HVAC – Upstream HVAC Equipment Subprogram

	Mission
SW Program: **Residential and Commercial HVAC Program**	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation pr California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load re and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing an maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: **Upstream HVAC Equipment**	This sub-program offers incentives to distributors who sell qualifying high-efficiency HVAC equipment. The logic underscores this sub-program's design is that a small number of distributors and manufacturers are in a position hundreds of thousands of customers and influence their choice of equipment by increasing the stocking and pro high-efficiency HVAC equipment. The upstream model cost-effectively leverages this market structure and existi relationships. The sub-program also provides an online rebate application system to facilitate distributor sales an tracking, which further reduces administrative costs as compared with paper application processing.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (4) New climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) are developed with accelerated market penetration Goal Results: At least 15% of equipment shipments are optimized for California's climate by 2015 and 70% by 2020.	p. 59
Strategy 4-3: Accelerate market penetration of advanced technologies by HVAC industry promotions and updating/expanding current utility programs to include new technologies as appropriate.	p. 65

Short-term (2010-2012) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Recommendations and Comments**
1. By 2012 the sales weighted average efficiency of air conditioners sold by participating distributors will increase by XX% (intent to increase sales of high efficiency air conditioning in market place—sales metric/tracking sales) Define what "efficieny metric" is: SEER, EER, IEER (IPLV – older	Staff	Revise to: **Objective 1:** By 2012, the kW/ton of units incentivized in the pro will decrease by a target percentage A, and the number of units incentivized in the program will increase by a target percentage B units over 5.4 tons shipped into California.

version) >5.4 tons → measure based on EER or IEER <5.4 tons → then no part load value then SEER or EER This (sales weighted sold) would be a great thing to track but availability is the barrier (sales data is difficult – ED believes this is the kind of data utils should be trying to get. Why can't joint utils sit down with distributors and push them to deliver data even on an aggregate basis) • Distributors get a lot of ratepayer $ so we can push them (also can work w/ hardi, who collects all the distributor data anyways. PGE said it may be a possible approach to get Hardi to aggregate the data and provide to utilities) **General agreement: Maybe refine util proposed one (preferred uses numerator and denominator and backup is just the numerator - # units incentivized that meet CEE Tier 2 or greater), but keep ours with caveat about data availability (and Hardi approach)**. • ACTION – joint utils propose their refined response (preferred and backup) • ACTION – James propose definition of efficiency metrics		Baselines for targets A and B to be set using 2010 data, and percen increase targets A and B for 2011 and 2012, to be all established annual metrics report submitted Q1, 2011. Comment: kW/ton, as determined by kW savings in CPUC approved workpa is an efficiency metric that can apply across types and capacities equipment, thereby resolving the multiple specification issue of S EER, IEER, and IPLV.
2. By 2012, the stock-weighted average efficiency of air conditioners stocked by participating distributors will increase by xx% (intent to increase stocking of high efficiency air conditioners—stock metric with a focus on sales/tracking stock)	Staff	Revise to: By 2012, via annual survey of participating distributors, the stock percentage of units eligible for program incentives increases by X% increase and baseline established via survey and metrics rep submitted Q1, 2011. **Comment**: Assumes the availability of individual distributor data and/or aggr data from HARDI.

Short-term <u>Sub-program</u> PPMs:	**Source (SP, AL, DR, PIP, or**	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Recommendations and Comments**

	Staff)*			
1. The sales weighted average efficiency of air conditioners sold by participating distributors	Staff	2A (either utility refined or ED caveat would be 2a)	Y (No – so not a study but more like a data request. Depends on what info is available, does it have all the data we need access to, how far back and costs (reformatting costs)	Revise to: kW/ton incentivized in the program. (Note: Decrease metric indicates positive progress), combined with the number of units that are incentivized in the program v over 5.4 tons shipped to California as tracked through shipment data. (Assuming the availability of AHRI dat Comment: Qualifying equipment eligible for program incentives h higher than code-standard efficiencies, with tiered mi specifications increasing as state and federal standar increase. Recommend no baseline study required, due to basic nature of proposed PPM.
2.				Add: The distributor stocking percentage of units eligible fo program. (Assuming the availability of individual distr data and/or aggregated data from HARDI.) Comment: Qualifying equipment eligible for the program has high code-standard efficiencies, with tiered minimum specifications increasing as state and federal standar increase. Baseline Study Required - since there is not yet a clea understanding of distributor stocking practices and wh is or could be maintained and obtained.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-Term (2013-2020) "SMART" Sub-	Source	IOU Recommendations and Comments

program Objectives:	**(SP, AL, DR, PIP, or Staff)***	
1. By 2020, new climate-appropriate HVAC technologies particularly suited to California's climate will increase market share. Move this up to the program level and not the sub-program level. ETP and C&S may be more appropriate to meet this objective LT objective are more universal	SP, page 64	Revise to: By 2020, new climate-appropriate HVAC technologies particularly suited to California's climate will increase market share. IOU-CPUC collaboration and baseline study would required to more clearly define terms used and for setting appropriate LT targets and timeline. Comment: Agree should move this up to the program level and not the sub-program level. ET a C&S program areas may be more appropriate to meet this objective.
2. At least 50% of equipment shipments are optimized for California's climate by 2020 and 70% by 2030	SP, page 58	Revise to: By 2020, a target percentage of equipment shipments to CA are optimized for Californ climate, with a higher percentage target achieved by 2030. IOU-CPUC collaboration and baseline study would be required to more clearly define used and for setting appropriate LT targets and timeline. Comment: Move this up to the program level and not the sub-program level. ET and program areas may be more appropriate to meet this objective.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

Long-Term Sub-program MT Indicators:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (3)****	**Baseline Study Required (Y/N)**	**IOU Recommendations and Comments**
1. Market penetration of climate-appropriate HVAC technologies particularly suited to California's climate	Staff; SP pg 65	3	Y	Revise to: Market penetration of climate appropriate HVAC equipment. Comment: IOU-CPUC collaboration and baseline study would be required to clearly define terms used and for setting appropriate LT targets a timeline.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

***Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.*

HVAC – Residential Energy Star Quality Installation Subprogram

	Mission
SW Program: **Residential and Commercial HVAC** SCE-SW-007, PGE2106, SDGE3151, SCG3657	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: : **Residential Energy Star Quality Installation** SCE-SW-007d, PGE21064, SDGE3145, SCG3651	This sub-program is applicable to installations of central air conditioning (CAC) systems and air-source heat pump (HP) systems, with a rated capacity up to 65,000 BTU/H. Through this sub-program, a financial incentive will be available to homeowners who have a system installed in accordance with the EPA HVAC Quality Installation Guidelines. The installation requirements are illustrated in detail in ANSI/ACCA 5 QI-2007: HVAC Quality Installation Specification. In addition to this incentive, homeowners will also receive an ENERGY STAR® certificate for their qualifying installation. Contractors will be actively recruited into the sub-program by being offered the opportunity to receive performance incentives, such as utility co-branding opportunities, and diagnostic equipment for reaching specific performance milestones.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (2) Quality installation and maintenance becomes the industry and market norm. The marketplace understands and values the performance benefits of Quality Installation and Quality Maintenance. Goal Results: By 2020 100 percent of systems are installed to quality standards and optimally maintained throughout their useful life.	p.61
Strategy 2-1: Create a statewide Quality Installation and Maintenance (QI/QM) brand that will be attached to systems/installations/contractors that meet quality standards.	p.62
Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents.	p.63
Strategy 2-4: Develop and implement comprehensive contractor accreditation program.	p.63

Short-term (2010-2012) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Recommendations and Comments**
Objective 1 – By 2012, XX% of Residential HVAC systems in the IOUs' service area are installed to the Energy Star Residential Quality Installation standard.	**Staff**	Revise to: By end of 2012, increase the number of HVAC contracting companies that are participating in statewide residential QI program as a share of the targeted marke number of C-20 licensed HVAC contractors in CA). Baseline number reported an set in annual metrics report submitted in Q1, 2011. Comment: Participation is defined as HVAC contracting companies with signed program participation agreement.
Objective 2 – Residential customers begin to demand Commercial Quality Installations from contractors.	**Staff**	Replace with: Increase average percentage of "certified" HVAC technicians within each contrac company that participates in the residential QI program. Baseline number reporte target set, including the definition of "certified" set for each IOU service territory, i annual metrics report submitted in Q1, 2011. Comment: Suggest replacing proposed objective 2, because it is not quantifiable. Participation is defined as HVAC contracting companies with signed program participation agreement. And "certified" is understood to be a minimum standard qualification for performing work using Quality Installation standards, and could ir NATE certification, or other equivalent or higher demonstrated skill level, such as appropriate union training level.

IOU proposed metric: adoption of statewide QI standards by Q2 2011. (eligibility guideline, what does QI mean in terms of our programs)

Short-term Sub-program PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Recommendations and Comments**

PPM 1 – Percentage of participating contractors and technicians, as a share of the target market, trained and using Residential Quality Installation methods. **ACCEPTED Proposed #4 (james): % of contractors that participating in res QI program as a share of the targeted market (TM = licensed HVAC contractors).** **ACTION ITEM: IOU look at these and come back with cleaned up language.** Proposed: Percentage/Number of participating contractors and technicians that understand and have adopted Res QI methods as part of their business practice within the program themselves. (subset who have gone from apportion of their jobs from this standard to going to all of their jobs at this standard). An increase in the # of QI installations. **Proposed #2: Average # of jobs per participating contractor (as percent of total jobs) that meet QI standards. (you have a participant that submitted 5 jobs, how many of those make it through – this is not a % of all the jobs)** **ACCEPTED Proposed #3: Average # of jobs being submitted (10 jobs in one year, but 5 fail. As you increase from 10 to 15, the long term goal would be how is that affecting your business) to the program that meet QI standards per year, and monitoring the subsequent jobs.** **What % of business are you impacting. And is the bulk of contractor base doing it? If this is part of data collection then no this data won't be ready by end of year.**	**Staff**	**2 B**	**Y**	Revise to: Percentage of HVAC contracting companies that are partici in statewide residential QI program as a share of the targete market (TM = C-20 licensed HVAC contracting companies i Comment: Participation is defined as HVAC contracting companies wit signed program participation agreement.

Program collection can find out how many contractors participating and hone down how many were active in SCE service territory. What is the number of participating contractors as a percent of the total eligible market of contractors? ED: in the entire contractor market, what % are targeted markets participating in your programs**. # of participating contractors as a percent of the total eligible market of contractors.** (Utils – out of utility control. It's a business decision). Three parts: 1. participating contractors in the program (those who have gone through the training); 2. employment of those practices; 3. Util: both what is happening through program and what program parts are doing outside of the program Of the market that you are trying to penetrate, what % participate? Util – would take Alliance to get that number and would be more down the road When you launch there are 150 interested, but at the end there are only 20, this metric does not capture what was truly happening in the market. If there are 10 contractors, we'd have to look at every proposal of what they are doing. SCE: Of the ones that are in, here is what you are getting in terms of business practices. But entire market question is ambiguous. Proposed metric: Start with participating contractors. Did you have a launch, did you have a training session, how many come into the program. Customer satisfaction is a key indicator of success. Are we in major publication, in trade shows. How many have adopted these practices? What is it about a QI that makes it better and more valuable. If you put metric around those that participate you'll see the change.				

Brett suggestion: How many project go through energystar or how many contractors make it through energystar. (everyone who goes through energy star does not have to go through program) Energystar project in the broader marketplace. SCE proposed: levels of customer satisfaction. Can we get what % of all jobs you do to meet this standard? SCE hasn't done that. But would be fairly straightforward. Out of total staff, how many are certified?				
PPM 2 – Weighted average percentage of certified technicians among participating contractors PGE does not require 50% SDGE will have information SCE has that data when they sign participation agreement Re-surveying is doable on SCE, PGE would be interested in doing. SDGE take the lead to implement a statewide contractor selection process	**Staff**	**2 B**	**Y**	Revise to: Average percentage of "certified" HVAC technicians within e contracting company that participates in the residential QI p Comment: Participation is defined as HVAC contracting companies wit signed program participation agreement. And "certified" is understood to be an agreed appropriate minimum standard qualification for performing work using Quality Installation standards in an IOU service territory, and could include NA certification, or other equivalent or higher demonstrated skil such as an appropriate union training level.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-term (2013-2020) "SMART" Sub-program Objectives	Source (SP, AL, DR, PIP, or Staff)*	IOU Recommendations and Comments
Objective 1 – By 2020, 100% of Residential HVAC systems in California are installed to the Quality Installation standard.	**SP**	Revise to: By 2020, a target percentage of Residential HVAC systems installed by partici contractors comply with Quality Installation standards. **Note**: The current state HVAC program is laying the foundation for defining the Quality Installation stan to be used in statewide program efforts, and this foundation, further IOU-CPUC collaboration, interaction with the HVAC industry via the Western HVAC Perfor Alliance, and a baseline study will then enable a better determination of subse practical and obtainable short-, medium- and long-term objectives and market transformation indicators. (100% is a useful theoretical vision to aim for in CA's efforts, but that absolute number is not reasonable as a hard target because it realistically attainable.)
Objective 2 – Residential customers demand Energy Star Quality Installations from contractors.	**Staff**	Comment: Agree with vision, but it is not yet clear how this can be measured. Further IOU CPUC collaboration and a baseline study would be required to more clearly de terms used and for setting appropriate LT target and timeline. This is a metric not an objective.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

Long-Term Sub-program MT Indicators:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (3)**	Baseline Study Required (Y/N)	IOU Recommendations and Comments
MT Indicator 1 – Identify the percentage change in the use of Quality Installation guidelines among all California Residential HVAC installation contractors.	**Staff**	**3**	**Y**	Revise to: Identify the percentage change in the use of Quality Installation guidelines among all California Residential HVAC installation contractors. Comment: Agree with vision, but it is not yet clear how this can be measure Further IOU-CPUC collaboration and a baseline study would be to more clearly define terms used and for setting appropriate LT and timeline.

				Baseline study is required.

HVAC – Commercial Quality Installation Subprogram

	Mission
SW Program: **Residential and Commercial HVAC** SCE-SW-007, PGE2106, SDGE3151, SCG3657	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation process of California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load reduction; and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: : **Commercial Quality Installation** SCE-SW-007c, SDGE21063, SDGE3146, SCG3652	This sub-program is applicable to installations of packaged HVAC systems, with a rated capacity up to 760,000 BTU/H. Through this sub-program, a financial incentive will be available to contractors who complete a system installation in accordance with the appropriate industry standards (e.g., ACCA, SMACNA and ASHRAE). Contractors will be actively recruited into the program by offering them the opportunity to receive financial and performance incentives such as utility co-branding opportunities, diagnostic equipment for reaching specific performance milestones, and assistance aligning with the ENERGY STAR® Service & Product Provider program.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (2) Quality installation and maintenance becomes the industry and market norm. The marketplace understands and values the performance benefits of Quality Installation and Quality Maintenance. Goal Results: By 2020 100 percent of systems are installed to quality standards and optimally maintained throughout their useful life.	p.61
Strategy 2-1: Create a statewide Quality Installation and Maintenance (QI/QM) brand that will be attached to systems/installations/contractors that meet quality standards.	p.62
Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents.	p.63
Strategy 2-4: Develop and implement comprehensive contractor accreditation program.	p.63

Short-term (2010-2012) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Recommendations and Comments**
Objective 1 – By 2012, XX% of Commercial HVAC systems in the IOUs' service area are installed to the Quality Installation standard.	**Staff**	Revise to: By 2012, increase the number of HVAC contracting companies that are participa statewide commercial QI program as a share of the targeted market (TM = numb C-20 licensed HVAC contractors in CA). Baseline number reported and target se annual metrics report submitted in Q1, 2011). Comment: Participation is defined as HVAC contracting companies with signed program participation agreement.
Objective 2 – Commercial customers begin to demand Commercial Quality Installations from contractors.	**Staff**	Replace with: Increase average percentage of certified HVAC technicians within each contracti company that participates in the commercial QI program. Baseline number repor and target set , including the definition of "certified" set for each IOU service territ annual metrics report submitted in Q1, 2011). Comment: Participation is defined as HVAC contracting companies with signed program participation agreement. And "certified" is understood to be a minimum standard qualification for performing work using Quality Installation standards, and could in NATE certification, or other equivalent or higher demonstrated skill level, such as appropriate union training level.

Short-term Sub-program PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Recommendations and Comments**
PPM 1 - Percent of participating contractors and technicians, as a share of the target market, trained and using Commercial Quality Installation methods. (see res QI)	Staff	2 B	Y	Revise to: Percentage of HVAC contracting companies that are particip in statewide commercial QI program as a share of the targete market (TM = C20 licensed HVAC contracting companies in

				Comment: Participation is defined as HVAC contracting companies with signed program participation agreement. No baseline study required; a data request would be more appropriate.
PPM 2 – Weighted average percentage of certified technicians among participating contractors (i.e., above the 70% eligibility rule). (see res QI)	Staff	2 B	Y	Revise to: Average percentage of "certified" HVAC technicians within ea contracting company that participates in the commercial QI program. Comment: Participation is defined as HVAC contracting companies with signed program participation agreement. And "certified" is understood to be an agreed appropriate minimum standard qualification for performing work using Quality Installation standards in an IOU service territory, and could include NATE certification, or other equivalent or higher demonstrated skill l such as an appropriate union training level. No baseline study required; a data request would be more appropriate.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-term (2013-2020) "SMART" Sub-program Objectives	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Recommendations and Comments**
Objective 1 – By 2020, 100% of Commercial HVAC systems in California are installed to the Quality Installation standard.	**SP**	Revise to: By 2020, a target percentage of Commercial HVAC systems installed by participat contractors comply with Quality Installation standards. Comment: The current statewide HVAC program is laying the foundation for defining the Qua Installation standards to be used in statewide program efforts, and this foundation, further IOU-CPUC collaboration, interaction with the HVAC industry via the Weste

		HVAC Performance Alliance, and a baseline study will then enable a better determination of subsequent practical and obtainable short-, medium- and long-ter objectives and market transformation indicators. (100% is a useful theoretical visio aim for in CA's efforts, but that absolute number is not reasonable as a hard target because it is not realistically attainable.)
Objective 2 – Commercial customers demand Commercial Quality Installations from contractors.	**Staff**	Comment: Agree with vision, but it is not yet clear how this can be measured. Further IOU-CP collaboration and a baseline study would be required to more clearly define terms and for setting appropriate LT target and timeline. This is a metric and not an objective.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

Long-Term Sub-program MT Indicators:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (3)****	**Baseline Study Required (Y/N)**	**IOU Recommendations and Comments**
MT Indicator 1 – Percentage change in the use of Quality Installation guidelines among all California Commercial HVAC installation contractors.	Staff	3	Y	Revise to: MT Indicator 1: Identify the percentage change in the use of Qu Installation guidelines among all California Commercial HVAC installation contractors. Comment: Agree with vision, but it is not yet clear how this can be measur Further IOU-CPUC collaboration and a baseline study would be required to more clearly define terms used and for setting appro LT target and timeline. Baseline study is required.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

HVAC – Quality Maintenance Development Subprogram

	Mission
SW Program: **Residential and Commercial HVAC** SCE-SW-007, PGE2106, SDGE3151, SCG3657	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation pr California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load rec and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: **Quality Maintenance Development** SCE-SW-007e, PGE21065, SDGE3148, SCG3654	This sub-program may represent one of the more creative aspects of the HVAC "Big Bold Energy Efficiency Stra is based on the assumption that energy and demand savings are achievable through the regular application of q maintenance (QM) procedures applied to existing residential and commercial HVAC equipment. This sub-progr intends to: • Quantify those potential savings; and • Develop and implement both a residential and commercial maintenance program focused on comprehensive, continuously improving O&M activities that capture those savings and provide a high return on investment to the thus driving the intense level of market transformation of the HVAC industry envisioned by the Strategic Plan. *The program:* *(1) Promotes industry standard practices through a comprehensive approach to HVAC servicing.* *(2) Demonstrates a clear value proposition to contractors for a profitable business opportunity based on prov* *(3) Provides an effective training program to ensure that technicians can properly implement QM services.* (4) *Promotes benefits of QM and certified contractors to end-users.*

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (2) Quality installation and maintenance becomes the industry and market norm. The marketplace understands and values the performance benefits of Quality Installation and Quality Maintenance. Goal Results: By 2020, 100 % of systems are installed to quality standards and optimally maintained throughout their useful life.	p.61
Strategy 2-1: Create a statewide Quality Installation and Maintenance (QI/QM) brand that will be attached to systems/installations/contractors that meet quality standards.	p.62

Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents.	p.63
Strategy 2-4: Develop and implement comprehensive contractor accreditation program.	p.63

Short-term (2010-2012) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Recommendations and Comments**
Objective 1 –By 2012, Statewide Quality Maintenance standards are adopted and implemented in IOU programs	**Staff**	Revise to: By the end of 2012, Statewide Quality Maintenance standards are ado implemented in IOU programs.

Short-term Sub-program PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	IOU Recommendations and Comments
AGREED PPM 1 –Progress towards milestones in the development/finalization of Quality Maintenance standards used in this IOU program. - alliance has more granular information in terms of a project plan and milestones. - Development plan has milestones and alliance will provide those and what was complete to date. What reports are coming out to date. - **MEL ACTION ITEM: provide progress reports on status of adoption of deliverables from development plan specifically for commercial** - **IOUs before next wed**: discuss what we can provide as a team. James want to make sure they can deliver. - Standards say this is what you do, utils have to report how they are meeting those standards	Staff	2 A	N	Revise to: Measured progress towards specific milestones provid project GANTT chart indicating the development/finaliz this IOU program based on Quality Maintenance stand

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**Metric type: 2a = reported annually, 2b = reported by end of cycle.

Long-Term (2013-2020) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	IOU Recommendations and Comments
Objective 1 –By 2020, 100% of HVAC systems are optimally maintained in California	**SP**	Revise to: By 2020, a target percentage of Commercial HVAC systems maintained b statewide program participating contractors are optimally maintained in Ca Comment: The current statewide HVAC program is laying the foundation for defining Quality Maintenance standards to be used in statewide program efforts, a foundation, further IOU-CPUC collaboration, interaction with the HVAC in the Western HVAC Performance Alliance, and a baseline study will then e better determination of subsequent practical and obtainable short-, mediu long-term objectives and market transformation indicators. (100% is a use theoretical vision to aim for in CA's efforts, but that absolute number is no reasonable as a hard target because it is not realistically attainable.)
Objective 2 – Increase in the percentage of homes and businesses awareness of and demand for Quality Maintenance services in California	**Staff**	Agree with vision, but it is not yet clear how this can be measured. Furthe CPUC collaboration and a baseline study would be required to more clear terms used and for setting appropriate LT target and timeline. This is a metric not an objective.

*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]

Long-Term Sub-program MT Indicators:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (3)****	**Baseline Study Required (Y/N)**	**IOU Recommendations and Comments**

MT Indicator 1 – Percent change in the employment of Quality Maintenance practices among all California HVAC contractors and technicians.	Staff	3	Y	Comment: Agree with vision, but it is not yet clear how this can be measu Further IOU-CPUC collaboration and a baseline study would b to more clearly define terms used and for setting appropriate L and timeline. Baseline required

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

***Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.*

HVAC – Technologies and System Diagnostics Subprogram

	Mission
SW Program: **Residential and Commercial HVAC Program**	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation pr California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load rec and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: **Technologies & System Diagnostics Advocacy**	HVAC Technologies and System Diagnostics Advocacy is a coordinative and advocacy program that addresses priority need for immediate and comprehensive action addressing elements critical to increasing, optimizing and maintaining the energy and peak electricity efficiency performance of direct expansion (DX)/vapor-compression–cooling equipment and accelerating the market introduction of a range of advanced evaporative-based cooling technologies. The sub-program includes unprecedented participation by HVAC industry stakeholders in research development, and design, continuous review and updating, and operation of HVAC-related IOU programs. This unprecedented cooperation and collaboration with the HVAC industry has the purpose of substantially advancing related program quality and effectiveness. A continuous program improvement process will be introduced to pro active, real-time means for improving program effectiveness and incorporating results between planning cycles.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (4) New climate-appropriate HVAC technologies (equipment and controls, including system diagnostics) are developed with accelerated market penetration (CEESP, p. 59) Goal Results: At least 15% of equipment shipments are optimized for California's climate	p. 59
Strategy 4-3: Accelerate market penetration of advanced technologies by HVAC industry promotions and updating/expanding current utility programs to include new technologies as appropriate.	p. 65
Strategy 4-5: Develop nationwide standards and/or guidelines for onboard diagnostic functionality and specifications for designated sensor mount locations.	p. 65

Short-term (2010-2012) "SMART" Sub-program Objectives:	**Source (SP, AL, DR, PIP, or Staff)***	IOU Recommendations and Comments

By 2012, Industry-wide task force develops roadmap (i.e., plan and recommendations) to support the development of a national standard on board diagnostic protocol Definition of "roadmap": utils →plan and recommendation for the industry (industry, manuf actions), come up with data and recommendations. Utils should not define but industry should be involved with definitions ED → currently have a very long laundry list, but now need a roadmap. By 2012, focus on on-board diagnostics (should be the focus) Trane has not had these discussions yet	EESP, p. 65	Revise to: Objective 1: By the end of 2012, Industry-wide task force develops roadm plan and recommendations) to support the development of a national stan on-board diagnostic protocol for use with unitary packaged HVAC system
By 2015, increase by xx% the availability of air conditioners with on board diagnostics, relative to 2010. - baseline data may not exist (or proprietary) - different across all manufacturers - next program cycle - **DECISION – move to LT**	Staff	Comment: Moved to long term objectives for next program cycle as proposed. Lang below. Revise to: Objective 2: By 2015, increase the availability of unitary packaged HVAC with on-board diagnostics. Baseline and target to be set by the end of 201

Short-term <u>Sub-program</u> PPMs:	**Source (SP, AL, DR, PIP, or Staff)***	**Metric Type (2a or 2b)****	**Baseline Study Required (Y/N)**	**IOU Recommendations and Comments**
Status of progress towards completion of roadmap to support the development of a national standard diagnostic protocol (activities, concrete actions taken)	Staff	2A (status of progress would be reported annual)	N	Revise to: Status of progress towards completion of roadmap (i.e., p recommendations) to support the development of a natio standard diagnostic protocol (activities, concrete actions t
Percent increase in availability of diagnostics in IOU service territory (move to LT)	Staff	2B	Y	Move to long-term objectives for next program cycle. Comment: Baseline Study Required: Not certain. With move to LT, if baseline study would be required at this time.

*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]
**Metric type: 2a = reported annually, 2b = reported by end of cycle.

Long-Term (2013-2020) "SMART" Sub-program Objectives:	Source (SP, AL, DR, PIP, or Staff)*	IOU Recommendations and Comments
By 2015, federal minimum standards for diagnostic techniques are adopted. - utils: 2015 not realistic, just hope to be on agenda	Staff and SP (pg 65)	Revise to: By 2020, state minimum standards for diagnostic techniques are ad

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Long-Term Sub-program MT Indicators:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (3)**	Baseline Study Required (Y/N)	IOU Recommendations and Comments
Code adoption of diagnostic standards (Y/N)	SP (pg 65)	3	N	Comment: Further IOU-CPUC collaboration would be required to mor define terms used and for setting appropriate LT target and

*SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]
**Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.

HVAC – Workforce Education & Training Subprogram

	Mission
SW Program: **Residential and Commercial HVAC** SCE-SW-007, PGE2106, SDGE3151, SCG3657	The Residential and Commercial HVAC Program is a Statewide program that will continue the transformation pr California's HVAC market to ensure that: • HVAC technology, equipment, installation, and maintenance are of the highest quality; • Quality installation and maintenance practices are easily recognized and requested by customers; • The HVAC value chain is educated and understands their involvement with energy efficiency and peak load rec and • The above changes lead to sustained profitability for HVAC trade allies as the business model for installing and maintaining heating and cooling systems changes from a commodity-based to a value-added service business.
SW Sub-program: **Workforce Education & Training** SCE-SW-007f, PGE21066, SDGE3150, SCG36556	This sub-program will deliver a dedicated, industry-specific effort that offers education and training opportunities at all levels of the HVAC value chain. Prior to starting such an activity, and as outlined in the Strategic Plan, the program will conduct a comprehensive training-needs assessment to determine industry skill gaps, identify oppo for collaboration with existing HVAC education and training infrastructure, and implement recommendations nee close gaps at all levels of the industry.

CA EESP Goals/Strategies Addressed by SW Sub-program:	**CA EESP Ref. pp. #**
Goal (2) Quality installation and maintenance becomes the industry and market norm. The marketplace understands and values the performance benefits of Quality Installation and Quality Maintenance. Goal Results: By 2020 100 percent of systems are installed to quality standards and optimally maintained throughout their useful life.	p. 61
Strategy 2-1: Create a statewide Quality Installation and Maintenance (QI/QM) brand that will be attached to systems/installations/contractors that meet quality standards.	p. 62
Strategy 2-3: Develop and provide expanded QI/QM training for contractors, technicians and sales agents.	p. 63
Strategy 2-4: Develop and implement comprehensive contractor accreditation program.	p. 63
Goal (3) Whole building design and construction practices fully integrate building performance objectives to reduce cooling and heating loads. Goal Results: Integrated design and construction practices are standard practice by 2020	p. 63
Strategy 3-3: Accelerate HVAC related aspects of whole building design in the educational and professional communities	p. 64

(1) Provides training to contractors and technicians on industry standards/practices.	p. 64
(2) Works with industry training providers to encourage existing training curriculum include consistent messaging about industry QI/QM standards.	p. 64

Short-term (2010-2012) "SMART" Sub-program Objective: Curriculum Development	**Source (SP, AL, DR, PIP, or Staff)***	**IOU Recommendations and Comments**
Objective 1 – By 2012 work through the Alliance and stakeholders to identify reasonable goals for training and certification, including what we are getting from our industry, where it comes from, and the definitions for the industry. - plenty of places to get certified (which certification, how did they define QI, set of courses for cert..) - SCE: res it's easier to get the data (ihaci not in pge) but not so in commercial. 46,000 techs – quite an undertaking - PGE: does not have this data for res or com - Sempra: does not have this data for res or com (can track their own training but not the schools) - PGE does not the organization that does this work so they don't have that data readily tracked (ihaci) - **Agreement: this metric is not possible because of the infrastructure is not in place.** - **Best Metric: Work through alliance and take on that goal to establish that number for commercial. Can't be established today. By 2012 work with stakeholders to identify reasonable goals for training and certification. What are we getting from our industry and where it comes from. Have definitions as well – for Quality Installation, for example.** - **Alliance will lay out the structure (not definition yet) just getting the people first.** - ***Action item: utils by Wednesday to come with redefined language for this metric (take the discussion and make it look like the tech and systems diagnostic objective)***	Staff	Revise to: By the end of 2012, work through the Western HVAC Performa Alliance to develop a detailed WE&T roadmap (plans, goals, tim and recommendations). Comment: Agreed, with the required clarification per discussion from PPM meetings.

can we get estimate on this year this date how many tech trained and passing QI and QM - ashrae, acca → start here		

Short-term Sub-program PPMs:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (2a or 2b)**	Baseline Study Required (Y/N)	IOU Recommendations and Comments
PPM 1 – Number of contractors and technicians trained in Quality Installation and Quality Maintenance and passing certification.	Staff	2 A	Y	Revise to: Status of progress towards completion (activities, con actions taken) of detailed WE&T roadmap (plans, goa timelines and recommendations).

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*
***Metric type: 2a = reported annually, 2b = reported by end of cycle.*

Long-Term (2013-2020) "SMART" Sub-program Objective: Course Availability	Source (SP, AL, DR, PIP, or Staff)*	IOU Recommendations and Comments
Objective 1 – By 2020, the availability of Quality Installation and Quality Maintenance training courses and certification is widespread.	Staff	Revise to: By 2020, courses using Quality Installation and Quality Maintenance standards are available in the IOU service territories.

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Long-Term Sub-program MT Indicators:	Source (SP, AL, DR, PIP, or Staff)*	Metric Type (3)**	Baseline Study Required (Y/N)	IOU Recommendations and Comments
MT Indicator 1 – Number of institutions offering Quality Installation and Quality Maintenance courses	Staff	3	Y	Revise to: Percentage of California HVAC-training institutions offering cour

				using Quality Installation and Quality Maintenance standards. Comment: Further IOU-CPUC collaboration would be required to ensure cle definition of terms used and for setting appropriate LT target and timeline.

**SP=Strategic Plan, AL=Advice Letter, DR=Data Request Response, PIP=program plans, Staff=ED proposed. [Include page reference when applicable.]*

***Metric type: 3 = data collection, tracking, and reporting [by IOUs, CPUC staff, and/or other entities] to be determined later.*