



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

A. General

1. This Rule presents the design and operating guidelines that should be applied to Cogeneration and Small Power Production Sources that 1) meet the criteria for a Qualifying Facility (QF) as defined by Title 18, Code of Federal Regulations (CFR) Part 292, and 2) are successful bidders in the utility's 1993 Biennial Resource Plan Update (BRPU) Final Standard Offer 4 (FSO4) auction. These guidelines are necessary to facilitate safe integration of FSO4 QF generation into the utility's system. In addition, the FSO4 QF must comply with all the utility's other applicable rules and regulations.
2. An FSO4 QF is subject to the utility's Rule 21.1 only if the QF interconnects directly to utility facilities, sells power to the utility, and has demonstrated eligibility for this Rule 21.1 in accordance with Section A.1. of this Rule. Rule 21.1 requires that the FSO4 QF enter into an Interconnection and Operating Agreement prior to operating the QF project in parallel with the utility system in accordance with the provisions of the FSO4 contract (other timing milestones may also apply).
3. These guidelines will cover 1) FSO4 QF design requirements and operating procedures and 2) utility design requirements and operating procedures.
4. For the purpose of simplicity, the term FSO4 QF will be used in this Rule 21.1 to refer to QFs (both cogenerators and small power producers) who are successful bidders in the utility's 1993 BRPU FSO4 auction.

¹ Rule 21 and Rule 21.1 do not apply to Qualifying Facilities (QFs) who have executed a Final Standard Offer 4 (FSO4) contract with either the Southern California Edison Company (SCE) or the Pacific Gas & Electric Company (PG&E) in the 1993 BRPU FSO4 auction. However, the interconnection cost responsibility and technical interconnection requirements for QFs which are 1) selling to SCE or PG&E under an FSO4 contract, and 2) directly interconnected with SDG&E facilities, will be similar to those found in Rule 21.1. Such requirements will be contained in the wheeling interconnection and wheeling operating agreements which will be entered into by the QF and SDG&E. In addition, the costs (other than interconnection costs) which SDG&E incurs to transmit the output of QFs which 1) are selling to SCE or PG&E under an FSO4 contract, and 2) require the use of SDG&E facilities to effect such wheeling, are the sole responsibility of the purchasing utility.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

B. FSO4 QF System Description

1. When the FSO4 QF may elect to use any fuel source authorized by the Federal Energy Regulatory Commission (FERC) for use by QFs under and in accordance with Title 18, CFR Part 292. The end conversion for connection to the utility's system must provide 60 Hz alternating current.
2. The FSO4 QF shall run its generator in parallel with the utility. The requirements for this method of operation are outlined in Rule 21.1, Section C.

C. Parallel Operation

A parallel system is defined as one in which the FSO4 QF's generation can be connected to a bus common with the utility's system. A transfer of power between the two systems is a direct and generally desired consequence. For this operation to be practical and safe, the FSO4 QF's equipment must meet the following conditions:

1. General Design Requirements
 - a. The FSO4 QF's installation must meet all applicable national, state, and local construction and safety codes.
 - b. Unless otherwise agreed to by the utility, all interconnection equipment 1) at the FSO4 QF's facility, and 2) between the QF's facility and the perimeter of the utility property on which the physical interconnection occurs, shall be procured, installed, operated, and maintained by and at the sole expense of the FSO4 QF.
 - c. If, after review of the FSO4 QF's design, or upon completion of the utility's Interconnection Studies, the utility determines that interconnection equipment needs to be installed between the perimeter of the utility property on which the physical interconnection occurs and the point of physical interconnection (termination facilities), the utility shall procure, install, operate and maintain such termination facilities. The utility shall be reimbursed for such costs pursuant to Rule 21.1, Section J.1.a.
 - d. A manual load break disconnect device shall be available at or near the FSO4 QF's main service point(s). This disconnect device may be owned by either party but the utility must have preemptory control for utility outages or switching. The disconnect device must be capable of being locked in the open position if the FSO4 QF has access to the disconnect device (see Rule 21.1, Section G.2.a.).

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

C. Parallel Operation (Continued)

1. General Design Requirements (Continued)

- e. Voltage regulation equipment will be required on the FSO4 QF's generator to maintain service voltage within normal utility limits (not required under 100 kW).
- f. Generator characteristics shall be specified and the connection to the utility's system shall be designed to limit voltage harmonic distortion to less than 3% for any single frequency and to less than 5% total harmonic content. If harmonic distortion causes interference to other utility customers, the responsible party will redesign its system to eliminate such interference.
- g. The FSO4 QF shall submit drawings and schematics of interconnecting equipment and associated protection to the utility for review and approval prior to construction and installation. Typical required drawings will include, but not necessarily be limited to, the following prints: single line diagram, relay functional, metering one-line and switch gear details, circuit breaker open and close control circuits. The utility will review only those portions of the drawings and schematics which apply to metering and the protection of the utility system. The utility assumes no responsibility for review or approval of equipment or circuit drawings pertaining to the protection of the FSO4 QF's system.
- h. All FSO4 QF generator units must be equipped with power system stabilizers (PSS), and the transmission configuration must meet utility and the Western Systems Coordinating Council (WSCC) regional reliability criteria.

2. General Operating Requirements

- a. The FSO4 QF must maintain service voltage within normal utility limits. If high or low voltage complaints or flicker complaints result from operation of the FSO4 QF's generator, such generating equipment shall be disconnected until the problem is resolved.

(Continued)

3C1
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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

C. Parallel Operation (Continued)

2. General Operating Requirements (Continued)

b. The FSO4 QF shall discontinue parallel operation when requested by the utility:

- (1) To facilitate maintenance or repair of utility facilities;
- (2) During system emergencies;
- (3) When, in the utility's sole discretion, the FSO4 QF's equipment is operating in a hazardous manner or is operating such that it is interfering with other customers on the system.

NOTE: The utility may disconnect the FSO4 QF from the utility's system at any time without prior notification, as necessary to maintain the operating integrity of the utility's system.

c. The FSO4 QF may not commence parallel operation of its generator(s) until final written approval has been given by the utility. The utility reserves the right to inspect the FSO4 QF's facility and witness testing of any equipment or devices associated with the interconnection.

d. The utility reserves the right to inspect the FSO4 QF's facilities whenever it appears that the FSO4 QF is operating in an unsafe or harmful manner to the utility's facilities, personnel or other customers.

e. To assure the continued and safe operation of the interconnection between the utility and the FSO4 QF, the utility recommends that the FSO4 QF maintain and calibrate its equipment and protective devices associated with the interconnection to the utility on a repetitive basis. The utility reserves the right to require FSO4 QFs to provide the utility with maintenance and calibration reports.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

D. FSO4 QF Generation Less Than 100 kW
(See Rule 21.1, Supplement I, Section K.)

1. The utility shall provide and install metering, at a location acceptable to the utility, as necessary to comply with applicable FSO4 QF gas and electric rate schedules, power purchase or interconnecting and operating contracts, or utility requirements. The installation, operation, and maintenance costs of these metering facilities shall be borne by the FSO4 QF, except as provided in Rule 21.1, Section J.1.c.
2. Where service is provided at or below 480 V, the FSO4 QF is to be served by a dedicated distribution transformer except in the following circumstances:
 - a. The generator is under 10 kW, or
 - b. The generator is under 100 kW and is an induction generator wherein the FSO4 QF explicitly provides for 24-hour immediate utility access to all interconnection facilities as provided in Rule 16.A.1.a.(1).
3. The FSO4 QF will be required to provide suitable devices to ensure adequate protection for the following:
 - a. All faults on the utility's or FSO4 QF's systems.
 - b. Backfeed or start-up of a FSO4 QF's generator(s) into a non-energized utility bus.
4. The following FSO4 QF protective devices are required at a minimum to effect connection and separation of the utility and FSO4 QF systems. For induction generators below 10 kW, the following are recommended but not required. The FSO4 QF will still be responsible for providing protection for the conditions of Rule 21.1, Section D.3.
 - a. Individual phase overcurrent trip devices.
 - b. Individual phase undervoltage trip devices.
 - c. Underfrequency trip devices.
 - d. Synchronizing or equivalent controls to ensure a stable, synchronous interconnection with the utility's system.

(Continued)

5C1
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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

D. FSO4 QF Generation Less Than 100 kW
(See Rule 21.1, Supplement I, Section K.) (Continued)

- 5. The requirements listed in Rule 21.1, Section D.4. are based on the utility's forecast that there will be a relatively small amount of under 100 kW FSO4 QF generation versus load for any particular line on the utility's system. If a heavy saturation of QFs on some line(s) does occur at a future time, FSO4 QFs (under 100 kW) may be required to provide additional protection at that time. Where an induction generator is to be installed, some of the trip devices may be waived, in the utility's sole discretion. Permission to waive certain devices will be given only after a check of the supply circuit (for capacitance) has been made and it has been determined that the FSO4 QF's generation will not be able to backfeed the utility's system.
- 6. The FSO4 QF shall not reconnect its generator after a protective device trip unless its system is energized first from the utility source, or unless it has isolated its system from the utility.

E. FSO4 QF Generation Capacity 100 kW - 1 MW
(See Rule 21.1, Supplement II in Section L.)

- 1. The utility shall provide and install metering, at a location acceptable to the utility, as necessary to comply with applicable FSO4 QF gas and electric rate schedules, power purchase or interconnection and operating contracts, or utility requirements. The installation, operation, and maintenance cost of these metering facilities shall be borne by the FSO4 QF.
- 2. The FSO4 QF's generator(s) shall be designed and operated to limit the adverse affects of reactive power flow on the utility's system under all reasonably probable load conditions. Generators shall be operated in a manner to satisfy the reactive power requirement of the FSO4 QF's own load within the limits of the generator's capability unless otherwise specified by the utility.
 - a. For synchronous generators, sufficient generator reactive capability shall be provided to withstand normal voltage changes on the utility's system.
 - b. For induction generators, capacitor installations will likely be required for reactive power support. The cost of such capacitors will be borne by the FSO4 QF.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

E. FSO4 QF Generation Capacity 100 kW - 1 MW
(See Rule 21.1, Supplement II in Section L.) (Continued)

- 3. The FSO4 QF shall install relaying to provide adequate protection for the following:
 - a. All faults on the FSO4 QF's system.
 - b. All faults on the utility's system.
 - c. Unbalanced or single phase conditions on the utility's system.
 - d. Backfeed or start-up of the FSO4 QF's generator(s) into a non-energized utility bus.
- 4. Protective devices required are as follows:
 - a. Individual phase overcurrent trip devices.
 - b. Individual phase over/under voltage trip devices.
 - c. Sensitive current unbalance relays.
 - d. Synchronizing controls; either automatic or manual.
 - e. Over/under frequency trip devices.
- 5. The FSO4 QF shall not reconnect its generator after a protective device trip unless its system is energized first from the utility source, or unless the QF has isolated its system from the utility. To prevent such hazardous connections, the protective devices specified in Rule 21.1, Sections E.4.b. and E.4.d. are required. In addition, generator control circuit(s) must be designed to prevent accidental generator connection to a non-energized utility system. Design variations are acceptable provided the requirements of Rule 21.1, Section E.3. are satisfied.

F. FSO4 QF Generation Capacity Greater than 1 MW
(See Rule 21.1, Supplement III in Section M.)

- 1. The utility shall provide and install metering, at a location acceptable to the utility, as necessary to comply with applicable FSO4 QF gas and electric rate schedules, power purchase or interconnection and operating contracts, or utility requirements. The cost of procuring, installing, operating, and maintaining these metering facilities shall be borne by the FSO4 QF.

(Continued)

7C1
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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

F. FSO4 QF Generation Capacity Greater than 1 MW
(See Rule 21.1, Supplement III in Section M.) (Continued)

- 2. The FSO4 QF's generator(s) shall be designed and operated to limit the adverse affects of reactive power flow on the utility's system under all reasonably probable load conditions. It is the responsibility of the utility system operator to control voltages on the utility system within prescribed limits. To accomplish this control it is necessary that the FSO4 QF generator operate in a manner which satisfies the reactive power requirement of the FSO4 QF's own load, within the limits of the generator's capability, while not adversely affecting utility system voltage requirements. In addition, the following shall apply:
 - a. The FSO4 QF with a synchronous generator shall maintain its power factor within the range of 95 percent leading (absorbing vars) to 90 percent lagging (producing vars) within an operating range of +/- 5 percent of rated voltage at full load. The utility system dispatcher has the right to direct the FSO4 QF to modify its generator field excitation and terminal voltage to meet utility system voltage requirements. Additional provisions relating to voltage performance may also be specified in the operating agreement between the utility and the FSO4 QF.
 - b. The FSO4 QF with an induction generator shall provide reactive supply such that its power factor is at least 95 percent leading (absorbing vars).
 - c. If reactive support equipment is necessary to achieve the requirements specified above, such equipment will be at the expense of the FSO4 QF.
- 3. The FSO4 QF shall install relaying equipment to provide adequate protection for the following:
 - a. All faults on the FSO4 QF's system.
 - b. All faults on the utility's system.
 - c. Unbalanced or single phase conditions, or deteriorating voltage waveform conditions on the FSO4 QF's generator(s).
 - d. Backfeed or start-up of the FSO4 QF's generator(s) into a non-energized utility bus.

(Continued)

8C1
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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

F. FSO4 QF Generation Capacity Greater than 1 MW
(See Rule 21.1, Supplement III in Section M.) (Continued)

- 4. Protective devices required are as follows:
 - a. Individual phase overcurrent trip devices.
 - b. Sensitive ground protection.
 - c. Individual phase over/under voltage trip devices.
 - d. Sensitive current unbalance relays.
 - e. Synchronizing controls; either automatic or manual synchronizing supervised by a synchronizing relay.
 - f. Over/under frequency trip devices.
 - g. Telemetry or supervisory equipment (see Rule 21.1, Sections F.6., F.7., F.8. and H.2.).

- 5. The FSO4 QF shall not reconnect its generator after a protective device trip unless its system is energized first from the utility source, or unless the QF has isolated its system from the utility. To prevent such hazardous connections, the protective devices specified in Rule 21.1, Sections F.4.c. and F.4.e. are required. In addition, the generator control circuit(s) must be designed to prevent accidental generator connection to a non-energized utility system. Design variations are acceptable provided the requirements of Rule 21.1, Section F.3. are satisfied.

- 6. Telemetry of Plant Output

Telemetry of the FSO4 QF's real-time plant output (MW, Mvar) to the utility Control Center, at the FSO4 QF's cost, is required when the net output of the FSO4 QF's generation is 2 MW or greater.

(Continued)

9C1
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RULE 21.1

Sheet 10

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

(Continued)

10C1

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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

G. Utility System Description

1. FSO4 QFs may connect to the utility's distribution system. This is a radial system and past experience indicates these loads are of a passive nature. The installation of on-site generation, however, will make backfeed a distinct possibility. The incorporation of protective devices on the FSO4 QF's equipment cannot be relied upon to prevent all possibilities of backfeed. Since backfeed is possible, the design requirements set forth in Rule 21.1, Section G.2. and operating requirements set forth in Section H., must be strictly adhered to.

2. Utility Design Requirements
 - a. A means of disconnection: must be available on both sides of the utility metering; must be under the control of the utility; and shall be applied to all FSO4 QFs with parallel generation. This can be accomplished with switches, load break elbows, cutouts or secondary breakers. FSO4 QF disconnects can also be used provided:
 - (1) The switches meet with utility approval.
 - (2) The utility has pre-emptive control.

 - b. Transformers feeding FSO4 QFs with parallel generation shall be identified with a special tag attached to the transformer or pole. This will notify field crews of the possibility of backfeed. Incoming load data sheets should be flagged and used to initiate orders to tag poles.

 - c. All maps and diagrams used by System Operators to direct switching operations shall have sources of parallel generation identified.

 - d. A supervisory control and monitoring system will be incorporated for FSO4 QFs as specified in Rule 21.1, Sections F.7. and F.8.

(Continued)

11C1

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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

H. Utility Operation Procedures

1. As specified in Rule 21.1, Section G.1., backfeed from FSO4 QF generation is a distinct possibility. To maintain safe working conditions, strict adherence to safety rules is required. Utility procedure is to ground de-energized lines and equipment upon which work will be performed.
2. The utility will exercise direct control over FSO4 QF generation to the extent allowed by the FSO4 contract and interconnection and operating contract and elsewhere in this Rule. A supervisory system is required for this control (see Rule 21.1, Sections F.7. and F.8.).
3. The utility must have discretionary control over all FSO4 QF generation, independent of magnitude, during utility outages, utility equipment maintenance or utility emergencies.
4. Additional safety control or procedures may be required as experience dictates.
5. It is normal utility practice to utilize multi-shot high speed reclosing on its distribution circuits, and delayed single-shot reclosing on sub-transmission lines.

I. Transmission Upgrade Costs

1. General

The purchase, installation, operation and maintenance costs of any transmission upgrade facilities shall be borne by the purchasing FSO4 utility. Transmission upgrade facilities are defined as all facilities, exclusive of interconnection facilities (see Rule 21.1, Sections C.1.b and C.1.c) determined by the utility to be necessary to integrate the FSO4 QF's power into the utility's system.

(Continued)

12C1

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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs

1. General

- a. Unless otherwise agreed, the FSO4 QF shall be responsible for the costs of procuring, installing, operating, and maintaining all interconnection facilities as identified in Rule 21.1, Sections C.1.b and C.1.c. The FSO4 QF shall also be responsible for the cost of exploring the feasibility of a project and its interconnection with the utility's system, including reasonable advance charges imposed by the utility for feasibility studies. An interconnection study for any FSO4 QF shall be completed by the utility within the time period identified by the utility in accordance with the applicable procedures as established by the California Public Utilities Commission.
- b. The FSO4 QF shall pay the utility for the interconnection and associated operating and maintenance costs the utility incurs, pursuant to the terms of the interconnection and operating agreement between the FSO4 QF and the utility.
- c. For FSO4 QF's selling energy and capacity to the utility, all meters and equipment used for the measurement of power for determining the utility's payments to the FSO4 QF, pursuant to the final SFO4, shall be provided, owned, and maintained by the utility at the FSO4 QF's expense. Where the FSO4 QF's generating facility is less than 20 kW, and the FSO4 QF does not require that power delivered to the utility be measured on a time-of-delivery basis, the utility will procure, install, operate, maintain, and bear the cost of one standard watt-hour meter (and current transformers if required) to measure power flows from the FSO4 QF to the utility. The FSO4 QF shall provide, install, and maintain, at its own cost, the necessary meter sockets and enclosure equipment at or near the point of delivery.
- d. The FSO4 QF shall be responsible for the cost of procuring, installing, operating, and maintaining only those interconnection facilities which are necessary to maintain the California Public Utilities Commission's adopted interconnection standards for the FSO4 QF's particular interconnection facilities. Said standards shall be those in effect at the time the FSO4 QF and utility sign the power purchase or interconnection and operating agreement, whichever agreement is executed first.

(Continued)

13C1

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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs (Continued)

1. General (Continued)

- e. When the FSO4 QF wishes to continue to reserve interconnection facilities which were previously paid for by the FSO4 QF, but have been idled by an energy sale conversion, the utility shall continue to charge the FSO4 QF an operation and maintenance (O&M) charge for these facilities. When the FSO4 QF no longer needs the facilities for which he has paid, or fails to pay the required O&M charge, a termination payment due to the utility or FSO4 QF shall be calculated in accordance with the applicable sections of Rule 21.1 and the power purchase and/or interconnection and operating agreement.
- f. The utility shall treat any money collected from an FSO4 QF for interconnection facilities that accommodate a second non-utility generator in the same manner as customer advances would be treated under the utility's regular line extension rules for other customers.
- g. The O&M charge required under this Section J. shall commence at such time as the interconnection facilities are installed and ready to be used.

2. FSO4 QF Installation of the Interconnection Facilities (Exclusive of Metering and Termination Facilities)

At the option of the FSO4 QF, procurement and installation of that portion of the FSO4 QF's interconnection facilities (exclusive of metering) that do not involve termination facilities may be performed by the customer's contractor under the guidelines of and subject to the conditions and exceptions contained in Rule 15, Section E.8. and the following:

- a. The FSO4 QF signs a power purchase and/or interconnection and operating agreement with the utility specifying the facilities to be installed by the FSO4 QF;
- b. Prior to construction, the FSO4 QF makes payment to the utility, for the utility procurement and installation of the metering required for the FSO4 QF's installation. The payment shall include a Contribution-in-aid-of-Construction (CIAC) tax gross-up and shall be made to the utility pursuant to the utility's line extension rules; and

(Continued)

14C1

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RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs (Continued)

2. FSO4 QF Installation of the Interconnection Facilities (Exclusive of Metering and Termination Facilities) (Continued)

c. The FSO4 QF makes payment to the utility of a monthly ownership charge which shall be calculated utilizing the following factors:

<u>Type of Facility</u>	<u>Monthly Charge</u>
Transmission	0.50 percent
Distribution	0.65 percent

The appropriate percentage above is applied to the sum of the actual installed cost of the facilities deeded to the utility plus the estimated or actual installation cost (as selected in accordance with Rule 21.1, Section J.3.b.) of the metering provided by the utility in calculating the total monthly ownership charge to be paid.

d. In the event that the FSO4 QF terminates the use of the interconnection facilities at any time, the FSO4 QF will make a termination payment to the utility which shall be determined as follows:

- (1) The estimated or actual* installation cost of the metering provided by the utility plus the estimated removal cost of the interconnection facilities, less
- (2) The salvage value of any materials removed and the fair market value of any facilities the utility will continue to use to serve other customers rather than removing, less
- (3) The estimated or actual* installation cost of the metering that was previously paid in advance to the utility by the FSO4 QF.

If the termination payment as determined above is negative, then the utility will refund that amount, without interest, to the FSO4 QF.

* If the actual cost option was selected in Rule 21.1, Section J.3.b.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs (Continued)

3. Utility Installation of the Interconnection Facilities

At the option of the FSO4 QF, installation of the interconnection facilities that do not involve termination facilities may be made by the utility, provided the type of facilities requested are acceptable to the utility and the utility agrees to the installation of the facilities, under the following conditions:

- a. The FSO4 QF will execute a power purchase and/or interconnection and operating agreement covering the installation of the interconnection facilities.
- b. Prior to the installation of the interconnection facilities and as part of the power purchase or interconnection and operating agreement, the FSO4 QF will choose to pay the cost of installation based on either actual cost or a binding estimate.
- c. Payment Method for Interconnection Facility

The FSO4 QF will choose one of the following options to provide payment to the utility for the procurement, installation, operation and maintenance costs of the interconnection facility:

(1) Option 1

- (a) The FSO4 QF will advance to the utility, prior to construction, the estimated installed cost of the interconnection facilities and related engineering fees.
- (b) If the FSO4 QF chooses to pay for installation based on actual cost (as specified in Rule 21.1, Section J.3.b.), the utility will, as soon as practical after the interconnection facilities are completely installed by the utility, either bill or refund to the FSO4 QF, as applicable, any difference between the estimated and actual installed cost of the interconnection facilities.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs (Continued)

3. Utility Installation of the Interconnection Facilities (Continued)

c. Payment Method for Interconnection Facility (Continued)

(1) Option 1 (Continued)

(c) The FSO4 QF will make payment to the utility of a monthly ownership charge which shall be calculated utilizing the following factors:

<u>Type of Facility</u>	<u>Monthly Charge</u>
Transmission	0.50 percent
Distribution	0.65 percent

The appropriate percentage above is applied to the sum of the estimated or actual installed cost (as selected in accordance with Rule 21.1, Section J.3.b.) of the interconnection facilities in calculating the total monthly ownership charge to be paid.

(d) In the event that the FSO4 QF terminates the use of the interconnection facilities at any time, the FSO4 QF will make a termination payment to the utility which shall be determined as follows:

- (i) The estimated or actual* installation cost plus the estimated removal cost of the interconnection facilities, less
- (ii) The salvage value of any materials removed and the fair market value of any facilities the utility will continue to use to serve other customers rather than removing, less

* If the actual cost option was selected in Rule 21.1, Section J.3.b.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs (Continued)

3. Utility Installation of the Interconnection Facilities (Continued)

c. Payment Method for Interconnection Facility (Continued)

(1) Option 1 (Continued)

(iii) The estimated or actual* installation cost of the interconnection facilities that was previously paid in advance to the utility by the FSO4 QF.

If the termination payment as determined above is negative, then the utility will refund that amount, without interest, to the FSO4 QF.

(2) Option 2

(a) The FSO4 QF will make payment to the utility of a monthly interconnection facility (IF) charge for a term of 60 months commencing when the utility begins work to install the removable and reusable interconnection facilities. The monthly charge will be 3.4% of the estimated installed cost of the removable and reusable interconnection facilities. Removable and reusable interconnection facilities may include such items as transformers, disconnect switches, circuit breakers, protective relays, and other related equipment which can be removed and reused by the utility in the event that the FSO4 QF terminates the use of the interconnection facilities. The utility reserves the right to determine individually the removable and reusable interconnection facilities. This determination will be subject to confirmation by the utility at such time the FSO4 QF terminates either its power purchase or interconnection and operating agreement or its use of the interconnection facilities, whichever agreement is executed first.

* If the actual cost option was selected in Rule 21.1, Section J.3.b.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs (Continued)

3. Utility Installation of the Interconnection Facilities (Continued)

c. Payment Method for Interconnection Facility (Continued)

(2) Option 2 (Continued)

(b) The FSO4 QF will advance to the utility, prior to construction, the related engineering fees, and the estimated installed cost of those interconnection facilities that cannot be removed and reused by the utility.

(c) If the FSO4 QF chooses to pay for equipment and installation based on actual cost (as specified in Rule 21.1, Section J.3.b.), the utility will, as soon as practical after the interconnection facilities are completely installed by the utility, calculate a revised monthly IF charge based on the actual installed cost of the removable and reusable interconnection facilities. The utility will either bill or refund to the FSO4 QF, as applicable, to account for the difference in IF charge based on the estimated versus the actual installed cost of such facilities. Once the revised monthly IF charge is determined, future monthly payments by the FSO4 QF to the utility will be at the revised monthly charge.

(d) The FSO4 QF will make payment to the utility of a monthly ownership charge which shall be calculated utilizing the following factors:

<u>Type of Facility</u>	<u>Monthly Charge</u>
Transmission	0.50 percent
Distribution	0.65 percent

The appropriate percentage above is applied to the sum of the estimated or actual installed cost (as selected in accordance with Rule 21.1, Section J.3.b.) of the interconnection facilities in calculating the total monthly ownership charge to be paid.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs (Continued)

3. Utility Installation of the Interconnection Facilities (Continued)

c. Payment Method for Interconnection Facility (Continued)

(2) Option 2 (Continued)

(e) In the event that the FSO4 QF terminates the use of the interconnection facilities, the FSO4 QF will make a termination payment to the utility which shall be determined as follows:

- (i) The total estimated or actual* installed cost plus the estimated removal cost of the interconnection facilities, less
- (ii) The salvage value of any materials removed and the fair market value of any facilities the utility will continue to use to serve other customers rather than removing, less
- (iii) The estimated or actual* installed cost of the interconnection facilities that cannot be removed and reused by the utility that was previously paid in advance to the utility by the FSO4 QF, less
- (iv) The capital contribution of the monthly IF charge as calculated by the utility.

If the termination payment as determined above is negative, then the utility will refund that amount, without interest, to the FSO4 QF.

* If the actual cost option was selected in Rule 21.1, Section J.3.b.

(Continued)



RULE 21.1

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

J. Interconnection Costs (Continued)

3. Utility Installation of the Interconnection Facilities (Continued)

c. Payment Method for Interconnection Facility (Continued)

(2) Option 2 (Continued)

(f) Prior to the utility's acceptance of this option, the FSO4 QF shall provide and maintain one of the following:

(i) A Letter of Credit which will guarantee payment of the estimated installed cost of the interconnection facilities that is in excess of the advance payment made by the FSO4 QF under Rule 21.1, Section J.3.c.(2)(b),

(ii) A Surety Bond, acceptable to the utility, which will guarantee payment of the estimated installed cost of the interconnection facilities that is in excess of the advance payment made by the FSO4 QF under Rule 21.1, Section J.3.c.(2)(b),

(iii) Any similar security acceptable to the utility which will guarantee payment of the estimated installed cost of the interconnection facilities that is in excess of the advance payment made by the FSO4 QF under Rule 21.1, Section J.3.c.(2)(b).

(Continued)

21C1

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William L. Reed
Vice President
Regulatory Affairs

Date Filed Oct 21, 1993

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Resolution No. _____



San Diego Gas & Electric Company
San Diego, California

Original Cal. P.U.C. Sheet No. 7989-E

Canceling _____ Cal. P.U.C. Sheet No. _____

RULE 21.1

Sheet 22

FINAL STANDARD OFFER 4 QUALIFYING FACILITIES

The following schematic drawings are available by calling Jennifer Valeri in the Regulatory Affairs Department at (619)696-4011:

- K. Supplement I - Typical Installation of Under 100 KW
- L. Supplement II - Typical Installation of 100 KW to 1 MW
- M. Supplement III - Typical Installation of 1 MW and Above

22C1

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