



Rule 21

Sheet 1

GENERATING FACILITY INTERCONNECTIONS

A. General

This rule sets forth the minimum requirements and conditions for the interconnection and operation of generating facilities directly connected to, and supplying the electric loads of, end-use electric energy consumers who also receive electric service from SCE, and generating facilities who are entitled by the California Public Utilities Commission (Commission) to sell electric power directly to SCE. The provisions of this Rule are not applicable to generating facilities engaged in wholesale energy transactions subject to regulation by the Federal Energy Regulatory Commission (FERC). Generating facilities subject to this Rule may be connected for parallel operation with SCE's electric system which includes Independent System Operator (ISO)-controlled transmission facilities, or operated on an isolated basis with standby or breakdown service provided by SCE. For purposes of this rule, the interconnecting entity shall be designated the Producer.

B. Conditions.

1. A generating facility shall include all of a Producer's generating units and auxiliary facilities, together with all protective, control and other associated equipment, which are necessary to produce electrical power.
2. A written generation interconnection agreement (Generation Agreement) executed by SCE and the Producer shall be required for the interconnection of a generating facility with SCE's electric system. Terms for the purchase of Producer's electric power by SCE, if applicable, shall be included therein.
3. Interconnection with SCE's electric system under this Rule does not provide a Producer any rights to utilize SCE's electric system for the transmission or distribution of electric power.
4. A generating facility receiving benefits or privileges available only to a Qualifying Facility (QF) must meet the criteria for a QF as defined under the code of Federal Regulations, Title 18, Chapter 1, Section 292, subpart B of FERC's regulations.
5. Generating facilities and interconnection facilities shall comply with all applicable codes and regulations imposed by governmental authorities having jurisdiction over Producer's facilities and all of SCE's Tariffs as authorized by the Commission.
6. SCE shall have the right to review and approve the design of a Producer's generating facility and interconnection facilities and to inspect the Producer's generating and/or interconnection facilities prior to the commencement of parallel operation. SCE may require a Producer to make modifications as necessary to comply with the requirements of this Rule.

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B. Conditions. (Continued)

7. A generating facility may not be interconnected with SCE's electric system until and unless SCE has determined that such generating facility and related interconnection facilities comply with the design and operating requirements set forth herein and provided the Producer with a written authorization to interconnect its generating facility.
8. Where electrical protection equipment is owned, operated and maintained by a Producer, the Producer shall be responsible for damages to SCE or to others arising out of the misoperation or malfunction of such Producer-owned equipment.
9. Producers shall be solely responsible for providing adequate protection for the Producer's generating facility and interconnection facilities connected to SCE's electric system.
10. Producers shall be responsible for all costs of interconnecting a generating facility except to the extent that a comparable SCE customer without a generating facility would not be similarly charged.
11. Generating facilities and interconnection facilities shall be reasonably accessible to SCE personnel.

C. Design and Operating Requirements.

1. Each generating facility, which is or can be connected to SCE's electric system, shall be designed and operated so as to prevent or protect against the following adverse conditions. These conditions can cause electric service degradation, equipment damage, or harm to persons:
 - a. Re-energizing or continuing to energize any SCE line or bus which has been de-energized or disconnected from SCE's source of supply, unless such action is requested by SCE and agreed to by SCE and the producer.
 - b. Interconnection while out of synchronization.
 - c. Overcurrent.
 - d. Voltage imbalance.
 - e. Ground faults.
 - f. Frequency outside permitted limits.
 - g. Voltage outside permitted limits.
 - h. Poor power factor or reactive power (VAR) flows outside permitted limits.
 - i. Abnormal waveforms.
2. The specific permitted limits, protection measures, operating rules, and additional criteria identified above are dependent on the type, size, location, and planned operation of a generating facility. Upon a Producer's written request and submittal of the information as may be requested by SCE, SCE shall provide the specific requirements for the interconnection of a Producer's generating facility with SCE's electric system.
3. Generating facilities shall be interconnected and operated in accordance with prudent electrical practices in the State of California and the conditions stated in SCE's Rule 2, Description of Service.

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C. Design and Operating Requirements. (Continued)

4. Where generating facilities are interconnected with SCE's electric system at voltages of 34.5 kV and below, the protection equipment, including circuit breaker(s), required to be located at the point of interconnection between the Producer and SCE may be owned, operated, and maintained by either the Producer or by SCE. Where generating facilities are interconnected with SCE's electric system at voltages above 34.5 kV, SCE shall own, operate, and maintain any protection equipment required to be located at the point of interconnection unless such rights are specifically waived by SCE. Protection equipment to be owned, operated, and maintained by SCE shall be provided pursuant to SCE's specifications at the Producer's expense pursuant to Section H of SCE's Rule 2. Protection equipment owned, operated, and maintained by a Producer shall be subject to SCE's review and approval.
5. Producers shall provide sufficient volt/VAR controls or correction systems for their generating facility to prevent excessive VAR flows or voltage fluctuation conditions on SCE electric system. Producers operating generating facilities connected at SCE's electric system voltages of 55 kV to 500 kV may be required to maintain a voltage schedule established by SCE.
6. Producer owned protection equipment shall be tested at the intervals specified in their Generation Agreement. For those Producers not having a testing interval specified in their Generation Agreement, tests shall be performed upon SCE's request.

D. Interconnection Facilities.

1. Interconnection facilities include all means and apparatus required to interconnect a Producer's generating facility with SCE's electric system. Where SCE has entered into a Generation Agreement to purchase power from a Producer the interconnection facilities shall also include all means and apparatus necessary to allow SCE to receive power from the Producer. Interconnection facilities may include, but are not limited to: connection, transformation, switching, metering, telemetering, communications, control, protective and safety equipment installed at the point of interconnection between Producer's and SCE's electric systems; and any reinforcements and additions made to SCE's electric system.

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D. Interconnection Facilities. (Continued)

2. Producers shall be responsible for, and may be required to advance a deposit to guarantee payment of, SCE's costs reasonably incurred in determining the requirements to interconnect a proposed generating facility with SCE's electric system.
3. SCE will determine and communicate its requirements and estimated costs for interconnecting a Producer's generating facility in a timely manner. The following schedule will be followed by SCE in responding to a Producer's request for SCE to determine the requirements and estimated costs for interconnecting a Producer's generating facility. All response times presume full cooperation of the Producer in making the necessary information available.

<u>Total Installed Nameplate Capacity</u>	<u>Maximum Response Time</u>
200 kW or Less	60 Days
201 kW through 9.99 MW	90 Days
10 MW and Above	180 Days

4. SCE shall, upon request, provide the Producer with a binding estimate for the cost of interconnecting a generating facility; however, such estimates shall be effective for a period not to exceed one year from the date provided. Also, upon request, a reasonably detailed and understandable breakdown of SCE's estimated interconnection costs shall be provided to the Producer.
5. Where interconnection facilities are to be installed by SCE for the Producer's use as added facilities pursuant to Section H of SCE's Rule 2, the Producer shall advance to SCE the installed cost of the added facilities. Where a generating facility is a QF, and where the Producer has established creditworthiness to SCE's satisfaction, SCE shall finance those added facilities it deems to be removable and reusable equipment if requested to do so by the Producer. SCE may also elect, at its sole discretion, to finance those added facilities it deems to be removable and reusable equipment if requested to do so by a Producer installing a non-QF generating facility. Such equipment shall include, but not be limited to, transformation, disconnection, protection, communication, and metering equipment. Added facilities provided under any of the foregoing arrangements are subject to the charges as set forth in Section H of SCE's Rule 2.
6. When a Producer wishes to reserve added facilities paid for by the Producer, but idled by a change in the operation of the Producer's generating facility or otherwise, SCE shall be entitled to continue to charge for the costs related to the ongoing operation and maintenance of the added facilities. When a Producer no longer uses the added facilities for which it has advanced the installed costs, the Producer shall, at a minimum, receive from SCE credit for the net salvage value of the added facilities. If SCE is able to make use of these facilities to serve other customers, the Producer shall receive the fair market value of the facilities determined as of the date the Producer either decides no longer to use the facilities or fails to pay the required charge.

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E. Allocation of SCE's Existing Line Capacity and Reinforcement and/or Additions to SCE's Electric System.

SCE's tariffs governing interconnection costs and added or special facilities agreements shall be applied to line and system reinforcements and/or additions required to allow the interconnection of a Producer's generating facility. In addition, the following shall apply:

1. For Producers who are entitled to execute a Generation Agreement with SCE that provides for SCE to purchase the Producer's power, existing capacity on SCE's electric system and priority to such line capacity shall be allocated in accordance with the terms of such agreement.
2. Producers shall pay for any new or additional line capacity or reinforcements to SCE's electric system necessary to allow the interconnection of Producer's generating facility or to receive the Producer's power. The costs of any electric system reinforcement and/or addition undertaken solely at the option of SCE to serve additional or future customers or Producers shall be borne by SCE.
3. Where existing electric system capacity is allocated to a Producer, the Producer shall incur no obligation for costs associated with future reinforcements or upgrades needed to accommodate other Producers or customers. If two or more Producers establish priority rights simultaneously, the Producers shall share the costs of any reinforcement or upgrade necessary to facilitate their cumulative capacity requirements. Costs shall be shared based on the relative proportion of each generating facilities capacity to the total.
4. The applicable SCE tariff provisions shall be applied to a Producer who pays for interconnection reinforcement and/or additions that later accommodate a second Producer or other customer as those provisions would be applied to a comparable SCE customer without a generating facility.
5. Producers shall be responsible for the costs of only those future system alterations which are necessary to maintain the interconnection standards adopted by the California Public Utilities Commission. The relevant interconnection standards shall be those in effect at the time a Generation Agreement is executed by a Producer and SCE. Should such alterations not be directly required by, or beneficial to the Producer, the Producer shall be treated like a comparable SCE customer without a generating facility.

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G. Metering

1. If a Producer is entitled and desires to sell electric power to SCE, all necessary meters and associated equipment to be utilized for determining SCE's payment to the Producer shall be provided per SCE's specification at the Producer's expense.
2. For purposes of monitoring generating facility operation and determination of standby charges, SCE shall have the right to specify the type and require the installation of metering at the Producer's expense to measure the net kW or kWh output of the generating facility and delivery of electric power (kW and kWh) from SCE's electric system. Where the installed capacity of a Producer's generating facility is 10 MW or greater, telemetering equipment may also be required at the Producer's expense.
3. The Producer shall provide, at no expense to SCE, a suitable location for all meters and associated equipment required by the terms and conditions of this Rule in accordance with Rule 16, Service Extensions.
4. Where necessary, an appropriate metering compensation method for transformer and/or line losses shall be specified in the Generation Agreement between a Producer and SCE.
5. SCE may require the installation of directional metering or the installation of a ratchet device to prevent negative registration on the meter(s) recording power provided by SCE, and where appropriate on the meter(s) recording reactive demand imposed on SCE's electric system, and the meter(s) recording power purchased by SCE.
6. Where metering is installed to measure the amount of power purchased by SCE or produced by the generating facility, the Generation Agreement between a Producer and SCE shall include provisions for meter tests and adjustments of bills or payments to the Producer for metering errors consistent with Rule 17, Adjustment of Bills and Meter Tests.