment
  Source of uncertainty (e.g. future fuel costs, changes in utility rate design, potential reversal of legislative/regulatory support of DG)
  ____
- ☐ Other____
  ____
- ☐ Don't know

Business Characterization

20. What type of business is this? *[TRY TO FILL THIS IN AHEAD OF TIME, FROM COMPANY NAME—THEN CONFIRM WITH RESPONDENT] [READ FROM LIST IF NECESSARY]*

- ☐ Office
- ☐ Restaurant
- ☐ Retail
- ☐ Grocery
- ☐ Warehouse
- ☐ School
- ☐ College
- ☐ Hospital
- ☐ Lodging
- ☐ Public assembly
- ☐ Services
- ☐ Transportation, communications, or utilities
- ☐ Pipelines
- ☐ Agriculture
- ☐ Mining
- ☐ Construction
- ☐ Manufacturing
- ☐ Other ______________________

[NOTE: The following questions only refer to the building(s) that will be on the same meter as the DG system – not necessarily all the company's buildings]

21. Does your business at this location occupy part of one building, one building, or more than one building? If more than one building, how many?

- ☐ Part of one building
- ☐ One building
- ☐ More than one building
  How many buildings?_____________

22. Approximately how much enclosed floor space is occupied at this location? ____sq ft.

23. Do you own or lease the building?

- ☐ Own
- ☐ Lease

24. What is the approximate age of your building? ____________years
25. How many people usually are employed at this business? _________people
26. What is your approximate average total electric monthly bill? $_______________
27. Approximately what percentage of this bill do you think will be offset by your self-generation system during a typical month? [If they give you other measures of savings, enter those instead] _______________%

[or: approximate average total electric monthly bill, after system is installed: $_____________]
[or: payback period for the system: _____________________]

Process-Related Questions

Now I'd like your feedback on your experience dealing with the Program Administrator [SCE/PGE/SOCALGAS/SDREO]. We'll use this information to improve the program. I'm going to ask you a few detailed questions about the application process. But first I'd like to know how involved you are in this process personally.

28. Please tell me which of these three scenarios most closely describes your involvement in the application process:
    a) I am completing and submitting all the application forms myself, and have direct contact with the program administrators
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[THESE ARE REFERRED TO AS TYPE A, TYPE B, AND TYPE C APPLICANTS IN THIS SECTION]

[If the applicant is classified as a type "C" applicant, then say, "Since you are not very involved in the application process, feel free to say, "I don't know" for any of the following questions that may not apply to you"]

29. Have you applied for this Program more than once?

- ☐ Yes
- ☐ No
- ☐ Don't know

(If Yes :) Was it for this project or for another project at the same facility or for the same company
(If yes and for the same project:) Why did you have to reapply to the Program?

a) Program PPA requirements could not be met in the required timeframe
b) Wanted to put the project out to a competitive bid – requiring a change in applicant identity or more time
c) Project planning/design criteria substantially changed project definition
d) Other ____

30. Have you reviewed the Program application materials and instructions?

- ☐ Yes
- ☐ No
- ☐ Don't know

31. [*IF YES TO PREVIOUS QUESTION]* Were these materials and instructions clear?

- ☐ Yes
- ☐ No

  Please explain what wasn't clear to you

  ____
- ☐ Don't know

32. Have you looked at the Program Handbook?

33. [*IF YES TO PREVIOUS QUESTION]* Was it helpful?

- ☐ Yes
- ☐ No

  Please explain what wasn't clear to you

  ____
- ☐ Don't know

34. Has the program administrator [SCE/PGE/SDREO/SOCALGAS] provided satisfactory answers to your questions about the program?

- ☐ Yes
- ☐ No

  Please explain ____

  ____
- ☐ I did not have any questions

35. Did the administrator contact you after you submitted your application, but before they approved it?

- ☐ Yes
  Please tell me what they contacted you about, and whether or not they were helpful.____
  ____
- ☐ No
- ☐ Don't know / I'm not very involved in process

36. In your case, do you think the initial 90-day deadline provided sufficient time for providing proof of project advancement?

- ☐ Yes
- ☐ No
  Which requirement(s) of the proof of project advancement made it difficult to meet the 90-day deadline? *[SELECT ALL THAT APPLY; DO **NOT** READ OPTIONS]*
  - ☐ Submitting an air pollution permit application
  - ☐ Submitting an electrical interconnection application
  - ☐ Ordering the generating equipment
  - ☐ Obtaining proof of insurance
  - ☐ Providing waste heat recovery calculations
  - ☐ Providing project cost breakdown
  - ☐ Other ________________________
- ☐ Don't know / not applicable

37. Do you think the 1-year deadline is sufficient for completing the installation of your system?

- ☐ Yes
- ☐ No
  - Why is the deadline hard to meet? [*SELECT ALL THAT APPLY; DO **NOT** READ OPTIONS*]
    - ☐ Takes long time for manufacturer to ship equipment
      - o Type of equipment impacted by long lead times ______________________________
    - ☐ Installation delays by the contractor
    - ☐ Air pollution permitting issues
    - ☐ Other local permit issues (Conditional Use Permit, Negative Declaration, etc.)
    - ☐ Building Permit issues
    - ☐ Meeting waste heat requirements
    - ☐ Interconnection with utility
    - ☐ Financing the purchase/installation of equipment
    - ☐ Other ______________________
- ☐ Don't know / not applicable

38. Have you received, or are you receiving financial assistance for this system from any other program or source of funding (such as a grant, tax credits, or buydowns/rebate)?

- ☐ Yes
- ☐ No
- ☐ Don't know

39. *[IF YES TO PREVIOUS QUESTION]* What kinds of funding are you receiving? *[READ OPTIONS IF NECESSARY]*

- ☐ Grant or rebate
  - Name of source/program:________________________________
  - Expected Amount of grant/rebate: $___________
- ☐ Loan
  - Name of source/program:________________________________
  - Expected Amount of loan: $___________
- ☐ Tax credit
  - Name of source/program:________________________________
  - Expected Amount of credit: $___________

40. Based on your experience with your project so far, please rank the difficulty of the following project milestones on a scale of 1 to 5, with 1 being "*not difficult at all*" and 5 being "*very difficult*." *[ASK FOR EXPLANATION FOR EACH "4" OR "5" RANKING]*

Project Development Milestone	**Ranking (1 to 5)**	**Explanation / comments**
Selecting a manufacturer		
Selecting an installer/integrator/contractor		
Interconnection engineering with utility		
[LEVEL 2 AND 3 ONLY] Meeting Waste Heat design requirements		
Providing detailed cost estimates		
Obtaining air emissions permits		
Obtaining a warranty for the system		
Project construction		
Utility pre-parallel inspection		
System Operational Performance Tests		

41. *[TYPE "A" APPLICANTS ONLY]* Based on your experience with your project so far, have there been any unnecessary delays caused by the program administrator [SCE/SDREO/PG&E/SoCalGas]?

- ☐ Yes
- ☐ No
- ☐ Don't know

42. *[TYPE "B" AND TYPE "C" APPLICANTS ONLY]* Based on your experience with your project so far, have there been any unnecessary delays caused by *either* the 3rd Party *or* the Program Administrator [SCE/SDREO/PG&E/SoCalGas]?

- ☐ 3rd Party applicant *only*
- ☐ Program Administrator *only*
- ☐ *Both* the 3rd party applicant *and* the Program Administrator
- ☐ Neither

43. *[IF THEY INDICATE DELAYS BY 3RD PARTY APPLICANT]* Please describe the unnecessary delays caused by the 3rd Party applicant.

44. *[IF THEY INDICATE DELAYS BY PROGRAM ADMINISTRATOR]* Please describe the unnecessary delays caused by the Program Administrator.

45. Do you have any experiences with the Program or your Program Administrator that you are unhappy about? Please explain.

46. Do you have any experiences with the Program or your Program Administrator that you are particularly pleased about? Please explain.

System Installation

Now I'd like to ask you a few questions about the installation of your self-generation system. Depending on where you are in the process, some of these questions may not apply to you. If a question doesn't apply to you, please tell me.

47. Who is installing your system, or who do you think will install it? [READ CHOICES IF NECESSARY. IF THEY GIVE A COMPANY NAME, PROBE THEM TO SEE WHAT TYPE OF COMPANY IT IS—TO DIFFERENTIATE BETWEEN INDEPENDENT CONTRACTORS AND ESCOs, ASK THEM WHO WILL OWN AND OPERATE THE SYSTEM AFTER IT'S COMPLETED]

- ☐ Independent Engineering &Construction contractor
  Name ____
  City & State_______________________________________
- ☐ Energy Service Company (ESCO)
  Name ____
  City & State_______________________________________
- ☐ Manufacturer representative
  Name ____
  City & State_______________________________________
- ☐ Owner of the system
- ☐ Other____________________
- ☐ Don't know

48. Was the installation process put out to bid (or do you plan on putting it out to bid)?

- ☐ Yes
- ☐ No
- ☐ Don't know

49. Has construction on your project begun?

- ☐ Yes
- ☐ No
- ☐ Don't know

50. Who will own the system immediately after it is completed?

- ☐ Self/Host Customer
- ☐ Installation Contractor / ESCO / Maintenance firm. Identify ____________
- ☐ Other: ___________________
- ☐ Don't know

51. Who will handle maintenance and repairs for your system, once it's completed (or who DOES handle it, for completed projects)?

- ☐ Self/Customer
- ☐ Installation Contractor. Identify: ___________________________
- ☐ Maintenance firm. Identify: ___________________________
- ☐ Other: ________________
- ☐ Don't know

52. On what date will or did the system start generating electricity into the grid?

____

53. [*IF LEVEL 1 OR 3 APPLICANT USING RENEWABLE FUEL*] Is/Will your project be using a renewable fuel in its operation?

54. [*IF YES*] What is the cost of the (bio-gas) fuel clean-up equipment (including installation costs) that was included in your project installation cost estimate?

55. Please rate your overall satisfaction with the SELFGEN program on a scale of 1 to 5, with 1 being "very dissatisfied" and 5 being "very satisfied."

1 2 3 4 5

THE QUESTIONS FROM THIS POINT FORWARD APPLY TO ONLY COMPLETED AND PAID PROJECTS

56. How much time did it take for the manufacturer to ship the generating equipment to your site after it was ordered?

- ☐ __________________ months; or
- ☐ __________________ weeks

57. Once the equipment arrived from the manufacturer, how long did the installation take?

- ☐ __________________ months; or
- ☐ __________________ weeks

58. Did the inspection of your system go smoothly?

- ☐ Yes
- ☐ No
  Please explain ____
  ____

59. Does your project have a "Net Generator Output" electric meter installed as a part of the generator or its control system?

60. Was this electric meter installed by your contractor/equipment vendor or by the local utility?

- ☐ Project contractor or Equipment vendor
- ☐ Local utility

61. On average, how much electricity (kWh) is your system producing on a monthly basis to date? _______kWh/mo; or estimated Average Capacity Factor____________%

62. What is your expected annual electricity (kWh) production from your system?

_____________kWh/year

63. Is this initial energy production level considered by you to be 1) below, 2) at, or 3) above your expectations?

- ☐ Below expectations
- ☐ At expectations
- ☐ Above expectations
- ☐ Don't know

64. Has your monthly kW peak demand (i.e. the measured kW demand component of your bill) decreased since the system was installed?

- ☐ Yes
  - If yes, by how much? ______________kW

- Is this decrease due mainly to your new generation system, an overall decrease in your energy consumption, or both?
  - Generation System
  - Overall Decrease in energy consumption
  - Both
  - Don't know

☐ No

65. Did you finance any of the system installation purchase cost?

☐ Yes Type of financial institution (bank, venture capital, self, etc.) ____________
% of total financed ______________%
Term : _________________ years
Interest rate: ________________%

☐ No

66. Did you obtain an estimate of typical annual energy (kWh) production for your system prior to its installation?

☐ Yes
If Yes, Where did you obtain this information?
☐ Retailer/ system integrator
☐ Installation contractor (if different than above)
☐ [SDREO, SOCAL, PGE, SCE] web page
☐ CEC web page (*Clean Power Estimator*)
☐ Other ______________
What was the annual estimate? ___________kWh/yr

☐ No

67. All of these systems are required to have meters, power inverters or other instrumentation that monitors the total energy (kWh) output on a cumulative (total time since initial operation) basis. Do you know what your system's total energy (kWh) output has been since it was first installed at your site?

☐ ____________kWh since installed
☐ ____________Average kWh per month
☐ Don't know
☐ This information is not important to me

Closing Comments

Thank you for participating in this discussion about your experiences in the Program to date. Are there any changes that you think need to be made to the Program, in addition to what we've already talked about?

INTERVIEW GUIDE FOR WITHDRAWALS, SUSPENSIONS, AND REJECTIONS
CALIFORNIA SELF-GENERATION INCENTIVE PROGRAM EVALUATION

Interview Date ______________________________

Introduction

Hello, my name is ______________ and I work for Regional Economic Research of San Diego, California. We are conducting an evaluation of the State of California's Self-Generation Incentive Program, to which your organization has applied for funding. May I speak with ______________*contact name*** __________ ?**

[Once contact is on the phone]
Hello, my name is ______________ and I work for Regional Economic Research of San Diego, California. We are conducting an evaluation of the State of California's Self-Generation Incentive Program, to which your organization has applied for funding.
I'm aware that your application was [WITHDRAWN, REJECTED, OR SUSPENDED]. Are you the person most familiar with your organization's participation in the Program?

YES_____
NO _____ --*[record the person's name and title, and ask to speak to them]*
Name_____________________Title_________________________________I'd like to obtain your views on the Program based on your experience to date. This survey is for research purposes only, and will not affect your application status in the program or the incentive you will receive.
[IF RESPONDENT QUESTIONS THE LEGITIMACY OF THE SURVEY, YOU MAY GIVE THEM PIERRE LANDRY'S CONTACT INFORMATION]

Pierre Landry
Southern California Edison
626-302-8288
Pierre.Landry@sce.com

First, I'd like to confirm some basic information regarding your application. *[Correct this information if necessary]*

Contact's Name____
Contact's Title ____
Firm/Organization Name____
Technology Employed____
Technology Incentive Level ____
Applicant (if different from customer/ system owner)________________________________
Serving Utilities: Electric ___________________ Natural Gas _______________________
Administrator-Application submitted to (for those in SCE/SoCalGas territory)
____

Confirm the status of this application *[CHECK ONE; IF NONE OF THE THREE APPLY, PROBE ABOUT THEIR CURRENT STAGE IN THE APPLICATION PROCESS (SEE NEXT QUESTION) AND GIVE THEM THE EARLY STAGES OR LATE STAGES SURVEY, DEPENDING ON THEIR STAGE]*:

- ☐ Withdrawn
- ☐ Rejected
- ☐ Suspended

Confirm the farthest stage reached in application process prior to the [WITHDRAWAL, REJECTION, OR SUSPENSION]:

- ☐ Submitted a Reservation Request (but haven't received confirmation of reservation)
- ☐ Received Reservation Confirmation Notice from Administrator
- ☐ Submitted Proof of Project Advancement (but has not yet been approved by Administrator)
- ☐ Submitted Proof of Project Advancement (has been approved)
- ☐ Submitted claim for incentive payment; awaiting on-site verification
- ☐ On-site verification has been conducted
- ☐ Don't know

1. *[WITHDRAWALS ONLY]* Our records show that you withdrew from the program. Why did you withdraw?

- ☐ System cost too high, even with incentive
- ☐ Permitting issues
  Please explain which permits, and the problems you had with each one.
  ____
  ____
- ☐ Problems in obtaining or installing equipment
  Please explain ____
  ____
- ☐ Problems in obtaining Project financing
  Please explain ____
  ____
- ☐ Problems with application process
  What part(s) of the application process? ______________________________
  ____
- ☐ My system did not qualify for the program. Why not?______________________
- ☐ My system was only for emergency backup generation
- ☐ The internal priorities of my company/organization have changed
- ☐ To avoid the hassle of owning, operating, and/or maintaining the DG system
- ☐ Uncertainty of the investment
  Source of uncertainty (e.g. future fuel costs, changes in utility rate design, potential reversal of legislative/regulatory support of DG)
  ____
- ☐ Other____
  ____

- ☐ Don't know

2. *[REJECTIONS ONLY]* Our records show that your Program application was rejected. What reason did the program administrator give you for this rejection?

- ☐ System size was too large for the Program (> 1MW)
- ☐ System size was too small [Level 1 technologies only: < 30 kW]
- ☐ Couldn't obtain the necessary permits (either at all, or within the required time constraints)
  Which permits? And why couldn't you receive them?
  ____
  ____
- ☐ Couldn't meet waste heat recovery standards [Incentive levels 2 & 3 only]
- ☐ System was to be used solely for backup generation
- ☐ Missed deadline for submittal of all required application materials
  Which deadline did you miss?
  ____
  ____
- ☐ Missed deadline for completion of project installation. Why?
  ____
- ☐ Other____
  ____
- ☐ Don't know

3. *[SUSPENSIONS ONLY]* Our records show that your application has been suspended. What is the reason for the suspension?

- ☐ System size may be too large for the Program (> 1MW)
- ☐ System size may be too small [Level 1 only: < 30 kW]
- ☐ Having trouble obtaining the necessary permits (either at all, or within the required time constraints)
  Which permits? And what problems are you having?
  ____
  ____
- ☐ Having trouble meeting waste heat recovery standards [Incentive levels 2 & 3 only]
- ☐ Doubts about whether system will be used for more than just backup generation
- ☐ Missed a deadline
  Which deadline did you miss?
  ____
  ____
- ☐ Other____
  ____
- ☐ Don't know

4. *[REJECTIONS AND WITHDRAWALS ONLY]* I'd like to know your opinion about the fit between the project you proposed and the Self-Generation program. One of the main program goals is for the distributed generation systems to reduce the strain on the utilities' grid, to prevent electricity shortages on the grid. Do you think your project was a good match for the program's goals and should have been approved, or was the project simply not in line with the program's goals?

- ☐ Was a good fit, should have been approved

  Why was it a good fit?

  ____
  ____
  ____
  ____

  How do you think the program should be changed, so that projects like yours will be accepted?

  ____
  ____
  ____
  ____

- ☐ Not in line with program goals

  Please explain

  ____
  ____

- ☐ Don't know

5. *[SUSPENSIONS ONLY]* How could the program be changed to prevent delays such as the one you've experienced?

General Program Questions

I'd now like to ask you a few general questions about the program and your reasons for applying.

6. How did you first find out about the Self-Generation Incentives program? [*MARK ALL THAT APPLY; READ FROM LIST IF NECESSARY]*

- ☐ Other Users of self-generation systems Identify: ______________________
- ☐ Equipment/system Dealer/vendor Identify: ___________________________
- ☐ Print advertisements Identify: _______________________________________
- ☐ Magazine or Newspaper article Identify: _____________________________
- ☐ Radio advertisement. Identify: ______________________________________
- ☐ Other media (e.g., TV, news press releases) Identify: ______________
- ☐ Professional publications Identify: ___________________________________
- ☐ Insert or flyer in your electric bill Identify: ___________________________
- ☐ Government agency (CPUC, CEC or DOE) Identify: _____________________
- ☐ Internet Search/Web Site Identify: ______________________________________
- ☐ E-mail notice or advertisement Identify: __________________________________
- ☐ Utility representative: Identify: ____
- ☐ Other_________________

7. Who was most influential in getting your company to apply to the program? *[READ FROM LIST IF NECESSARY]*

- ☐ Interviewee
- ☐ Other employee of your company
- ☐ A current user of similar technology
- ☐ ESCO/Retailer/installer/integrator of the self-generating equipment
  Identify: ____
- ☐ Utility Representative. Identify:____
- ☐ Manufacturer of the generating equipment. Identify:_______________________
- ☐ Other ___________________

8. Did you consider any other technologies other than the one you applied for? *[LIST THEM IF NECESSARY]*

- ☐ Yes
  Which other technologies did you consider? *[SELECT ALL THAT APPLY]*
  - o Photovoltaic (PV)
  - o Solar-thermal
  - o Wind turbine
  - o Fuel cell, renewable fuel
  - o Fuel cell, nonrenewable fuel
  - o Micro-turbine
  - o Small gas turbine
  - o Internal combustion engine

  Why didn't you choose those technologies for your project? ________________
  ____

☐ No

9. Would the system include hardware (e.g. transfer switches, anti-islanding devices, batteries, UPS) necessary to support continued operation if the power from the grid is interrupted?

☐ Yes
☐ No

10. [IF "YES"] When power from the grid is interrupted, would your generating system supply power to your entire facility, or only to a limited number of critical loads?

☐ Entire facility
☐ Critical loads only
Identify: ____

11. On a scale of 1 to 5, with 1 being "not influential at all" and 5 being "very influential," please indicate how much each of the following factors influenced your decision to purchase and use the technology you chose. *[CIRCLE A NUMBER FOR EACH FACTOR]*

Factor	Ranking				
Wanted to reduce utility bills	1	2	3	4	5
Wanted a backup system to improve the overall reliability of my electricity supply	1	2	3	4	5
Concern for the environment	1	2	3	4	5
Energy supply independence	1	2	3	4	5
Improve my business image—green marketing	1	2	3	4	5
Provide Technical Demonstration	1	2	3	4	5
Other:____________________ ___________________________	1	2	3	4	5

12. [If Level 2 or 3] What thermal loads did you plan to have the generation system supply? (i.e. how do you plan to use the waste heat)?

☐ Hot water
☐ Industrial processes (steam)
☐ Space Heating and cooling loads
☐ Other thermal loads (specify) ________________

13. *[DO NOT ASK FOR PV OR WIND SYSTEMS]* Did you plan to run the generation system at all times, during utility off-peak times only, during utility on-peak times only, or during utility on-peak and mid-peak periods only? *[NOTE: BE PREPARED TO DEFINE UTILITY ON-PEAK, MID-PEAK, AND OFF-PEAK TIMES: HAVE SAMPLE RATE SCHEDULES AVAILABLE]*

- ☐ All times
- ☐ Utility off-peak times only
- ☐ Utility on-peak times only
- ☐ Utility on-peak and mid-peak periods only
- ☐ Don't know

14. *[ONLY FOR PV AND WIND SYSTEMS]* Are you aware of the **Net Metering Requirements** that are now provided by electric utilities in California? [NOTE: this is the recently approved requirement which allows you to receive credit for your excess generated electricity which flows back into the grid.]

- ☐ Yes
- ☐ No

Business Characterization

15. What type of business is this? *[TRY TO FILL THIS IN AHEAD OF TIME, FROM COMPANY NAME—THEN CONFIRM WITH RESPONDENT] [READ FROM LIST IF NECESSARY]*

- ☐ Office
- ☐ Restaurant
- ☐ Retail
- ☐ Grocery
- ☐ Warehouse
- ☐ School
- ☐ College
- ☐ Hospital
- ☐ Lodging
- ☐ Public assembly
- ☐ Services
- ☐ Transportation, communications, or utilities
- ☐ Pipelines
- ☐ Agriculture
- ☐ Mining
- ☐ Construction
- ☐ Manufacturing
- ☐ Other ______________________

[NOTE: The following questions refer to only the building(s) that will be on the same meter as the DG system – not necessarily all the company's buildings).

16. Does your business at this location occupy part of one building, one building, or more than one building? If more than one building, how many?

- ☐ Part of one building
- ☐ One building
- ☐ More than one building
  How many buildings?____________

17. Approximately how much enclosed floor space is occupied at this location? ____sq ft.

18. Do you own or lease the building?

- ☐ Own
- ☐ Lease

19. What is the approximate age of your building? ____________years

20. How many people usually are employed at this business? _________people

21. What is your approximate average total electric monthly bill? $________________

22. Approximately what percentage of this bill do you think would be offset by the self-generation system during a typical month? [If they give you other measures of savings, enter those instead] ________________%

[or: approximate average total electric monthly bill, after system is installed: $__________]
[or: payback period for system: ________________]

Process-Related Questions

Now I'd like your feedback on your experience dealing with the Utility Program Administrator [SCE/PGE/SOCALGAS/SDREO]. We'll use this information to improve the program.   I'm going to ask you a few detailed questions about the application process. But first I'd like to know how involved you are in this process personally.

23. Please tell me which of these three scenarios most closely describes your involvement in the application process, up until the time that your application was [WITHDRAWN, REJECTED, OR SUSPENDED]:

a) I completed and submitted all the application forms myself, and had direct contact with the program administrators
b) An energy service company, contractor, or some other party completed and submitted the application forms, but only after thorough consultation with me.
c) An energy service company, contractor, or some other party completed and submitted the application forms without much help from me *[If the Respondent is the Applicant, probe to find out why they didn't have the ESCO/contractor/other party serve as the Applicant for the project]*

[THESE ARE REFERRED TO AS TYPE A, TYPE B, AND TYPE C APPLICANTS IN THIS SECTION]

[If the applicant is classified as a type "C" applicant, then say, "Since you are not very involved in the application process, feel free to say, "I don't know" for any of the following questions that may not apply to you"]

24. Have you applied for this Program more than once?

- ☐ Yes
- ☐ No
- ☐ Don't know

(If Yes :) Was it for this project or for another project at the same facility or fro the same company
(If yes and for the same project:) Why did you have to reapply to the Program?

a) Program PPA requirements could not be met in the required timeframe
b) Wanted to put the project out to a competitive bid – requiring a change in applicant identity or more time
c) Project planning/design criteria substantially changed project definition
d) Other ____

25. Have you reviewed the Program application materials and instructions?

- ☐ Yes
- ☐ No
- ☐ Don't know

26. [*IF YES TO PREVIOUS QUESTION]* Were these materials and instructions clear?

- ☐ Yes
- ☐ No

  Please explain what wasn't clear to you
  ____
- ☐ Don't know

27. Has the program administrator [SCE/PGE/SDREO/SOCALGAS] provided satisfactory answers to your questions about the program?

- ☐ Yes
- ☐ No
  Please explain ____
  ____
- ☐ I did not have any questions

28. Did the administrator contact you after you submitted your application, but before your application was [WITHDRAWN, SUSPENDED, OR REJECTED]?

- ☐ Yes
  Please tell me what they contacted you about, and whether or not they were helpful.____
  ____
- ☐ No
- ☐ Don't know / I'm not very involved in process

29. In your case, do you think the initial 90-day deadline provided sufficient time for providing proof of project advancement?

- ☐ Yes
- ☐ No
  Which requirement(s) of the proof of project advancement made it difficult to meet the 90-day deadline? *[SELECT ALL THAT APPLY; DO **NOT** READ OPTIONS]*
  - ☐ Submitting an air pollution permit application
  - ☐ Submitting an electrical interconnection application
  - ☐ Ordering the generating equipment
  - ☐ Obtaining proof of insurance
  - ☐ Providing waste heat recovery calculations
  - ☐ Providing project cost breakdown
  - ☐ Other ________________________
- ☐ Don't know / not applicable

30. Do you think the 1-year deadline would be sufficient for completing the installation of a system like the one you applied for?

- ☐ Yes
- ☐ No
  Why is the deadline hard to meet? [*SELECT ALL THAT APPLY; DO **NOT** READ OPTIONS*]
  - ☐ Takes long time for manufacturer to ship equipment
    - o Type of equipment impacted by long lead times ____
  - ☐ Installation delays by the contractor
  - ☐ Air pollution permitting issues
  - ☐ Other local permit issues (Conditional Use Permit, Negative Declaration, etc.)
  - ☐ Building Permit issues
  - ☐ Meeting waste heat requirements
  - ☐ Interconnection with utility
  - ☐ Financing the purchase/installation of equipment
  - ☐ Other ______________________
- ☐ Don't know / not applicable

31. Are you still planning on installing the system anyway, despite the fact that your application has been [WITHDRAWN, REJECTED, OR SUSPENDED]?

- ☐ Yes
- ☐ No
- ☐ Don't know

32. [IF "YES"] Please rate the likelihood that your project will be completed, with 1 being 'very unlikely to be completed" and 5 being "very likely to be completed."

Very unlikely				very likely
1	2	3	4	5

- ☐ Check here if the system is already complete

33. [If they don't plan to continue, or they plan to continue but their certainty is less than "5" on the previous question] What is the primary reason that you will (might) not install the system? *[SELECT ONE; DO* ***NOT*** *READ OPTIONS]*

- ☐ System cost is too high without the SELFGEN incentive
- ☐ Permitting issues
  Please explain which permits, and the problems you had with each one.
  ____
  ____
- ☐ Problems in obtaining or installing equipment
  Please explain ____
  ____
- ☐ Problems in obtaining Project financing
  Please explain ____
  ____
- ☐ The internal priorities of my company/organization have changed
- ☐ To avoid the hassle of owning, operating, and/or maintaining the DG system
- ☐ Uncertainty of the investment
  Source of uncertainty (e.g. future fuel costs, changes in utility rate design, potential reversal of legislative/regulatory support of DG)
  ____
- ☐ Other____
  ____
- ☐ Don't know

34. Did you expect to receive financial assistance for this system from any other program or source of funding (such as a grant, tax credits, or buydowns/rebate)?

- ☐ Yes
- ☐ No
- ☐ Don't know

35. *[IF YES TO PREVIOUS QUESTION]* What kinds of funding? *[READ OPTIONS IF NECESSARY]*

- ☐ Grant or rebate
  Name of source/program:________________________________
  Expected Amount of grant/rebate: $___________
- ☐ Loan
  Name of source/program:________________________________
  Expected Amount of loan: $___________
- ☐ Tax credit
  Name of source/program:________________________________
  Expected Amount of credit: $___________

36. Based on your experience with your project so far, please rank the difficulty of the following project milestones on a scale of 1 to 5, with 1 being "*not difficult at all*" and 5 being "*very difficult*." *[ASK FOR EXPLANATION FOR EACH "4" OR "5" RANKING]*

Project Development Milestone	**Ranking (1 to 5)**	**Explanation / comments**
Selecting a manufacturer		
Selecting an installer/integrator/contractor		
Interconnection engineering with utility		
[LEVEL 2 AND 3 ONLY] Meeting Waste Heat design requirements		
Providing detailed cost estimates		
Obtaining air emissions permits		
Obtaining a warranty for the system		
Project construction		
Utility pre-parallel inspection		
System Operational Performance Tests		

37. *[TYPE "A" APPLICANTS ONLY]* Based on your experience with your project so far, have there been any unnecessary delays caused by the program administrator [SCE/SDREO/PG&E/SoCalGas]?

- ☐ Yes
- ☐ No
- ☐ Don't know

38. *[TYPE "B" AND TYPE "C" APPLICANTS ONLY]* Based on your experience with your project so far, have there been any unnecessary delays caused by *either* the 3rd party *or* the program administrator [SCE/SDREO/PG&E/SoCalGas]?

- ☐ 3rd party applicant *only*
- ☐ Program Administrator *only*
- ☐ *Both* the 3rd party applicant *and* the Program Administrator
- ☐ Neither

39. *[IF THEY INDICATE DELAYS BY 3RD PARTY APPLICANT]* Please describe the unnecessary delays caused by the 3rd party applicant.

40. *[IF THEY INDICATE DELAYS BY PROGRAM ADMINISTRATOR]* Please describe the unnecessary delays caused by the Program Administrator.

41. Do you have any experiences with the Program or your Program Administrator that you are unhappy about? Please explain.

42. Do you have any experiences with the Program or your Program Administrator that you are particularly pleased about? Please explain.

System Installation

[ONLY ASK THE QUESTIONS IN THIS SECTION IF THEY STILL PLAN ON INSTALLING THE SYSTEM per Question #27]

Now I'd like to ask you a few questions about the installation of your self-generation system. Depending on where you are in the process, some of these questions may not apply to you. If a question doesn't apply to you, please tell me.

43. Who is installing your system, or who do you think will install it? [READ CHOICES IF NECESSARY. IF THEY GIVE A COMPANY NAME, PROBE THEM TO SEE WHAT TYPE OF COMPANY IT IS—TO DIFFERENTIATE BETWEEN INDEPENDENT CONTRACTORS AND ESCOs, ASK THEM WHO WILL OWN AND OPERATE THE SYSTEM AFTER IT'S COMPLETED]

- ☐ Independent Engineering &Construction contractor
  - Name ____
  - City & State____
- ☐ Energy Service Company (ESCO)
  - Name ____
  - City & State____
- ☐ Manufacturer representative
  - Name ____
  - City & State____
- ☐ Owner of the system
- ☐ Other____________________
- ☐ Don't know

44. Was the installation process put out to bid (or do you plan on putting it out to bid)?

- ☐ Yes
- ☐ No
- ☐ Don't know

45. Has construction on your project begun?

- ☐ Yes
- ☐ No
- ☐ Don't know

46. Who will own the system immediately after it is completed?

- ☐ Self/Host customer
- ☐ Installation contractor/ ESCO / Maintenance firm. Identify: ________________
- ☐ Other: ________________________________
- ☐ Don't know

47. Who will handle maintenance and repairs for your system, once it's completed (or who DOES handle it, for completed projects)?

- ☐ Self/Customer
- ☐ Installation Contractor
- ☐ Maintenance firm
- ☐ Other: ________________
- ☐ Don't know

48. [*IF LEVEL 1 OR 3 APPLICANT USING RENEWABLE FUEL*] Is/Will your project be using a renewable fuel in its operation?

49. [*IF YES*] What is the cost of the (bio-gas) fuel clean-up equipment (including installation costs) that was included in your project installation cost estimate?

50. Please rate your overall satisfaction with the SELFGEN program on a scale of 1 to 5, with 1 being "very dissatisfied" and 5 being "very satisfied"

Very dissatisfied				very satisfied
1	2	3	4	5

Closing Comments

Thank you for participating in this discussion about your experiences in the Program to date. Are there any changes that you think need to be made to the Program, in addition to what we've already talked about?

Self-Generation Incentive Program
PY 2002 Supply Channel Survey
(Updated 02/11/03)

FIRM NAME:______________________ CONTACT: ________________________
PHONE #: ________________________ TITLE: ____________________________
DATE____________________________ INTERVIEWER: ____________________

Introduction

[This survey has 4 main sections; respondents will NOT be asked all sections. The sections are:

- *General Business Characterization (asked of all respondents)*
- *Program Design and Performance (asked of third-party applicants and participating manufacturers only)*
- *Project Development Process*
- *Closing Comments*

Hello, my name is ______________ and I work for Regional Economic Research of San Diego, California. We are conducting an evaluation of the State of California's Self-Generation Incentive Program, and we are aware that your company has been involved as a [Read Role: participating manufacturer and/or third party applicant] with at least one project that has applied for funding through the Program. We're conducting a survey to obtain your views on the Program, based on your experience to date. This survey is for research purposes, and will not affect the application status of the project(s) you are involved with.

[IF RESPONDENT QUESTIONS THE LEGITIMACY OF THE SURVEY, YOU MAY GIVE THEM PIERRE LANDRY'S CONTACT INFORMATION]

Pierre Landry
Southern California Edison
626-302-8288
Pierre.Landry@sce.com

General Business Characterization [All Respondents]

Purpose of this section is to find out:

- *Basic information about the company*

First, I'd like to obtain some basic information about your company.

1. Which of these technologies is your firm *primarily* involved with? [Select all that apply.]

☐ PV ☐ Wind ☐ Fuel Cells
☐ Small Gas turbines ☐ Microturbines ☐ Internal Combustion engines

2. How long has your company been in business? Within CA?

3. a. Have you been selling [PRIMARY TECHNOLOGY] systems in CA for the entire time you've been in business?

☐ Yes
☐ No

3.b In what year were your [PRIMARY TECHNOLOGY] systems first installed for customers in CA?

Program Design and Performance [Third-Party Applicants and participating manufacturers *Only*]

Purpose of this section is to find out:

- *Their role vs. the host customer's role in the application process*
- *Their opinions on program design issues, such as deadlines/milestones/reliability criteria*
- *Their opinions of the administrator(s)' handling of their application(s)*
- *Their knowledge of other programs that may overlap or dovetail with the SELFGEN program*
- *Perceptions about Free-Ridership from the installer/integrator's point of view*

[For those respondents who deal with multiple administrators, probe for differences across administrators throughout this section] ***[Interviewer - Verify the numbers in the following 2 tables for questions 4 and 5]***

4. Could you verify that your firm has been involved directly with the following program administrators as a third party program applicant (either for equipment manufactured by your firm or by other firms)?

5. Could you verify that your firm is contracted to (or will soon be contracted to) supply the following equipment, installed by third parties or directly by customers, in the areas served by the following program administrators?

As Installer (installing own or other manufactured equipment)

Administrator: **Technology**	**SCE**	**PG&E**	**SDREO**	**SoCalGas**
Photovoltaic				
Wind				
Fuel Cell, renewable fuel				
Fuel Cell, nonrenewable fuel				
Micro or Small Gas turbine				
IC engine				

As Manufacturer (installations by third parties and or customers).

Administrator: **Technology**	**SCE**	**PG&E**	**SDREO**	**SoCalGas**
Photovoltaic				
Wind				
Fuel Cell, renewable fuel				
Fuel Cell, nonrenewable fuel				
Micro or Small Gas turbine				
IC engine				

6. As a participating manufacturer, did your firm come into direct or indirect contact with these administrators?

7. [For those who had direct or indirect contact with administrators.] I'd like your feedback on your experience dealing with each of the Program Administrator(s) [SCE/PG&E/SoCalGas/SDREO]. We'll use this information to improve the program. I'm going to ask you a few detailed questions about the application process. But first I'd like to know how involved your host customers are in the application process.

Please tell me which of these two scenarios most closely describes your host customer's involvement in the application process: *[FOR MULTIPLE PROJECTS, ASK FOR THE NUMBER of APPLICANTS OR THE PERCENTAGE IN EACH CATEGORY]*

a) The host customer is actively involved in each stage of the application process and reviews all application materials before they're sent out. [_____/___%]

b) The host customer essentially takes a hands-off approach to the application process, leaving your company to make most of the decisions. [100%]

8. Was the Program application materials and instructions clear? [PROBE FOR AREAS WHERE THEY WERE UNCLEAR] If respondent has customers in multiple service areas, then ask this question separately for each administrator.

☐ Yes
☐ No
If not clear, please explain: ____
____

9. Has the Program Administrator [SCE/PGE/SDREO/SoCalGas] provided satisfactory answers to your questions about the program? [PROBE FOR EXPLANATION IF THEY ANSWER "NO"] [PROBE FOR DIFFERENCES ACROSS ADMINISTRATORS] If respondent has customers in multiple service areas, then ask this question **separately** for each administrator.

☐ Yes
☐ No
If No, please explain: ____
____

10. Did the administrator contact you after you submitted your application, but before they approved it? [PROBE FOR THE REASONS FOR THE CONTACT] [PROBE FOR DIFFERENCES ACROSS ADMINISTRATORS] If respondent has customers in multiple service areas, then ask this question separately for each administrator.

☐ Yes
☐ No
If Yes, please explain for each project (or categories of projects, as appropriate):
____
____

11. In your case, do you think the initial 90-day deadline provided sufficient time for providing the required Proof of Project Advancement documentation? *[FOR MULTIPLE PROJECTS, ASK FOR THE NUMBER of APPLICANTS OR THE PERCENTAGE OF "YES" AND "NO"] If respondent has customers in multiple service areas, then ask this question separately for each administrator.*

- ☐ Yes
- ☐ No

If No, Which requirement(s) of the proof of project advancement made it difficult to meet the 90-day deadline? *[SELECT ALL THAT APPLY; DO **NOT** READ OPTIONS; PROBE FOR IN-DEPTH EXPLANATION FOR WHY A REQUIREMENT IS TOO STRINGENT] [FOR APPLICANTS WITH MULTIPLE PROJECTS, ASK FOR THE MILESTONES THAT ARE **TYPICALLY** HARD TO MEET]*

  - ☐ Submitting an air pollution permit application
  - ☐ Submitting an electrical interconnection application
  - ☐ Ordering the generating equipment
  - ☐ Obtaining proof of insurance
  - ☐ Providing waste heat recovery calculations
  - ☐ Providing project cost breakdown
  - ☐ Other ________________________

- ☐ Don't know / not applicable

12. Do you think the 1-year deadline is sufficient for completing the installation of your system(s)? [FOR MULTIPLE PROJECTS, ASK FOR THE NUMBER OR PERCENTAGE OF “YES” AND “NO”] If respondent has customers in multiple service areas, then ask this question separately for each administrator.

- ☐ Yes [_____/_____%]
- ☐ No [_____/_____%]

    If No, Why is the deadline hard to meet? [*SELECT ALL THAT APPLY; DO **NOT** READ OPTIONS; PROBE FOR IN-DEPTH EXPLANATION FOR WHY A REQUIREMENT IS TOO STRINGENT*] *[FOR APPLICANTS WITH MULTIPLE PROJECTS, ASK FOR THE MILESTONES THAT ARE **TYPICALLY** HARD TO MEET]*

    - ☐ Takes a long time for manufacturer to ship equipment
        - Type of equipment impacted by long lead times _______________________________________
    - ☐ Installation delays by the contractor
    - ☐ Air pollution permitting issues
    - ☐ Other local permit issues (Conditional Use Permit, Negative Declaration, etc.)
    - ☐ Building Permit issues
    - ☐ Meeting waste heat recovery requirements
    - ☐ Interconnection with utility ______ Electric___ Gas ____ Other ___
    - ☐ Financing the purchase/installation of equipment
    - ☐ Other ______________________
- ☐ Don’t know / not applicable

For respondents that have worked with both utility and nonutility administrators ask the following:

13. Having worked with both a utility and non-utility administrator, please rate the following qualities for each on a scale of 1 to 5, where 1 means very unsatisfactory and 5 means very satisfactory.

Quality	Utility Administrator	Non-utility Administrator
Ease of working with		
Timeliness		
Responsiveness to Information Requests		
Assistance with interconnection coordination		

Assistance with application materials		
Assistance with marketing		
Other comments:		

14. Have you received, or are you receiving financial assistance for this system from any other program or source of funding (such as a grant, tax credits, or buydowns/rebate)? *[FOR MULTIPLE PROJECTS, ASK FOR THE PERCENTAGE OR NUMBER WHO ARE RECEIVING FUNDING]*

- ☐ Yes
- ☐ No

15. [IF YES TO PREVIOUS QUESTION] What kinds of funding are you receiving? [READ OPTIONS IF NECESSARY] [FOR MULTIPLE PROJECTS, ASK HOW MANY ARE RECEIVING MONEY FROM EACH PROGRAM, AND THE TOTAL OR AVERAGE AMOUNT OF FUNDING]

- ☐ Grant(s) or rebate(s)
  Name of source/program:________________________________
  Expected Amount of grant/rebate: $___________
- ☐ Energy-Related Loan Program
- ☐ Name of source/program:________________________________
  Expected Amount of loan: $___________
- ☐ Tax credit
  Name of source/program:________________________________
  Expected Amount of credit: $___________

[IF THE INTEGRATOR WORKS WITH BOTH LEVEL 1 AND LEVEL 3 TECHNOLOGIES, ASK THIS QUESTION SEPARATELY FOR EACH TECHNOLOGY (SINCE THERE MAY BE MORE FREE-RIDERSHIP IN LEVEL 3 THAN IN LEVEL 1)]

16. Some projects that receive funding from the SELFGEN Program may not have been feasible without the Program, while others would have been undertaken even in the absence of the SELFGEN Program. Of the SELFGEN projects you're aware of, what percentage do you think would have been completed even without the SELFGEN Program's financial support? [Estimate of Free Ridership]

___________% Level 1 _________% Level 2 50 % Level 3

17. Based on your experience with your project(s) so far, have there been any **unnecessary delays** caused by *either* the host customer *or* the program administrator [SCE/SDREO/PG&E/SoCalGas]? *[FOR MULTIPLE PROJECTS, ASK WHAT % OF THE HOST CUSTOMERS CAUSE DELAYS; FOR THOSE WORKING WITH MULTIPLE ADMINISTRATORS, ASK WHICH ADMINISTRATORS HAVE CAUSED DELAYS]*

- ☐ Host Customer *only [_____%]*
- ☐ Program Administrator *only [_____%]* ___________ *Identify Administrator*

- ☐ *Both* the Host Customer *and* the Program Administrator
- ☐ Neither

18. [IF THEY INDICATE DELAYS BY HOST CUSTOMER] Please describe the unnecessary delays caused by the Host Customer.

19. [IF THEY INDICATE DELAYS BY PROGRAM ADMINISTRATOR] Please describe the unnecessary delays caused by the Program Administrator. [PROBE FOR DIFFERENCES ACROSS EACH OF THE ADMINISTRATORS]

Program Design and Performance (All Program Participants)

20. Fossil fuel-fired (Level 3) projects submitted to the Self-Generation program on or after January 1, 2002 must satisfy specific requirements related to power factor and, in the case of systems sized larger than 200 kW, to coordination of planned maintenance activities with the Customer's electric utility. Have these new requirements been a significant barrier to development of projects within the Self-Generation program to date*? [IF THE RESPONDENT IS UNFAMILIAR WITH DETAILS OF THESE NEW RELIABILITY REQUIREMENTS, PROVIDE MORE DETAIL, OR ASK FOR A MORE APPROPRIATE CONTACT]*

- ☐ No
- ☐ Yes
  - If Yes, What is the nature of these barriers and how significant will they be in terms of project costs, program eligibility, or other project impacts?

    ____

    ____

Program Design and Performance (All Respondents)

21. Are there any specific aspects of the Self-Generation Program, or its influence on the distributed generation market that have prevented customers from installing systems or from participating in the Program?

22. Do you think the SELFGEN administrators are doing a good job marketing the SELFGEN program?

- ☐ Yes
- ☐ No
  - How could they improve their targeted Program awareness/marketing efforts?

    ____

    ____

23. Have you incorporated information with reference to California's Self-Generation Incentives Program into any of your marketing or promotional materials?

☐ No ☐ Yes

a. If yes, how? ____

24. Please rate your overall satisfaction of the SELFGEN Incentives Program on a scale of 1 to 5, with 1 being "very dissatisfied" and 5 being "very satisfied."

1 2 3 4 5

Project Development Process [Participating Developers]

Purpose of this section is to find out:

- *Typical project development process, and if participation in the SELFGEN Program alters or delays this process*
- *Lead times for equipment shipment and installation*
- *Typical problems with other involved parties (manufacturers, utilities, other permitting agencies—basically, other parties except for the SELFGEN administrator, which is dealt with in the "Program Design" section)*

25. I'm interested in understanding the typical project development process for a distributed generation system. For each of the following stages, please tell me your company's role, if any, as well as the other types of companies involved (e.g. manufacturer, dealer, ESCO, general/electrical installation contractor, architect/engineer, customer). Please also indicate the typical time required for each stage.

[if applicable, probe for differences across technologies—e.g. differences between microturbines and IC engines, if they deal with both]
[FOR THOSE INTERVIEWED LAST YEAR – REVIEW PRIOR RESPONSE& ONLY ASK IF THERE HAVE BEEN ANY CHANGES IN THEIR PROCESS OR ROLES.]

Project Development Stage	Your company's role, if any	Other companies involved (type of company)	Time required	Typical Risks or Problems
Design/ Engineering				
Obtaining the equipment and components				
System Installation				
System operational performance tests				
Operation and Maintenance				

26. For projects that are part of the SELFGEN Program, are any of these stages altered or disrupted, due to participation in that program?

- ☐ Yes
  - Stage: _____________How disrupted?________________________________
  - Stage: _____________How disrupted?________________________________
  - Stage: _____________How disrupted?________________________________
  - Stage: _____________How disrupted?________________________________
  - Stage: _____________How disrupted?________________________________
- ☐ No

Impact on Market [*ESCOs* Only]

[Formatting Note: Please incorporate #ing sequence for these questions]
In the absence of the Self-Generation Incentives Program, would the current development of the energy services industry in California be any different than what it is today? If Yes, Explain how.

On a scale of 1 to 5 please rate the impact of the Program on the market development needs of the energy services industry, where 1 means "no impact" and 5 means "a significant impact".

In your opinion, has the Program made a contribution to consumer education of self-generation technology? If YES, please explain how.

In your opinion, has the Program provided support for the energy services industry to market the Program? If YES, please explain how this support has been provided.

Project Development Process [Participating Manufacturers *Only*]

Purpose of this section is to find out:

- *Information about distribution channels and lead times*

[FOR THOSE INTERVIEWED LAST YEAR – REVIEW PRIOR RESPONSE& ONLY ASK IF THERE HAVE BEEN ANY CHANGES IN THE PAST YEAR]

27. What distribution path do [Technology Type] take from the factory to the installation site? Does the equipment distribution path vary by project size (i.e., would a large order be shipped directly from the factory, whereas a smaller order would be shipped to a distributor and then to a retailer before being delivered to the customer)?

28. How long does it generally take from the time a customer places an order to the time it is delivered to the installation site? Does the time vary by project size?

Project Development Process [Participating Mfgrs. & Integrators]

29. Have you experienced difficulties in any of the following areas?

	Yes	No	N/A
Connecting your distributed generation system to the grid? Comments: ________	☐	☐	☐
[If Applicable- Level 1 PV & Wind only] Obtaining information about Net Metering? Comments: ________	☐	☐	☐
Inspection approval of your system by the utility? Comments: ________	☐	☐	☐

30. Do you receive adequate Local Building Department support/information regarding the installation of distributed energy systems?

Permitting/Building Code requirements	☐ Yes	☐ No	☐ Don't Know
Safety inspection/approval	☐ Yes	☐ No	☐ Don't Know

a. If No, what further support/information do you need in order for your projects to be implemented in a timely manner?

____

Closing Comments [All Respondents]

31. How many staff do you now employ? FT______ PT_____ (or FTEs _____)

Just within California? ☐ Same as above FT______ PT______ (or FTEs _____)

32. What was your approximate sales volume in California in each of the past two years, in terms of the number of [Technology Type] units (modules/wind turbines/fuel cells/small or micro gas turbines/IC engines) and total kW (or total $, if available)?

_________ Est. # Units ______ total kW sold in 2001 $_______________
_________ Est. # Units ______ total kW sold in 2002 $_______________

Of these 2002 sales, how many of them were for project applicants in the SELFGEN Incentives Program?
_________ Est. # Units ______ total kW $_______________

33. Do you have any other comments on the Program or are there any other changes that you think need to be made to the Program, in addition to what we've already talked about?

Thank you again for participating in this discussion about the Self-Generation Incentives Program.

Nonreturning Supplier Survey
Self-Generation Incentive Program

Date ______________________________
Contact name ______________________
Title: ____________________________
Company name ____________________
Telephone _________________________

Introduction and General Questions

Hello, my name is _____________ and I work for Regional Economic Research in San Diego. The State of California has requested an evaluation of one of its consumer energy programs called the Self-Generation Incentive Program, and we are conducting a survey to help in this evaluation. You submitted an application to this Program in 2001 and I'd like to ask you some questions related to that. It should only take a few minutes.

[IF RESPONDENT QUESTIONS THE LEGITIMACY OF THE SURVEY, YOU MAY GIVE THEM PIERRE LANDRY'S CONTACT INFORMATION]

Pierre Landry
Southern California Edison
626-302-8288
Pierre.Landry@sce.com

1. Our records show you applied to the Self-generation incentive program in 2001 and did not submit any applications in 2002. Is that correct?

(if no, ask when submitted application and for what technology and then terminate.)

2. Please explain why you did not submit any applications to the Program in 2002.

(if answer is vague, probe for specific reasons such as the following:
- size of rebate not adequate
- no customer interest
- problem with program administrator (be specific: which administrator and what was the problem)
- too much paperwork
- business/economy slow

3. Did you participate in other distributed generation rebate programs in 2002?

☐ Yes

Please give me the name of the program and the organization that administers the program

- ☐ Emerging Buydown program run by the CEC
- ☐ other____

☐ No

4. What is the primary technology your firm is involved with?

(PV, wind, fuel cells, small gas turbines, microturbines, internal combustion engines)

5. What are the key changes that would need to take place in order for you to go forward with another self generation project under this Program?

(again, probe for specific reasons)

Thank you

NONPARTICIPANT INTERVIEW GUIDE
CPUC SELF-GENERATION INCENTIVE PROGRAM EVALUATION

Date ______________________________
From the sample list
Telephone _________________________
Company name _____________________
SIC code ___________________________
Number of employees _______________

Introduction

Hello, my name is ______________ and I work for Flagship Research in San Diego. The State of California has requested an evaluation of one of its non-residential consumer energy programs called the Self-Generation Incentive Program, and we are conducting a survey to help in this evaluation. The survey deals with issues related to California's energy situation, and would take about 10 to 15 minutes, depending on the length of the answers.

[IF RESPONDENT QUESTIONS THE LEGITIMACY OF THE SURVEY, YOU MAY GIVE THEM PIERRE LANDRY's CONTACT INFORMATION AND RESCHEDULE THE INTERVIEW]

Pierre Landry

Southern California Edison
626-302-8288
Pierre.Landry@sce.com

1. Who is the person in charge of managing your company's energy consumption?

   ____

2. What is that person's title? _________________________________

3. May I speak with them?

   - ☐ Yes *[SKIP NEXT QUESTION]*
   - ☐ No

4. Is there another time that I could reach them?

   - ☐ Yes. Date:_________ Time: __________am/pm
   - ☐ No *[THANK AND TERMINATE]*

Distributed Generation Awareness

[REPEAT THE INTRODUCTORY SCRIPT IF NECESSARY]

5. [VERIFY THE TYPE OF BUSINESS]

Commercial:
- ☐ office
- ☐ restaurant
- ☐ retail
- ☐ food store
- ☐ warehouse
- ☐ school
- ☐ college
- ☐ hospital
- ☐ lodging
- ☐ misc. commercial

TCU:
- ☐ wastewater treatment
- ☐ other transportation, communications, or utilities

Agriculture
- ☐ agriculture

Industrial
- ☐ mining & extraction
- ☐ construction
- ☐ manufacturing

6. First, could you tell me the approximate number of employees at this location?

___________ employees

[IF THIS NUMBER IS LESS THAN THE MINIMUM SIZE FOR THIS SIC CODE, THEN SAY: (refer to the list of minimum sizes for each SIC code)]

> This program is aimed primarily at firms with a high demand for energy. Since your firm is relatively small, the questions in this survey would not apply to you. *[THANK AND TERMINATE THE CALL]*.

7. Are you aware that you can generate your own power supply at your premises—not just for emergency backup—using electric-generating systems such as engine generators or solar cells?

- ☐ Yes
- ☐ No

8. On a scale of 1 to 3, with 1 being "not familiar," 2 being "somewhat familiar," and 3 being "very familiar," please rate your familiarity with each of the following energy-generating technologies:

Technology	**Not familiar**	**Somewhat familiar**	**Very familiar**
Photovoltaic	1	2	3
Wind turbines	1	2	3
Fuel Cells	1	2	3
Small gas turbines	1	2	3
Microturbines	1	2	3
Internal combustion engines	1	2	3

9. Are you presently using, or have you considered using, one of these technologies to generate some or all of your electricity? Please do NOT include systems used solely for emergency backup.

	Presently Use	**Don't use, but have considered using**	**Never considered using**
Photovoltaic	☐	☐	☐
Wind turbines	☐	☐	☐
Fuel Cells	☐	☐	☐
Small gas turbines	☐	☐	☐
Microturbines	☐	☐	☐
Internal combustion engines	☐	☐	☐

10. *[IF THEY PRESENTLY USE* ***OR*** *HAVE CONSIDERED USING ANY TECHNOLOGY]* On a scale of 1 to 5, with 1 being "not influential at all" and 5 being "very influential," please indicate the influence of each of these factors when you were considering on-site electricity generation.

Factor	Ranking				
Wanted to reduce utility bills	1	2	3	4	5
Wanted a backup system to improve the overall reliability of my electricity supply	1	2	3	4	5
Concern for the environment	1	2	3	4	5
Energy supply independence	1	2	3	4	5
Improve my business image—green marketing	1	2	3	4	5
Provide a Technical Demonstration	1	2	3	4	5
Other:____________________ ___________________________	1	2	3	4	5

11. *[IF THEY **HAVE CONSIDERED USING** ANY TECHNOLOGY, BUT DO NOT **PRESENTLY USE** ANY TECHNOLOGY]* I'm going to read you a list of possible reasons for why you haven't installed the system(s) you considered. Please indicate how large a role each these factors played in your decision to NOT install the generating system. Use a scale of 1 to 5, with 1 being "did not play a role at all" and 5 being "played a major role"?

Possible Reason	Ranking				
Initial cost of the generating system	1	2	3	4	5
Life expectancy of the generating system	1	2	3	4	5
Ability to finance the generating system	1	2	3	4	5
Hassle of maintaining, owning, and/or operating the generating system	1	2	3	4	5
Reliability of the generating system	1	2	3	4	5
Distributed generation is a low priority for this organization					
High uncertainty of an investment in distributed generation (e.g., due to uncertainty in future fuel costs; changes in utility rate design; potential reversal of legislative/regulatory support of DG)	1	2	3	4	5
Other:	1	2	3	4	5

12. One method of evaluating an investment in electricity generating equipment is to determine the system's Simple Payback Period, or the number of years it takes for the energy savings to "*pay back*" the initial cost of the equipment. What is the maximum length of time that your firm would accept as a pay back period for an investment in on-site electricity generating equipment? *[IF THEY OFFER A USE RETURN ON INVESTMENT OR INTERNAL RATE OF RETURN INSTEAD OF A PAYBACK PERIOD, ENTER THAT INFORMATION BELOW]*

- ☐ __________ years; OR ___________ months
- ☐ Do not know -- Payback criteria is not used by my company
- ☐ Use Return on Investment (ROI) ___________% or
- ☐ Internal Rate of Return (IRR) _____________%

13. *[IF, ACCORDING TO QUESTION 9, THEY **CURRENTLY USE** FUEL CELLS, SMALL GAS TURBINES, MICROTURBINES, OR INTERNAL COMBUSTION ENGINES]*

During what time of day do you typically run your generation system?

*[IF THEY DON'T CURRENTLY USE ANY OF THOSE TECHNOLOGIES, BUT HAVE **CONSIDERED USING** THEM]*
During what time of day would you typically run your generation system?

- ☐ (Start time) ________ am/pm (End time) _________am/pm

OR (select one)

- ☐ All times
- ☐ Utility off-peak times only
- ☐ Utility on-peak times only
- ☐ Utility on-peak and mid-peak periods only
- ☐ Utility off-peak and mid-peak periods only
- ☐ Don't know

14. Are you aware of the **Net Metering Requirements** that are now provided by electric utilities in California? [NOTE: this is the recently approved requirement which allows you to receive credit for your excess generated electricity which flows back into the grid.]

- ☐ Yes
- ☐ No

CPUC and CEC Program Awareness

California currently has two programs that provide incentive money for the purchase and installation of distributed generation equipment by companies currently served by PG&E, SCE, SDG&E, or SoCalGas. One program has been in place since 1998, and is called the Emerging Renewable Buydown Program. The other program, approved in 2001, is called the Self-Generation Incentive Program. **I should note that systems intended only for emergency backup generation purposes are not eligible for either program.**

15. Which of these programs, if any, are you aware of?

- ☐ CEC Buydown program only [SKIP TO "UNAWARE" SECTION]
- ☐ Self-Generation Incentive program only [SKIP TO "AWARE" SECTION]
- ☐ Both programs [SKIP TO "AWARE" SECTION]
- ☐ Neither program [SKIP TO "UNAWARE" SECTION]

"Aware" Section

The next set of questions applies only to the Self-Generation Incentives Program, NOT the California Energy Commission's Emerging Buydown Program.

16. How did you find out about the Self-Generation Incentives program? [*MARK ALL THAT APPLY; READ FROM LIST IF NECESSARY]*

- ☐ Other Users of self-generation systems. Identify: ______________________
- ☐ Equipment/system Dealer/vendor. Identify: ______________________
- ☐ Print advertisements. Identify: ______________________
- ☐ Magazine or Newspaper article. Identify: ______________________
- ☐ Radio advertisement. Identify: ________________________________
- ☐ Other media (e.g., TV, news press releases). Identify: __________________
- ☐ Professional publications. Identify: ______________________
- ☐ Insert or flyer in your electric bill
- ☐ Government agency (CPUC, CEC or DOE). Identify: ______________________
- ☐ Internet Search/Web Site. Identify: ______________________
- ☐ E-mail notice or advertisement. Identify: ______________________
- ☐ Utility Representative. Identify: ______________________
- ☐ Other__________________

17. Did you ever send in an application to the Self Generation Program?

- ☐ Yes
- ☐ No
  - Is this because you're not interested in self-generation in general, or because there was some aspect(s) of the Self Generation Program you didn't like?
    - ☐ Not interested in self generation in general
    - ☐ Didn't like some aspect(s) of the Self Generation Program
- ☐ Don't know

When did you send the application? Month ________ Year _________

Have you heard back from the program administrator regarding your application?

- ☐ Yes
- ☐ No
- ☐ Don't know

[IF THEY'VE APPLIED, SAY: "SINCE YOU HAVE APPLIED TO THE PROGRAM, YOU MAY BE CONTACTED AT A LATER TIME REGARDING YOUR EXPERIENCES WITH THE PROGRAM. THANK YOU FOR YOUR HELP WITH THIS SURVEY." TERMINATE CALL.]

18. Have you participated in other programs similar to the Self-Generation program?

- ☐ Yes

  Please give me the name of the program and the organization that administers the program

  - ☐ Emerging Buydown program run by the CEC
  - ☐ other____
- ☐ No *[SKIP TO “BUSINESS CHARACTERIZATION” SECTION]*

[SKIP TO “BUSINESS CHARACTERIZATION” SECTION]

“Unaware” Section

Since you have not heard of the Self Generation Program, we’d like to know how to better distribute information about the program.

19. I’m going to list several possible methods for distributing information about the program. Please rate how likely each method is to reach you on a scale of 1 to 5, with 1 being “not likely to reach me” and 5 being “very likely to reach me.” [IF RANKING OF “4” OR “5” GIVEN, ASK TO IDENTIFY THE SPECIFIC SOURCE]

Possible Method	Ranking				
Contact by a dealer/installer of distributed generation equipment	1	2	3	4	5
Print advertisements	1	2	3	4	5
Magazine or Newspaper article --which ones?_______________	1	2	3	4	5
TV, radio advertisement --which stations?_____________	1	2	3	4	5
Professional/trade publications --which ones?_______________	1	2	3	4	5
Insert or flyer in your utility bill	1	2	3	4	5
Contact by a government agency (CEC, CPUC) ---which agency(s)?__________	1	2	3	4	5
Information through a web-site --which (types of) web-site(s)?__________	1	2	3	4	5
Contact by a representative of your utility	1	2	3	4	5
Other______________________	1	2	3	4	5

20. Have you participated in other programs similar to the Self-Generation Program?

- ☐ Yes

  Please give me the name of the program and the organization that administers the program

  ____

- ☐ No *[SKIP TO “BUSINESS CHARACTERIZATION” SECTION]*

Business Characterization

I have a few questions about your business that could help us evaluate the demand for programs that would support distributed energy systems.

21. Does your business at this location occupy part of one building, one building, or more than one building? If more than one building, how many?

- ☐ Part of one building
- ☐ One building
- ☐ More than one building

  How many buildings?____________

22. Approximately how much enclosed floor space is occupied at this location?
__________sq. ft.

23. Do you lease or own this building?

- ☐ lease
- ☐ own

24. What is the approximate age of your building(s)? ____________years

25. How many people usually are employed at this business? _________people

26. Which electric utility(s) do you currently purchase electricity from?

- ☐ Southern California Edison (SCE)
- ☐ Pacific Gas and Electric (PG&E)
- ☐ San Diego Gas and Electric (SDG&E)
- ☐ Other __________
- ☐ None

27. What is your approximate average electric monthly bill? $____________ per mo.

28. At what type of rate do you purchase electricity from your utility?

- ☐ Baseline rate (tariff code, if known ___________)
- ☐ Time of use (tariff code, if known ___________)
- ☐ Other _____________________________
- ☐ Don't know

29. Which gas utility(s) do you currently purchase gas from?

- ☐ SoCalGas (The Gas Company)
- ☐ Pacific Gas and Electric (PG&E)
- ☐ San Diego Gas and Electric (SDG&E)
- ☐ Other __________
- ☐ None

Concluding Questions

30. Would you like to receive more information about the Self-Generation Incentive program? *[DO NOT ASK IF THEY ANSWERED "NONE" OR "OTHER" TO THE EARLIER QUESTION ABOUT WHICH UTILITY SERVICES THEM (BECAUSE THEY WOULDN'T BE ELIGIBLE)]*

- ☐ Yes
  What is the best way to send you the information?
  - ☐ mail
    Address:____
    ____
  - ☐ e-mail
    e-mail address________________________________
  - ☐ have the Program Administrator call me
  - ☐ internet link
    [DIRECT THEM TO THE WEB PAGE OF THEIR UTILITY]
    - **SCE:** **http://www.scespc.com/sgip.nsf**
    - **PGE:** **http://www.pge.com/selfgen/**
    - **SoCalGas:** **http://www.socalgas.com/business/self_generation.shtml**
    - **SDREO:** **http://www.sdenergy.org/selfgen/index.html**
- ☐ No

Thank you for your participation in this survey [IF THEY REQESTED MORE INFO, SAY "WE WILL SEND YOU THE INFORMATION ABOUT THE PROGRAM THAT YOU REQUESTED"]

NONPARTICIPANT WORKSHOP HOST CUSTOMER SURVEY
SELF-GENERATION INCENTIVE PROGRAM

Date ______________________________
Contact name ______________________
Title: ____________________________
Company name ____________________
Telephone _________________________

Introduction and General Questions

Hello, my name is ______________ and I work for Flagship Research. We are calling to ask you a few questions regarding a workshop you attended last year sponsored by your utility that discussed a rebate program for installing distributed generation equipment.

1. Do you recall attending the workshop?
2. Are you aware of this rebate program which is called the Self Generation Incentive Program?

If no to either Q1 or Q2, thank and terminate survey.
If yes to both questions, continue.

3. Have you already applied to the Self Generation Program?

   3a. (if "yes"): When did you send the application? _________________

If yes to Q3, thank and terminate survey.

4. Which of the following describes your interest in distributed generation equipment:

   a) potential host (you would install the equipment at your business)
   b) third party vendor or manufacturer or energy company (you would install the equipment at a customer's business site)

Note: If respondent answers they are a) potential host, continue with this survey. If respondent answers they are b) third party or manufacturer, go to the Nonparticipant Workshop Supplier survey and start with question 5.

5. Why have you not applied to the program? *(check all that apply; read list if necessary)*

- ☐ Not enough information about the program
- ☐ Rebate is not sufficient
- ☐ Uncertainty concerning exit fees or standby waiver
- ☐ Need more information about the technology

- ☐ Have not found a suitable vendor yet
- ☐ Size of system required by program is larger than we want
- ☐ Building still under construction
- ☐ Not ready to make a decision yet
- ☐ Other: specify____

6. How did you first find out about the Self-Generation Incentives program? *(check all that apply; read list if necessary)*

- ☐ Workshop
- ☐ Other Users of self-generation systems. Identify: ______________________
- ☐ Equipment/system Dealer/vendor. Identify: ______________________
- ☐ Print advertisements. Identify: ______________________
- ☐ Magazine or Newspaper article. Identify: ______________________
- ☐ Radio advertisement. Identify: _______________________________
- ☐ Other media (e.g., TV, news press releases). Identify: __________________
- ☐ Professional publications. Identify: ______________________
- ☐ Insert or flyer in your electric bill
- ☐ Government agency (CPUC, CEC or DOE). Identify: ___________________
- ☐ Internet Search/Web Site. Identify: ______________________
- ☐ E-mail notice or advertisement. Identify: ______________________
- ☐ Utility Representative. Identify: ______________________
- ☐ Other__________________

7. On a scale of 1 to 3, with 1 being "not familiar," 2 being "somewhat familiar," and 3 being "very familiar," please rate your familiarity with each of the following energy-generating technologies:

Technology	**Not familiar**	**Somewhat familiar**	**Very familiar**
Photovoltaic	1	2	3
Wind turbines	1	2	3
Fuel Cells	1	2	3
Small gas turbines	1	2	3
Microturbines	1	2	3
Internal combustion engines	1	2	3

8. On a scale of 1 to 5, with 1 being "not influential at all" and 5 being "very influential," please indicate how influential each of the following factors are to you when consider on-site electricity generation.

Factor	**Ranking**				
Want to reduce utility bills	1	2	3	4	5
Want a backup system to improve the overall reliability of my electricity supply	1	2	3	4	5
Concern for the environment	1	2	3	4	5
Energy supply independence	1	2	3	4	5
Want to improve my business image with green marketing	1	2	3	4	5
Provide a technical demonstration for my customers	1	2	3	4	5
Other:____________________ ________________________	1	2	3	4	5

9. Do you already have an installed self generation system to generate some or all of your electricity which is not solely used for backup?

10. (*If yes to Q9*) Which technology is it? *(check all that apply; read list if necessary)*

- ☐ Photovoltaic
- ☐ Wind turbines
- ☐ Fuel cells
- ☐ Small gas turbines
- ☐ Microturbines
- ☐ Internal combustion engines
- ☐ Other (specify:________________________________)

11. *(if no to Q9)* I'm going to read you a list of possible reasons for why you may not have installed a self generation system. Please indicate how large a role each these factors played in your decision to NOT install the generating system. Use a scale of 1 to 5, with 1 being "did not play a role at all" and 5 being "played a major role"?

Possible Reason	Ranking				
Initial cost of the generating system	1	2	3	4	5
Life expectancy of the generating system	1	2	3	4	5
Ability to finance the generating system	1	2	3	4	5
Hassle of maintaining, owning, and/or operating the generating system	1	2	3	4	5
Reliability of the generating system	1	2	3	4	5
Distributed generation is a low priority for this organization					
High uncertainty of an investment in distributed generation (e.g., due to uncertainty in future fuel costs; changes in utility rate design; potential reversal of legislative/regulatory support of DG)	1	2	3	4	5
Other:	1	2	3	4	5

12. One method of evaluating an investment in electricity generating equipment is to determine the system's Simple Payback Period, or the number of years it takes for the energy savings to "*pay back*" the initial cost of the equipment. What is the maximum length of time that your firm would accept as a pay back period for an investment in on-site electricity generating equipment? *[IF THEY OFFER A USE RETURN ON INVESTMENT OR INTERNAL RATE OF RETURN INSTEAD OF A PAYBACK PERIOD, ENTER THAT INFORMATION BELOW]*

- ☐ __________ years; OR ___________ months
- ☐ Do not know -- Payback criteria is not used by my company
- ☐ Use Return on Investment (ROI) ___________% or
- ☐ Internal Rate of Return (IRR) _____________%

13. Are you aware of the **Net Metering Requirements** that are now provided by electric utilities in California? [NOTE: this is the recently approved requirement which allows you to receive credit for your excess generated electricity which flows back into the grid.]

14. Have you participated in other programs similar to the Self-Generation program?

15. (if "yes" to Q14) Please give me the name of the program and the organization that administers the program

- ☐ Emerging Buydown program run by the CEC
- ☐ other____

Business Characterization

I have a few questions about your business that could help us evaluate the demand for programs that would support distributed energy systems.

16. What type of business are you?

- ☐ office
- ☐ restaurant
- ☐ retail
- ☐ food store
- ☐ warehouse
- ☐ school
- ☐ college
- ☐ hospital
- ☐ lodging
- ☐ misc. commercial
- ☐ wastewater treatment
- ☐ other transportation, communications, or utilities
- ☐ agriculture
- ☐ mining & extraction
- ☐ construction
- ☐ manufacturing
- ☐ other (specify:__________________________)

17. Could you tell me the approximate number of employees at this location?

__________ employees

18. Does your business at this location occupy part of one building, one building, or more than one building? If more than one building, how many?

- ☐ Part of one building
- ☐ One building
- ☐ More than one building

How many buildings?____________

19. Approximately how much enclosed floor space is occupied at this location? __________sq. ft.

20. Do you lease or own this building?

- ☐ lease
- ☐ own

21. What is the approximate age of your building(s)? ____________years

22. How many people usually are employed at this business? _________people

23. Which electric utility(s) do you currently purchase electricity from?

- ☐ Southern California Edison (SCE)
- ☐ Pacific Gas and Electric (PG&E)
- ☐ San Diego Gas and Electric (SDG&E)
- ☐ Other __________
- ☐ None

24. What is your approximate average electric monthly bill? $____________ per mo.

25. At what type of rate do you purchase electricity from your utility?

- ☐ Baseline rate (tariff code, if known ___________)
- ☐ Time of use (tariff code, if known ___________)
- ☐ Other _____________________________
- ☐ Don't know

26. Which gas utility(s) do you currently purchase gas from?

- ☐ SoCalGas (The Gas Company)
- ☐ Pacific Gas and Electric (PG&E)
- ☐ San Diego Gas and Electric (SDG&E)
- ☐ Other __________
- ☐ None

Concluding Questions

27. Would you like to receive more information about the Self-Generation Incentive program? *[DO NOT ASK IF THEY ANSWERED "NONE" OR "OTHER" TO THE EARLIER QUESTION ABOUT WHICH UTILITY SERVICES THEM (BECAUSE THEY WOULDN'T BE ELIGIBLE)]*

- ☐ Yes
  What is the best way to send you the information?
  - ☐ mail
    Address:____
    ____
  - ☐ e-mail

e-mail address_____________________________________

- ☐ have the Program Administrator call me
- ☐ internet link

  [DIRECT THEM TO THE WEB PAGE OF THEIR UTILITY]
  - **SCE: http://www.scespc.com/sgip.nsf**
  - **PGE: http://www.pge.com/selfgen/**
  - **SoCalGas: http://www.socalgas.com/business/self_generation.shtml**
  - **SDREO: http://www.sdenergy.org/selfgen/index.html**

☐ No

Thank you for your participation in this survey [IF THEY REQESTED MORE INFO, SAY "WE WILL SEND YOU THE INFORMATION ABOUT THE PROGRAM THAT YOU REQUESTED"]

NONPARTICIPANT WORKSHOP SUPPLIER SURVEY
SELF-GENERATION INCENTIVE PROGRAM

Date ______________________________
Contact name ______________________
Title: ____________________________
Company name ____________________
Telephone _________________________

Introduction and General Questions

Hello, my name is ______________ and I work for Flagship Research. We are calling to ask you a few questions regarding a workshop you attended last year sponsored by your utility that discussed a rebate program for installing distributed generation equipment.

1. Do you recall attending the workshop?

2. Are you aware of this rebate program which is called the Self Generation Incentive Program?

If no to either Q1 or Q2, thank and terminate survey.
If yes to both questions, continue.

3. Have you already applied to the Self Generation Program?

   3a. (if "yes"): When did you send the application? _________________

If yes to Q3, thank and terminate survey.

4. Which of the following describes your interest in distributed generation equipment: (identify all that apply):

   a) third party vendor or manufacturer or energy company (you would install the equipment at a customer's business site)
   b) potential host (you would install the equipment at your business)

Note: If respondent answers a) third party, continue with this survey. If respondent answers b) potential host, go to the Nonparticipant Workshop Host Customer survey and start with question 5.

5. Why have you not applied to the program? *(check all that apply; read list if necessary)*

   - ☐ Not enough information about the program
   - ☐ Rebate is not sufficient
   - ☐ Uncertainty concerning exit fees or standby waiver
   - ☐ Do not have any interested customers at this time

- ☐ Other: specify____

6. How did you first find out about the Self-Generation Incentives program? *(check all that apply; read list if necessary)*

- ☐ Workshop
- ☐ Other Users of self-generation systems. Identify: ______________________
- ☐ Equipment/system Dealer/vendor. Identify: ______________________
- ☐ Print advertisements. Identify: ______________________
- ☐ Magazine or Newspaper article. Identify: ______________________
- ☐ Radio advertisement. Identify: _______________________________
- ☐ Other media (e.g., TV, news press releases). Identify: __________________
- ☐ Professional publications. Identify: ______________________
- ☐ Insert or flyer in your electric bill
- ☐ Government agency (CPUC, CEC or DOE). Identify: ___________________
- ☐ Internet Search/Web Site. Identify: ______________________
- ☐ E-mail notice or advertisement. Identify: ______________________
- ☐ Utility Representative. Identify: ______________________
- ☐ Other__________________

7. Which of these technologies is your firm *primarily* involved with? [Select all that apply.]

- ☐ Photovoltaic
- ☐ Wind turbines
- ☐ Fuel cells
- ☐ Small gas turbines
- ☐ Microturbines
- ☐ Internal combustion engines
- ☐ Other (specify:__________________________________)

8. How long has your company been selling this type of equipment?
_____ years _____ years in California

9. Have you participated in other programs similar to the Self-Generation program?

10. (if "yes" to Q9) Please give me the name of the program and the organization that administers the program

- ☐ Emerging Buydown program run by the CEC
- ☐ other____

11. Have you looked at the Program Handbook for the Self Generation Incentive Program?

12. (*If yes to Q11*): On a scale of 1 to 5, where 1 means "not at all helpful" and 5 means "very helpful," how helpful did you find the handbook?

13. Did you talk to a program administrator regarding applying to the program?

14. (*If yes to Q13*): on a scale of 1 to 5, where 1 means "not at all helpful" and 5 means "very helpful," please rate how helpful the administrator was?

15. Would you like to receive more information about the Self-Generation Incentive program?

- ☐ Yes
  What is the best way to send you the information?
  - ☐ mail
    Address:____
    ____
  - ☐ e-mail
    e-mail address_________________________________
  - ☐ have the Program Administrator call me
  - ☐ internet link
    [DIRECT THEM TO THE WEB PAGE OF THEIR UTILITY]
    - o **SCE: http://www.scespc.com/sgip.nsf**
    - o **PGE: http://www.pge.com/selfgen/**
    - o **SoCalGas: http://www.socalgas.com/business/self_generation.shtml**
    - o **SDREO: http://www.sdenergy.org/selfgen/index.html**
- ☐ No

Thank you for your participation in this survey [IF THEY REQESTED MORE INFO, SAY "WE WILL SEND YOU THE INFORMATION ABOUT THE PROGRAM THAT YOU REQUESTED"]

Verification Contractor Interviews

Firm: _____________

Interviewee: __________

Interviewer: ____________

Date/Time: __________

1. **When did your firm begin conducting verifications?**

2. **Approximately how many verifications did you perform in 2002 by type of technology?**

3. **Please describe the process you go through for verification**

4. **What are some of the problems you have encountered?**

5. **Did you make any changes to the process in 2002? If so, please describe?**

6. **Do you feel the host customer gets benefits from your inspection or visit? If so please describe.**

7. **What suggestions do you have for changes to the verification process?**

Appendix B

Listing of Other Distributed Generation Incentive Programs

Program Name(s)	Program Type	Program Size	Program Duration	Energy Sources Incentivized	Type and $ Amount of Rebates Offered	Other information	Contact Information	Source
Climate Change Fuel Cell Rebate Program	Federal (H.R. 103-747)	Variable: $0 in 2001 to $8.4 million in FY 1995. $2.8 million allocated for FY2002.	Funding for the program is allocated annually.	Stationary fuel cells (>3 kW)	Initial cost buydown equal to $1,000 per kW, not to exceed 1/3 of total program cost (capital plus installed costs, pre-commercial operation).	Priority is given to projects sited at DoD installations. Applicant cannot be a fuel cell vendor, manufacturer or developer. One-year system warranty required.	U.S. Army Engineer Research and Development Center (ERDC) / Construction Engineering Research Laboratory (CERL)	http://www.dodfuelcell.com/intro.html
Federal Modified Accelerated Cost Recovery System	Federal. US Code Citation: 26 USC Section 168			Photovoltaics, wind, solar hot water and energy storage equipment	5-year accelerated capital depreciation for commercial entities which invest in or purchase qualified solar, wind or geothermal energy property placed in service after 1986		See IRS Form 4562: Depreciation and Amortization and Instructions for Form 4562, and Internal Revenue Code Section 168(e)(3)(B)(vi)	http://www.eere.energy.gov/consumerinfo/refbriefs/la7.html
Investment Tax Credit	Federal. Form 3468. Established by Energy Policy Act of 1992		Extended permanently	Solar, wind and energy derived from a geothermal deposit	10% of the investment or purchase and installation amount. Allowable tax credit for a given tax year limited to $25,000, plus 25% of tax remaining after credit taken. Tax credit may not exceed the tax owed for tax year.	If property is financed using subsidized energy financing, only the amount that is not subsidized is used for calculating the basis. Commercial enterprises (businesses) only.	http://www.mdv-seia.org/federal_incentives.htm	California Solar Center. Form 3468 from the IRS
Renewable Energy Production Incentive (REPI)	Federal. Section 1212 of the Energy Policy Act of 1992	Between $3 - $4 million paid out every year between 1995 and 2002	1992-2003	Wind, solar, methane, biomass digester gas, fuel cell, and wood waste	$1.5 cents/kWh for the first 10-year period of operation, subject to availability of funds in each federal fiscal year of operation	Available to State and local government entities, and nonprofit electric cooperatives that started operations between Oct. 1993 and Sept. 2003.	Keith Bennett, NREL, 1617 Cole Boulevard, Golden, CO 80401. Tel: 303-275-4905 and keith_bennett@nrel.gov	Office of Power Technologies, US Dept. of Energy

Program Name(s)	Program Type	Program Size	Program Duration	Energy Sources Incentivized	Type and $ Amount of Rebates Offered	Other information	Contact Information	Source
Renewable Electricity Production Credit (REPC)	Federal		1993 - 2003	Wind brought online 1994 – 2003, closed loop biomass brought online 1993 – 2003	In 2001, 1.7 cents/kwh adjusted for inflation paid for a 10-year period. Phased out if national average electricity prices exceed 8 cents/kWh	Available to private entities that generate electricity from qualifying facilities.	EREN, U.S. Dept. of Energy	EREN, U.S. Dept. of Energy
Small Business Administration 7A Standard Small Business Loan	Federal			Photovoltaics, wind and solar thermal systems	Loans for projects with 10-year payback periods. Maximum interest rate is prime plus 2.75% for loans of $50,000 or more; prime plus 3.75% for loans of $25,000-$50,000; prime plus 4.75 percent for loans of $25,000 or less.	Available to only small businesses	Local SBA office www.sba.gov/financing	http://www.sba.gov/financing/fr7aloan.html
USDA Rural Utilities Service (RUS)	Federal			Photovoltaics and wind	The RUS has the authority to finance on and off grid renewable energy resources.		Local USDA Rural Development offices	http://www.usda.gov/rus/electric/renewables/index.htm
NICE[3]	Federal			Projects that demonstrate advances in energy efficiency and clean technologies.	One-time grant of up to $525,000 for state and industry partnerships. Up to $500,000 awarded to industrial partner. Non-federal cost share must be at least 50% of project costs.		Department of Energy, Office of Industrial Technologies	http://www.oit.doe.gov/nice3/

Program Name(s)	Program Type	Program Size	Program Duration	Energy Sources Incentivized	Type and $ Amount of Rebates Offered	Other information	Contact Information	Source
Rural Economic Development Grants and Business Cooperative Services Loans	Federal. USDA			Photovoltaics and solar thermal systems	Up to $400,000 to establish revolving load funds for infrastructure or community facilities in rural areas. Various loans are also available.	Since 1996, no disbursements have been made in the state of California.	Local USDA Rural Development offices	http://www.rurdev.usda.gov/rbs
California Property Tax Exemption for Solar Systems	State. CA revenue and taxation code, section 73	No limit	Enacted 1/99, expiration 1/06	Solar	Energy systems are not subject to property tax.		California Franchise tax Board, PO Box 942840, Sacramento, CA 94240 Phone: 800-852-5711	NC Solar Center; DSIRE; http://www.ftb.ca.gov
Commercial and institutional financing options	State	No limit	No limit	Renewable energy sources	Attractive interest rates vary by loan amount and type		CEC, Renewable Energy Program, 1516 9th Floor, MS 45, Sacramento CA 95814	California Solar Center; CEC
Energy Efficiency Financing	State	$10 million for the entire program		Renewable energy projects with a simple payback of 8.5 years or less	Low-interest loans for up to 100% of the cost of energy efficiency projects. Interest rate 4% as of March 2002. Maximum loan amount: $2 million/organization. No minimum loan amount.	Schools, hospitals, cities, counties, special districts and public care institutions (public or private) are eligible.		CEC
Landfill Gas Electricity Generation Incentive	State	$622,500 for entire program		Microturbines utilizing flared landfill gas	$250/net kW for landfills in California using landfill gas.	System should have been operational by June 1, 2002.	CEC, 1-800-555-7794	http://www.energy.ca.gov/peakload/landfill_gas_electricity.html

Program Name(s)	Program Type	Program Size	Program Duration	Energy Sources Incentivized	Type and $ Amount of Rebates Offered	Other information	Contact Information	Source
Emerging Renewables Buydown Program	State	$8 million	1998 - 2003	Photovoltaics, wind (10 kW or less), fuel cells using renewable fuels, and solar thermal systems	$4.50/watt or 50% of purchase price, whichever is less.	Production cannot exceed 200% of site's historical or current needs.	CEC, Emerging Renewables Buydown Program, 1516 9th Street, MS-45, Sacramento, CA 95814-5512. Tel: 800-555-7794	NC Solar Center; DSIRE pages
Emerging Renewables Program	State	$118 million for length of entire program. Replaces the Emerging Renewables Buydown Program.	3/3/2003-?	Photovoltaics, wind (50 kW or less), fuel cells using renewable fuels and solar thermal systems	Initial incentive $4/watt for PV systems and $2.50/watt for small wind systems. Incentive decreases by 15% for systems installed by owner/self. Incentives decline by $0.2/watt every 6 months, with the first decline beginning July 1, 2003.	Production cannot exceed 200% of site's historical or current needs. All types of consumers are eligible but site must be interconnected with PG&E, SDG&E, or SCE.	CEC, Emerging Renewables Buydown Program, 1516 9th Street, MS-45, Sacramento, CA 95814-5512. Tel: 800-555-7794	NC Solar Center; DSIRE pages; CEC; http://www.consumerenergycenter.org/erprebate
New Renewable Resources Account	State; AB 1890 and SB 90.	$241 million for three auctions, 1998-2001. Allocations for future years TBD.	1998-2012	Biomass, digester gas, geothermal, landfill gas, small hydro, waste tire, and wind	Production incentive (1.5 cents/kWh cap) based on a competitive solicitation process, paid over a five-year period		Suzanne Korosec - Manager, New Renewable Resources AccountPhone: 916-654-4516	http://www.energy.ca.gov/renewables/new_renewables.html

Program Name(s)	Program Type	Program Size	Program Duration	Energy Sources Incentivized	Type and $ Amount of Rebates Offered	Other information	Contact Information	Source
Solar Energy and Distributed Generation Grant Program	State. SB 1345 Public Resources Code Sections 25619 and 25620.10	Varies depending upon budget appropriation. Funding authorized to 2005.	Not accepting applications for 2002/2003 funding. No funds were allocated to the program for this fiscal year.	Solar and battery storage; also some distributed generation technologies	Up to $750 for solar and battery. Up to $2,000 or 10% (whichever is less) for eligible distributed generation	Eligibility: "CA residents who are purchasers, sellers, owner-builders, owner-developers of solar or distributed generation systems		CEC web page; CEC database of incentive programs
Agricultural Peak Load Reduction Program	State. Created by SB 5X. Administered by CSU Fresno and California Polytechnic Institute	$75,000,000 originally authorized for the entire program	Applications accepted through December 31, 2003. Projects must be operational by May 31, 2004 and must provide energy savings through Sept. 30, 2004.	High-efficiency electrical equipment or other conservation efforts, pump retrofit/repair, natural gas-powered equipment retrofit	Incentives paid for projects that reduce summer peak electrical demand. Grant is based on kW reduced ($250/kW after 9/1/01) and is capped at 65% of project cost. Maximum incentive per organization: $2 million.	California IOUs are not eligible. Water agencies/irrigation districts, confined animal feeding operations, greenhouses, food processors, and refrigerated warehouses for agricultural commodities are eligible.	Grant Administrator, Center for Irrigation Technology at CSU Fresno, 866-297-3029.	http://cati.csufresno.edu/cit/load_reduction/aplrpdesc.doc
Water and Wastewater Peak Load Reduction/Energy Efficiency Program	State		Applications accepted until June 30, 2002. Projects should be completed by June 1, 2003.		Incentives of $250/kW paid for projects that reduce summer peak load.	California IOUs are not eligible. Only public water system and wastewater treatment plant owners and administrators are eligible	CEC: 916-351-3842. Applications received by HDR Engineering, 271 Turnpike Drive, Folsom, CA 95630	http://www.energy.ca.gov/peakload/water_retrofit.html

Program Name(s)	Program Type	Program Size	Program Duration	Energy Sources Incentivized	Type and $ Amount of Rebates Offered	Other information	Contact Information	Source
California Communities' CaLease Finance Program for Alternative Energy	State			Photovoltaics; only for local government and school districts	Low cost capital (5-6% under current market conditions for a 3-10 year lease term). Minimum finance amount is $500,000	http://www.cacommunities.com/government/infosheets/calease_info.pdf	James Hamill, California Communities Program Manager at 800-635-3993 xt. 16	http://www.energy.ca.gov/renewables/marketing/2002-0321_ENERGY_ASSIST.PDF
Rural Alliance, Inc. Alternative Generation Financing	State			Microturbines solar PV, solar thermal, wind and fuel cells	Low cost capital (5.15% to 5.9% for terms up to 20 years). Minimum finance amount is $10,000		Linda Mott Jones, Special Projects Coordinator at 916-447-4706 xt. 127	http://www.energy.ca.gov/renewables/marketing/2002-0321_ENERGY_ASSIST.PDF
Solar and Wind Energy Tax Credit	State. Part of SB 17. Section 23684		2001-2005	Photovoltaic and wind systems with peak capacity less than 200 kW	From 2001 to 2004, credit is equal to the lesser of 15% of purchase and installation costs or $4.50/watt. From 2004 - 2005, credit is 7.5% of purchase and installation costs.	If installed system is removed from the state in one year, credit must be repaid to the state.	Tax Specialist - FTB, California Francise Tax Board, PO Box 942840, Sacramento, CA 94240 Phone: 800-852-5711	NC Solar Center; DSIRE pages; http://www.ftb.ca.gov

Program Name(s)	Program Type	Program Size	Program Duration	Energy Sources Incentivized	Type and $ Amount of Rebates Offered	Other information	Contact Information	Source
Innovative Peak Load Reduction Program	State	$51.4 million allocated to program cumulative to May 31, 2002.	Funding available until December 31, 2004.	Projects OTHER THAN those that use fossil fuels, solar, or wind. Minimum project size 15 kW.	Up to $250/kW, up to $1 million	Commercial/industrial organizations, local governments, municipal water and wastewater facilities, and groups of single- or multi-family homes eligible. Incentives based on reduction in kW demand during summer peak hours.	Consumer Energy Center database, CEC	http://www.energy.ca.gov/peakload/bring_watt.html Phone: 1-866-PEAKKW1
Dairy Power Production Program	State. Authorized by SB 5X. Administered by Western United Resource Development, Inc. (WURD).	$9.64 million for entire program	Projects must be installed and capable of producing electricity by December 2003	Commercially proven systems producing electricity from biogas	Buydown grants cover the lesser of up to 50% of capital costs or $2,000/kW. Progress payments made in four installments based upon percent completion of project. Electricity generation incentives based on 5.7 cents/kWh of electricity generated over a maximum period of 5 years.	Grants are awarded on a first come, first serve basis. Projects funded will span dairy size, geographic locations within the state, and types of manure management practices.	Western United Resource Development, Inc.	http://www.wurdco.com/DPPP%20Application-Part%201.pdf

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LADWP Solar Incentive Program	Utility. LADWP commercial and residential customers. Funded by public benefits program authorized by AB 1890	$6 million for first year and $8-12 million per year for next 4 years	2000 - 2010	Photovoltaics	Up to $4.50/watt for systems manufactured outside the city of LA, up to $1 million for commercial customers. Up to $6/watt for systems manufactured in LA, up to $2 million for commercial customers. Maximum payment capped at 85% of installed cost for locally manufactured systems, and 75% of installed system cost for all others.	System should produce at least 300 W but not more than 100% of annual power needs; participants must remain connected to the LADWP grid. In August 2001, rebate amounts were increased to stimulate local manufacturing. In September 2002, the program was extended to December 30, 2010	Los Angeles Department of Water and Power, 111 North Hope Street, Los Angeles, CA 90051. Tel: 800-473-3652	NC Solar Center; DSIRE pages; http://www.greenla.com
Microturbine Giveaway Program	Utility - SCAQMD.	$6.2 million for entire program to purchase and install 53 60-kW microturbines at host customer sites.	Applications must have been submitted by April 29, 2002.	Capstone microturbines using natural gas or propane.	Free microturbines to qualified host customers. Unless host customer offers to pay for installation, preference will be given to facilities requesting three or more microturbines.	SCAQMD customers in Los Angeles, Orange, Riverside, or San Bernardino counties. Hosts own, operate and maintain systems. Program targets public facilities. Minimum electrical load during normal operation should be greater than output from the microturbines requested.	http://www.aqmd.gov/tao/microturbine_general_info.doc	

Program Name(s)	Program Type	Program Size	Program Duration	Energy Sources Incentivized	Type and $ Amount of Rebates Offered	Other information	Contact Information	Source
Pasadena Solar Power Installation Rebate	Utility. Pasadena Water and Power; funded by CEC Public Benefit Program	Funds are available on a first come, first serve basis.		Photovoltaics	Up to $5 per watt or $10,000 for eligible commercial and residential customers, based upon available funding.	Rebate is expected to decrease over the coming years.	Mauricio Mejia. Pasadena Water and Power. 150 Los Robles Avenue. Pasadena, CA 91101. Tel: 626-744-4529	NC Solar Center; DSIRE pages; http://www.ci.pasadena.ca.us/waterandpower/program_solar.asp
Burbank Water and Power	Utility. Burbank Water and Power			Photovoltaics	$3/watt, up to $9,000.	Business customers of Burbank Water and Power are eligible.	Energy Solutions Program of Burbank Water and Power at Tel: 818-238-3562	NC Solar Center; DSIRE; Burbank Water and Power homepage
Renewable Energy Rebate	Utility. Silicon Valley Power			Photovoltaics, wind, fuel cells	$4 per watt	System size limited to maximum of 100 kW. Systems must be located in the City of Santa Clara. Must sign interconnection agreement prior to installation.	Silicon Valley Power. 1500 Warburton Avenue, Santa Clara, CA 95050. Tel. 408-244-7283	http://www.siliconvalleypower.com/Business/ProductsAndServices/PublicBenefitsProgramsMoneyInYourPocket.html