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PACIFIC GAS AND ELECTRIC COMPANY

STANDARD OFFER #1

POWER PURCHASE AGREEMENT

FOR

AS-DELIVERED CAPACITY AND ENERGY

OCTOBER 1984

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AS-DELIVERED CAPACITY AND ENERGY POWER PURCHASE AGREEMENT

BETWEEN

CALAVERAS HYDRO PARTNERS

AND

PACIFIC GAS AND ELECTRIC COMPANY

CALAVERAS HYDRO PARTNERS ("Seller"), and PACIFIC GAS

AND ELECTRIC COMPANY ("PGandE"), referred to collectively as

"Parties" and individually as "Party", agree as follows:

ARTICLE 1 QUALIFYING STATUS

Seller warrants that, at the date of first power deliveries from Seller's <u>Facility</u> and during the <u>term of agreement</u>, its <u>Facility</u> shall meet the qualifying facility requirements established as of the effective date of this Agreement by the Federal Energy Regulatory Commission's rules (18 Code of Federal Regulations 292) implementing the Public Utility Regulatory Policies Act of 1978 (16 U.S.C.A. 796, et seq.).

Underlining identifies those terms which are defined in Section A-1 of Appendix A.

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(a) Seller shall sell and deliver and PGandE shall purchase and accept from the <u>Facility</u> having a nameplate rating of 230 kW located at Schaads Reservoir, Section 9, T6N, R14E, MDB&M, Calaveras County the as-delivered capacity and energy at the <u>voltage level</u> of 12 kV. Seller has chosen net energy output ¹ as its energy sale option. Seller may convert its energy sale option as provided in Section A-3 of Appendix A.

- (b) The scheduled operation date when Seller estimates first delivery of electric energy from the <u>Facility</u> to PGandE is October 1, 1987. At the end of each calendar quarter Seller shall give to PGandE written notice of any change in the scheduled operation date.
- (c) To avoid exceeding the physical limitations of the $\frac{\text{interconnection}}{\text{facilities}}, \quad \text{Seller} \quad \text{shall} \quad \text{limit} \quad \text{the}$ $\frac{\text{Facility's}}{\text{kW}^2}.$
- (d) The primary energy source for the <u>Facility</u> is hydro.

Insert either "net energy output" or "surplus energy output" to show the energy sale option selected by Seller.

To be determined upon completion of the detailed interconnection study for the <u>Facility</u>.

If Seller does not begin construction of its Facility by October 1986, PGandE may reallocate the existing capacity on PGandE's transmission and/or distribution system which would have been used to accommodate Seller's power the οf such deliveries to other uses. In event reallocation, Seller shall pay PGandE for the cost of any upgrades or additions to PGandE's system necessary to accommodate the output from the Facility. Such additional facilities shall be installed, owned, and maintained in accordance with the applicable PGandE tariff.

The transformer loss adjustment factor is 1. (f)

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ARTICLE 3 PURCHASE PRICE

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PGandE shall pay Seller for as-delivered capacity at prices authorized from time to time by the CPUC and which are derived from PGandE's full avoided costs as approved by PGandE shall pay Seller for energy at prices the CPUC. equal to PGandE's full short run avoided operating costs as approved by the CPUC. PGandE's current as-delivered capacity price calculation is shown in Appendix C. PGandE's

If Seller chooses to have meters placed on Seller's side of the transformer, an estimated transformer loss adjustment factor of

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² percent, unless the Parties agree otherwise, will be applied. This estimated transformer loss figure will be adjusted to a measurement of actual transformer losses performed at Seller's request and expense. To be determined upon completion of the 28 detailed interconnection study for the Facility.

1	current energy pri	ice calculation is shown in Table A,
2	Appendix B.	
3		· `.
4		ARTICLE 4 NOTICES
5		· · · · · · · · · · · · · · · · · · ·
6	All written not	tices shall be directed as follows:
7		
8		Pacific Gas and Electric Company Attention: Vice President -
9		Electric Operations 77 Beale Street
10		San Francisco, CA 94106
11		Calaveras Hydro Partners c/o Auslam & Associates
12]	3327 Longview Dr., Suite 250 North Highlands, CA 95660
13		Phone (916) 972-0507
14 15	አውሞ፤ሪ፤ ፫	5 DESIGNATED SWITCHING CENTER
16	ARTICLE	5 DESIGNATED SWITCHING CENTER
17	The designated	PGandE switching center shall be unless
18	changed by PGandE:	
19		1
20		(Name)
21		(Location)
22		
2 3		(Phone number)
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To be determined upon completion of the detailed interconnection study for the $\underline{Facility}$.

ARTICLE 6 TERMS AND CONDITIONS

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DATE SIGNED: October 10, 1984

TITLE:

This Agreement includes the following appendices which are attached and incorporated by reference:

Appendix A - GENERAL TERMS AND CONDITIONS

Appendix B - ENERGY PRICES

Appendix C - AS-DELIVERED CAPACITY PRICES

Appendix D - INTERCONNECTION

ARTICLE 7 TERM OF AGREEMENT

This Agreement shall become effective on the date of execution by the Parties and shall remain in effect until terminated by Seller.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives and effective as of the last date set forth below.

CALAVERAS HYDRO PARTNERS

PACIFIC GAS AND ELECTRIC COMPANY

INGOLF HERMANN

General Partner

BY:

NOLAN H. DAINES

T

Vice President - TITLE: Planning and Research

DATE SIGNED:

NED: 1/28/85

S.O. #1 May 7, 1984

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APPENDIX A

GENERAL TERMS AND CONDITIONS

A-1 DEFINITIONS

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Whenever used in this Agreement, appendices, and attachments hereto, the following terms shall have the following meanings:

<u>CPUC</u> - The Public Utilities Commission of the State of California.

Designated PGandE switching center - That switching center or other PGandE installation identified in Article 5.

Facility - That generation apparatus described in Article 2 and all associated equipment owned, maintained, and operated by Seller.

Interconnection facilities - All means required and apparatus installed to interconnect and deliver power from the Facility to the PGandE system including, but not limited to, connection, transformation, switching, metering, communications, and safety equipment, such as equipment required to protect (1) the PGandE system and its customers from faults occurring at the Facility, and (2) the Facility from faults occurring on the PGandE system or on the systems of others to which the PGandE system is directly or

Interconnection facilities also indirectly connected. include any necessary additions and reinforcements by PGandE to the PGandE system required as a result of the interconnection of the Facility to the PGandE system.

Net energy output - The Facility's gross output in kilowatt-hours less station use and transformation and transmission losses to the point of delivery into the PGandE Where PGandE agrees that it is impractical to system. connect the station use on the generator side of the power purchase meter, PGandE may, at its option, apply a station load adjustment.

Those practices, electrical practices -Prudent methods, and equipment, as changed from time to time, that are commonly used in prudent electrical engineering and operations to design and operate electric equipment lawfully and with safety, dependability, efficiency, and economy.

additions and facilities Those Special reinforcements to the PGandE system which are needed to accommodate the maximum delivery of energy and capacity from the Facility as provided in this Agreement and those parts of the interconnection facilities which are owned and maintained by PGandE at Seller's request, including metering and data processing equipment. All special facilities shall

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be owned, operated, and maintained pursuant to PGandE's electric Rule No. 21, which is attached hereto.

Station use - Energy used to operate the Facility's auxiliary equipment. The auxiliary equipment includes, but is not limited to, forced and induced draft fans, cooling towers, boiler feed pumps, lubricating oil systems, plant lighting, fuel handling systems, control systems, and sump pumps.

Surplus energy output - The Facility's gross output, in kilowatt-hours, less station use, and any other use by the Seller, and transformation and transmission losses to the point of delivery into the PGandE system.

Term of agreement - The period of time during which this Agreement will be in effect as provided in Article 7.

<u>Voltage level</u> - The voltage at which the <u>Facility</u> interconnects with the PGandE system, measured at the point of delivery.

A-2 CONSTRUCTION

A-2.1 Land Rights

Seller hereby grants to PGandE all necessary rights of way and easements to install, operate, maintain, replace,

and remove the special facilities, including adequate and 1 2 continuing access rights on property of Seller. agrees to execute such other grants, deeds, or documents as 3 PGandE may require to enable it to record such rights of way 4 and easements. If any part of PGandE's equipment is to be 5 installed on property owned by other than Seller, Seller 6 shall, at its own cost and expense, obtain from the owners 7 thereof all necessary rights of way and easements, in a form 8 satisfactory to PGandE, for the construction, operation, 9 maintenance, and replacement of PGandE's equipment upon such 10 property. If Seller is unable to obtain these rights of way 11 and easements, Seller shall reimburse PGandE for all costs 12 incurred by PGandE in obtaining them. PGandE shall at all 13 times have the right of ingress to and egress from the 14 Facility at all reasonable hours for any purposes reasonably 15 connected with this Agreement or the exercise of any and all 16 rights secured to PGandE by law or its tariff schedules. 17

A-2.2 Design, Construction, Ownership, and Maintenance

(a) Seller shall design, construct, install, own, operate, and maintain all interconnection facilities, except special facilities, to the point of interconnection with the PGandE system as required for PGandE to receive as-delivered capacity and energy from the Facility. The Facility and interconnection facilities shall meet all requirements of

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practices and shall be maintained in a safe and prudent manner. A description of the interconnection facilities for which Seller is solely responsible is set forth in Appendix D or if the interconnection requirements have not yet been determined at the time of the execution of this Agreement, the description of such facilities will be appended to this Agreement at the time such determination is made.

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Seller shall submit to PGandE the design and all (b) specifications for the interconnection facilities (except special facilities) for review and written acceptance prior to their release for construction purposes. PGandE shall notify Seller in writing of the outcome of PGandE's review specifications Seller's for design and the of interconnection facilities within 30 days of the receipt of the for specifications design and all of the the Any flaws perceived by PGandE interconnection facilities. in the design and specification for the interconnection PGandE's in will be described facilities notification. PGandE's review and acceptance of the design and specifications shall not be construed as confirming or endorsing the design and specifications or as warranting their safety, durability, or reliability. PGandE shall not, by reason of such review or lack of review, be responsible for strength, details of design, adequacy, or capacity of equipment built pursuant to such design and specifications,

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- (c) In the event it is necessary for PGandE to install interconnection facilities for the purposes of this Agreement, they shall be installed as special facilities.
- (d) Upon the request of Seller, PGandE shall provide a binding estimate for the installation of interconnection facilities by PGandE.

A-2.3 Meter Installation

- (a) PGandE shall specify, provide, install, own, operate, and maintain as special facilities all metering and data processing equipment for the registration and recording of energy and other related parameters which are required for the reporting of data to PGandE and for computing the payment due Seller from PGandE.
- (b) Seller shall provide, construct, install, own, and maintain at Seller's expense all that is required to accommodate the metering and data processing equipment, such as, but not limited to, metal-clad switchgear, switchboards, cubicles, metering panels, enclosures, conduits, rack structures, and equipment mounting pads.

Seller has two energy sale options, net energy output or surplus energy output. Seller has made its initial selection in Article 2(a).

A-3.2 Energy Sale Conversion

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- (a) Seller is entitled to convert from one option to the other 12 months after execution of this Agreement, and thereafter at least 12 months after the effective date of the most recent conversion, subject to the following conditions:
 - (1) Seller shall provide PGandE with a written request to convert its energy sale option.
 - (2) Seller shall comply with all applicable tariffs on file with the CPUC and contracts in effect

s.o. #1 May 7, 1984

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between the Parties at the time of conversion covering the existing and proposed (i) facilities used to serve Seller's premises and (ii) interconnection facilities.

- (3) Seller shall install and operate equipment required by PGandE to prevent PGandE from serving any part of Seller's load which is served by the <u>Facility</u> and not under contract for PGandE standby service. At Seller's request, PGandE shall provide this equipment as <u>special facilities</u>.
- (b) If, as a result of an energy sales conversion, Seller no longer requires the use of interconnection facilities installed and/or operated and maintained by PGandE as special facilities under a Special Facilities Agreement, Seller may reserve these facilities, for its future use, by continuing its performance under its Special Facilities Agreement. If Seller does not wish to reserve such facilities, it may terminate its Special Facilities Agreement.

If Seller's energy sale conversion results in its discontinuation of its use of PGandE facilities not covered by Seller's Special Facilities Agreement, Seller cannot reserve those facilities for future use. Seller's future use of such facilities shall be contingent upon the availability of such facilities at the time Seller requests such use. If such facilities are not available, Seller

(c) PGandE shall process requests for conversion in the order received. The effective date of conversion shall depend on the completion of the changes required to accommodate Seller's energy sale conversion.

A-4 OPERATION

A-4.1 Inspection and Approval

Seller shall not operate the Facility in parallel with PGandE's system until an authorized PGandE representative has inspected the interconnection facilities, given written approval to begin parallel PGandE has operation. Seller shall notify PGandE of the Facility's start-up date at least 45 days prior to such date. PGandE shall inspect the interconnection facilities within 30 days of the receipt of such notice. If parallel operation is not authorized by PGandE, PGandE shall notify Seller in writing inspection of the after days five within authorization for parallel operation was withheld.

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A-4.2 Facility Operation and Maintenance

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Seller shall operate and maintain its <u>Facility</u> according to <u>prudent electrical practices</u>, applicable laws, orders, rules, and tariffs and shall provide such reactive power support as may be reasonably required by PGandE to maintain system voltage level and power factor. Seller shall operate the <u>Facility</u> at the power factors or voltage levels prescribed by PGandE's system dispatcher or designated representative. If Seller fails to provide reactive power support, PGandE may do so at Seller's expense.

A-4.3 Point of Delivery

Seller's electrical conductors (or those of Seller's agent) contact PGandE's system as it shall exist whenever the deliveries are being made or at such other point or points as the Parties may agree in writing. The initial point of delivery of Seller's power to the PGandE system is set forth in Appendix D.

A-4.4 Operating Communications

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(a) Seller shall maintain operating communications with the <u>designated PGandE</u> switching center. The operating communications shall include, but not be limited to, system

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and unscheduled scheduled separation, paralleling or shutdowns, equipment clearances, levels of operating voltage or power factors, and daily capacity and generation reports.

- (b) Seller shall keep a daily operations log for each generating unit which shall include information on unit availability, maintenance outages, circuit breaker trip operations requiring a manual reset, and any significant events related to the operation of the Facility.
- If Seller makes deliveries greater than one megawatt, Seller shall measure and register on a graphic recording device power in kW and voltage in kV at a location within the Facility agreed to by both Parties.
- If Seller makes deliveries greater than one and up to and including ten megawatts, Seller shall report to the designated PGandE switching center, twice a day at agreed upon times for the current day's operation, the hourly readings in kW of capacity delivered and the energy in kWh delivered since the last report.
- (e) If Seller makes deliveries of greater than ten megawatts, Seller shall telemeter the delivered capacity and energy information, including real power in kW, reactive power in kVAR, and energy in kWh to a switching center selected by PGandE. PGandE may also require Seller to telemeter transmission kW, kVAR, and kV data depending on

A-4.5 Meter Testing and Inspection

(a) All meters used to provide data for the computation of the payments due Seller from PGandE shall be sealed, and the seals shall be broken only by PGandE when the meters are to be inspected, tested, or adjusted.

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(b) PGandE shall inspect and test all meters upon their installation and annually thereafter. At Seller's request and expense, PGandE shall inspect or test a meter more frequently. PGandE shall give reasonable notice to Seller of the time when any inspection or test shall take place, and Seller may have representatives present at the test or inspection. If a meter is found to be inaccurate or defective, PGandE shall adjust, repair, or replace it at its expense in order to provide accurate metering.

A-4.6 Adjustments to Meter Measurements

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If a meter fails to register, or if the measurement made by a meter during a test varies by more than two

percent from the measurement made by the standard meter used in the test, an adjustment shall be made correcting all measurements made by the inaccurate meter for (1) the actual period during which inaccurate measurements were made, if the period can be determined, or if not, (2) the period immediately preceding the test of the meter equal to one-half the time from the date of the last previous test of the meter, provided that the period covered by the correction shall not exceed six months.

A-5 PAYMENT

after the end of each monthly billing period (1) a statement showing the kilowatt-hours delivered to PGandE during on-peak, partial-peak, and off-peak *periods during the monthly billing period, (2) PGandE's computation of the payment due Seller, and (3) PGandE's check in payment of said amount. Except as provided in Section A-6, if within 30 days of receipt of the statement Seller does not make a report in writing to PGandE of an error, Seller shall be deemed to have waived any error in PGandE's statement, computation, and payment, and they shall be considered correct and complete.

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A-6 ADJUSTMENTS OF PAYMENTS

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(a) In the event adjustments to payments are required as a result of inaccurate meters, PGandE shall use the corrected measurements described in Section A-4.6 to recompute the amount due from PGandE to Seller for the as-delivered capacity and energy delivered under this Agreement during the period of inaccuracy.

(b) The additional payment to Seller or refund to PGandE shall be made within 30 days of notification of the owing Party of the amount due.

A-7 ACCESS TO RECORDS AND PGandE DATA

Each Party, after reasonable written notice to the other Party, shall have the right of access to all metering and related records including the operations logs of the Facility. Data filed by PGandE with the CPUC pursuant to CPUC orders governing the purchase of power from qualifying facilities shall be provided to Seller upon request; provided that Seller shall reimburse PGandE for the costs it incurs to respond to such request.

A-8 CURTAILMENT OF DELIVERIES AND HYDRO SPILL CONDITIONS

(a) PGandE shall not be obligated to accept or pay for and may require Seller to interrupt or reduce deliveries

of as-delivered capacity and energy (1) when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of its equipment or any part of its system, or (2) if it determines that interruption or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with <u>prudent electrical practices</u>.

(b) In anticipation of a period of hydro spill conditions, as defined by the CPUC, PGandE may notify Seller that any purchases of energy from Seller during such period shall be at hydro savings prices quoted by PGandE. If Seller delivers energy to PGandE during any such period, Seller shall be paid hydro savings prices for those deliveries in lieu of prices which would otherwise be applicable. The hydro savings prices shall be calculated by PGandE using the following formula:

$\frac{AQF - S}{AQF} \times PP$

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where:

- AQF = Energy, in kWh, projected to be available during hydro spill conditions from all qualifying facilities under agreements containing hydro savings price provisions.
- S = Potential energy, in kWh, from PGandE hydro facilities which will be spilled if all AQF is delivered to PGandE.

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(c) PGandE shall not be obligated to accept or pay for and may require Seller with a Facility with a nameplate rating of one megawatt or greater to interrupt or reduce deliveries of as-delivered capacity and energy during periods when purchases under this Agreement would result in costs greater than those which PGandE would incur if it did not make such purchases but instead generated an equivalent amount of energy itself.

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(d) Whenever possible, PGandE shall give Seller reasonable notice of the possibility that interruption or reduction of deliveries under subsections (a) or (c), above, may be required. PGandE shall give Seller notice of general periods when hydro spill conditions are anticipated, and shall give Seller as much advance notice as practical of any specific hydro spill period and the hydro savings price which will be applicable during such period. interrupting or reducing deliveries under subsection (c), above, and before invoking hydro savings prices under subsection (b) above, PGandE shall take reasonable steps to make economy sales of the surplus energy giving rise to the If such economy sales are made, while the condition. surplus energy condition exists Seller shall be paid at the economy sales price obtained by PGandE in lieu of the otherwise applicable prices.

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(e) If Seller is selling net energy output to PGandE and simultaneously purchasing its electrical needs from PGandE, energy curtailed pursuant to subsections (b) or (c) above shall not be used by Seller to meet its electrical needs. When Seller elects not to sell energy to PGandE at the hydro savings price pursuant to subsection (b) or when PGandE curtails deliveries of energy pursuant to subsection (c), Seller shall continue to purchase all its electrical needs from PGandE. If Seller is selling surplus energy output to PGandE, subsections (b) or (c) shall only apply to the surplus energy output being delivered to PGandE, and seller can continue to internally use that generation it has retained for its own use.

A-9 FORCE MAJEURE

(a) The term force majeure as used herein means unforeseeable causes beyond the reasonable control of and without the fault or negligence of the Party claiming force majeure including, but not limited to, acts of God, labor disputes, sudden actions of the elements, actions by federal, state, and municipal agencies, and actions of legislative, judicial or regulatory agencies which conflict with the terms of this Agreement.

(b) If either Party because of force majeure is rendered wholly or partly unable to perform its obligations under this Agreement, that Party shall be excused from

- (1) The non-performing Party, within two weeks after the occurrence of the force majeure, gives the other Party written notice describing the particulars of the occurrence,
- (2) the suspension of performance is of no greater scope and of no longer duration than is required by the force majeure,
- efforts to remedy its inability to perform (this subsection shall not require the settlement of any strike, walkout, lockout, or other labor dispute on terms which, in the sole judgment of the Party involved in the dispute, are contrary to its interest. It is understood and agreed that the settlement of strikes, walkouts, lockouts, or other labor disputes shall be at the sole discretion of the Party having the difficulty), and
- (4) when the non-performing Party is able to resume performance of its obligations under this Agreement, that Party shall give other Party written notice to that effect.
- (c) In the event a Party is unable to perform due to legislative, judicial or regulatory agency action, this

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Agreement shall be renegotiated to comply with the legal change which caused the non-performance.

A-10 INDEMNITY

Each Party as indemnitor shall save harmless and indemnify the other Party and the directors, officers, and employees of such other Party against and from any and all and liability for injuries to persons including loss employees of either Party, and property damages, including property of either Party, resulting from or arising out of (1) the engineering, design, construction, maintenance, or operation of or (2) the making of replacements, additions, to, the indemnitor's facilities. This or betterments provision shall apply harmless indemnity and save notwithstanding the active or passive negligence of the Neither Party shall be indemnified hereunder for liability or loss resulting from its sole negligence or The indemnitor shall, on the other willful misconduct. Party's request, defend any suit asserting a claim covered by this indemnity and shall pay all costs, including reasonable attorney fees, that may be incurred by the other Party in enforcing this indemnity.

A-11 LIABILITY; DEDICATION

(a) Nothing in this Agreement shall create any duty to, any standard of care with reference to, or any liability

to any person not a Party to it. Neither Party shall be liable to the other Party for consequential damages.

- (b) Each Party shall be responsible for protecting its facilities from possible damage by reason of electrical disturbances or faults caused by the operation, faulty operation, or nonoperation of the other Party's facilities, and such other Party shall not be liable for any such damages so caused.
- (c) No undertaking by one Party to the other under any provision of this Agreement shall constitute the dedication of that Party's system or any portion thereof to the other Party or to the public nor affect the status of PGandE as an independent public utility corporation or Seller as an independent individual or entity and not a public utility.

A-12 SEVERAL OBLIGATIONS

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Except where specifically stated in this Agreement to be otherwise, the duties, obligations, and liabilities of the Parties are intended to be several and not joint or collective. Nothing contained in this Agreement shall ever be construed to create an association, trust, partnership, or joint venture or impose a trust or partnership duty, obligation, or liability on or with regard to either Party. Each Party shall be liable individually and severally for its own obligations under this Agreement.

A-21

A-13 NON-WAIVER

Failure to enforce any right or obligation by either Party with respect to any matter arising in connection with this Agreement shall not constitute a waiver as to that matter or any other matter.

A-14 ASSIGNMENT

Neither Party shall voluntarily assign its rights nor delegate its duties under this Agreement, or any part of such rights or duties, without the written consent of the other Party, except in connection with the sale or merger of a substantial portion of its properties. Any such assignment or delegation made without such written consent shall be null and void. Consent for assignment will not be withheld unreasonably. Such assignment shall include, unless otherwise specified therein, all of Seller's rights to any refunds which might become due under this Agreement.

A-15 CAPTIONS

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All indexes, titles, subject headings, section titles, and similar items are provided for the purpose of reference and convenience and are not intended to affect the meaning of the contents or scope of this Agreement.

A-16 CHOICE OF LAWS

This Agreement shall be interpreted in accordance with the laws of the State of California, excluding any choice of law rules which may direct the application of the laws of another jurisdiction.

A-17 GOVERNMENTAL JURISDICTION AND AUTHORIZATION

Seller shall obtain any governmental authorizations and permits required for the construction and operation of the <u>Facility</u>. Seller shall reimburse PGandE for any and all losses, damages, claims, penalties or liability it incurs as a result of Seller's failure to obtain or maintain such authorizations and permits.

A-18 NOTICES

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Any notice, demand, or request required or permitted to be given by either Party to the other, and any instrument required or permitted to be tendered or delivered by either Party to the other, shall be in writing and so given, tendered, or delivered, as the case may be, by depositing the same in any United States Post Office with postage prepaid for transmission by certified mail, return receipt requested, addressed to the Party, or personally delivered to the Party, at the address in Article 4 of this Agreement.

Changes in such designation may be made by notice similarly given.

A-19 INSURANCE

A-19.1 General Liability Coverage

Seller shall maintain during the performance hereof, General Liability Insurance1 of not less than \$1,000,000 if the Facility is over 100 kW, \$500,000 if the Facility is over 20 kW to 100 kW, and \$100,000 if the Facility is 20 kW or below of combined single limit or equivalent for bodily injury, personal injury, and property damage as the result of any one occurrence.

Liability Insurance shall include (b) General coverage for Premises-Operations, Owners and Contractors Protective, Products/Completed Operations Hazard, Explosion, Collapse, Underground, Contractual Liability, and Broad Form Property Damage including Completed Operations.

the endorsement to (c) Such insurance, bу policy(ies), shall include PGandE as an additional insured if the Facility is over 100 kW insofar as work performed by

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Governmental agencies which have an established record of may provide the required coverage through self-insurance self-insurance.

Seller for PGandE is concerned, shall contain a severability of interest clause, shall provide that PGandE shall not by reason of its inclusion as an additional insured incur liability to the insurance carrier for payment of premium for such insurance, and shall provide for 30-days' written notice to PGandE prior to cancellation, termination, alteration, or material change of such insurance.

A-19.2 Additional Insurance Provisions

(a) Evidence of coverage described above in Section A-19.1 shall state that coverage provided is primary and is not excess to or contributing with any insurance or self-insurance maintained by PGandE.

(b) PGandE shall have the right to inspect or obtain a copy of the original policy(ies) of insurance.

- (c) Seller shall furnish the required certificates and endorsements to PGandE prior to commencing operation.
- (d) All insurance certificates¹, endorsements, cancellations, terminations, alterations, and material

A governmental agency qualifying to maintain self-insurance should provide a statement of self-insurance.

1	changes of such insurance shall be issued and submitted	to
2	the following:	
3	PACIFIC GAS AND ELECTRIC COMPANY	
4	Attention: Manager - Insurance Department 77 Beale Street, Room E280	
5	San Francisco, CA 94106	
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S.O. #1 May 7, 1984

APPENDIX B

ENERGY PRICES

TABLE A

Energy Prices Effective August 1 - October 31, 1984

The energy purchase price calculations which will apply to energy deliveries determined from meter readings taken during August, September, and October 1984 are as follows:

	(a) Incremental	(b)	(c) Revenue Requirement for Cash	(d) Energy Purchase Price ⁴
Time Period	Energy Rate ¹ (Btu/kWh)	Cost of Energy ² (\$/10 ⁸ Btu)	Working Capital ³ (\$/kwh)	$\frac{(d) = [(a) \times (b)] + (c)}{(5/kwh)}$
August 1 - September 30 (Period A)	0			
Time of Delivery Basis:				
On-Peak	14,086	5.4050	0.00041	0.07654
Partial-Peak	13,382	5.4050	0.00038	0.07271
Off-Peak	10,499	5.4050	0.00033	0.05708
Seasonal Average (Period A)	12,031	5.4050	0.00036	0.06539
October 1 - October 31 (Period B)				
Time of Delivery Basis:				
On-Peak	16,320	5.4050	0.00053	0.08874
Partial-Peak	15,689	5.4050	0.00051	0.08531
Off-Peak	11,625	5.4050	0.00038	0.06321
Seamonal Average (Period B)	13,692	5.4050	0.00045	0.07446

Incremental energy rates (Btu/kWh) for Seasonal Period A and Seasonal Period B are derived from the marginal energy costs (including variable operating and maintenance expense) adopted by the CPUC in Decision No. 83-12-068 (page 339). They are based upon natural gas as the incremental fuel and weighted average hydroelectric power conditions.

Cost of natural gas under PGandE Gas Schedule No. G-55 effective July 24, 1984 per Advice No. 1280-G.

Revenue Requirement for Cash Working Capital as prescribed by the CPUC in Decision No. 83-12-068.

Energy Purchase Price = (Incremental Energy Rate x Cost of Energy) + Revenue Requirement for Cash Working Capital. The energy purchase price excludes the applicable energy line loss adjustment factors. However, as ordered by Ordering Paragraph No. 12(j) of CPUC Decision No. 82-12-120, this figure is currently 1.0 for transmission and primary distribution loss adjustments and is equal to marginal cost line loss adjustment factors for the secondary distribution voltage level. These factors may be changed by the CPUC in the future. The currently applicable energy loss adjustment factors are shown in Table C.

	Time Periods		
	Monday through Friday ²	Satur da ys ²	Sundays and Holidays
Seasonal Period A (May 1 through September 30)		
On-Peak	12:30 p.m.		
	to		
	6:30 p.m.		
Partial-Peak	8:30 a.m.	8:30 a.m.	
	to	to	•
	12:30 p.m.	10:30 p.m.	
	6:30 p.m.		
	to		
	10:30 p.m.		
Off-Peak	10:30 p.m.	10:30 p.m.	All Day
	to	to	-
	8:30 a.m.	8:30 a.m.	
Seasonal Period B (October 1 through April 30))		
	,		
On-Peak	4:30 p.m.		
	to 8:30 p.m.	£ .	
	e:30 p.m.		
Partial-Peak	8:30 p.m.	8:30 a.m.	
	to	to	
	10:30 p.m.	10:30 p.m.	
	8:30 a.m.		
	to		ŧ
	4:30 p.m.		
Off-Peak	10:30 p.m.	10:30 p.m.	All Day
OII-LEGY	to	to	- - · •
	8:30 a.m.	8:30 a.m.	

This table is subject to change to accord with the on-peak, partial-peak, and off-peak periods as defined in PGandE's own rate schedules for the sale of electricity to its large industrial customers.

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Except the following holidays: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day, as specified in Public Law 90-363 (5 U.S.C.A. Section 6103(a)).

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TABLE C

Energy Loss Adjustment Factors 1

	Transmission	Primary <u>Distribution</u>	Secondary Distribution
Seasonal Period A (May 1 through September 30)			
On-Peak Partial-Peak Off-Peak	1.0 1.0 1.0	1.0 1.0 1.0	1.0148 1.0131 1.0093
Seasonal Period B (October 1 through April 30)			
On-Peak Partial-Peak Off-Peak	1.0 1.0 1.0	1.0 1.0 1.0	1.0128 1.0119 1.0087

The applicable energy loss adjustment factors may be revised pursuant to orders of the CPUC.

APPENDIX C

AS-DELIVERED CAPACITY PRICES

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Purchase Price for As-Delivered Capacity from Qualifying Facilities for 1984

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For Facilities with time-of-delivery metering and from which PGandE is contractually obligated to purchase as-delivered capacity at its annually published as-delivered capacity price, the as-delivered capacity payment for power delivered by the Facility to PGandE and accepted by PGandE is based on 100 percent of the shortage value of such power. The payment will be made at a rate which will vary by time of delivery and will be made for each kWh produced and The as-delivered capacity delivered by the Facility. purchase price is shown on Table C as a function of the is the product of three and interconnection voltage, factors:

> year The current shortage cost each in (a) Facility is operating. Currently, this shortage cost, \$156 per kW-year, is the product of the annualized gas turbine cost and the Energy Reliability Index (ERI) adjustment factor, as prescribed by the CPUC in Decision No. 83-12-068 (December 22, 1983). The basis for the shortage cost may be revised by the CPUC from time to time.

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(b) A capacity loss adjustment factor. The current shortage cost is adjusted for the effect of the deliveries on PGandE's transmission and distribution losses based on the Seller's interconnection voltage level. The applicable capacity loss adjustment factors for non-remote¹ Facilities are presented in Table A. Capacity loss adjustment factors for remote Facilities shall be calculated individually.

(c) An allocation factor, which accounts for the different values of as-delivered capacity in different time periods, and converts dollars per kw-year to cents per kwh. The allocation factors are presented in Table B. The time periods to which they apply are shown in Table B, Appendix B.

For Facilities without time-of-delivery metering, the price paid for as-delivered capacity shall be 50% of the current shortage cost (a) multiplied by a capacity loss adjustment factor (b) and multiplied by a weighted average allocation factor (c).

As defined by the CPUC.

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S.O. #1 May 7, 1984

Off-Peak

(¢-yr/\$-hr)

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2	Payment for As-Delivered Capacity from Non-Remote ¹ Qualifying Facilities
3	(The product of the current shortage

(The product of the current shortage cost (a), the capacity loss adjustment factor (b), and the allocation factor (c))

	factor	(b), and the	allocation i	actor (c))	
5	-			Prima	ary
6		Transmission		Distribution	on Voltage
		Seasonal	Seasonal	Seasonal	
7		Period A	Period B (¢/kWh)	Period A (¢/kWh)	Period B (¢/kWh)
8		(¢/kWh)	(¢/kwn)	(¢/ K#11)	(4) Kill)
٥	With Time-of				
9	Delivery Metering				
					•
10	Time of Delivery	16.717	1.382	16.750	1.385
11	On-Peak Partial-Peak	3.171	0.168	3.177	0.169
* *	Off-Peak	0.003	0.002	0.003	0.002
12					
-	Without Time-of				
13	Delivery Metering				
14	Weighted Average	1.948	0.111	1.952	0.111
l	Heighted average				
15					
16			Secon	dary	
• •			Distribution	on Voltage	
17			Seasonal		
			Period A (¢/kWh)	Period B (¢/kWh)	
18			(¢/kwii)	(4/ MHII)	
19	With Time-o	f			
	Delivery Mete				
2 0					t
٠.	Time of Deliv	ery	16.750	1.385	
21	On-Peak Partial-Pe	ak	3.177	0.169	
2 2	Off-Peak	un	0.003	0.002	
2 3	Without Time	-of			
	Delivery Mete	ring			
24	Weighted Aver	3.50	1.952	0.111	
2 5	Weighted Aver	age			
2 6					
	1 i				

As defined by the CPUC.

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2		APPENDIX D	
3		INTERCONNECTION	
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5		CONTENTS	
6	Section		Page
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8	D-2	POINT OF DELIVERY LOCATION SKETCH	D-3
9	D-3	INTERCONNECTION FACILITIES FOR WHICH SELLER IS RESPONSIBLE	D-4
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D-1 INTERCONNECTION TARIFFS

(The applicable tariffs in effect at the time of execution of this Agreement shall be attached.)

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To be determined upon completion of the detailed interconnection study for the <u>Facility</u>.

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S.O. #1 May 7, 1984

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D-3 INTERCONNECTION FACILITIES FOR WHICH SELLER IS

RESPONSIBLE 1

To be determined upon completion of the detailed interconnection study for the Facility.

Revised Cal. P.U.C. Sheet No. 8616-E Cancelling Original Cal. P.U.C. Sheet No. 7693-E

RULE NO. 21 -- NONUTILITY-OWNED PARALLEL CENERATION

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This describes the minimum operation, metering and interconnection requirements for any generating source or sources paralleled with the Utility's electric system. Such source or sources may include, but are not limited to, hydroelectric generators, wind-turbine generators, steam or gas driven turbine generators and photovoltaic systems.

A. GENERAL

- The type of interconnection and voltage available at any location and the Utility's specific interconnection requirements shall be determined by inquiry at the Utility's local office.
- 2. The Utility's distribution and transmission lines which are an integral part of its overall system are distinguished by the voltages at which they are operated. Distribution lines are operated at voltages below 60 kv and transmission lines are operated at voltages 60 kv and higher.
- 3. The Power Producer (Producer) shall ascertain and be responsible for compliance with the requirements of all governmental authorities having jurisdiction.
- 4. The Producer shall sign the Utility's written form of power purchase agreement or parallel operation agreement before connecting or operating a generating source in parallel with the Utility's system.
- The Producer shall be fully responsible for the costs of designing, installing, owning, operating and maintaining all interconnection facilities defined in Section B.1.
- 6. The Producer shall submit to the Utility, for the Utility's review and written acceptance, equipment specifications and detailed plans for the installation of all interconnection facilities to be furnished by the Producer prior to their purchase or installation. The Utility's review and written acceptance of the Producer's equipment apecifications and detailed plans shall not be construed as confirming or endorsing the Producer's design or as warranting the equipment's safety, durability or reliability. The Utility shall not, by reason of such review or lack of review, be responsible for strength, details of design adequacy, or capacity of equipment built pursuant to such specifications, nor shall the Utility acceptance be deemed an endorsement of any such equipment.
- 7. No generating source shall be operated in parallel with the Utility's system until the interconnection facilities have been inspected by the Utility and the Utility has provided written approval to the Producer.
- 8. Only duly authorized employees of the Utility are allowed to connect Producer-installed interconnection facilities to, or disconnect the same from, the Utility's overhead or underground lines.

B. INTERCONNECTION FACILITIES

- 1. CENERAL: Interconnection facilities are all means required, and apparatus installed, to interconnect the Producer's generation with the Utility's system. Where the Producer desires to sell power to the Utility, interconnection facilities are also all means required, and apparatus installed, to enable the Utility to receive power deliveries from the Producer. Interconnection facilities may include, but are not limited to:
 - connection, transformation, switching, metering, communications, control, protective and safety equipment; and
 - b. any necessary additions to and reinforcements of the Utility's system by the Utility.

2. METERING

a. A Producer desiring to sell power to the Utility shall provide, install, own and maintain all facilities necessary to accommodate metering equipment specified by the Utility. Such metering equipment may include meters, telemetering (applicable where deliveries to the Utility exceed 10 MW) and other recording and communications devices as may be required for the reporting of power delivery data to the Utility. Except as provided for in Section B.2.b following, the Utility shall provide, install, own and maintain all metering equipment as special facilities in accordance with Section F. (Continued)

Advice Letter No. 1025-E Decision No. 83-10-093 Issued By
W. M. Gallavan
Vice-President
Rates and Economic Analysis

Date Filed MAY 2 1 1984 Effective Jun 2 0 1984 Resolution No.

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Cancelling o	rioinal	Cal.	P.U.C.	Sheet	No.	7694-E

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RULE NO. 21 -- NONUTILITY-OWNED PARALLEL GENERATION (Cont'd.)

B. INTERCONNECTION FACILITIES (continued)

METERING

- b. The Producer may at its option provide, install, own and maintain current and potential transformers rated above 600 volts and a non-revenue type graphic recorder where applicable. Such metering equipment, its installation and maintenance shall all be in conformance with the Utility's specifications.
- c. The Utility's meters shall be equipped with detents to prevent reverse registration so that power deliveries to and from the Producer's equipment can be separately recorded.

3. CONTROL, PROTECTION AND SAFETY EQUIPMENT

- a. GENERAL: The Utility has established functional requirements essential for safe and reliable parallel operation of the Producer's generation. These requirements provide for control, protective and safety equipment to:
 - provide for control, protective and safety equipment to:
 (1) sense and properly react to failure and malfunction on the Utility's system;
 (2) assist the Utility in maintaining its system integrity and reliability; and
 - (3) protect the safety of the public and the Utility's personnel.
- b. Listed below are the various devices and features generally required by the Utility as a prerequisite to parallel operation of the Producer's generation:

CONTROL, PROTECTION AND SAFETY EQUIPMENT CENERAL REQUIREMENTS GENERATOR SIZE 11 kw to 41 kw to 101 kw to 401 kw to TO kw or 400 km 1,000 kw 1,000 kw 40 km 100 kw Device or Feature Less Dedicated Transformer² Interconnection Disconnect Device Generator Circuit Breaker X Over-voltage Protection Under-voltage Protection X X Under/Over-frequency Protection X X Ground Fault Protection Over-current Relay w/Voltage Restraint Synchronizing X Automatic Manual Henual **Manua**? Manua? **Henual** Power Factor or Voltage Regulation

c. DISCONNECT DEVICE: The Producer shall provide, install, own and maintain the interconnection disconnect device required by Section B.3.b at a location readily accessible to the Utility. Such device shall normally be located near the Utility's meter or meters for sole operation by the Utility. The interconnection disconnect device and its precise location shall be specified by the Utility. At the Producer's option and request, the Utility will provide, install, own and maintain the disconnect device on the Utility's system as special facilities in accordance with Section F.

Advice Letter No. 1025-E
Decision No. 83-10-093

Issued By
W. M. Gallavan
Vice-President
Rates and Economic Analysis

Date Filed	***	•
Effective _		2
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Detailed requirements are specified in the Utility's current operating, metering and equipment protection publications, as revised from time to time by the Utility and available to the Producer upon request. For a particular generator application, the Utility will furnish its specific control, protective and safety requirements to the Producer after the exact location of the generator has been agreed upon and the interconnection voltage level has been established.

 $^{^2}$ This is a transformer interconnected with no other Producers and serving no other Utility customers. Although the dedicated transformer is not a requirement for generators rated 10 kW or less, its installation is recommended by the Utility.

This is a requirement for synchronous and other types of generators with stand-alone capability. For all such generators, the Utility will also require the installation of "reclose blocking" features on its system to block certain operations of the Utility's automatic line restoration equipment. (Continued)

Pacific Gas and Electric Company San Francisco, California

	Original	Cal.	P.U.C.	Sheet	No.	8618-E
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- INTERCONNECTION FACILITIES (continued) В.
 - UTILITY SYSTEM ADDITIONS AND REINFORCEMENTS
 - Except as provided for in Section B.5, all additions to and reinforcements of the (N) Utility's system necessary to interconnect with and receive power deliveries from the Producer's generation will be provided, installed, owned and maintained by the Utility as special facilities in accordance with Section F. Such additions and reinforcements may include the installation of a Utility distribution or transmission line extension or the increase of capacity in the Utility's existing distribution or transmission lines. The Utility shall determine whether any such additions or reinforcements shall include an increment of additional capacity for the Utility's use in furnishing service to its customers. If so, then the costs of providing, installing, owning and maintaining such additional capacity shall be borne by the Utility and/or its customers in accordance with the Utility's applicable tariffs on file with and authorized by the California Public Utilities Commission (Commission).
 - The Producer shall advance to the Utility its estimated costs of performing a preliminary or detailed engineering study as may be reasonably required to identify any Producer related Utility system additions and reinforcements. Where such preliminary or detailed engineering study involves analysis of the Utility's transmission lines (60 kv and higher), the Utility shall complete its study within twelve calendar months of receiving all necessary plans and specifications from the Producer.
 - PRODUCER-INSTALLED UTILITY-OWNED LINE EXTENSIONS: The Producer may at its option provide and install an extension of the Utility's distribution or transmission lines where required to complete the Producer's interconnection with the Utility. Such where required to complete the Producer's interconnection with the Utility. Such extension shall be installed by contractors approved by the Utility and in accordance with its design and specifications. The Producer shall pay the Utility its estimated costs of design, administration and inspection as may be reasonably required to assure such extension is installed in compliance with the Utility's requirements. Upon final inspection and acceptance by the Utility, the Producer shall transfer ownership of the line extension to the Utility where thereafter it shall be owned and maintained as special facilities in accordance with Section F. This provision does not preclude the Producer from installing, owning and maintaining a distribution or transmission line extension as part of its other Producer-owned interconnection facilities.
 - COSTS OF FUTURE UTILITY SYSTEM ALTERATIONS: The Producer shall be responsible for the costs of only those future Utility system alterations which are directly related to the Producer's presence or necessary to maintain the Producer's interconnection in accordance with the Utility's applicable operating, metering and equipment publication in effect when the Producer and the Utility entered into a written form of power purchase agreement. Alterations made at the Producer's expense shall specifically exclude increases of existing line capacity necessary to accommodate the other Producers or Utility customers. Such alterations may, however, include relocation or undergrounding of the Utility's distribution or transmission lines as may be ordered by a governmental authority having jurisdiction.
 - 7. ALLOCATION OF THE UTILITY'S EXISTING LINE CAPACITY: For two or more Producers seeking to use an existing line, a first come, first served approach shall be used. The first Producer to request an interconnection shall have the right to use the existing line and shall incur no obligation for costs associated with future line upgrades needed to accommodate other Producers or customers. The Utility's power purchase agreement shall specify the date by which the Producer must begin construction. If that date shall specify the date by which the Producer must begin construction. If that date passes and construction has not commenced, the Producer shall be given 30 days to correct the deficiency after receiving a reminder from the Utility that the construction start-up date has passed. If construction has not commenced after the 30-day corrective period, the Utility shall have the right to withdraw its commitment to the first Producer and offer the right to interconnect on the existing line to the next Producer in order. If two Producers establish the right of first-in-time simultaneously, the two Producers shall share the costs of any additional line upgrade necessary to facilitate their cumulative capacity requirements. Costs shall be shared based on the relative proportion of capacity each Producer will add to the line.

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Advice	Letter	No.	1025-E
Decisio	n No.		R3-10-093

Date Filed Effective		-
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RULE NO. 21 -- NONUTILITY-OWNED PARALLEL CENERATION (Cont'd.)

C. ELECTRIC SERVICE FROM THE UTILITY: If the Producer requires regular, supplemental, interruptible or standby service from the Utility, the Producer shall enter into separate contractual arrangements with the Utility in accordance with the Utility's applicable electric tariffs on file with and authorized by the Commission.

D. OPERATION

- 1. PREPARALLEL INSPECTION: In accordance with Section A.7, the Utility will inspect the Producer's interconnection facilities prior to providing it with written authorization to commence parallel operation. Such inspection shall determine whether or not the Producer has installed certain control, protective and safety equipment to the Utility's specifications. Where the Producer's generation has a rated output in excess of 100 kw, the Producer shall pay the Utility its estimated costs of performing the inspection.
- JURISDICTION OF THE UTILITY'S SYSTEM DISPATCHER: The Producer's generation while
 operating in parallel with the Utility's system is at all times under the jurisdiction
 of the Utility's system dispatcher. The system dispatcher shall normally delegate
 such control to the Utility's designated switching center.
- 3. COMMUNICATIONS: The Producer shall maintain telephone service from the local telephone company to the location of the Producer's generation. In the event such location is remote or unattended, telephone service shall be provided to the nearest building normally occupied by the Producer's generator operator. The Utility and the Producer shall maintain operating communications through the Utility's designated switching center.
- 4. GENERATOR LOG: The Producer shall at all times keep and maintain a detailed generator operations log. Such log shall include, but not be limited to, information on unit availability, maintenance outages, circuit breaker trip operations requiring manual reset and unusual events. The Utility shall have the right to review the Producer's log.
- 5. REPORTING ABNORMAL CONDITIONS: The Utility shall advise the Producer of abnormal conditions which the Utility has reason to believe could affect the Utility's operating conditions or procedures. The Producer shall keep the Utility similarly informed.
- 6. POWER FACTOR: The Producer shall furnish reactive power as may be reasonably required (D) by the Utility.
 - a. The Utility reserves the right to specify that generators with power factor control capability, including synchronous generators, be capable of operating continuously at any power factor between 95 percent leading (absorbing vars) and 90 percent lagging (producing vars) at any voltage level within ± 5.0 percent of rated voltage. For other types of generators with no inherent power factor control capability, the Utility reserves the right to specify the installation of capacitors by the Producer to correct generator output to near 95 percent leading power factor. The Utility may also require the installation of switched capacitors on its system to produce reactive support equivalent to that provided by operating a synchronous generator of the same size between 95 percent leading and 90 percent lagging power factor.

 b. Where either the Producer or the Utility determines that it is not practical for

b. Where either the Producer or the Utility determines that it is not practical for the Producer to furnish the Utility's required level of reactive power or when the Utility specifies switched capacitors in its system pursuant to Section D.5.a, the Utility will provide, install, own and maintain the necessary devices on its system in accordance with Section F.

E. INTERFERENCE WITH SERVICE AND COMMUNICATION FACILITIES

 GEMERAL: The Utility reserves the right to refuse to connect to any new equipment or to remain connected to any existing equipment of a size or character that may be detrimental to the Utility's operations or service to its customers.

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Advice Letter No. 1025-E Decision No. 83-10-093

Issued By
W. M. Gallavan
Vice-President
Rates and Economic Analysis

Date Filed

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Cancelling Original Cal. P.U.C. Sheet No. 7696-F

RULE NO. 21 -- NONUTILITY-OWNED PARALLEL GENERATION (Cont'd.)

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- E. INTERFERENCE WITH SERVICE AND COMMUNICATION FACILITIES (continued)
 - The Producer shall not operate equipment that superimposes upon the Utility's system a voltage or current which causes interference with the Utility's operations, service to the Utility's customers or interference to communication facilities. If the Producer causes service interference to others, the Producer must diligently pursue and take corrective action at the Producer's expense after being given notice and reasonable time to do so by the Utility. If the Producer does not take timely corrective action, or continues to operate the equipment causing the interference without restriction or limit, the Utility may, without liability, disconnect the Producer's equipment from the Utility's system until a suitable permanent solution provided by the Producer is operational at the Producer's expense.

F. SPECIAL FACILITIES

- 1. Where the Producer requests the Utility to furnish interconnection facilities or where it is necessary to make additions to or reinforcements of the Utility's system and the Utility agrees to do so, such facilities shall be deemed to be special facilities and the costs thereof shall be borne by the Producer, including such continuing ownership costs as may be applicable.
- 2. Special facilities are (a) those facilities installed at the Producer's request which the Utility does not normally furnish under its tariff schedules, or (b) a prorata portion of existing facilities requested by the Producer, allocated for the sole use of such Producer, which would not normally be allocated for such sole use. Unless otherwise provided by the Utility's filed tariff schedules, special facilities will be installed, owned and maintained or allocated by the Utility as an accommodation to the Producer only if acceptable for operation by the Utility and the reliability of service to the Utility's customers is not impaired.
- 3. Special Facilities will be furnished under the terms and conditions of the Utility's "Agreement for installation or Allocation of Special Facilities for Parallel Operation of Nonutility-owned Generation and/or Electrical Standby Service" (Form 79-280, effective June 1984) and its Appendix A, "Detail of Special Facilities Charges" (Form 79-702, effective June 1984). Prior to the Producer signing such an agreement, the Utility shall provide the Producer with a breakdown of special facilities costs in a form having détail sufficient for the information to be reasonably understood by the Producer. The special facilities agreement will include, but is not limited to, a binding quotation of charges to the Producer and the following general terms and conditions:
 - where facilities are installed by the Utility for the Producer's use as special facilities, the Producer shall advance to the Utility its estimated installed cost of the special facilities. The amount advanced is subject to the monthly ownership charge applicable to customer-financed special facilities as set forth in Section 1 of the Utility's Rule No. 2.
 - b. At the Producer's option, and where such Producer's generation is a qualifying facility and the Producer has established credit worthiness to the Utility's satisfaction, the Utility shall finance those special facilities it deems to be removable and reusable equipment. Such equipment shall include, but not be limited to, transformation, disconnection and metering equipment.
 - c. Existing facilities allocated for the Producer's use as special facilities and removable and reusable equipment financed by the Utility in accordance with Section F.3.b are subject to the monthly ownership charge applicable to Utility-financed special facilities as set forth in Section 1 of Rule 2.

A qualifying facility is one which meets the requirements established by the Federal Energy Regulatory Commission's rules (18 Code of Federal Regulations 292) implementing the Public Utility Regulatory Policies Act of 1978 (16 U.S.C.A. 796, et seq.).

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Advice	Letter	No.	1025-E
Decision	n No.	83	-10-093

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Pacific Gas and Electric Company San Francisco, California

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RULE NO. 21 -- NONUTILITY-DWNED PARALLEL GENERATION (Cont'd.)

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- F. SPECIAL FACILITIES (continued)
 - d. Where the Producer elects to install and deed to the Utility an extension of the Utility's distribution or transmission lines for use as special facilities in accordance with Section B.5, the Utility's estimate of the installed cost of such extension shall be subject to the monthly ownership charge applicable to customer-financed special facilities as set forth in Section 1 of the Rule No. 2.
 - 4. Where payment or collection of continuing monthly ownership charges is not practicable, the Producer shall be required to make an equivalent one-time payment in lieu of such monthly charges.
 - 5. Costs of special facilities borne by the Producer may be subject to downward adjustment when such special facilities are used to furnish permanent service to a customer of the Utility. This adjustment will be based upon the extension allowance or other such customer allowance which the Utility would have utilized under its then applicable tariffs if the special facilities did not otherwise exist. In no event shall such adjustment exceed the original installed cost of that portion of the special facilities used to serve a new customer. An adjustment, where applicable, will consist of a refund applied to the Producer's initial payment for special facilities and/or a corresponding reduction of the ownership charge.
- G. EXCEPTIONAL CASES: Where the application of this rule appears impractical or unjust, the Producer may refer the matter to the Commission for special ruling or for the approval of special conditions.
- H. INCORPORATION INTO POWER PURCHASE AGREEMENTS: Pursuant to Decision No. 83-10-093, if in accordance with Section A.4 the Producer enters into a written form of power purchase agreement with Utility, a copy of the Rule No. 21 in effect on the date of execution will be appended to, and incorporated by reference into, such power purchase agreement. The Rule appended to such power purchase agreement shall then be applicable for the term of the Producer's power purchase agreement with the Utility. Subsequent revisions to this rule shall not be incorporated into the rule appended to such power purchase agreement.

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Advice Letter No. 1025-E Decision No. 83-10-093 Issued By
W. M. Gallavan
Vice-President
Rates and Economic Analysis

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Revised Cal. P.U.C. Sheet No. 8616-E Cancelling Original Cal. P.U.C. Sheet No. 7693-E

RULE NO. 21 -- NONUTILITY-DWNED PARALLEL GENERATION

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This describes the minimum operation, metering and interconnection requirements for any generating source or sources paralleled with the Utility's electric system. Such source or sources may include, but are not limited to, hydroelectric generators, wind-turbine generators, steam or gas driven turbine generators and photovoltaic systems.

CENERAL

- The type of interconnection and voltage available at any location and the Utility's specific interconnection requirements shall be determined by inquiry at the Utility's local office.
- The Utility's distribution and transmission lines which are an integral part of its overall system are distinguished by the voltages at which they are operated. Distribution lines are operated at voltages below 60 kv and transmission lines are operated at voltages 60 kv and higher.
- The Power Producer (Producer) shall ascertain and be responsible for compliance with the requirements of all governmental authorities having jurisdiction.
- The Producer shall sign the Utility's written form of power purchase agreement or parallel operation agreement before connecting or operating a generating source in parallel with the Utility's system.
- The Producer shall be fully responsible for the costs of designing, installing, owning, operating and maintaining all interconnection facilities defined in Section B.1.
- The Producer shall submit to the Utility, for the Utility's review and written acceptance, equipment specifications and detailed plans for the installation of all interconnection facilities to be furnished by the Producer prior to their purchase or installation. The Utility's review and written acceptance of the Producer's equipment specifications and detailed plans shall not be construed as confirming or endorsing the Producer's design or as warranting the equipment's safety, durability or reliability. The Utility shall not, by reason of such review or lack of review, be responsible for strength, details of design adequacy, or capacity of equipment built pursuant to such specifications, nor shall the Utility acceptance be deemed an endorsement of any such equipment.
- No generating source shall be operated in parallel with the Utility's system until the interconnection facilities have been inspected by the Utility and the Utility has provided written approval to the Producer.
- Only duly authorized employees of the Utility are allowed to connect Producer-installed interconnection facilities to, or disconnect the same from, the Utility's overhead or underground lines.

INTERCONNECTION FACILITIES В.

- CENERAL: Interconnection facilities are all means required, and apparatus installed, to interconnect the Producer's generation with the Utility's system. Where the Producer desires to sell power to the Utility, interconnection facilities are also all means required, and apparatus installed, to enable the Utility to receive power deliveries from the Producer. Interconnection facilities may include, but are not limited to:
 - connection, transformation, switching, metering, communications, control, protective and safety equipment; and
 - any necessary additions to and reinforcements of the Utility's system by the Utility.

2. METERING

A Producer desiring to sell power to the Utility shall provide, install, own and maintain all facilities necessary to accommodate metering equipment specified by the Utility. Such metering equipment may include meters, telemetering (applicable where deliveries to the Utility exceed 10 MW) and other recording and communications devices as may be required for the reporting of power delivery data to the Utility. Except as provided for in Section B.2.b following, the Utility shall provide, install, own and maintain all metering equipment as special facilities in accordance with Section F. (T)

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1025-E Advice Letter No. Decision No. 83-10-093

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Revised Cal. P.U.C. Sheet No. 8617-E Cancelling Original Cal. P.U.C. Sheet No. 7694-F

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RULE NO.	21	 NONUTILITY-OWNED	PARALLEL	GENERATION	(Contid.)
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В. INTERCONNECTION FACILITIES (continued)

METERING

- The Producer may at its option provide, install, own and maintain current and potential transformers rated above 600 volts and a non-revenue type graphic recorder where applicable. Such metering equipment, its installation and maintenance shall all be in conformance with the Utility's specifications.
- The Utility's meters shall be equipped with detents to prevent reverse registration so that power deliveries to and from the Producer's equipment can be separately recorded.

CONTROL, PROTECTION AND SAFETY EQUIPMENT

- GENERAL: The Utility has established functional requirements essential for safe and reliable parallel operation of the Producer's generation. These requirements
 - provide for control, protective and safety equipment to:
 (1) sense and properly react to failure and malfunction on the Utility's system;
 (2) assist the Utility in maintaining its system integrity and reliability; and
 (3) protect the safety of the public and the Utility's personnel.
- Listed below are the various devices and features generally required by the Utility as a prerequisite to parallel operation of the Producer's generation:

CONTROL, PROTECTION AND SAFETY EQUIPMENT GENERAL REQUIREMENTS

GENERATOR SIZE							
Device or Feature	10 kw or Less	11 kw to 40 kw	41 kw to 100 kw	101 kw to 400 kw	401 kw to 1,000 kw	1,000 kw	
Dedicated Transformer ²	-	x	x	x	x	x	
Interconnection Disconnect Device	X	X	X	X	X	X	
Generator Circuit Breaker	X	X	X	X	X	X	
Over-voltage Protection	X	X	X	X	X	X	
Under-voltage Protection	-	-	* X	X	X	X	
Under/Over-frequency Protection	X	X	X	X	X	X	
Ground Fault Protection	•	-	X "	* X	X	X	
Over-current Relay w/Voltage Restraint	-	-	-	-	X	X	
Synchronizing	Hanual	Hanual	Manua?	Hanua 1	Manual	Automatic	
Power Factor or Voltage Regulation			X	X	X	X (T	

c. DISCONNECT DEVICE: The Producer shall provide, install, own and maintain the interconnection disconnect device required by Section B.3.b at a location readily accessible to the Utility. Such device shall normally be located near the Utility's meter or meters for sole operation by the Utility. The interconnection disconnect device and its precise location shall be specified by the Utility. At the Producer's option and request, the Utility will provide, install, own and maintain the disconnect device on the Utility's system as special facilities in accordance with Section F. accordance with Section F.

Advice Letter No. Decision No. 83-10-093

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Detailed requirements are specified in the Utility's current operating, metering and equipment protection publications, as revised from time to time by the Utility and available to the Producer upon request. For a particular generator application, the Utility will furnish its specific control, protective and safety requirements to the Producer after the exact location of the generator has been agreed upon and the interconnection voltage level has been established.

 $^{^2\}mathrm{This}$ is a transformer interconnected with no other Producers and serving no other Utility customers. Although the dedicated transformer is not a requirement for generators rated 10 km or less, its installation is recommended by the Utility.

This is a requirement for synchronous and other types of generators with stand-alone **(T)** capability. For all such generators, the Utility will also require the installation of "reclose blocking" features on its system to block certain operations of the Utility's automatic line restoration equipment.

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RULE NO. 21 -- NONUTILITY-OWNED PARALLEL GENERATION (Cont'd.)

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INTERCONNECTION FACILITIES (continued)

- UTILITY SYSTEM ADDITIONS AND REINFORCEMENTS
 - Except as provided for in Section B.5, all additions to and reinforcements of the (N) Except as provided for in Section B.5, all additions to and reinforcements of the Utility's system necessary to interconnect with and receive power deliveries from the Producer's generation will be provided, installed, owned and maintained by the Utility as special facilities in accordance with Section F. Such additions and reinforcements may include the installation of a Utility distribution or transmission line extension or the increase of capacity in the Utility's existing distribution or transmission lines. The Utility shall determine whether any such additions or reinforcements shall include an increment of additional capacity for the Utility's use in furnishing service to its customers. If so, then the costs of providing, installing, owning and maintaining such additional capacity shall be borne by the Utility and/or its customers in accordance with the Utility's applicable tariffs on file with and authorized by the California Public Utilities Commission (Commission). Commission (Commission).
 - The Producer shall advance to the Utility its estimated costs of performing a preliminary or detailed engineering study as may be reasonably required to identify any Producer related Utility system additions and reinforcements. Where such preliminary or detailed engineering study involves analysis of the Utility's transmission lines (60 kv and higher), the Utility shall complete its study within twelve calendar months of receiving all necessary plans and specifications from the Producer.
- PRODUCER-INSTALLED UTILITY-DWNED LINE EXTENSIONS: The Producer may at its option provide and install an extension of the Utility's distribution or transmission lines provide and install an extension of the Utility's distribution or transmission lines where required to complete the Producer's interconnection with the Utility. Such extension shall be installed by contractors approved by the Utility and in accordance with its design and specifications. The Producer shall pay the Utility its estimated costs of design, administration and inspection as may be reasonably required to assure such extension is installed in compliance with the Utility's requirements. Upon final inspection and acceptance by the Utility, the Producer shall transfer ownership of the line extension to the Utility where thereafter it shall be owned and maintained as special facilities in accordance with Section F. This provision does not preclude the Producer from installing, owning and maintaining a distribution or transmission line extension as part of its other Producer-owned interconnection facilities.
- COSTS OF FUTURE UTILITY SYSTEM ALTERATIONS: The Producer shall be responsible for the COSTS OF FUTURE UTILITY SYSTEM ALTERATIONS: The Producer shall be responsible for the costs of only those future Utility system alterations which are directly related to the Producer's presence or necessary to maintain the Producer's interconnection in accordance with the Utility's applicable operating, metering and equipment publication in effect when the Producer and the Utility entered into a written form of power purchase agreement. Alterations made at the Producer's expense shall specifically exclude increases of existing line capacity necessary to accommodate the other Producers or Utility customers. Such alterations may, however, include relocation or undergrounding of the Utility's distribution or transmission lines as may be ordered by a governmental authority having jurisdiction. by a governmental authority having jurisdiction.
- ALLOCATION OF THE UTILITY'S EXISTING LINE CAPACITY: For two or more Producers seeking to use an existing line, a first come, first served approach shall be used. The first Producer to request an interconnection shall have the right to use the existing line and shall incur no obligation for costs associated with future line upgrades needed to accommodate other Producers or customers. The Utility's power purchase agreement shall specify the date by which the Producer must begin construction. If that date passes and construction has not commenced, the Producer shall be given 30 days to passes and construction has not commenced, the Producer shall be given 30 days to correct the deficiency after receiving a reminder from the Utility that the construction start-up date has passed. If construction has not commenced after the 30-day corrective period, the Utility shall have the right to withdraw its commitment to the first Producer and offer the right to interconnect on the existing line to the next Producer in order. If two Producers establish the right of first-in-time simultaneously, the two Producers shall share the costs of any additional line upgrade necessary to facilitate their cumulative capacity requirements. Costs shall be shared based on the relative proportion of capacity each Producer will add to the line.

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RULE NO. 21 -- NONUTILITY-OWNED PARALLEL CENERATION (Cont'd.)

C. ELECTRIC SERVICE FROM THE UTILITY: If the Producer requires regular, supplemental, interruptible or standby service from the Utility, the Producer shall enter into separate contractual arrangements with the Utility in accordance with the Utility's applicable electric tariffs on file with and authorized by the Commission.

D. OPERATION

- PREPARALLEL INSPECTION: In accordance with Section A.7, the Utility will inspect the Producer's interconnection facilities prior to providing it with written authorization to commence parallel operation. Such inspection shall determine whether or not the Producer has installed certain control, protective and safety equipment to the Utility's specifications. Where the Producer's generation has a rated output in excess of 100 kw, the Producer shall pay the Utility its estimated costs of performing the inspection.
- 2. JURISDICTION OF THE UTILITY'S SYSTEM DISPATCHER: The Producer's generation while operating in parallel with the Utility's system is at all times under the jurisdiction of the Utility's system dispatcher. The system dispatcher shall normally delegate such control to the Utility's designated switching center.
- 3. COMMUNICATIONS: The Producer shall maintain telephone service from the local telephone company to the location of the Producer's generation. In the event such location is remote or unattended, telephone service shall be provided to the nearest building normally occupied by the Producer's generator operator. The Utility and the Producer shall maintain operating communications through the Utility's designated switching center.
- 4. GENERATOR LOG: The Producer shall at all times keep and maintain a detailed generator operations log. Such log shall include, but not be limited to, information on unit availability, maintenance outages, circuit breaker trip operations requiring manual reset and unusual events. The Utility shall have the right to review the Producer's log.
- 5. REPORTING ABNORMAL CONDITIONS: The Utility shall advise the Producer of abnormal conditions which the Utility has reason to believe could affect the Utility's operating conditions or procedures. The Producer shall keep the Utility similarly informed.
- 6. POWER FACTOR: The Producer shall furnish reactive power as may be reasonably required (D) by the Utility.
 - a. The Utility reserves the right to specify that generators with power factor control capability, including synchronous generators, be capable of operating continuously at any power factor between 95 percent leading (absorbing vars) and 90 percent lagging (producing vars) at any voltage level within a 5.0 percent of rated voltage. For other types of generators with no inherent power factor control capability, the Utility reserves the right to specify the installation of capacitors by the Producer to correct generator output to near 95 percent leading power factor. The Utility may also require the installation of switched capacitors on its system to produce reactive support equivalent to that provided by operating a synchronous generator of the same size between 95 percent leading and 90 percent lagging power factor.

 b. Where either the Producer or the Utility determines that it is not practical for

b. Where either the Producer or the Utility determines that it is not practical for the Producer to furnish the Utility's required level of reactive power or when the Utility specifies switched capacitors in its system pursuant to Section D.6.a, the Utility will provide, install, own and maintain the necessary devices on its system in accordance with Section F.

E. INTERFERENCE WITH SERVICE AND COMMUNICATION FACILITIES

 CEMERAL: The Utility reserves the right to refuse to connect to any new equipment or to remain connected to any existing equipment of a size or character that may be detrimental to the Utility's operations or service to its customers.

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Vice-President
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RULE NO. 21 -- NONUTILITY-OWNED PARALLEL GENERATION (Cont'd.)

INTERFERENCE WITH SERVICE AND COMMUNICATION FACILITIES (continued)

The Producer shall not operate equipment that superimposes upon the Utility's system a voltage or current which causes interference with the Utility's operations, service to the Utility's customers or interference to communication facilities. If the Producer causes service interference to others, the Producer must diligently pursue and take corrective action at the Producer's expense after being given notice and reasonable time to do so by the Utility. If the Producer does not take timely corrective action, or continues to operate the equipment causing the interference without restriction or limit, the Utility may, without liability, disconnect the Producer's equipment from the Utility's system until a suitable permanent solution provided by the Producer is operational at the Producer's expense.

F. SPECIAL FACILITIES

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- 1. Where the Producer requests the Utility to furnish interconnection facilities or where it is necessary to make additions to or reinforcements of the Utility's system and the Utility agrees to do so, such facilities shall be deemed to be special facilities and the costs thereof shall be borne by the Producer, including such continuing ownership costs as may be applicable.
- Special facilities are (a) those facilities installed at the Producer's request which the Utility does not normally furnish under its tariff schedules, or (b) a prorata portion of existing facilities requested by the Producer, allocated for the sole use of such Producer, which would not normally be allocated for such sole use. Unless otherwise provided by the Utility's filed tariff schedules, special facilities will be installed, owned and maintained or allocated by the Utility as an accommodation to the Producer only if acceptable for operation by the Utility and the reliability of service to the Utility's customers is not impaired.
- 3. Special Facilities will be furnished under the terms and conditions of the Utility's "Agreement for installation or Allocation of Special Facilities for Parallel Operation of Nonutility-owned Generation and/or Electrical Standby Service" (form 79-280, effective June 1984) and its Appendix A, "Detail of Special Facilities Charges" (form 79-702, effective June 1984). Prior to the Producer signing such an agreement, the Utility shall provide the Producer with a breakdown of special facilities costs in a form having detail sufficient for the information to be reasonably understood by the Producer. The special facilities agreement will include, but is not limited to, a binding quotation of charges to the Producer and the following general terms and conditions:
 - a. Where facilities are installed by the Utility for the Producer's use as special facilities, the Producer shall advance to the Utility its estimated installed cost of the special facilities. The amount advanced is subject to the monthly ownership charge applicable to customer-financed special facilities as set forth in Section 1 of the Utility's Rule No. 2.
 - b. At the Producer's option, and where such Producer's generation is a qualifying facility and the Producer has established credit worthiness to the Utility's satisfaction, the Utility shall finance those special facilities it deems to be removable and reusable equipment. Such equipment shall include, but not be limited to, transformation, disconnection and matering equipment.
 - c. Existing facilities allocated for the Producer's use as special facilities and removable and reusable equipment financed by the Utility in accordance with Section F.3.b are subject to the monthly ownership charge applicable to Utility-financed special facilities as set forth in Section I of Rule 2.

A qualifying facility is one which meets the requirements established by the Federal Energy Regulatory Commission's rules (18 Code of Federal Regulations 292) implementing the Public Utility Regulatory Policies Act of 1978 (16 U.S.C.A. 796, et seq.).

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RULE NO. 21 -- NONUTILITY-DWNED PARALLEL GENERATION (Cont'd.)

- F. SPECIAL FACILITIES (continued)
 - d. Where the Producer elects to install and deed to the Utility an extension of the Utility's distribution or transmission lines for use as special facilities in accordance with Section B.5, the Utility's estimate of the installed cost of such extension shall be subject to the monthly ownership charge applicable to customer-financed special facilities as set forth in Section 1 of the Rule No. 2.
 - 4. Where payment or collection of continuing monthly ownership charges is not practicable, the Producer shall be required to make an equivalent one-time payment in lieu of such monthly charges.
 - 5. Costs of special facilities borne by the Producer may be subject to downward adjustment when such special facilities are used to furnish permanent service to a customer of the Utility. This adjustment will be based upon the extension allowance or other such customer allowance which the Utility would have utilized under its then applicable tariffs if the special facilities did not otherwise exist. In no event shall such adjustment exceed the original installed cost of that portion of the special facilities used to serve a new customer. An adjustment, where applicable, will consist of a refund applied to the Producer's initial payment for special facilities and/or a corresponding reduction of the ownership charge.
- G. EXCEPTIONAL CASES: Where the application of this rule appears impractical or unjust, the Producer may refer the matter to the Commission for special ruling or for the approval of special conditions.
- H. INCORPORATION INTO POWER PURCHASE AGREEMENTS: Pursuant to Decision No. 83-10-093, if in accordance with Section A.4 the Producer enters into a written form of power purchase agreement with Utility, a copy of the Rule No. 21 in effect on the date of execution will be appended to, and incorporated by reference into, such power purchase agreement. The Rule appended to such power purchase agreement shall then be applicable for the term of the Producer's power purchase agreement with the Utility. Subsequent revisions to this rule shall not be incorporated into the rule appended to such power purchase agreement.

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Date Filed MAY 2.1 1934 Effective <u>JUR 2 U 1대보</u>4 Resolution No.