City of Moreno Valley

Electric Service Rules, Fees and Charges

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ELECTRIC RULE 1—ADOPTION OF ELECTRIC RULES AND DEFINITIONS

These Electric Rules established by the City of Moreno Valley ("City") and approved by the City Council are effective throughout the service area of the City of Moreno Valley's Electric Utility.

All rules are subject to change. Copies of the rules currently in effect will be kept in the offices of the Electric Utility Division, Department of Public Works. Customers or others contemplating any expenditures or activities governed by these rules should assure themselves that they have the current version by contacting the Electric Utility Division. A copy of the current rates is also available on the City's website – www.moval.org.

For the purpose of these rules, the following terms shall have the following meanings:

Applicant: A person, persons, firm, association, governmental agency, corporation or other concern that submits a request for electric service from the Utility and who will be responsible for all related charges.

Billing Demand: The load or demand, measured in kilowatts and kilovars, used for computing charges under rate schedules based on the size of the Customer's load or demand. It may be connected load, the measured maximum demand, or a modification of either as provided for by the applicable rate schedule.

City Council: The City Council of the City of Moreno Valley, designated as the governing body of the Utility.

Connected Load: The sum of the nameplate-rated capacities of all of the Customer's equipment that can be connected to the Utility's lines at any one time as more completely described in the rate schedules.

Customer: The person, persons, firm, association, governmental agency, corporation or other concern that use, are entitled to use, or benefit from the use of electricity from the Utility.

Date of Presentation: The date upon which a bill or notice is mailed or delivered by the Utility to the Customer.

Distribution Lines: Overhead pole lines and underground facilities consisting of conduit, wire and cable that are operated at distribution voltages.

Energy Diversion: Electricity being received by a Customer without registering through the meter due to either tampering with the meter or bypassing the meter.

HP: Horsepower.

kVAR: Kilovar

kVARh: Kilovar-hour

kW: Kilowatt.

kWh: Kilowatt-hour.

On-Site Facilities: On-site facilities include the facilities located on the Premises as well as those in adjacent rights-of-way, easements and a proportionate share of any facilities on adjacent property used to provide service to the Premises.

Nominal Voltage: The nominal voltage of a circuit is the approximate voltage between conductors in a circuit or system of a given class, assigned for the purpose of convenient designation. For any specific nominal voltage, the operating voltage actually existing at different points and times on the system will vary.

Person: Any individual, partnership, corporation, public agency or legal entity.

Premises: All real property, buildings, and appurtenances upon an integral parcel of land undivided by a street, highway or other public thoroughfare.

Service Wires or Connection: The group of conductors connecting the service entrance conductors of the Customer to the Utility's supply line, regardless of the location of the Utility's meters or transformers.

Utility: City of Moreno Valley

ELECTRIC RULE 2—DESCRIPTION OF SERVICE

A. GENERAL

1. The type of service available at any particular location should be determined by inquiry at City's local office.

2. Alternating-current service will be regularly supplied at a frequency of approximately 60 Hertz (cycles per second).

3. In areas where a certain standard secondary voltage is presently being served to one or more Customers, an Applicant applying for new service in such areas may be required by City to receive the same standard voltage supplied to existing Customers.

4. All electric service described in this rule is subject to the conditions in the applicable rate schedule and other pertinent rules.

5. It is the responsibility of the Applicant to ascertain and comply with the requirements of governmental authorities having jurisdiction.

6. Service to a premise is normally established at one delivery point, through one meter, and at one voltage class. Other arrangements for service at multiple service delivery points, or for services at more than one voltage class, are permitted only where feasible and with the approval of City. For purposes of this rule, distribution service voltage classes, delta or wye connected, are described as:

a. 0-600 volt source, single-phase, 1Ø

b. 0-600 volt source, three-phase, 3Ø

c. above 600 volt source, three-phase, 3Ø

7. Direct-current (d-c) or two-phase service is not available.

B. SERVICE DELIVERY VOLTAGES

1. Following are the standard service voltages normally available, although not all of them are or can be made available at each service delivery point:

Distribution Voltages		
Single-phase Secondary	Three-phase Secondary	Three-phase Primary
120/240, 3-wire	240/120, 4-wire 480/277, 4-wire*	12,000, 3-wire 2,400, 3-wire*
120/208, 3-wire*	208Y/120, 4-wire	4,160, 3-wire*
		4,160Y/2,400, 4-wire*
		12,000Y/6,930, 4-wire*

***Limited Availability.**

2. All voltages referred to in this rule and appearing in some rate schedules are nominal service voltages at the service delivery point. City's facilities are designed and operated to provide sustained service voltage at the service delivery point, but the voltage at a particular service delivery point, at a particular time, will vary within fully satisfactory operating range limits established in Section C.

3. The point of delivery and point of metering will normally be at the same voltage and within close proximity to each other. When City determines it is not feasible for the point of delivery and point of metering to be at the same voltage and within close proximity to each other, the demand and energy meter readings used in determining the charges will be adjusted to correct for transformation and line losses. An estimated transformer loss adjustment factor of two percent (2%) will be applied to the demand and energy meter readings for each stage of transformation between the point of delivery and the point of metering, unless City and the Customer agree that specific transformer manufacturer test data support a different transformer loss adjustment. Line losses will be calculated as a function of the current through, and the electrical characteristics of, the line between the point of delivery and point of metering.

C. VOLTAGE AND FREQUENCY CONTROL

1. CUSTOMER SERVICE VOLTAGES

a. Under all normal load conditions, City's distribution circuits will be operated so as to maintain secondary service voltage levels to Customers within the service voltage ranges specified below:

Nominal Two-Wire And Multi-Wire Service Voltage	Minimum Voltage To All Services	Maximum Service Voltage On All Services
120	114	126
208	197	218
240	228	252
277	263	291
480	456	504

City's distribution voltage will be regulated to the extent practicable to maintain service voltage on residential and commercial distribution circuits within the minimum and maximum voltages specified above.

b. Exceptions to Voltage Limits. Voltage may be outside the limits specified when the variations:

1) Arise from the temporary action of the elements.

2) Are infrequent momentary fluctuations of a short duration

3) Arise from service interruptions.

4) Arise from temporary separation of parts of the system from the main system.

5) Are from causes beyond the control of City, and which may be sustained duration.

c. Where the operation of the Applicant's equipment requires unusually stable voltage regulation or other stringent voltage control beyond that supplied by City in the normal operation of its system, the Applicant, at his own expense, is responsible for installing, owning, operating, and maintaining any special or auxiliary equipment on the load side of the service delivery point as deemed necessary by the Applicant.

d. The Applicant shall be responsible for designing and operating his service facilities between the service delivery point and the utilization equipment to

maintain proper utilization voltage at the line terminals of the utilization equipment.

2. CUSTOMER UTILIZATION VOLTAGES

a. All Customer-owned utilization equipment must be designed and rated in accordance with the following utilization voltages specified by the American National Standard Institute C84.1 if Customer equipment is to give fully satisfactory performance:

Nominal Utilization Voltage	Minimum Utilization Voltage	Maximum Utilization Voltage
120	100	125
208	191	216
240	220	250
277	254	289
480	440	500

Minimum utilization voltages from ANSI C84.1 are shown for Customer information only as City has no control over voltage drop in Customer's wiring.

D. GENERAL LOAD LIMITATIONS

1. SINGLE-PHASE SERVICE

Single-phase service normally will be three-wire, 120/240 volts where the size of any single motor does not exceed 7.5 horsepower (10 horsepower at the option of City). For any single-phase service, the maximum demand as determined by City is limited to the capability of a 100-kVA transformer and 400 amp main disconnect unless otherwise approved by City. If the load requires a transformer installation in excess of 100 kVA, the service normally will be three-phase.

2. THREE-PHASE SERVICE (LESS THAN 600 VOLTS)

a. Secondary service from underground primary distribution systems (where City maintains existing 3-phase primary circuits):

Nominal Voltage	Minimum Load	Maximum Demand
208Y/120, 4-wire	Demand load justifies a 75 kVA transformer	3,000 kVA
480Y/277, 4-wire	Demand load justifies a 75 kVA transformer	3,000 kVA

b. Where three-phase service is supplied, City reserves the right to use single-phase transformers connected open-delta or closed-delta, or three-phase transformers.

c. Three-phase service will be supplied on request for installations aggregating less than the minimums listed above where existing transformer capacity is available and approved by City.

d. Three-phase metering for one service voltage supplied to installations on one premise at one delivery location normally is limited to a maximum of a 4,000 ampere service rating. Metering for larger installations, or installations having two (2) or more service switches with a combined rating in excess of 4,000 amperes, or service for loads in excess of the maximum demand load permitted, may be installed provided approval of City has been first obtained as to the number, size, and location of switches, circuits, transformers and related facilities. Service supplied to such approved installations in excess of one 4,000 ampere switch or breaker at one service delivery point may be totalized for billing purposes.

3. THREE-PHASE SERVICE (OVER 600 VOLTS)

a. Following are three-phase voltages that may be transformed from higher existing primary distribution voltages and provided only as isolated services for a single Applicant where the Applicant's demand load justifies, as determined by City, the installation of the minimum size transformer bank used by City:

Nominal Voltage	Minimum Size Bank Installed	Maximum Demand Load Permitted
2,400*	500 kVA	5,000 kVA
4,160*	500 kVA	5,000 kVA
12,000	500 kVA	12,000 kVA

***Limited Availability.**

b. For its operating convenience and necessity, City may elect to supply an Applicant whose demand load is in excess of 2,000 kVA from a substation on the Applicant's Premises supplied from a transmission source.

c. City reserves the right to change its distribution or transmission voltage to another standard service voltage when, in its judgment, it is necessary or advisable for economic reasons or for proper service to its Customers. Where a Customer is receiving service at the voltage being changed, the Customer then has the option to: (1) accept service at the new voltage, (2) accept service at the secondary side of an additional stage of transformation to be supplied by City at a location on the Customer's Premises in accordance with City's requirements, or (3) contract with City for an additional stage of transformation to be installed

as Special Facilities (including any applicable Contributions in Aid of Construction taxes) under the provisions of Section I, below, whereby the Customer will be considered as accepting service at the primary side of the additional stage of transformation. Metering not relocated to the primary side of the additional stage of transformation will be subject to a transformer loss adjustment in accordance with Section B.4 of this Rule. The option to contract with City for an additional stage of transformation (option 3, above) is available only once in conjunction with a change in standard voltage by City.

4. LOAD BALANCE

The Applicant must balance his demand load as nearly as practicable between the two sides of a three-wire single-phase service and between all phases of a three-phase service. The difference in amperes between any two phases at the Customer's peak load should not be greater than 10 percent or 50 amperes (at the service delivery voltage), whichever is greater; except that the difference between the load on the lighting phase of a four-wire delta service and the load on the power phase may be more than these limits. It will be the responsibility of the Customer to keep his demand load balanced within these limits.

E. PROTECTIVE DEVICES

1. It shall be the Applicant's responsibility to furnish, install, inspect and keep in good and safe condition at his own risk and expense, all appropriate protective devices of any kind or character, which may be required to properly protect the Applicant's facilities. City shall not be responsible for any loss or damage occasioned or caused by the negligence, or wrongful act of the Applicant or of any of his agents, employees or licensees in omitting, installing, maintaining, using, operating or interfering with any such protective devices.

2. It shall be the Applicant's responsibility to select and install such protective devices as may be necessary to coordinate properly with City's protective devices to avoid exposing other Customers to unnecessary service interruptions.

3. It shall be the Applicant's responsibility to equip his three-phase motor installations with appropriate protective devices, or use motors with inherent features, to completely disconnect each such motor from its power supply, in accordance with National Electrical Code, giving particular consideration to the following:

a. Protection in each set of phase conductors to prevent damage due to overheating in the event of overload.

b. Protection to prevent automatic restarting of motors or motor driven machinery, which has been, subjected to a service interruption and, because of the nature of the machinery itself or the product it handles, cannot safely resume operation automatically.

c. Open-phase protection to prevent damage due to overheating in the event of loss of voltage on one phase.

d. Reverse-phase protection where appropriate to prevent uncontrolled reversal of motor rotation in the event of accidental phase reversal. (Appropriate installations would include, but are not limited to, motors driving elevators, hoists, tramways, cranes, pumps, conveyors, etc.)

4. The available short-circuit currents vary from one location to another, and also depends on available generation, condition of the system loads, and the ultimate design characteristics of City's supply and service facilities. Consult City for the ultimate maximum short-circuit current at each service termination point.

5. Where an Applicant proposes to use a ground-fault sensing protective system which would require special City-owned equipment, such a system may be installed only where feasible and with written approval of City.

6. Any non-City-owned emergency standby or other generation equipment that can be operated to supply power to facilities that are also designed to be supplied from City's system shall be controlled with suitable protective devices by the Applicant to prevent parallel operation with City's system in a fail-safe manner, such as the use of a double-throw transfer switch to disconnect all conductors, except where there is a written agreement or service contract with City permitting such parallel operation.

F. INTERFERENCE WITH SERVICE

1. GENERAL

City reserves the right to refuse to serve new loads or to discontinue supply to existing loads of a size or character that may be detrimental to City's operations or to the service of its Customers. Any Customer who operates or plans to operate any equipment such as, but not limited to, pumps, welders, saw mill apparatus, furnaces, compressors or other equipment where the use of electricity is intermittent, causes intolerable voltage fluctuations, or otherwise causes intolerable service interference, must reasonably limit such interference or restrict the use of such equipment upon request by City. The Customer is required either to provide and pay for whatever corrective measures are necessary to limit the interference to a level established by City as reasonable, or avoid the use of such equipment, whether or not the equipment has previously caused interference.

2. HARMFUL WAVE FORM

Customer shall not operate equipment that superimposes a current of any frequency or waveform upon City's system, or draws current from City's system of a harmful waveform, which causes interference with City's operations, or the service to other Customers, or inductive interference to communication facilities.

3. CUSTOMER'S RESPONSIBILITY

Any Customer causing service interference to others must diligently pursue and take corrective action after being given notice and a reasonable time to do so by City. If the Customer does not take corrective action in the time set, or continues to operate the equipment causing the interference without restriction or limit, City may, without liability, after giving five (5) days written notice to Customer, either install and activate control devices on its facilities that will temporarily prevent the detrimental operation, or discontinue electric service until a suitable permanent solution is provided by the Customer and it is operational.

4. MOTOR STARTING CURRENT LIMITATIONS

a. The starting of motors shall be controlled by the Customer as necessary to avoid causing voltage fluctuations that will be detrimental to the operation of City's distribution or transmission system, or to the service of any of City's customers.

b. If the starting current for a single motor installation exceeds the value listed for Class C or better (per National Electrical Code Section 430) and the resulting voltage disturbance causes or is expected to cause detrimental service to others, reduced voltage starters or other suitable means must be employed, at the Customer's expense, to limit the voltage fluctuations to a level equivalent to a Class C motor.

c. Where service conditions permit, subject to City's approval, motor starters may be deferred in the original installation. City may later order the installation of a suitable starter or other devices when it has been determined that the operation of the Customer's motors interfere with service to others. Also, City may require starting current values lower than those set forth herein where conditions at any point on its system require such reduction to avoid interference with service to other Customers.

d. Starters may be omitted on the smaller motors of a group installation when their omission will not result in a starting current in excess of the allowable starting current of the largest motor of the group. Where motors start simultaneously, they will be treated as a single unit equal to the sum of their individual starting currents.

e. City may limit the maximum size and type of any motor that may be operated at any specific location on its system to that which will not be detrimental to City's system operations or to the service of its customers, as determined by City.

f. For installations of motors where the equipment is started automatically by means of float, pressure, or thermostat devices, such as with pumps or wind machines for frost protection, irrigation pumps or other similar installations, City may require the Customer to install, at his own expense and in accordance

with City's operating requirements, suitable preset time-delay devices to stagger the automatic connection of load to the supply system and to prevent simultaneous start-up for any reason.

G. POWER FACTOR

When lighting devices, such as neon, fluorescent, luminous gaseous, mercury vapor, and other lighting equipment having low power factors are served on street lighting schedules, the Customer shall provide, at his own expense, power factor corrective equipment to increase the power factor of each complete lighting device to not less than 90 percent.

H. CONNECTED LOAD RATINGS

1. The connected load is the sum of the rated capacities of all of the Customer's electric utilization equipment that is served through one metering point and that may be operated at the same time, computed to the nearest one-tenth of a horsepower, kilowatt (kW) or kilovolt-ampere (kVA). Motors will be counted at their nameplate ratings in horsepower output and other devices at their nameplate input ratings in kW or kVA, except that resistance welders will be rated in accordance with the section of this rule regarding "Welder Service." Unless otherwise stated in the rate schedule, conversions between horsepower, kW and/or kVA ratings will be made on a one-to-one basis.

2. The normal operating capacity rating of any motor or other device may be determined from the nameplate rating. Where the original nameplate has been removed or altered, the manufacturer's published rating may be used or the rating determined by test at the expense of the Customer.

3. Motor-generator sets shall be rated at the nameplate rating of the alternating-current drive motor of the set.

4. X-Ray Equipment

a. X-ray equipment shall be rated at the maximum nameplate kVA input operating at the highest rated output amperes. If the kVA input rating is not shown, it will be determined for single-phase loads by taking the product of the amperes input rating times the input voltage rating divided by 1,000. For three-phase equipment, multiply this product times the square root of three (1.73).

b. Where X-ray equipment is separately metered and supplied from a separate transformer installed by City to serve the X-ray installation only, the kVA rating of City's transformer or the total X-ray equipment input capacity, whichever is smaller, will be considered the load for billing purposes.

5. Where a Customer operates a complete unit of equipment connected for three-phase service, but consisting of single-phase components which cannot be readily

reconnected for single-phase service, City shall consider the connected load of such a unit as three-phase load.

6. Where a Customer has, or expects to have, permanently-connected, three-phase load that is used infrequently or for short duration, such as, but not limited to, equipment for fire pumps, frost protection, flood control, emergency sirens or other similar installations which make it impractical to record proper demands on a monthly basis for billing purposes, the Customer may, for his own reasons and with City's approval, guarantee an appropriate billing demand or connected three-phase load for billing purposes in order to reserve suitable capacity in City's facilities.

I. SPECIAL FACILITIES

1. City normally installs only those standard facilities, which it deems are necessary to provide regular service in accordance with the tariff schedules. Where the Applicant requests City to install Special Facilities and City agrees to make such an installation, the additional costs thereof shall be borne by the Applicant, including such continuing ownership costs as may be applicable.

2. Special Facilities are: (a) facilities requested by an Applicant which are in addition to or in substitution for standard facilities which City would normally provide for delivery of service at one point, through one meter, at one voltage class under its tariff schedules, or (b) a pro rata portion of the facilities requested by an Applicant, allocated for the sole use of such Applicant, which would not normally be allocated for such sole use. Unless otherwise provided by City's rate schedules, Special Facilities will be installed, owned and maintained by City as an accommodation to the Applicant only if acceptable for operation by City, and the reliability of service to City's other customers is not impaired and Applicant funds construction and pays incremental costs.

3. Special Facilities will be installed under the terms and conditions of a contract in the form on file with the Utility. Such contract will include, but is not limited to, the following terms and conditions:

a. Where new facilities are to be installed for Applicant's use as Special Facilities, the Applicant shall advance to City the estimated additional installed cost of the Special Facilities over the estimated cost of standard facilities. At City's option, City may finance the new facilities.

J. WELDER SERVICE

1. RATING OF WELDERS

Electric welders will be rated for billing purposes as follows:

a. MOTOR-GENERATOR ARC WELDERS - The horsepower rating of the motor driving a motor-generating type arc welder will be taken as the horsepower rating of the welder.

b. TRANSFORMER ARC WELDERS - Nameplate maximum kVA input (at rated output amperes) will be taken as the rating of transformer type arc welders.

c. RESISTANCE WELDERS - Resistance welder ratings will be determined by multiplying the welder transformer nameplate rating (at 50 percent duty cycle) by the appropriate factor listed below:

TYPE OF WELDER	TRANSFORMER NAMEPLATE RATING @ 50% Duty Cycle**	FACTOR City Owned Distribution Transformer
1. Rocker Arm, Press or Projection Spot	20 kVA or less	0.60
2. Rocker Arm, Press Spot Project Spot Flash or Butt Seam or Portable Gun	Over 20 kVA 21 to 75 kVA, inclusive 100 kVA or over All sizes	0.80
3. Flash or Butt	67 to 100 kVA, inclusive	***
4. Projection Spot Flash or Butt	Over 75 kVA 66 kVA or less	1.20

** *The kVA rating of all resistance welders to which these rating procedures are applied must be at or equivalent to 50 percent duty cycle operation. Duty cycle is the percent of the time welding current flows during a given operating cycle. If the operating kVA nameplate rating is for some other operating duty cycle, then the thermally equivalent kVA rating at 50 percent duty cycle must be calculated.*

*** *Each flash or butt welder in this group will be rated at 80 kVA.*

d. Ratings prescribed by a, b, and c above normally will be determined from nameplate data or from data supplied by the manufacturer. If such data are not available or are believed by either City or Customer to be unreliable, the rating will be determined by test at the expense of the Customer.

e. If established by seals approved by City, the welder rating may be limited by the sealing of taps, which provide capacity greater than the selected tap, and/or by the interlocking lockout of one or more welders with other welders.

f. When conversion of units is required for tariff application, one welder kVA will be taken as one horsepower for tariffs stated on a horsepower basis and one welder kVA will be taken as one kilowatt for rates stated on a kilowatt basis.

2. BILLING OF WELDERS

Welders will be billed at the regular rates and conditions of the tariffs on which they are served, subject to the following provisions:

a. CONNECTED LOAD TYPE OF SCHEDULE. Welder load will be included as part of the connected load with ratings as determined under Section 1, above, based on the maximum load that can be connected at any one time, and no allowance will be made for diversity between welders.

b. DEMAND METERED TYPE OF SCHEDULE. Where resistance welders are served on these schedules, the computation of diversified resistance welder load shall be made as follows:

Multiply the individual resistance welder ratings, as prescribed in Sections 1.c. to 1.f. inclusive (above) by the following factors, and add to the results thus obtained:

1.0 times the rating of the largest welder

0.8 times the rating of the next largest welder

0.6 times the rating of the next largest welder

0.4 times the rating of the next largest welder

0.2 times the ratings of all additional welders

If this computed, diversified, resistance welder load is greater than the metered demand, the diversified resistance welder load will be used in lieu of the metered demand for rate computation purposes.

ELECTRIC RULE 3—APPLICATION FOR SERVICE

A. APPLICATIONS

City may require each Customer to sign an application for the service desired, and also to establish credit. Generally, applications for service will be taken over the telephone, but may be taken in person or received by mail.

Application form shall set forth:

1. Legal name of Applicant.

2. Location of Premises.

3. Date Applicant will be ready for service.

a. Service restoration: When the Customer's service has been terminated either because of a determination by City that an unsafe apparatus or condition exists on the Premises, or because the Customer has threatened to create a hazardous condition, service will not be restored until City determines the Customer's electrical wiring or equipment or the use of either, has been made safe. When service is denied or terminated solely under these sections, the Customer may seek remedies before the City Council.

b. When the Customer's service has been terminated because of an order of termination issued to City by a governmental agency, service will not be restored until City has received authorization to restore the service from the appropriate governmental agency.

4. Whether electric service was previously supplied to the Premises.

5. Purpose for which service is to be used, with description of appliances.

6. Address to which bills are to be mailed or delivered.

7. Whether Applicant is owner, agent, or tenant of Premises.

8. Rate schedule desired where an optional rate is available.

9. Information necessary to the design, installation, maintenance, and operation of City's facilities.

10. Such other information as City may reasonably require for service.

The application is merely a request for service, and does not in itself bind City to serve except under reasonable conditions, nor does it bind the Customer to take service for a longer period than the minimum requirements of the rate. City may disconnect or refuse

to provide service to the Applicant if the acts of the Applicant or the conditions upon the Premises indicate that false, incomplete, or inaccurate information was provided to City. City shall provide the Applicant the reason for such refusal.

C. INDIVIDUAL LIABILITY FOR JOINT SERVICE

Where two or more persons join in one application or contract for service, they shall be jointly and severally liable thereunder and shall be billed by means of a single periodic bill mailed to the person designated on the application to receive the bill. Whether or not City obtained a joint application, where two (2) or more adults occupy the same Premises, they shall be jointly and severally liable for bills for energy supplied.

D. CHANGE OF CUSTOMER'S APPARATUS OR EQUIPMENT

In the event that the Customer shall make any material change either in the amount or character of the loads, protective equipment, or characteristic apparatus changes (reactive vs. inductive loads) installed upon the Premises to be supplied with electric energy by City, the Customer shall immediately give City written notice of this fact.

ELECTRIC RULE 4—CONTRACTS

Contracts will not be required as a condition precedent for service except:

1. As may be required by conditions set forth in the regular schedule of rates approved or accepted by the City.

2. In the case of electric extensions, temporary service, or service to speculative projects, in which case a contract may be required.

ELECTRIC RULE 5—SPECIAL INFORMATION REQUIRED ON FORMS

A. CONTRACTS

Each contract for electric service will contain the following provisions: "This contract shall at all times be subject to such changes or modification by the City Council as may, from time to time, direct in the exercise of its jurisdiction."

B. CUSTOMERS' BILLS

Each bill for electric service will include the following statements: "This bill is now due and payable. If you believe your bill is incorrect, call the MVU Customer Service Center. If you are not satisfied with the explanation provided and still believe you have been billed incorrectly, send the bill and a statement supporting your belief that the bill is not correct to the City of Moreno Valley Council Utility Hearing Board (Board) at 14177 Frederick Street, Moreno Valley, CA 92552. To avoid having service turned off if the bill has not been paid, enclose a deposit for the amount of the bill made payable to City Council. If you are unable to pay the amount in dispute, you must inform the Board of your inability to pay. Your service will remain on until the Board completes its review. The Board will review the basis of the billed amount, communicate the results of its review to the parties and make disbursement of the deposit. The Board will not, however, accept deposits when the dispute appears to be over matters that do not directly relate to the accuracy of the bill. Such matter includes the quality of a utility's service, general level of rates, pending rate changes, and sources of fuel and power."

C. DISCONTINUANCE OF SERVICE NOTICE

Each Discontinuance of Service Notice for nonpayment of bills will include the following information:

1. The name and address of the Customer whose account is delinquent.

2. The amount of the delinquency.

3. The date by which payment (or arrangements for payment) is required, or the date by which the dispute must be documented in order to avoid termination.

4. The procedure by which the Customer may initiate a complaint or request an investigation concerning service or charges as defined herein.

5. The telephone number of a representative of City who can provide additional information or institute arrangements for payment.

6. The telephone number of the Board to which inquiries by the Customer may be directed.

ELECTRIC RULE 6—ESTABLISHMENT AND RE-ESTABLISHMENT OF CREDIT

An Applicant for City service may be required to establish credit. A Customer whose City service has been terminated for nonpayment of an energy bill or whose payments have been past due, as set forth below, may be required to re-establish credit.

A. ESTABLISHMENT OF CREDIT

When, for Applicant's convenience, City provides service to the Applicant before credit is established and the Applicant fails to establish credit in accordance with this rule, service may be terminated after notice is given in accordance with these regulations.

Credit can be established if the Applicant:

a. is the owner with a substantial equity, of value satisfactory to City, in the Premises to be served; or

b. makes a deposit to secure payment of bills as prescribed in Rule 7; or

c. furnishes a qualified guarantor to secure payment of Applicant's City bills; or

d. has been a Customer of City for a similar type of service within the past two years, and during the last twelve consecutive months of that prior service, Customer has had not more than two past due bills as defined in Rules 8 and 11. The periodic bill for such previous service must equal at least 50 percent of the estimated bill amount(s) for the new service, and provided further, that the credit of Applicant is unimpaired in the opinion of City; or

e. otherwise establishes credit to the satisfaction of City; and

f. has paid all bills for nonresidential electric service previously supplied to Applicant by City.

B. RE-ESTABLISHMENT OF CREDIT

1. An Applicant who previously has been a Customer of City, and whose electric service has been discontinued by City during the last twelve (12) months of that prior service because of nonpayment of bills, may be required to re-establish credit.

a. A Customer who fails to pay bills before they become past due and who further fails to pay such bills within five days after presentation of a discontinuance of service notice for nonpayment of bills, may be required to pay said bills and re-establish credit by depositing the amount established by City. A deposit may be required regardless of whether or not service has been discontinued for such nonpayment.

ELECTRIC RULE 7—DEPOSITS

A. AMOUNT OF DEPOSIT

1. ESTABLISHMENT OF CREDIT

a. Residential accounts: The amount of deposit required to establish credit shall be twice the average monthly bill as estimated by City.

b. Nonresidential accounts: The amount of deposit required to establish credit shall be twice the maximum monthly bill as estimated by City.

c. Residential and nonresidential accounts: The amount of deposit taken to establish credit shall be subject to adjustment upon request by the Customer or upon review by City.

2. RE-ESTABLISHMENT OF CREDIT

Should the Customer's payment history with the City warrant it, the City may require the Customer to re-establish credit by paying a re-establishment deposit. The amount of deposit required to re-establish credit will be twice the maximum monthly bill as determined by City.

B. RETURN OF DEPOSIT

1. City may refund a Customer's deposit by draft or by applying the deposit to the Customer's account. If the Customer establishes service at a new location, City may retain the deposit for such new account, subject to the conditions of Sections B.3 and B.4 below.

2. Upon discontinuance of service, City will refund the Customer's deposit or the balance thereof that is in excess of unpaid bills for service furnished by City.

3. When the Customer's credit is otherwise established, City will refund the deposit either upon the Customer's request for return of the deposit or upon review by City.

4. City will review the Customer's account at the end of the first twelve- (12) months that the deposit is held and each month thereafter. After the Customer has had not more than two past due bills during the twelve (12) months prior to any such review, and has not had service temporarily or permanently discontinued for nonpayment of bills during such period, the deposit will be refunded in accordance with this section.

5. Deposits cannot be used to offset past due bills or to avoid or delay discontinuance of service.

C. INTEREST ON DEPOSIT

1. City will pay interest on deposits, except as provided below. Interest shall be calculated on a daily basis, and compounded at the end of each calendar month, from the date fully paid to the date of refund by check or credit to the Customer's account. The interest rate applicable in each calendar month may vary and shall be equal to $1/12^{th}$ of the interest rate on commercial paper (prime, 3 months) for the previous month as reported in the Federal Reserve Statistical Release, G.13, or its successor publication; except that when a refund is made within the first fifteen (15) days of a calendar month, the interest rate applicable in the previous month shall be applied for the elapsed portion of the month in which the refund is made.

2. No interest will be paid if service is temporarily or permanently discontinued for nonpayment of bills.

3. No interest will be paid for those months where the bill is paid after the due date (late pay or over date).

ELECTRIC RULE 8—NOTICES

Any notice pursuant to City's tariffs may be given to the Customer in writing. Written notice is effective when it is either: (1) presented to the Customer, or (2) mailed to the Customer at the address where the Customer is receiving service, or (3) mailed to the customer at the mailing address provided by the Customer, or (4) delivered by door hanger at the address where the Customer is receiving service. City may also provide the Customer with verbal notice in person or by telephone. Any notice pursuant to City's tariffs from the Customer or the Customer's authorized agent may be given to City by telephone, in person, or in writing. Verbal notice is acceptable unless written notice is requested by City or required by the tariffs.

A. NOTICES OF TERMINATION OF SERVICE FOR NONPAYMENT

Monthly bills for residential service are due and payable upon presentation and will be considered past due if payment is not received by City within fifteen (15) days after the bill is mailed to the Customer. Deposit requests are due and payable when request for service is made. When a deposit is billed, it will be considered past due if payment is not received by City within fifteen (15) days after the deposit request is mailed. If the past due amount is not paid, service may be terminated for nonpayment in accordance with Rule 11. A Field Collection Charge may appear on your next bill if City visits your Premises for nonpayment. If a termination order is processed for your account due to nonpayment, payment of the balance in full, plus a Reconnection Charge and Deposit will be required prior to restoration of service. Unpaid closing bills may be reported or forwarded to a credit reporting agency.

1. 10-DAY NOTICE

When a bill for service or deposit request has become past due, City will mail the Customer a notice that service may be terminated for nonpayment in 10 calendar days.

2. 24-HOUR NOTICE

When the past due balance on a 10-day notice is unpaid, City will make a reasonable attempt to contact an adult residing at the service address either by telephone or in person at least 24 hours prior to terminating service.

3. NOTICE OF TERMINATION OF SERVICE FOR NONPAYMENT OF PAYMENT ARRANGEMENT AGREEMENT

When City and the Customer enter into a payment arrangement agreement and the Customer does not abide by the terms of the agreement, in whole or in part, City will give the Customer at least 24 hours notice by telephone or in person prior to terminating service for nonpayment.

B. NOTICES FOR UNPAID CLOSING BILLS

Closing bills are due and payable upon presentation and will be considered past due if payment is not received by City within fifteen (15) days after the closing bill is mailed to the Customer. When City determines that the Customer has an open account for City service at one location and an unpaid closing bill in the Customer's name for City service at another location, City may transfer the unpaid closing bill to the open account, except that the unpaid closing bills for nonresidential service may not be transferred to a residential account. Before the Customer's open account may be terminated for nonpayment of the closing bill, the Customer will be given notices in accordance with Section A of this Rule.

ELECTRIC RULE 9—RENDERING AND PAYMENT OF BILLS

A. BILLS PREPARED AT REGULAR INTERVALS

Bills for electric service will be rendered at regular intervals. All bills will be based on meter registration, except as provided in Section C below, or as may otherwise be provided in City's tariffs. Meters will be read as nearly as possible at regular intervals. Except as otherwise stated, the regular billing period will be once each month. Due to Sundays and holidays and other factors, it is not always possible to read meters on the same day of each month.

B. PRO RATA CORRECTION

Opening and closing bills rendered will be computed in accordance with the rate schedule applicable to that service, unless otherwise provided in this rule, or in the applicable rate schedule. The basic charge, customer charge, the amount of energy blocks, demand blocks, etc., and the service charge, demand charge, or minimum charge will be prorated on the basis of the number of days in the period in question to the total number of days in the subject month. However, where daily equivalents are used, there will be no pro rata correction. Instead, the calculation shall use the number of days in the billing period multiplied by the daily equivalent charge.

When one or more regularly scheduled meter readings have been missed, the proration factor for the next regularly scheduled meter reading shall be 1.000 times the number of monthly billing cycles in the period. When an interim bill based on a special reading for a period other than 27 to 33 days has been issued during the interval since the last regularly scheduled meter reading, the proration factor for the regularly scheduled bill shall be the factor derived above, less the proration factor applied to the interim bill. However, where daily equivalents are used, there will be no pro rata correction. Instead, the calculation shall use the number of days in the billing period by the daily equivalent charge.

C. ESTIMATED BILLS

If, because of unusual conditions or for reasons beyond its control, City is unable to read the Customer's meter on the scheduled reading date, City may bill the Customer for estimated consumption during the billing period, and make any necessary corrections when a reading is obtained. Estimated consumption for this purpose will be calculated considering the Customer's prior usage, City's experience with other customers of the same class in that area, and the general characteristics of the Customer's operations. Adjustments for any underestimate or overestimate of a Customer's consumption will be reflected on the first regularly scheduled bill rendered and based on an actual reading following the period of inaccessibility.

D. READINGS OF SEPARATE METERS NOT COMBINED

For the purpose of making charges, each meter upon the Customer's Premises will be considered separately, and the readings of two or more meters will not be combined, except as follows:

1. Where combinations of meter readings are specifically provided for in rate schedules; or

2. Where City's operating convenience or necessity shall require the installation of two or more meters upon the Customer's Premises instead of one meter.

E. BILLS DUE ON PRESENTATION

Bills for electric service are due and payable upon presentation. Payments shall be received at the office of City, or by an authorized agent of City.

F. CLOSING BILL PAYABLE ON PRESENTATION

Removal bills, special bills, bills rendered on vacation of Premises, or bills rendered to persons discontinuing the service, shall be due and payable upon presentation. Bills for connection or reconnection of service and payments for deposits or to re-establish credit as required under the rules of City shall be paid before service will be connected or reconnected.

G. RETURNED CHECK CHARGE

If a check, tendered in payment of amounts owing City, is not honored by a bank and is returned to City unpaid, City will add to the Customer's bill a charge for processing each such returned check consistent with these rules. Where service is subject to discontinuance under Rule 11, the returned check charge shall be included in the total amount due and payable.

H. FIELD COLLECTION AND DISCONNECT CHARGE

City will require payment of a Field Collection and Disconnect Charge when an authorized City representative makes a field call to a Customer's Premises to discontinue electric service in accordance with Rule 11 for nonpayment of a past due billing. City will also require payment of Field Collection and Disconnect Charge when an authorized City representative makes a field call to discontinue electric service for nonpayment of a deposit that was requested in accordance with Rule 6. Where service is discontinued under the provisions of Rule 11, the Field Collection and Disconnect Charge will be included in the total amount due and payable. If, at the time the authorized City representative makes the field call to the Customer's Premises, the Customer makes payment in full or makes acceptable payment arrangements in order to avoid discontinuance of service, City will still require payment of a Field Collection and Disconnect Charge. The City may require payment of a Field Assignment Charge when a

24 hour field notification must be made due to nonpayment. Generally these notifications are in the form of a door hanger left at the Customer's Premises. The Field Collection and Disconnect Charge is in addition to any Reconnection Charge or Field Assignment Charge that may apply.

I. LATE PAYMENT CHARGE

A late payment charge of 0.9% per month will be applied to the total unpaid balance of a Customer Account if the Customer's payment is not received by the date indicated on the Customer Account billing.

J. ACCUMULATIVE AMOUNT DUE

City reserves the right to accumulate bills until the total amount due exceeds $2.00.

ELECTRIC RULE 10—DISPUTED BILLS

A. CORRECTNESS OF BILL

If the correctness of a bill is questioned or disputed by a Customer, an explanation should be promptly requested from the Customer Service Center. If the bill is determined to be incorrect, a corrected bill will be issued.

B. BILL REVIEW PROCEDURE

A Customer who has initiated a complaint or requested an investigation shall be given an opportunity for review of his complaint by the City Utility Hearing Board.

1. After review, when a Customer and City agree on the amount of the bill, City will determine and advise the Customer: (a) if a payment arrangement to pay the unpaid balance is warranted, or (b) the date the unpaid balance of his account must be paid. If a payment arrangement is warranted and agreed to by the Customer, service will not be discontinued for nonpayment for any Customer complying with such payment arrangement agreement, provided the Customer also keeps current on his account for utility service as charges accrue in each subsequent billing period. If the Customer fails to comply with any such payment arrangement agreement, service shall be subject to discontinuance for nonpayment of bills as provided Rule 11.

2. After review, when a Customer and City fail to agree on the amount of the bill, and upon review, City has determined to its satisfaction that the bill is correct, City will inform the Customer that:

a. City has completed its investigation and review.

b. In lieu of paying the disputed bill, Customer may deposit with the City Council at its local office, the amount claimed by City to be due. A check or other form of remittance for such deposit should be made payable to the City Council. A Customer who is unable to deposit the full amount in dispute for a bill covering a period in excess of 90 days shall deposit an amount equal to 90 days at the average disputed charge per day of the disputed bill.

c. The Customer shall submit the disputed bill and a statement setting forth the basis for the dispute of the amount billed. The Board will not, however, accept deposits when the dispute appears to be over matters that do not directly relate to the accuracy of the bill. Such matters include the quality of a utility's service, general level of rates, pending rate applications, and sources of fuel and power. Disputes over termination policy will be resolved in accordance with Rule 11, which does not require such a deposit.

d. Upon receipt of the deposit, the Board will notify City, review the basis of the billed amount, and advise both parties of its findings and disburse any deposit in accordance therewith.

e. Service will not be discontinued for nonpayment of the disputed bill when deposit has been made with the Board or notice of inability to pay per Rule 5 pending the outcome of the Board's review.

f. Failure of the Customer to submit a dispute to the Board in accordance with this Rule above will warrant discontinuance of service in accordance with Rule 11.

g. If, before completion of the Board's review, additional bills become due which the Customer also wishes to dispute, he should follow the procedures set forth in this Rule with regard to the additional amounts claimed by City to be due. Failure to follow the procedures in this Rule will warrant discontinuance of service in accordance with Rule 11.

h. Subsequent bills, not in dispute, rendered prior to the settlement of the disputed bill, will be due and payable in accordance with Rules 9 and 11.

If City terminates or refuses to restore service to a Customer or any other person for any of the reasons or upon any of the grounds stated herein, City shall incur no liability whatsoever to said Customer or person or to any other Customers or persons.

A. CUSTOMER REQUEST TO TERMINATE LIABILITY FOR PAYMENT FOR SERVICE

When a Customer wants to terminate liability for payment for service, the Customer shall give City not less than two days notice and state the date on which the termination is to become effective. The Customer may be held responsible for service furnished at the Premises until two days after receipt of such notice by City, or until the date of termination specified in the notice, whichever date is later.

B. TERMINATION OF SERVICE FOR NONPAYMENT—WEEKENDS AND HOLIDAYS

Service will not be terminated for nonpayment of bills or deposit requests on Saturdays, Sundays, legal holidays or on days when the offices of City are closed to the public.

C. TERMINATION OF SERVICE FOR NONPAYMENT OF BILLS OR DEPOSIT REQUESTS

Monthly bills are due and payable upon presentation and will be considered past due if payment is not received by City within 15 days after the bill is mailed to the Customer. Deposit requests are due and payable when request for service is made. When a deposit is billed, it will be considered past due if payment is not received by City within 15 days after the deposit request is mailed to the Customer. Customers who fail to pay their bills within this time period are subject to service disconnection.

D. FAILURE TO ESTABLISH OR RE-ESTABLISH CREDIT

When City provides service to an Applicant before credit is established or continues service to a Customer pending re-establishment of credit, and the Applicant/Customer fails to establish or re-establish credit, any and all services the Customer is receiving may be terminated after notice has been given. City will not restore the Customer's service until the Customer has complied with the requirements to establish or re-establish credit.

E. TERMINATION OF SERVICE FOR NONPAYMENT OF BILLS AT OTHER LOCATIONS

Any and all services the Customer is receiving may be terminated for nonpayment of a bill for service previously supplied by City to the same Customer at another location after the Customer has been given notices of termination, except that residential service shall not be terminated for nonpayment of a bill for any other class of service. Nonresidential service may be terminated for nonpayment of a bill for any class of service. Service shall

not be terminated for nonpayment within 15 days after establishment of service at the new location. If the Customer is receiving service at more than one location, any or all services may be terminated with proper notice for nonpayment of any bill at any location for City service.

F. TERMINATION OF SERVICE—RETURNED CHECKS

When the Customer has received notice of termination and a check tendered in payment of the past due bill or deposit request for service is returned unpaid, City may terminate service. When the Customer has received a 10-day notice of termination, the notice will remain in effect, and collection action will continue. When the Customer has received a 24-hour notice of termination, the notice will remain in effect, and service may be terminated without further notice.

G. UNSAFE APPARATUS OR CONDITION

1. City may deny or terminate service to the Customer immediately and without notice when:

a. City determines that the Premises wiring, or other electrical equipment, or the use of either, is unsafe, or endangers City's service facilities; or

b. The Customer threatens to create a hazardous condition; or

c. Any governmental agency, authorized to enforce laws, ordinances or regulations involving electric facilities and/or the use of electricity, notifies City in writing that the Customer's facilities and/or use of electricity is unsafe or not in compliance with applicable laws, ordinances, or regulations. City does not assume the responsibility of inspecting or repairing the Customer's facilities, appliances or other equipment for receiving or using service, or any part thereof. In the event the Customer has knowledge that the service is in any way defective, it is the Customer's responsibility to notify City at once. City shall not be liable or responsible for any plumbing, appliances, facilities, or apparatus beyond the point of delivery, which it does not own or maintain in accordance with these rules.

H. SERVICE DETRIMENTAL TO OTHER CUSTOMERS

City will not supply service to a Customer operating equipment, which is considered by City to be detrimental to either the service of other City Customers or to City. City will terminate service and refuse to restore service to any Customer who continues to operate such equipment after receiving notification from City to cease.

I. UNAUTHORIZED USE

1. City may terminate service without notice for unauthorized use of service as defined in Rule 17.2. When the Customer's service has been terminated under this section, City may refuse to restore service until:

a. the unauthorized use has ceased, and

b. City has received full compensation for all charges authorized in Rule 17.2.

2. City may terminate and refuse to restore service if the acts of the Customer or conditions on the Premises indicate intent to deny City full compensation for services rendered, including, but not limited to, any act which may result in a denial of service. City shall provide the Customer with the reasons for such termination and/or refusal to restore service. When the Customer's service has been terminated under this section, City may refuse to restore service until:

a. the acts and/or the conditions described above have ceased or have been corrected to City's satisfaction, and

b. City has received full compensation for all charges resulting from the Customer's acts or the conditions on the Premises.

J. NONCOMPLIANCE WITH CITY'S RATES

Unless otherwise specifically provided, City may terminate service to a Customer for noncompliance with any of City's tariffs if the Customer fails to comply within five days after the City's presentation of written notification of noncompliance to the Customer. The Customer shall comply with City's tariffs before service will be restored.

K. REVOCATION OF PERMISSION TO USE PROPERTY

If City's service facilities and/or a Customer's wiring to the meter are installed on property other than the Customer's property and the owner of such property revokes permission to use it, City will have the right to terminate service upon the date of such revocation. If service is terminated under these conditions, the Customer may have service restored under the provisions of City's line and service extension rules.

L. CHARGES FOR TERMINATION AND/OR RESTORATION OF SERVICE

1. City may require payment of the entire amount due, including the past due amount and current charges, payment of a deposit or additional deposit in accordance with Rule 7, and payment of other charges indicated herein, prior to restoring service to accounts which have been terminated for nonpayment.

2. City will require a returned check charge for processing a check, which is returned to City unpaid.

3. City will require payment of a Field Collection and Disconnect charge when a City representative makes a field call to a Customer's Premises to terminate service for nonpayment of bills or deposit requests.

4. City will require payment of a reconnection charge per connection before restoring service that has been terminated for nonpayment of bills, to prevent fraud, or for failure to comply with City's tariffs. If the Customer requests that service be restored outside of regular business hours, an additional charge per connection may apply. Refer to the Chart of Charges and Fees for amounts of applicable charges.

5. In addition, City may charge and collect any unusual costs incidental to the termination or restoration of service, which have resulted from the Customer's action or negligence.

6. Service wrongfully terminated will be restored without charge.

ELECTRIC RULE 12—RATES AND OPTIONAL RATES

A. EFFECTIVE RATES

The rates to be charged by and paid to City for electric service will be the rates legally in effect, approved by the City Council, and on file with the Electric Utility Division, Department of Public Works. Complete schedules of all rates in effect will be kept at all times in City Utility's local office, where they will be available for public inspection. Unless stated otherwise on the rate schedules themselves, City's rate schedules are only applicable for service supplied entirely by City.

B. ESTABLISHING RATE SCHEDULES FOR NEW CUSTOMERS

At the time of application for service, City will, based on information provided by the Applicant, ensure that the Applicant is placed on an applicable rate schedule approved by the City Council. Thereafter, City will take such measures as may be practical to provide the Customer with information regarding rate schedules or options applicable to the Customer's class of service.

C. CHANGING RATE SCHEDULES

City may not be required to make more than one change in rate schedules within a twelve-month period unless a new rate schedule is approved or the Customer's operating conditions have changed sufficiently to warrant a change in rate schedule.

Changes in rate schedules will take effect starting with the next regular meter reading date or meter change date following receipt of the Customer's request to change the rate schedule, unless (1) the rate schedule states otherwise, (2) a written agreement between City and the Customer specifies another date, or (3) the required metering equipment is unavailable. In those cases, the change of schedule will take effect on the date stated in the schedule or agreement, or the date the metering equipment is available. It is the Customer's responsibility to request another schedule or option if the Customer's connected load, hours of operation, type of business or type of service have changed. Where the Customer changes equipment or operation without notifying City, City assumes no responsibility for advising the Customer of other rate options available to the Customer as a result of the Customer's equipment/operation changes.

D. NOTIFYING CUSTOMERS OF NEW RATE SCHEDULES

Where City establishes new rate schedules, City shall take such measures as may be practical to advise affected Customers of the availability of the new rate schedules.

E. ENERGY COST ADJUSTMENT

The energy charge is based upon the percentage of the energy being provided by the Department of Water Resources to the investor owned utility on the billing date of each monthly billing and will be adjusted each month. These adjustments could result in slight decreases or increase in the energy charge.

ELECTRIC RULE 13—TEMPORARY SERVICE

A. ESTABLISHMENT OF TEMPORARY SERVICE

City shall, if no undue hardship to its existing Customers will result therefrom, furnish temporary service under the following conditions:

1. The Applicant shall pay, in advance or otherwise as required by City, the estimated cost installed plus the estimated cost of removal, less the estimated salvage of the facilities necessary for furnishing service.

2. The Applicant shall establish credit as required by Rule 6, except that the amount of deposit prescribed in Rule 7 shall not exceed the estimated bill for the duration of service.

B. CHANGE TO PERMANENT STATUS & REFUNDS

1. If service to the electrical machinery or apparatus as originally installed, or its equivalent, is supplied to a temporary Customer on a continuous, intermittent or seasonal basis for a period of 36 consecutive months from the date electric service first was delivered under this rule, the Customer shall be classified as permanent. The payment made in excess of that required for permanent service or under the line extension rule for permanent Customers shall be refunded, provided the Customer then complies with all of the rules applicable to electric service.

2. If at any time the character of a temporary Customer's operations changes so that, in the opinion of City, the Customer may be classified as permanent, the amount of payment made in excess of that required for permanent service immediately shall be refunded to the Customer under the provisions of this section.

ELECTRIC RULE 14—SHORTAGE OF SUPPLY AND INTERRUPTION OF DELIVERY

City will exercise reasonable diligence and care to furnish and deliver a continuous and sufficient supply of electric energy to the Customer, but does not guarantee continuity or sufficiency of supply. City will not be liable for interruption or shortage or insufficiency of supply, or any loss or damage of any kind of character occasioned thereby City will not be liable for interruption or shortage or insufficiency of supply. If same is caused by inevitable accident, act of God, fire, strikes, riots, war, or any other cause except that arising from its failure to exercise reasonable diligence. City, whenever it shall find it necessary for the purpose of making repairs or improvements to its system, will have the right to suspend temporarily the delivery of electric energy. In case of shortage of supply and during the period of such shortage, City will make such apportionment of its available supply of energy among its customers as shall be ordered or directed from time to time by the State of California, acting either directly or by a power administrator or other official appointed by it for that purpose. In the absence of such order or direction, City will, in times of shortage, apportion its available supply of energy among all customers in the most reasonable manner possible.

ELECTRIC RULE 15—DISTRIBUTION LINE EXTENSIONS

APPLICABILITY: This rule is applicable to extension of electric distribution lines of City's standard voltages (less than 50 kV) necessary to furnish Permanent electric service to Applicants and will be made in accordance with the following provisions:

A. GENERAL

1. EXTENSION BASIS

a. Design: City will be responsible for planning, designing, and engineering extensions using City's standards for material, design, and construction. The Applicant will furnish all necessary plot plans, utility plans, street improvement plans, tract maps and electric loads for the design of the system.

The Applicant may design the electrical Distribution Lines using qualified design firms approved by the City. The system will be designed in accordance with the City's standards and the final design will be approved by the City. Ownership of Applicant's final design and as-built documents shall be transferred to City upon completion of work.

b. Ownership: The facilities installed under the provisions of this rule, shall be owned, operated, and maintained by City, except for substructures and enclosures that are on, under, within, or part of a building or structure.

c. Private Lines: City shall not be required to serve any Applicant from extension facilities that are not owned, operated, and maintained by City.

2. EXTENSION LOCATIONS

a. Rights Of Way: City will own, operate and maintain extension facilities only;

1) along public streets, alleys, roads, highways and other publicly dedicated ways and places which City has the legal right to occupy, and

2) along public lands and private property across which rights of way and permits satisfactory to City may be obtained without cost to or condemnation by the City.

b. Normal Route Of Line: The length and normal route of an extension will be determined by City and shall be considered as the distance along the shortest, most practical, available, and acceptable route which is clear of obstructions from City's nearest permanent and available distribution facility to the point from which the service facilities will be connected.

3. UNDERGROUND EXTENSIONS

Underground extensions shall be installed where required to comply with applicable laws and ordinances or similar requirements of governmental authorities having jurisdiction and where City maintains or desires to maintain underground distribution facilities.

4. OVERHEAD EXTENSIONS

Overhead extensions may be installed only where underground extensions are not required by other jurisdictions and as approved by City.

5. SPECIAL OR ADDED FACILITIES

Any special or added facilities City agrees to install at the request of Applicant will be installed at Applicant's expense in accordance with Rule 2— Description of Service.

6. TEMPORARY SERVICE

Facilities installed for temporary service or for operations of speculative character or questionable permanency shall be made in accordance with the fundamental installation and ownership provisions of this rule, except that all charges shall be made under the provisions of Rule 13—Temporary Service.

7. SERVICES

Service facilities connected to the Distribution Lines to serve an Applicant's Premises will be installed, owned and maintained as provided in Rule 16—Service Extensions.

8. STREET LIGHTS AND AREA LIGHTS

Streetlights, area lights, and other associated facilities shall be installed in accordance with the service provisions of the applicable street light schedule.

9. CONTRACTS

Each Applicant requesting an extension will be required to execute a written contract(s), prior to City performing its work on the extension. Such contracts shall be in the form on file with the Electric Utility Division, Department of Public Works.

B. INSTALLATION RESPONSIBILITIES

1. UNDERGROUND EXTENSIONS

a. Applicant Responsibility: In accordance with City's design, specifications, and requirements, Applicant is responsible for;

1) Excavation: All necessary trenching, backfilling, compaction and other digging as required as well as any pavement cutting or repair.

2) Substructures and Conduits: Furnishing, installing, and upon acceptance by City, conveying to City the ownership of all necessary installed Substructures and Conduits, including Feeder and Service Conduits and related Substructures required to extend to and within subdivisions and developments.

3) Protective Structures: Furnishing, installing, and upon acceptance by City, conveying to City the ownership of all necessary Protective Structures.

4) Safety Barriers and Measures: Applicant is responsible for providing safety barriers, signs, and other suitable means to protect public from potential injuries arising from construction of underground extension.

b. City Responsibility: City is responsible for installing cables, switches, transformers, and other distribution facilities as required to complete the extension.

The Applicant may install the system in accordance with the City's design and construction standards using qualified electrical contractors approved by the City.

2. OVERHEAD EXTENSIONS

City is responsible for installing all facilities required for a pole line extension at the Applicants expense and only where underground extensions are not required.

3. PERFORMED WORK

Where requested by Applicant and mutually agreed upon, City may perform that portion of the new extension work normally installed by Applicant, provided Applicant pays City its total estimated installed cost. Upon completion of the work, the difference between the estimated and actual cost of the work will be refunded or billed to the Applicant as appropriate.

C. CONTRIBUTIONS OR ADVANCES BY APPLICANT

1. CASH ADVANCE

A cash advance will be required from every Applicant. If the scope of the work lends itself to progress payments in the sole judgment of the city, such progress payments will be considered by the City. The cash advance will be equal to the City's total estimated installed cost to complete an extension including transformers and meters. Upon completion of the work, the difference between the estimated and actual cost of the work will be refunded or billed to the Applicant as appropriate.

Applicant shall contribute or advance, before the start of City's construction, the following;

a. Underground Non-Refundable Amount: Applicant's contribution is the portion of the City's total estimated installed cost, to complete the underground extension including transformers and meters for;

   1) Cabling: The estimated installed cost of any necessary cabling installed by City to complete the underground extension. This includes the cost of conversion of existing single-phase lines to three-phase lines, if required; plus

   2) Substructures: City's estimated value of substructures installed by Applicant and deeded to City as required.

   3) The cost of cabling and substructures installed and/or paid for by a previous Customer or developer in anticipation of providing service to the current Customer or development.

b. Underground Refundable Amount:

   1) The cost of cabling and substructures in anticipation of providing service to a future Customer or developer. Such costs will be refunded at the time they are collected from the future Customer or developer in accordance with this Rule.

c. Overhead Non-Refundable Amount: Applicant's contribution is the portion of the City's total estimated installed cost to complete the overhead extension including transformers and meters;

   1) Pole Line; All necessary facilities required for an overhead extension and, if required, the conversion of existing single-phase lines to three-phase lines; plus

2) Transmission Underbuilds; City's total estimated installed cost of the underbuild, where all or a portion of an overhead extension is to be constructed on existing poles.

d. Other Non-Refundable Amounts: Applicant's non-refundable amount includes the City's estimated value of excavation, conduits, and protective structures required by City for the extension. The applicant will pay the City for the cost of inspection of any facilities installed by the applicant.

e. NOTE: ITCC is not a component in City's costs.

4. JOINT APPLICANTS

The total contribution or advance from a group of Applicants will be apportioned among the members of the group in such manner as they may mutually agree.

5. PAYMENT ADJUSTMENTS

Excess Facilities: If the loads provided by Applicant(s) result in City having installed facilities which are in excess of those needed to serve the actual loads, and City elects to reduce such excess facilities, Applicant shall pay City its estimated total costs to remove, abandon, or replace the excess facilities, less the estimated salvage of any removed facilities.

D. SPECIAL CONDITIONS

1. FACILITY RELOCATION OR REARRANGEMENT

Any relocation or rearrangement of City's existing facilities, at the request of, or to meet the convenience of an Applicant or Customer, and agreed upon by City, normally shall be performed by City. In all instances, City shall abandon or remove its existing facilities, at the option of City. Applicant or Customer shall be responsible for the costs of all related relocation, rearrangement and removal work.

ELECTRIC RULE 16—SERVICE EXTENSIONS

APPLICABILITY: This rule is applicable to both (1) City service facilities that extend from City's distribution line facilities to the service delivery point, and (2) service related equipment required of Applicant on Applicant's Premises to receive electric service.

A. GENERAL

1. DESIGN

City will be responsible for planning, designing, and engineering its Service Extension using City's standards for design, materials and construction. City will allow Applicant's design with City's approval.

2. SERVICE FACILITIES

City's service facilities shall consist of (a) primary or secondary underground or overhead service conductors, (b) poles conduits, sleeves, pedestals, pads, or structures to support service conductors, and service transformers, (c) City-owned metering equipment, and (d) other City-owned service related equipment.

3. OWNERSHIP OF FACILITIES

Service facilities installed under the provisions of this rule shall be owned, operated, and maintained by City if they are (a) located in the street, road or franchise area of City, (b) installed by City under on Applicant's Premises for the purpose of the delivery of electric energy to Applicant, or installed by Applicant under the provisions of this rule, and conveyed to City.

4. PRIVATE LINES

City shall not be required to connect service facilities to or serve any Applicant from electric facilities that are not owned, operated, and maintained by City.

5. SPECIAL OR ADDED FACILITIES

Any special or added facilities City installs at the request of Applicant, will be installed at Applicant's expense in accordance with Rule 2-Description of Service.

6. TEMPORARY SERVICE FACILITIES

Service facilities installed for temporary service or for operations of speculative character or questionable permanency shall be made in accordance with the fundamental installation and ownership provisions of this rule, except that all charges shall be made under the provisions of Rule 13-Temporary Service.

7. STREET LIGHTS AND AREA LIGHTS

Streetlight and area light services and other associated facilities shall be installed in accordance with the service provisions of the applicable street light schedule.

8. CONTRACTS.

Each Applicant requesting service may be required to execute a written contract(s) prior to City performing its work to establish service. Such contracts shall be in the form on file with the Public Works Department, Electric Utility Division office.

9. DISTRIBUTION LINE EXTENSIONS

Whenever City's distribution system is not complete to the point designated by City where the service extension is to be connected to City's distribution system, the extension of distribution line facilities will be installed in accordance with Rule 15-distribution line extensions.

10. RIGHTS-OF-WAY

Rights-of-way or easements may be required by City to install service facilities on Applicant's property to serve only Applicant.

a. Service Facilities: If the service facilities must cross property owned by a third party to serve Applicant, City may, at its option, install such service facilities after appropriate rights-of-way or easements, satisfactory to City, are obtained without cost to City; or

b. Distribution Line Extensions: If City's facilities installed on Applicants property or third-party property, will be or are designed to serve adjacent property, then City may, at its option, install its facilities under Rule 15, after appropriate rights-of-way or easements, satisfactory to City, are obtained without cost to City.

c. Clearances: Any necessary rights-of-way or easements for City's facilities shall have provisions to maintain legal and operational clearances from adjacent structures.

B. METERING FACILITIES

For revenue billing, electric service shall be individually metered to each tenant in a building or group of buildings or other development on a single Premises with multiple tenants or enterprises (such as, but not limited to a commercial business, a school campus, or shopping center complex). Alternative metering arrangements as determined by City may be allowed only as specified in these rules and applicable rate schedules.

C. SERVICE EXTENSIONS

1. GENERAL LOCATION

The location of the service extension facilities shall be approved by the City as follows:

a. Franchise Area: From the point of connection at the distribution line to Applicant's nearest property line abutting upon any street, highway, road, or right-of-way, along which it already has, or will install distribution facilities; and,

b. Private Property: On private property, along the shortest, most practical and available route (clear of obstructions) as necessary to reach a service delivery point designated by City.

2. NUMBER OF SERVICE EXTENSIONS

City will not normally provide more than one service extension, including associated facilities, either overhead or underground, for any one building or group of buildings, for a single enterprise on a single Premises, except;

a. Tariff Schedules: Where otherwise allowed or required under City's tariff schedules; or,

b. City Convenience: At the option of and as determined by City, for its operating convenience, consistent with engineering design for different voltage and phase classification, or when replacing an existing service; or,

c. Ordinance: Where required by ordinance or other applicable law, for such things as fire pumps, fire alarm systems, etc; and,

d. Other: City may charge for additional services provided under this paragraph, as special or added facilities.

3. UNDERGROUND INSTALLATIONS

Underground Service Extensions will be installed;

a. Underground Required: Underground service extensions (1) shall be installed where required to comply with applicable tariff schedules, laws, ordinances, or similar requirements of governmental authorities having jurisdiction, and (2) may be necessary as determined by City where Applicant's load requires a separate transformer installation of 75 kVA or greater.

b. Underground Optional: An underground service extension may be installed in an area where it is not otherwise required and when requested by Applicant and agreed upon by City.

4. UNUSUAL SITE CONDITIONS

In cases where Applicant's building is located a considerable distance from the available distribution line or where there is an obstruction or other deterrent obstacle or hazard such as plowed land, ditches, or inaccessible security areas between City's distribution line and Applicant's building or facility to be served that would prevent City from prudently installing, owning, and maintaining its service facilities, City may, at its discretion, waive the normal service delivery point location. In such cases, the service delivery point will be at such other location on Applicant's property as may be mutually agreed upon; or, alternatively, the service delivery point may be located at or near Applicant's property line as close as practical to the available distribution line.

D. RESPONSIBILITIES FOR NEW SERVICE EXTENSIONS

1. APPLICANT RESPONSIBILITY

In accordance with City's design, specifications, and requirements for the installation of service extensions, and subject to City's inspection and approval, Applicant is responsible for;

a. Clear Route: Providing (or paying for) a route on any private property that is clear of obstructions which would inhibit the construction of either underground or overhead service extensions.

b. Excavation: All necessary trenching, backfilling, and other digging as required including permit fees.

c. Conduit And Substructures:

1) Furnishing and installing all conduits (including pull wires) and substructures on Applicant's Premises.

2) Installing (or paying for) any Conduits and Substructures in City's franchise area (or rights-of-way, if applicable) as necessary to install the service extension.

3) Conveying ownership to City upon acceptance of those conduits and substructures not on Applicant's Premises.

d. Protective Structures: Furnishing, installing, owning, and maintaining all necessary protective structures as specified by City for City's facilities on Applicant's Premises

e. Applicant's Facility Design and Operation: Applicant shall be solely responsible to plan, design, install, own, maintain, and operate facilities and equipment beyond the service delivery point (except for City's metering facilities) in order to properly receive and utilize the type of electric service available from City. Refer to Rule 2 for a description, among other things, of;

   1) Available service delivery voltages and the technical requirements and conditions to qualify for them,

   2) Customer utilization voltages,

   3) Load balancing requirements,

   4) Requirements for installing electrical protective devices,

   5) Loads that may cause service interference to others, and

   6) Motor starting limitations.

f. Required Service Equipment: Applicant shall, at its sole liability, risk, and expense, be responsible to furnish, install, own, maintain, inspect, and keep in good and safe condition, all facilities of any kind or character on Applicant's Premises that are not the responsibility of City but are required by City for Applicant to receive service. Such facilities shall include but are not limited to the overhead or underground termination equipment, conduits, service entrance conductors from the service delivery point to the location of City's metering facilities, connectors, meter sockets, meter and instrument transformer housing, service switches, circuit breakers, fuses, relays, wireways, metered conductors, machinery and apparatus of any kind or character. Detailed information on City's service equipment requirements will be furnished by City. The Applicant shall provide all service conduit (s) from City's franchise area to City's metering facilities.

g. Coordination Of Electrical Protective Devices: When, as determined by City, Applicant's load is of sufficient size as to require coordination of response time characteristics between Applicant's electrical protective devices (circuit breakers, fuses, relays, etc.) and those of City's, it shall be Applicants responsibility to provide such coordination in accordance with Rule 2.

h. Liability: City shall incur no liability whatsoever, for any damage, loss or injury occasioned by;

   1) Applicant-owned equipment or Applicant's transmission and delivery of energy; or,

   2) The negligence, omission of proper protective devices, want of proper care, or wrongful act of Applicant, or any agents, employees, or licensees of

Applicant, on the part of Applicant in installing, maintaining, using, operating, or interfering with any such conductors, lines, machinery, or apparatus.

i. Facility Tampering: Applicant shall provide a suitable means acceptable to City for placing its seals on meter rings and covers of service enclosures and instrument transformer enclosures which protect unmetered energized conductors installed by Applicant. All City-owned meters and enclosure covers will be sealed only by City's authorized employees and such seals shall be broken only by City's authorized employees. However, in an emergency, City may allow a public authority or other appropriate party to break the seal. Any unauthorized tampering with City-owned seals or connection of Applicant-owned facilities to unmetered conductors at any time is prohibited and is subject to the provisions of Rule 11 - Discontinuance and Restoration of Service for unauthorized use.

j. Transformer Installations On Applicant's Premises: Transformer installations on Applicant's Premises shall be as specified by City and in accordance with the following applicable provisions;

1) Space For Transformers: Applicant shall provide space on Applicant's Premises at a location approved by City for a standard transformer installation (including any necessary equipment access for operation, and ancillary equipment such as switches, capacitors, and electric protective equipment, where required) if (a) in an overhead area, City determines that the load to be served is such that a separate transformer installation is required, or (b) if City determines that the installation of a padmounted or subsurface transformer of any size is required on Applicant's Premises to serve only Applicant.

2) Padmounted Equipment: In City's standard installation, Applicant shall furnish, install and convey ownership to City for substructures and any required protective structures specified by City for the proper installation of the transformer, switches, capacitors, and other equipment as determined by City.

3) Single Utility-Owned Customer Substation: When City elects, for its operating convenience, to supply Applicant from a transmission line and install a City-owned substation on Applicant's Premises, Applicant shall furnish, install and convey ownership to City the necessary site improvements as specified by City for the proper installation of the transformer. Such improvements shall include but are not limited to a concrete pad or foundation and grounding system. Applicant shall own and maintain all facilities not specifically conveyed to City yet associated with the service, such as fences and gates, access road, grading, and paving as

required. Detailed information on City's requirements for a single Customer substation will be furnished by City.

k. Transformer Room Or Vault: Where Applicant requests and City approves the installation of the transformer(s) in a vault or room on Applicant's Premises, rather than City's standard padmounted installation;

1) The room or vault on Applicant's Premises shall be furnished, installed, owned, and maintained by Applicant and shall meet City's specifications for such things as access, operational and safety clearances ventilation, drainage, grounding system, etc.

2) If space cannot be provided on Applicant's Premises for the installation of a transformer on either a pad or in a room or vault, a vault will be installed at Applicant's expense in the street near the property line. It shall be Applicant's responsibility to install (or pay for) such vault if not restricted by governmental authority having jurisdiction and Applicant shall convey ownership of the vault to City upon its acceptance. The additional facilities shall be treated as special or added facilities under the provisions of Rule 2.

3) All the additional costs as well as ongoing maintenance shall be paid by Applicant for special or added facilities.

l. Transformer Lifting Requirements: Where City has installed or agrees to install, transformers at locations where City cannot use its standard transformer lifting equipment and special lifting facilities are required to install or remove the transformers on Applicant's Premises, Applicant shall, at its expense, (a) furnish, install, own, and maintain permanent lifting facilities and be responsible for lifting the transformer to and from its permanent position, or (b) provide (or pay for) portable lifting facilities acceptable to City for installing or removing the transformers. Rights-of-way and space provisions shall be provided by Applicant such that access and required clearances from adjacent structures can be maintained. City may require a separate contract for transformer lifting requirements.

m. Overhead Transformers: In remote areas or in areas not zoned for residential or commercial use or for underground services, pad-mounted transformers are preferred for installation on Applicant's Premises. However, where City determines that it is not practical to install a transformer on a pad, in a room or vault, City may furnish a pole-type structure for an installation not exceeding 500 kVA.

2. BUILDING CODE REQUIREMENTS

Any service equipment and other related equipment owned by Applicant, as well as any vault, room, enclosure, or lifting facilities for the installation of transformers

shall conform with applicable laws, codes, and ordinances of all governmental authorities having jurisdiction.

3. REASONABLE CARE

Applicant shall exercise reasonable care to prevent City's Service Extensions, other City facilities, and meters owned by City or others, on the Applicant's Premises from being damaged or destroyed, and shall refrain from interfering with City's operation of the facilities and shall notify City of any obvious defect. Applicant may be required to provide and install suitable mechanical protection (barrier posts, etc.) as required by City.

4. CITY RESPONSIBLITY

a. Meter And Service: City will install, own, and maintain the following service facilities as applicable after Applicant meets all requirements to receive service:

   1) Underground Service: A set of service conductors to supply permanent service from the distribution line source to the service delivery point approved by City.

   2) Riser Material: Any necessary pole riser material for connecting underground services to an overhead distribution line.

   3) Overhead Service: A set of overhead service conductors to supply permanent service from a distribution line source to a suitable support at the service delivery point approved by City. Support shall be of a type and located such that service wires may be installed in accordance with good engineering practice and in compliance with all applicable laws, ordinances, rules, and regulations including those governing clearances and points of attachment.

   4) Metering: When the meter is owned by City, City will be responsible for the necessary instrument transformers where required, test facilities, meters, associated metering equipment, and the metering enclosures when City elects to locate metering equipment at a point that is not accessible to Applicant.

b. Special Conduit Installations: City shall own and maintain service conduits only if: (1) they are located in the same trench with distribution facilities, and (2) when it is necessary to locate Conduits on property other than that owned by Applicant, as determined by City, or as may be required by local authorities.

c. Cable-In-Conduit: In those cases where City elects to install its service conductors using pre-assembled cable-in-conduit (CIC), the conduit portion will be considered a part of the conductor installation provided by City.

d. Government Inspection: City will establish electric service to Applicant following notice from the governmental authority having jurisdiction that the Applicant-owned facilities have been installed and inspected in accordance with any applicable laws, codes, ordinances, rules, or regulations, and are safe to energize.

5. CITY-PERFORMED WORK

a. Where requested by Applicant and mutually agreed upon, City may perform that portion of the new service extension work normally the responsibility of Applicant provided Applicant pays City its estimated installed cost.

E. PAYMENTS BY APPLICANT

1. PAYMENTS

Applicant is responsible to pay City the following non-refundable costs as applicable under this rule and in advance of City commencing its work:

a. Pole Riser: City's estimated installed costs of any riser materials on its poles.

b. City's total estimated installation cost (including appurtenant facilities, such as connectors, service conductors, service transformers, metering equipment, and the conduit portion of CIC cable).

c. Other: City's total estimated cost of any work it performs that is Applicant's responsibility or performs for the convenience of the Applicant.

F. EXISTING SERVICE FACILITIES

1. SERVICE REINFORCEMENT

a. City–Owned: When City determines that its existing service facilities require replacement, the existing service facilities shall be replaced as new service facilities under the provisions of this rule.

b. Applicant-Owned: When City determines that existing Applicant-owned service facilities require replacement; such replacement or reinforcement shall be accomplished under the provisions for a new service installation.

2. SERVICE RELOCATION OR REARRANGEMENT

a. City Convenience: When, in the judgment of City, the relocation or rearrangement of a service, including City-owned transformers, is necessary for the maintenance of adequate service or for the operating convenience of City, City normally will perform such work at its own expense, except for Applicant convenience or damage.

b. Applicant Convenience: Any relocation or rearrangement of City's existing service facilities at the request of Applicant (aesthetics, building additions, remodeling, etc.) and agreed upon by City shall be performed in accordance with this rule except that Applicant shall pay City its total estimated costs. In all instances, City shall abandon or remove its existing facilities at the option of City rendered idle by the relocation or rearrangement.

3. IMPAIRED ACCESS AND CLEARANCES

Whenever City determines that access or clearance to service facilities is impaired, correction action consistent with this section shall be enforced.

a. Access: Its existing service facilities have become inaccessible for inspecting, operating, maintenance, meter reading, or testing.

b. Clearances: A hazardous condition exists or any of the required clearances between the existing service facilities and any object becomes impaired under any applicable laws, ordinances, rules, or regulations of City or public authorities, then the following applies;

Corrective Action: Applicant or owner shall, at Applicant's or owner's expense, either correct the access or clearance infractions or pay the total estimated cost to relocate its facilities to a new location which is acceptable to City. Applicant or owner shall also be responsible for the expense to relocate any equipment, which Applicant owns and maintains. Failure to comply with corrective measures within a reasonable time may result in discontinuance of service.

4. OVERHEAD TO UNDERGROUND SERVICE CONVERSIONS

Applicant's Convenience: Where overhead services are replaced by underground services for Applicant's convenience, Applicant shall perform all excavation, furnish and install all substructures, and pay City its total estimated installed cost to complete the new service and remove the overhead facilities.

5. DAMAGED FACILITIES

When City's facilities are damaged by others, the repair will be made by City at the expense of the party responsible for the damage. Applicants are responsible for repairing their own facilities.

6. SUBDIVISION OF PREMISES

When City's service facilities are located on private property and such private property is subsequently subdivided into separate Premises with ownership divested to other than Applicant or Customer, the subdivider is required to provide City with adequate rights-of-way satisfactory to City for its existing facilities and to notify

property owners of the subdivided Premises of the existence of the rights-of-way. When adequate rights-of-way are not granted as a result of the property subdivision, City shall have the right, upon written notice to Applicant, to discontinue service without obligation or liability. The existing owner, Applicant, or Customer shall pay to City the total estimated cost of any required relocation or removal of City's facilities. A new electric service will be re-established in accordance with the provisions of this Rule for new service and the provisions of any other applicable City rules.

7. EXCEPTIONAL CASES

When the application of this rule appears impractical or unjust to either party, or ratepayers, City or Applicant may refer the matter to the City for a special ruling or for approval of special conditions, which may be mutually agreed upon.

ELECTRIC RULE 17—METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

A. METER TESTS

Any Customer may, upon not less than five (5) working days notice, request that the City to test the Customer's electric meter. No payment or deposit will be required from the Customer for such tests except when a Customer requests a meter test within six months after the date of installation of the meter, or more often than once each six months thereafter. A deposit to cover the reasonable cost of the test will be required of the Customer, in accordance with the following:

1. Meter installed without current or potential transformer(s)

2. Meter installed with current transformer(s) or with current and potential transformer(s)

The deposit will be returned to the Customer if the meter is found to register more than two percent fast or slow under conditions of normal operation as a result of the test. A Customer shall have the right to request the City conduct the test in the Customer's presence or in the presence of an expert or other representative appointed by the Customer. A report giving the result of the test will be supplied to the Customer within a reasonable time after completion of the test. All electric meters will be tested at the time of their installation. No meter will be placed in service or allowed to remain in service which has an error in registration in excess of two percent under conditions of normal operation. On newly purchased single-phase meters, the manufacturer's test may be used as the installation test when City's random tests indicate satisfactory test results for a particular manufacturer and for a particular shipment.

B. ADJUSTMENT OF BILLS FOR METER ERROR

Meter error is the incorrect registration of energy usage resulting from a malfunctioning or defective meter. It does not include incorrect registration attributable to billing error or unauthorized use. Where, as the result of a meter test, a meter is found to be non-registering or incorrectly registering, City may render an adjusted bill to the Customer for the amount of any undercharge without interest. City shall issue a refund or credit to the Customer for the amount of any overcharge, without interest, computed back to the date that is determined to be when the meter error commenced, except that the period of adjustment shall not exceed the limits set forth in this Rule. Such adjusted bill shall be computed as follows:

1. FAST METER

If a meter, for either residential or nonresidential service, is found to be registering more than two percent fast, City will calculate the amount of the overcharge for refund to the Customer based on the corrected meter. When it is known that the

period of meter error was less than six months, the overcharge will be calculated for only those months during which the meter error occurred.

2. SLOW METER

If a meter, for either residential or nonresidential service is found to be registering more than two percent slow, City may bill the Customer for the amount of the undercharge based on the corrected usage or based upon the City's estimate of the energy usage for a period of up to three years. However, if it is known that the period of meter error was less than three years, the undercharge will be calculated for only those months during which the meter error occurred.

3. NONREGISTERING METER

If a meter, for either residential or nonresidential service is found to be non-registering, City may bill the Customer for the amount of the undercharge based on City's estimate of the electricity used, but not registered, for a period of up to three years. However, if it is known that the period the meter was non-registering was less than three years, the undercharge will be calculated for only those months the meter was non-registering. Where the condition of the meter renders it un-testable (no-test), City may bill the Customer based upon the City's estimate of the unmetered energy. Nothing herein is intended to limit City's authority to bill the Customer for unauthorized use.

4. NO-TEST METERS

Where the condition of the meter renders it untestable (no-test), City may bill the Customer based upon the City's estimate of the unmetered energy. Nothing herein is intended to limit City's authority to bill the Customer for unauthorized use.

5. ESTIMATED USAGE

When regular, accurate meter readings are not available or when the electric usage has not been accurately measured, City may estimate the Customer's energy usage for billing purposes on the basis of information including, but not limited to, the physical condition of the metering equipment, available meter readings, records of historical use, and the general characteristics of the Customer's load and operation.

ELECTRIC RULE 17.1– ADJUSTMENTS OF BILLING ERROR

A. BILLING ERROR DEFINED

Billing error is the incorrect billing of an account due to an error by City or the Customer, which results in incorrect charges to the Customer. Billing error includes, but is not limited to, incorrect meter reads or clerical errors, wrong daily billing factor, incorrect voltage discount, wrong connected load information, crossed meters, incorrect billing calculation, incorrect meter multiplier, incorrect rate, or City's failure to provide the Customer with notice of rate options. Field error, including, but not limited to, installing the meter incorrectly and failure to close the meter potential or test switches, is also considered billing error. Billing error which does not entitle the Customer to a credit adjustment includes failure of the Customer to notify City of changes in the Customer's connected load, equipment or operation or failure of the Customer to take advantage of any noticed rate option or condition of service for which the Customer becomes eligible subsequent to the date of application for service.

B. ADJUSTMENT OF BILLS FOR BILLING ERROR

Where City overcharges or undercharges a Customer as the result of a billing error, City may render an adjusted bill to the Customer for the amount of any undercharge, without interest, and shall issue a refund or credit to the Customer for the amount of any overcharge, without interest, in accordance with the procedures and limitations set forth below.

1. BILLING ERROR RESULTING IN OVERCHARGES TO THE CUSTOMER

If either a residential or nonresidential service is found to have been overcharged due to billing error, City will calculate the amount of the overcharge, for refund to the Customer, for a period of up to three years. However, if it is known that the period of billing error was less than three years, the overcharge will be calculated for only those months during which the billing error occurred.

2. BILLING ERRORS RESULTING IN UNDERCHARGES TO THE CUSTOMER

If either residential or nonresidential service is found to have been undercharged due to a billing error, City may bill the Customer for the amount of the undercharge for a period of up to three years. However, if it is known that the period of billing error was less than three years, the undercharge will be calculated for only those months during which the billing error occurred.

ELECTRIC RULE 17.2— ADJUSTMENT OF BILLS FOR UNAUTHORIZED USE

A. UNAUTHORIZED USE DEFINED

Unauthorized use includes, but is not limited to:

1. Unmetered use of electricity resulting from unauthorized connections, alterations or modifications to electric supply lines and/or electric meters;

2. Placing conductive material in the meter socket to allow energy to flow from the line side of the service to the load side of the service without a meter (cut in flat);

3. Installing an unauthorized electric meter in place of the meter assigned to the account;

4. Inverting or otherwise repositioning the meter, thereby altering registration;

5. Damaging the meter to stop registration, thereby rendering it untestable;

6. Using City service without compensation to City in violation of applicable tariffs and/or statutes.

Where City determines there has been unauthorized use, City shall have the legal right to recover, from any Customer or other person who caused or benefited from such unauthorized use, the estimated undercharges for the full period of such unauthorized use. The estimated bill shall indicate unauthorized use for the most recent three years and, separately, unauthorized use beyond the three-year period for collection as provided by law. Nothing in this rule shall be interpreted as limiting City's rights under any provisions of any applicable civil or criminal law.

B. INVESTIGATION OF UNAUTHORIZED USE

Where unauthorized use is suspected by City, City shall promptly conduct an investigation.

Whenever possible, City shall collect and preserve evidence in the matter, test the meter, and obtain connected load information from the Customer or other person to be charged for the unauthorized energy use. If the meter cannot be tested or connected load data cannot be obtained, City will document the reasons why such information could not be obtained. Whenever possible, upon completion of City's investigation, the Customer or other person being billed will be advised of City's claim and shall be given an opportunity to respond to the claim. Notwithstanding any provisions herein, City reserves all evidentiary privileges and rights.

C. ADJUSTMENT OF BILLS FOR UNAUTHORIZED USE

1. ACTUAL USAGE

If accurate meter readings are available for the unauthorized use period, they will be used for billing purposes.

2. ESTIMATED USAGE

If accurate meter readings are not available or the electric usage has not been accurately measured, City may estimate the energy usage for billing purposes. The basis for the estimate may include, without limitation and for illustrative purposes only, the physical condition of the metering equipment, available meter readings, records of historical use, or the general characteristics of the load and operation of the service being billed, with consideration of any appropriate seasonal adjustment. Estimated bills for the unauthorized use period may be determined by City based on one or more of the following, without limitation and for illustrative purposes only:

a. Accurately metered use from a remote check meter;

b. The known percent error in metering attributable to the unauthorized use condition as determined by City;

c. Accurately metered use prior to the onset of the unauthorized use;

d. The equipment and hours of operation of the service being billed;

e. Accurately metered subsequent use of 30 days or more (if available);

f. Annual use profile of at least five Customers with similar connected load, Premises load profiles, hours of energy use, etc. (percent of annual use); or

g. Other reasonable and supportable billing methodology when none of the aforementioned billing techniques is appropriate under the circumstances.

D. INTEREST ON BILLS FOR UNAUTHORIZED USE

1. City may bill and collect interest at a rate of 10 percent per annum on unauthorized use billings from the date the unauthorized use commenced, and/or

2. City may bill and collect interest at a rate of 10 percent per annum on amortized repayment agreements.

E. RECOVERY OF ASSOCIATED COSTS

City may recover the associated costs resulting from the unauthorized use including, but not limited to, investigative and equipment damage costs.

F. DISCONTINUANCE OF SERVICE

In accordance with the provisions of Rule 11, where City determines unauthorized use is occurring, City may refuse service or discontinue service. If any part of the Customer's wiring or any other equipment, or the use thereof, is determined by City or any other authorized public agency to be unsafe or in violation of applicable laws, ordinances, rules or regulations of public authorities, or is in such condition as to endanger City's service facilities, City may discontinue service. City may also discontinue service in accordance with the provisions of its tariffs, for nonpayment of a delinquent billing for unauthorized use, and for associated costs, including nonpayment under an amortization agreement.

ELECTRIC RULE 21— GENERATING FACILITY INTERCONNECTIONS

A. APPLICABILITY

Applicability: This Rule describes the Interconnection, operating and Metering requirements for Generating Facilities to be connected to Moreno Valley Utility's (MVU) Distribution System. Subject to the requirements of this Rule, MVU will allow the Interconnection of Generating Facilities with its Distribution System.

Definitions: Capitalized terms used in this Rule, and not defined in MVU's other tariffs, shall have the meaning ascribed to such terms in Section H of this Rule. The definitions set forth in Section H of this Rule shall only apply to this Rule and may not apply to MVU's other tariffs.

Consistent with IEEE 1547: This rule has been revised to be consistent with the requirements of ANSI/IEEE1 1547-2003 *Standard for Interconnecting Distributed Resources with Electric Power Systems* (IEEE 1547). In some cases, IEEE 1547 language has been adopted directly, in others, IEEE 1547 requirements were interpreted and this rule's language was changed to maintain the spirit of both documents.

Language from IEEE 1547 that has been adopted directly (as opposed to paraphrased language or previous language that was determined to be consistent with IEEE 1547) is followed by a citation that lists the Clause from which the language derived. For example, IEEE 1547-4.1.1 is a reference to Clause 4.1.1.

In the event of any conflict between this rule and any of the standards listed herein, the requirements of this rule shall take precedence.

B. GENERAL RULES, RIGHTS AND OBLIGATIONS

1. AUTHORIZATION REQUIRED TO OPERATE: A Producer must comply with this Rule, execute an Interconnection Agreement with MVU, and receive MVU's express written permission before Parallel Operation of its Generating Facility with MVU's Distribution System. MVU shall apply this Rule in a non-discriminatory manner and shall not unreasonably withhold its permission for Parallel Operation of Producer's Generating Facility with MVU's Distribution System**.**

2. SEPARATE AGREEMENTS REQUIRED FOR OTHER SERVICES: A Producer requiring other electric services from MVU including, but not limited to, Distribution Service during periods of curtailment or interruption of the Producer's Generating Facility, enter into agreements with MVU for such services in accordance with MVU's City Council-approved tariffs.

3. SERVICE NOT PROVIDED WITH INTERCONNECTION: Interconnection with MVU's Distribution System under this Rule does not provide a Producer any rights to utilize MVU's System for the transmission, distribution, or wheeling of electric power, nor does it limit those rights.

4. COMPLIANCE WITH LAWS, RULES AND TARIFF SCHEDULES: A Producer shall ascertain and comply with applicable City Council-approved tariffs of MVU; applicable Federal Energy Regulatory Commission (FERC) approved rules, tariffs and regulations; and any local, state or federal law, statute or regulation which applies to the design, siting, construction, installation, operation, or any other aspect of the Producer's Generating Facility and Interconnection Facilities.

5. DESIGN REVIEWS AND INSPECTIONS: MVU shall have the right to review the design of a Producer's Generating and/or Interconnection Facilities and to inspect a Producer's Generating and/or Interconnection Facilities prior to the commencement of Parallel Operation with MVU's Distribution System. MVU may require a Producer to make modifications as necessary to comply with the requirements of this Rule. MVU's review and authorization for Parallel Operation shall not be construed as confirming or endorsing the Producer's design or as warranting the Generating and/or Interconnection Facilities' safety, durability or reliability. MVU shall not, by reason of such review or lack of review, be responsible for the strength, adequacy or capacity of such equipment**.**

6. RIGHT TO ACCESS: A Producer's Generating Facility and/or Interconnection Facilities shall be reasonably accessible to MVU personnel as necessary for MVU to perform its duties and exercise its rights under its tariffs approved by the City Council, and any Interconnection Agreement between MVU and the Producer.

7. CONFIDENTIALITY OF INFORMATION: Any information pertaining to Generating and/or Interconnection Facilities provided to MVU by a Producer shall be treated by MVU in a confidential manner. MVU shall not use information contained in the Application to propose discounted tariffs to the customer unless authorized to do so by the Customer or the information is provided to MVU by the Customer through other means.

8. PRUDENT OPERATION AND MAINTENANCE REQUIRED: A Producer shall operate and maintain its Generating Facility and Interconnection Facilities in accordance with Prudent Electrical Practices and shall maintain compliance with this Rule.

9. CURTAILMENT AND DISCONNECTION: MVU may limit the operation or disconnect or require the disconnection of a Producer's Generating Facility from MVU's Distribution System at any time, with or without notice, in the event of an Emergency, or to correct Unsafe Operating Conditions. MVU may also limit the operation or disconnect or require the disconnection of a Producer's Generating Facility from MVU's Distribution System upon the provision of reasonable

written notice: 1) to allow for routine maintenance, repairs or modifications to MVU's Distribution System; 2) upon MVU's determination that a Producer's Generating Facility is not in compliance with this Rule; or 3) upon termination of the Interconnection Agreement. Upon the Producer's written request, MVU shall provide a written explanation of the reason for such curtailment or disconnection.

C. GENERAL RULES, RIGHTS AND OBLIGATIONS

1. APPLICATION PROCESS

a. Applicant Initiates Contact with MVU: Upon request, MVU will provide information and documents (such as sample agreements, Application, technical information, listing of Certified Equipment, Initial and Supplemental Review deposit information, applicable tariff schedules and Metering requirements) to a potential Applicant. Unless otherwise agreed upon, all such information shall normally be sent to an Applicant within three (3) business days following the initial request from the Applicant. MVU will establish an individual representative as the single point of contact for the Applicant, but may allocate responsibilities among its staff to best coordinate the Interconnection of an Applicant's Generating Facility**.**

b. Applicant Completes an Application: All Applicants shall complete and file an Application and supply any relevant additional information requested by MVU. When applicable per Table C.1, an $800 Initial Review deposit shall be included with the Application.

1) Normally, within 10 business days of receiving the Application, MVU shall acknowledge its receipt and state whether the Application has been completed adequately. If defects are noted, MVU and Applicant shall cooperate in a timely manner to establish a satisfactory Application.

2) The Initial Review deposit shall be waived for Net Energy Metering Applications requesting Interconnection.

3) The deposit associated with the Initial Review will be returned to the Applicant if the Application is rejected by MVU or the Applicant retracts the Application.

4) Applications that are over one year old (from the date of MVU's acknowledgement) without a signed Interconnection Agreement, or a Generating Facility that has not been approved for parallel operation within one year of completion of all applicable review and/or studies are subject to cancellation by MVU; however, MVU may not cancel an Application if the Producer provides reasonable evidence that the project is still active.

5) The applicant may propose, and MVU may agree to reduced costs for reviewing atypical Applications, such as Applications submitted for multiple Generators, multiple sites, or otherwise as conditions warrant.

c. MVU Performs an Initial and Supplemental Review and Develops Preliminary Cost Estimates and Interconnection Requirements.

1) Upon receipt of a satisfactorily completed Application and any additional information necessary to evaluate the Interconnection of a Generating Facility, MVU shall perform an Initial Review using the process defined in Section I. The Initial Review determines if: (a) the Generating Facility qualifies for Simplified Interconnection; or (b) the Generating Facility requires a Supplemental Review.

2) MVU shall complete its Initial Review, absent any extraordinary circumstances, within 10 business days after its determination that the Application is complete. If the Initial Review determines the proposed Generating Facility can be Interconnected by means of a Simplified Interconnection, MVU will provide the Applicant with an Interconnection Agreement for Applicant's signature. Upon completion of the Initial Review, the difference between the deposit and the actual cost of the Review will be refunded or billed to the Applicant as appropriate.

3) If the Generating Facility does not pass the Initial Review for Simplified Interconnection as proposed, MVU will notify the applicant and perform a Supplemental Review as described in Section I. Applicant shall pay an additional $600 deposit for the Supplemental Review, unless the Application is withdrawn. The Supplemental Review will result in MVU providing either: (a) Interconnection requirements beyond those for a Simplified Interconnection, and an Interconnection Agreement for Applicant's signature; or (b) a cost estimate and schedule for an Interconnection Study. The Supplemental Review shall be completed, absent any extraordinary circumstances, within 20 business days of receipt of a completed Application and fees. Upon completion of the Supplemental Review, the difference between the deposit and the actual cost of the Review will be refunded or billed to the Applicant as appropriate.

The Supplemental Review deposit shall be waived for Net Energy Metering Applications requesting Interconnection pursuant to Sections 2827, 2827.8, 2827.9, or 2827.10 of the Public Utilities Code.

d. When Required, Applicant and MVU Commit to Additional Interconnection Study Steps. When a Supplemental Review reveals that the proposed Generating Facility cannot be Interconnected to MVU's Distribution System by means of a Simplified Interconnection, or that significant Interconnection Facilities installed on MVU's system or Distribution System modifications will be needed to accommodate an Applicant's Generating Facility, MVU and Applicant shall enter into an agreement that provides for MVU to perform additional studies, facility design, and engineering and to provide detailed cost estimates for fixed price or actual cost billing to the Applicant at the Applicant's expense. The Interconnection Study agreement shall set forth MVU's estimated schedule and charges for completing such work. Interconnection Study fees for solar generating facilities up to 1 megawatt (MW) that do not sell power to the grid will be waived up to the amount of $5,000. Generating Facilities eligible for Net Energy Metering under Public Utilities Code Section 2827, 2827.8, 2827.9, or 2827.10 are exempt from any costs associated with Interconnection Studies.

Table C.1 Summary of Deposits and Exemptions

Facility Type	Initial Review Deposit	Supplemental Review Deposit	Interconnection Study Deposit	Additional Commissioning Test Verification (illustrative range of 2012 Rates)**
Non-Net Energy Metering	$800*	$600	As Specified by MVU	Actual cost
Net Energy Metering (per Public Utilities Code Sections 2827, 2827.8, 2827.9, or 2827.10	$0	$0	$0	N/A
Solar 1MW or less that does not sell power to the grid (per D.01-07-027)	First $5,000 of study fees waived			Actual cost

* Subject to refund pursuant to Section C.1.b.3

** A range of rates is provided here because the actual rate may vary by MVU and will adjust periodically.

Table C.2 Summary of Producer Cost Responsibility for Multiple Tariff Interconnections

Existing Generator	New Generator	Initial Review Deposit		Supplemental Review Deposit		Detailed Interconnection Study Cost		Interconnection Facilities Cost		Distribution System Modifications Cost	
		YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
NEM	Non-NEM	X		X		X		X		Xa|	
NEM	NEM		X		X		X	X			X
Non-NEM	NEM		Xb		Xb		Xb	X			Xa,b
Simultaneous NEM and Non-NEM		X		X		X		X		Xa	
a) Proration will be based upon the annual expected energy output (kWh) derived from the nameplate of the generator(s) modified by technology-specific capacity/availability factors of all NEM eligible versus non-NEM eligible generators for the costs that cannot be clearly assigned to either type of tariff.											
b) Change of operating of a non-NEM eligible generator at any time to export is treated as a simultaneous NEM and non-NEM application, resulting in associated costs being allocated to the producer.											

2. INTERCONNECTION PROCESS

a. Applicant and MVU Enter Into an Interconnection Agreement. MVU shall provide the Applicant with an executable version of the Interconnection Agreement or Net Energy Metering agreement appropriate for the Applicant's Generating Facility and desired mode of operation. These agreements shall set forth MVU and the Applicant's responsibilities, completion schedules, and fixed price or estimated costs for the required work.

b. Where Applicable, MVU or Producer Installs Required Interconnection Facilities or Modifies MVU's Distribution System. After executing the applicable agreements, MVU or Producer will commence construction/ installation of MVU's Distribution System modifications or Interconnection Facilities which have been identified in the agreements. The parties will use good faith efforts to meet schedules and estimated costs as appropriate.

c. Producer Arranges for and Completes Commissioning Testing of Generating Facility and Producer's Interconnection Facilities. The

Producer is responsible for testing new Generating Facilities and associated Interconnection Facilities according to Section J.5 to ensure compliance with the safety and reliability provisions of this Rule prior to being operated in parallel with MVU's Distribution System. For non-Certified Equipment, the Producer shall develop a written testing plan to be submitted to MVU for its review and acceptance. Alternatively, the Producer and MVU may agree to have MVU conduct the required testing at the Producer's expense. Where applicable, the test plan shall include the installation test procedures published by the manufacturer of the generation or Interconnection equipment. Facility testing shall be conducted at a mutually agreeable time, and depending on who conducts the test, MVU or Producer shall be given the opportunity to witness the tests.

d. MVU Authorizes Parallel Operation or Momentary Parallel Operation. MVU shall authorize the Producer's Generating Facility for Parallel Operation or Momentary Parallel Operation with MVU's Distribution System, in writing, within 5 calendar days of satisfactory compliance with the terms of all applicable agreements. Compliance may include, but not be limited to, provision of any required documentation and satisfactorily completing any required inspections or tests as described herein or in the agreements formed between the Producer and MVU. A Producer shall not commence Parallel Operation of its Generating Facility with MVU's system unless it has received MVU's express written permission to do so.

For Net Energy Metering Generating facilities, MVU authorization for Parallel Operation shall normally be provided no later than 30 business days following MVU's receipt of 1) a completed Net Energy Metering Application including all supporting documents and required payments; 2) a completed signed Net Energy Metering Interconnection Agreement; and 3) evidence of the Producer's final inspection clearance from the governmental authority having jurisdiction over the Generating Facility. If the 30-day period cannot be met, the MVU shall notify the Applicant and the Commission.

D. GENERATING FACILITY DESIGN AND OPERATING REQUIREMENTS

This section has been revised to be consistent with the requirements of ANSI/IEEE 1547-2003 *Standard for Interconnecting Distributed Resources with Electric Power Systems* (IEEE 1547).

1. General Interconnection and Protective Function Requirements

The Protective Functions and requirements of this rule are designed to protect MVU's Distribution System and not the Generating Facility. A Producer shall be solely responsible for providing adequate protection for its Generating Facility

and Interconnection Facilities. The Producer's Protective Functions shall not impact the operation of other Protective Functions utilized on MVU's Distribution System in a manner that would affect MVU's capability of providing reliable service to its Customers.

a. Protective Functions Required: Generating Facilities operating in parallel with MVU's Distribution System shall be equipped with the following Protective Functions to sense abnormal conditions on MVU's Distribution System and cause the Generating Facility to be automatically disconnected from MVU's Distribution System or to prevent the Generating Facility from being connected to MVU's Distribution System inappropriately:

   1) Over and under voltage trip functions and over and under frequency trip functions;

   2) A voltage and frequency sensing and time-delay function to prevent the Generating Facility from energizing a de-energized Distribution System circuit and to prevent the Generating Facility from reconnecting with MVU's Distribution System unless MVU's Distribution System service voltage and frequency is within the ANSI C84.1-1995 Table 1 Range B Voltage Range of 106V to 127V (on a 120V basis), inclusive, and a frequency range of 59.3 Hz to 60.5 Hz, inclusive, and are stable for at least 60 seconds; and

   3) A function to prevent the Generating Facility from contributing to the formation of an Unintended Island, and cease to energize the MVU's Distribution System within two seconds of the formation of an Unintended Island.

   The Generating Facility shall cease to energize MVU's Distribution System for faults on MVU's Distribution System circuit to which it is connected (IEEE1547-4.2.1). The Generating Facility shall cease to energize MVU's Distribution circuit prior to re-closure by MVU' Distribution System equipment (IEEE1547-4.2.2).

b. Momentary Paralleling Generating Facilities. With MVU's approval, the transfer switch or scheme used to transfer the Producer's loads from MVU's Distribution System to Producer's Generating Facility may be used in lieu of the Protective Functions required for Parallel Operation.

c. Suitable Equipment Required. Circuit breakers or other interrupting equipment located at the Point of Common Coupling must be Certified or "Listed" (as defined in Article 100, the Definitions Section of the National Electrical Code) as suitable for their intended application. This includes being capable of interrupting the maximum available fault current expected at their location. Producer's Generating Facility and Interconnection Facilities shall be designed so that the failure of any single

device or component shall not potentially compromise the safety and reliability of MVU's Distribution System. The Generating Facility paralleling-device shall be capable of withstanding 220% of the Interconnection Facility rated voltage (IEEE1547-4.1.8.3). The Interconnection Facility shall have the capability to withstand voltage and current surges in accordance with the environments defined in IEEE Std C62.41.2-2002 or IEEE Std C37.90.1-2002 as applicable and as described in J.3.e (IEEE1547-4.1.8.2).

d. Visible Disconnect Required. When required by MVU's operating practices, the Producer shall furnish and install a ganged, manually-operated isolating switch (or a comparable device mutually agreed upon by MVU and the Producer) near the Point of Interconnection to isolate the Generating Facility from MVU's Distribution System. The device does not have to be rated for load break nor provide over-current protection.

The device must:

1) allow visible verification that separation has been accomplished. (This requirement may be met by opening the enclosure to observe contact separation.)

2) include markings or signage that clearly indicate open and closed ` positions.

3) be capable of being reached quickly and conveniently 24 hours a day by MVU personnel for construction, operation, maintenance, inspection, testing or reading, without obstacles or requiring those seeking access to obtain keys, special permission, or security clearances.

4) be capable of being locked in the open position.

5) be clearly marked on the submitted single line diagram and its type and location approved by the MVU prior to installation. If the device is not adjacent to the Point of Common Coupling, permanent signage must be installed at an MVU-approved location providing a clear description of the location of the device.

Generating Facilities with Non-Islanding inverters totaling one (1) kilovolt-ampere (kVA) or less are exempt from this requirement.

e. Drawings Required. Prior to Parallel Operation or Momentary Parallel Operation of the Generating Facility, MVU shall approve the Producer's Protective Function and control diagrams. Generating Facilities equipped with Protective Functions and a control scheme previously approved by MVU for system-wide application or only Certified Equipment may satisfy

this requirement by reference to previously approved drawings and diagrams.

f. Generating Facility Conditions Not Identified. In the event this Rule does not address the Interconnection conditions for a particular Generating Facility, MVU and Producer may agree upon other arrangements.

2. PREVENTION OF INTERFERENCE: The Producer shall not operate Generating or Interconnection Facilities that superimpose a voltage or current upon MVU's Distribution System that interferes with MVU operations, service to MVU customers, or communication facilities. If such interference occurs, the Producer must diligently pursue and take corrective action at its own expense after being given notice and reasonable time to do so by MVU. If the Producer does not take corrective action in a timely manner, or continues to operate the facilities causing interference without restriction or limit, MVU may, without liability, disconnect the Producer's facilities from MVU's Distribution System, in accordance with Section B.9 of this Rule. To eliminate undesirable interference caused by its operation, each Generating Facility shall meet the following criteria:

a. Voltage Regulation: The Generating Facility shall not actively regulate the voltage at the Point of Common Coupling while in parallel with MVU's Distribution System. The Generating Facility shall not cause the service voltage at other customers to go outside the requirements of ANSI C84.1-1995, Range A (IEEE1547-4.1.1).

b. Operating Voltage Range: The voltage ranges in Table D.1 define protective trip limits for the Protective Function and are not intended to define or imply a voltage regulation Function. Generating Facilities shall cease to energize MVU's Distribution System within the prescribed trip time whenever the voltage at the Point of Common Coupling deviates from the allowable voltage operating range. The Protective Function shall detect and respond to voltage on all phases to which the Generating Facility is connected.

1) Generating Facilities (30 kVA or less). Generating Facilities with a Gross Nameplate Rating of 30 kVA or less shall be capable of operating within the voltage range normally experienced on MVU's Distribution System. The operating range shall be selected in a manner that minimizes nuisance tripping between 106 volts and 132 volts on a 120-volt base (88%-110% of nominal voltage). Voltage shall be detected at either the Point of Common Coupling or the Point of Interconnection.

2) Generating Facilities (greater than 30 kVA). MVU may have specific operating voltage ranges for Generating Facilities with Gross Nameplate Ratings greater than 30 kVA, and may require adjustable operating voltage settings. In the absence of such

requirements, the Generating Facility shall operate at a range between 88% and 110% of the applicable interconnection voltage. Voltage shall be detected at either the Point of Common Coupling or the Point of Interconnection, with settings compensated to account for the voltage at the Point of Common Coupling; Generating Facilities that are Certified Non-Islanding or that meet one of the options of the Export Screen (Section I.3.b) may detect voltage at the Point of Interconnection without compensation.

3) Voltage Disturbances. Whenever MVU's Distribution System voltage at the Point of Common Coupling varies from and remains outside normal (nominally 120 volts) for the predetermined parameters set forth in Table D-1, the Generating Facility's Protective Functions shall cause the Generator(s) to become isolated from MVU's Distribution System:

Table D.1 Voltage Trip Settings

Voltage at Point of Common Coupling		Maximum Trip Time* # of Cycles	
(Assuming 120 V Base)	% of Nominal Voltage	(Assuming 60Hz Nominal)	Seconds
Less than 60 Volts	Less than 50%	10 Cycles	0.16 Seconds
Greater than or equal to 60 volts but less than 106 volts	Greater than of equal to 50% but less than 88%	120 Cycles	2 Seconds
Greater than or equal to 106 volts but less than 132 volts	Greater than of equal to 88% but less than 110%	Normal Operation	
Greater than or equal to 132 volts but less than 144 volts	Greater than of equal to 110% but less than 120%	60 Cycles	1 Second
Greater than 144Volts	Greater than 120%	10 Cycles	0.16 Seconds

** "Maximum Trip time" refers to the time between the onset of the abnormal condition and the Generating Facility ceasing to energize MVU's Distribution System. Protective Function sensing equipment and circuits may remain connected to MVU's Distribution System to allow sensing of electrical conditions for use by the "reconnect" feature. The purpose of the allowed time delay is to allow a Generating Facility to "ride through" short-term disturbances to avoid nuisance tripping. Set points shall not be user adjustable (though they may be field adjustable by qualified personnel). For Generating Facilities with a Gross Nameplate Rating greater than 30 kVA, set points shall be field adjustable and different voltage set points and trip times from those in Table D.1 may be negotiated with MVU.*

c. Paralleling. The Generating Facility shall parallel with MVU's Distribution System without causing a voltage fluctuation at the Point of Common Coupling greater than ±5% of the prevailing voltage level of MVU's Distribution System at the Point of Common Coupling, and meet the flicker requirements of Section D.2.d. Section J provides technology-specific tests for evaluating the paralleling Function. (IEEE1547-4.1.3)

d. Flicker. The Generating Facility shall not create objectionable flicker for other customers on MVU's Distribution System. To minimize the adverse voltage effects experienced by other customers (IEEE1547-4.3.2), flicker at the Point of Common Coupling caused by the Generating Facility should not exceed the limits defined by the "Maximum Borderline of Irritation Curve" identified in IEEE 519-1992 (IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems, IEEE STD 519-1992). This requirement is necessary to minimize the adverse voltage affects experienced by other customers on MVU's Distribution System. Generators may be connected and brought up to synchronous speed (as an induction motor) provided these flicker limits are not exceeded.

e. Integration with MVU's Distribution System Grounding. The grounding scheme of the Generating Facility interconnection shall not cause over-voltages that exceed the rating of the equipment connected to the MVU's Distribution System and shall not disrupt the coordination of the ground fault protection on the MVU's Distribution System (IEEE1547-4.1.2) (See Section I.3.h).

f. Frequency: MVU controls system frequency, and the Generating Facility shall operate in synchronism with the MVU's Distribution System. Whenever MVU's Distribution System frequency at the Point of Common Coupling varies from and remains outside normal (nominally 60 Hz) by the predetermined amounts set forth in Table D.2, the Generating Facility's Protective Functions shall cease to energize MVU's Distribution System within the stated maximum trip time.

Table D.2 Frequency Trip Settings

	Frequency Range	Maximum Trip Time [1]
Generating Facility Rating	(Assuming 60Hz Nominal)	(Assuming 60 Cycles per Second)
Less or equal to 30kW	Less than 59.3 Hz Greater than 60.5 Hz	10 Cycles
Greater than 30kW	Less than 57 Hz	10 Cycles
	Less than an adjustable value between 59.8Hz and 57 Hz but greater than 57 Hz. [2]	Adjustable between 10 and 18,000 Cycles. [2, 3]
	Greater than 60.5 Hz	10 Cycles

[1] -"Maximum Trip time" refers to the time between the onset of the abnormal condition and the Generating Facility ceasing to energize MVU's Distribution System. Protective Function sensing equipment and circuits may remain connected to MVU's Distribution System to allow sensing of electrical conditions for use by the "reconnect" feature. The purpose of the allowed time delay is to allow a Generating Facility to "ride through" short-term disturbances to avoid nuisance tripping. Set points shall not be user adjustable (though they may be field adjustable by qualified personnel). For Generating Facilities with a Gross Nameplate Rating greater than 30 kVA, set points shall be field adjustable and different voltage set points and trip times from those in Table D.2 may be negotiated with MVU.

[2] - Unless otherwise required by MVU, a trip frequency of 59.3 Hz and a maximum trip time of 10 cycles shall be used.

[3] - When a 10 cycle Maximum trip time is used, a second under frequency trip setting is not required.

g. Harmonics**.** When the Generating Facility is serving balanced linear loads, harmonic current injection into MVU's Distribution System at the PCC shall not exceed the limits stated below in Table D.3. The harmonic current injections shall be exclusive of any harmonic currents due to harmonic voltage distortion present in MVU's Distribution System without the Generating Facility connected (IEEE1547-4.3.3). The harmonic distortion of a Generating Facility located at a Customer's site shall be evaluated using the same criteria as for the Host Loads.

Table D.3 Maximum harmonic current distortion in percent of current (I) *[1,2]*

Individual harmonic order, h (odd harmonics) [3]	h < 11	11 ≤ h < 17	17 ≤ h < 23	23 ≤ h < 35	35 ≤ h	Total demand distortion (TDD)
Max Distortion (%)	4.0	2.0	1.5	0.6	0.3	5.0

[1] - IEEE1547-4.3.3
[2] - I = the greater of the maximum Host Load current average demand over 15 or 30 minutes without the Generating Facility, or the Generating Facility rated current capacity (transformed to the Point of Common Coupling when a transformer exists between the Generating Facility and the Point of Common Coupling).
[3] - Even harmonics are limited to 25% of the odd harmonic limits above.

h. Direct Current Injection. Generating Facilities should not inject direct current greater than 0.5% of rated output current into MVU's Distribution System.

i. Power Factor. Each Generator in a Generating Facility shall be capable of operating at some point within a power factor range from 0.9 leading to 0.9 lagging. Operation outside this range is acceptable provided the reactive power of the Generating Facility is used to meet the reactive power needs of the Host Loads or that reactive power is otherwise provided under tariff by MVU. The Producer shall notify MVU if it is using the Generating Facility for power factor correction. Unless otherwise agreed upon by the Producer and MVU, Generating Facilities shall automatically regulate power factor, not voltage, while operating in parallel with MVU's Distribution System.

3. TECHNOLOGY SPECIFIC REQUIREMENTS

a. Three-Phase Synchronous Generators. For three-phase Generators, the Generating Facility circuit breakers shall be three-phase devices with electronic or electromechanical control. The Producer shall be responsible for properly synchronizing its Generating Facility with MVU's Distribution System by means of either manual or automatic synchronizing equipment. Automatic synchronizing is required for all synchronous Generators that have a Short Circuit Contribution Ratio (SCCR) exceeding 0.05. Loss of synchronism protection is not required except as may be necessary to meet Section D.2.d (Flicker) (IEEE1547-4.2.5) . Unless otherwise agreed upon by the Producer and MVU, synchronous Generators shall automatically regulate power factor, not voltage, while operating in parallel with MVU's Distribution System. A power system stabilization function is specifically not required for Generating Facilities under 10 MW Net Nameplate Rating.

b. Induction Generators. Induction Generators (except self-excited Induction Generators) do not require a synchronizing Function. Starting or rapid load fluctuations on induction generators can adversely impact MVU's Distribution System's voltage. Corrective step-switched capacitors or other techniques may be necessary and may cause undesirable ferro-resonance. When these counter measures (e.g., additional capacitors) are installed on the Producer's side of the Point of Common Coupling, MVU must review these measures. Additional equipment may be required as determined in a Supplemental Review or an Interconnection Study.

c. Inverters. Utility-interactive inverters do not require separate synchronizing equipment. Non-utility-interactive or "stand-alone" inverters shall not be used for Parallel Operation with MVU's Distribution System.

d. Single-Phase Generators**.** For single-phase Generators connected to a shared single-phase secondary system, the maximum Net Nameplate Rating of the Generating Facilities shall be 20 kVA. Generators connected to a center-tapped neutral 240-volt service must be installed such that no more than 6 kVA of imbalanced power is applied to the two "legs" of the 240-volt service. For Dedicated Distribution Transformer services, the maximum Net Nameplate Rating of a single-phase Generating Facility shall be the transformer nameplate rating.

4. SUPPLEMENTAL GENERATING FACILITY REQUIREMENTS

a. Fault Detection. A Generating Facility with a short circuit contribution ratio exceeding 0.1 or one that does not cease to energize MVU's Distribution System within two seconds of the formation of an Unintended Island shall be equipped with Protective Functions designed to detect Distribution System faults, both line-to-line and line-to-ground, and shall cease to energize MVU's Distribution System within two seconds of the initiation of a fault.

b. Transfer Trip. For a Generating Facility that cannot detect Distribution System faults (both line-to-line and line-to-ground) or the formation of an Unintended Island, and cease to energize MVU's Distribution System within two seconds, MVU may require a Transfer Trip system or an equivalent Protective Function.

c. Reclose Blocking. Where the aggregate Generating Facility capacity exceeds 15% of the peak load on any automatic reclosing device, MVU may require additional Protective Functions, including, but not limited to reclose-blocking on some of the automatic reclosing devices.

E. INTERCONNECTION FACILITIES AND DISTRIBUTION SYSTEM MODIFICATIONS

1. SCOPE AND OWNERSHIP OF INTERCONNECTION FACILITIES AND DISTRIBUTION SYSTEM MODIFICATIONS

   a. Scope. Parallel Operation of Generating Facilities may require Interconnection Facilities or modifications to MVU's Distribution System ("Distribution System modifications"). The type, extent and costs of Interconnection Facilities and Distribution System modifications shall be consistent with this Rule and determined through the Supplemental Review and/or Interconnection Studies described in Section C.

   b. Ownership. Interconnection Facilities installed on Producer's side of the Point of Common Coupling may be owned, operated and maintained by the Producer or MVU. Interconnection Facilities installed on MVU's side of the Point of Common Coupling and Distribution System modifications shall be owned, operated and maintained only by MVU.

2. RESPONSIBILITY OF COSTS OF INTERCONNECTING A GENERATING FACILITY

   a. Review, Study, and Additional Commissioning Test Verification (pre-parallel inspections) Costs. A producer shall be responsible for the reasonably incurred costs of the reviews studies, and additional Commissioning Test verifications (pre-parallel inspections) conducted pursuant to Section C of the Rule. If the initial Commissioning Test verification (pre-parallel inspection) is not successful through no fault of MVU, MVU may impose upon the Producer a cost-based charge for subsequent Commissioning Test verifications (pre-parallel inspections). All Costs for additional Commissioning Test verifications (pre-parallel inspections) shall be paid by Producer within thirty days of receipt of MVU's invoice. Additional costs, if any, will be specified on the invoice. If the initial Commissioning test (pre-paralleling inspection) is not successful through the fault of the MVU, that visit will not be considered the initial Commissioning Test (pre-parallel inspection).

   b. Facility Costs. A Producer shall be responsible for all costs associated with Interconnection Facilities owned by the Producer. The Producer shall also be responsible for any costs reasonably incurred by MVU in providing, operating, or maintaining the Interconnection Facilities and Distribution System modifications

required solely for the Interconnection of the Producer's Generating Facility with MVU's Distribution System. Generating Facilities eligible for Net Energy Metering under California Public Utilities Code Sections 2827**,** 2827.8**,** 2827.9, or 2827.10 are exempt from any costs associated with Distribution System modifications.

c. Separation of Costs. Should MVU combine the installation of Interconnection Facilities or Distribution System modifications required for the Interconnection of a Generating Facility with modifications to MVU's Distribution System to serve other Customers or Producers, MVU shall not include the costs of such separate or incremental facilities in the amounts billed to the Producer.

3. INSTALLATION OF INTERCONNECTION FACILITIES AND DISTRIBUTION SYSTEM MODIFICATIONS

a. Agreement Required. The costs for Interconnection Facilities and Distribution System modifications shall be paid by the Producer pursuant to the provisions contained in the Interconnection Agreement.

b. Interconnection Facilities and Distribution System Modifications. Except as provided for in Sections E.2.b. and E.3.c. of this Rule, Interconnection Facilities connected to MVU's side of the Point of Common Coupling and Distribution System modifications shall be provided, installed, owned and maintained by MVU at Producer's expense, or may be installed by a third party upon approval by MVU.

c. Third-Party Installations. Subject to the approval of MVU, a Producer may at its option employ a qualified contractor to provide and install Interconnection Facilities or Producer paid Distribution System modifications, to be owned and operated by MVU, on MVU's side of the Point of Common Coupling. Such Interconnection Facilities and Distribution System modifications shall be installed in accordance with MVU's design and specifications. Upon final inspection and acceptance by MVU, the Producer shall transfer ownership of such Producer installed Interconnection Facilities or Distribution System modifications to MVU and such facilities shall thereafter be owned and maintained by MVU. The Producer shall pay MVU's reasonable cost of design, administration, and monitoring of the installation for such facilities to ensure compliance with MVU's requirements. The Producer shall also be responsible for all costs

associated with the transfer of Producer installed Interconnection Facilities and Distribution System modifications to MVU.

F. METERING, MONITORING AND TELEMETRY

1. GENERAL REQUIREMENTS: All Generating Facilities shall be metered in accordance with this Section F and shall meet all applicable standards of MVU contained in MVU's applicable tafiffs and published MVU manuals dealing with specifications.

2. METERING BY NON-MVU PARTIES: The ownership, installation, operation, reading and testing of revenue Metering Equipment for Generating Facilities shall be by MVU.

3. NET GENERATION OUTPUT METERING (NGOM): Generating Facilities' customers may be required to install NGOM for evaluation, monitoring and verification purposes, to satisfy applicable CAISO reliability requirements, and for Distribution System planning and operations.

   The relevant factors in determining the need for NGOM are as listed below:

   a. Data requirements in proportion to need for information;

   b. Producer's election to install equipment that adequately addresses MVU's operational requirements;

   c. Accuracy and type of required Metering consistent with purposes of collecting data;

   d. Cost of Metering relative to the need for and accuracy of the data;

   e. The Generating Facility's size relative to the cost of the Meter/monitoring;

   f. Other means of obtaining the data (e.g., Generating Facility logs, proxy data etc.);

   g. Requirements under any interconnection Agreement with the Producer.

   The requirements in this Section may not apply to Metering of Generating Facilities operating under MVU's Net Energy Metering tariff pursuant to the California Public Utilities Cod Section 2827, et seq. Nothing in this Section F.3 supersedes Section B.4.

4. POINT OF COMMON COUPLING METERING: For purposes of assessing MVU charges for retail service, the Producer's PCC Metering shall be a bi-directional meter so that power deliveries to and from the Producer's site can be separately recorded. Alternately, the Producer may, at its sole option and cost, require MVU to install multi-metering equipment to separately record power

deliveries to MVU's Distribution System and retail purchases from MVU. Where necessary, such PCC Metering shall be designed to prevent reverse registration.

5. TELEMETERING: If the nameplate rating of the Generating Facility is 1 MW or greater, Telemetering equipment at the Net Generator Output Metering location may be required at the Producer's expense. If the Generating Facility is Interconnected to a portion of MVU's Distribution System operating at a voltage below 10 kV, then Telemetering equipment may be required on Generating Facilities 250 kW or greater. MVU shall only require Telemetering to the extent that less intrusive and/or more cost effective options for providing the necessary data in real time are not available.

6. LOCATION: Where MVU-owned Metering is located on the Producer's premises, Producer shall provide, at no expense to MVU, a suitable location for all such Metering Equipment.

7. COSTS OF METERING: The Producer will bear all costs of the Metering required by this Rule, including the incremental costs of operating and maintaining the Metering Equipment.

G. DISPUTE RESOLUTION PROCESS

The following procedures will apply for disputes arising from this Rule:

1. The City Council shall have jurisdiction to interpret, add, delete or modify any provision of this Rule or of any agreements entered into between MVU and the Producer to implement this tariff ("The Implementing Agreements") and to resolve disputes regarding MVU's performance of its obligations under its tariffs, the applicable agreements, and requirements related to the Interconnection of the Producer's Generating or Interconnection Facilities pursuant to this Rule.

2. The dispute shall be submitted in writing by the Producer to MVU. Authorized representatives from both Parties shall meet and confer to try to resolve the dispute. If the Parties cannot resolve the dispute, the dispute will be submitted to the City Council for resolution. Their decision shall be final.

3. Pending resolution of any dispute under this Section, the Parties shall proceed diligently with the performance of their respective obligations under this Rule and the Implementing Agreements, unless the Implementing Agreements have been terminated. Disputes as to the application and implementation of this Section shall be subject to resolution pursuant to the procedures set forth in this Section.

H. DEFINITIONS

The definitions in this Section H are applicable only to this Rule, the Application and Interconnection Agreements.

Anti-Islanding: A control scheme installed as part of the Generating Facility or Interconnection Facilities that senses and prevents the formation of an Unintended Island.

Applicant: The entity submitting an Application for Interconnection pursuant to this Rule.

Application: A Commission-approved standard form submitted to MVU for Interconnection of a Generating Facility**.**

Certification Test: A test pursuant to this Rule that verifies conformance of certain equipment with Commission-approved performance standards in order to be classified as Certified Equipment. Certification Tests are performed by NRTLs.

Certification; Certified; Certificate: The documented results of a successful Certification Testing.

Certified Equipment: Equipment that has passed all required Certification Tests.

Commissioning Test: A test performed during the commissioning of all or part of a Generating Facility to achieve one or more of the following:

• Verify specific aspects of its performance;
• Calibrate its instrumentation; and
• Establish instrument or Protective Function set-points.

Customer: The entity that receives or is entitled to receive Distribution Service through the MVU's Distribution System.

Dedicated Transformer; Dedicated Distribution Transformer: A transformer that provides electricity service to a single Customer. The Customer may or may not have a Generating Facility.

Device: A mechanism or piece of equipment designed to serve a purpose or perform a function. The term may be used interchangeably with the terms "equipment" and "function" without intentional difference in meaning. See also Function and Protective Function.

Distribution Service: All services required by, or provided to, a Customer pursuant to the approved tariffs of MVU other than services directly related to the Interconnection of a Generating Facility under this Rule.

Distribution System: All electrical wires, equipment, and other facilities owned or provided by MVU, other than Interconnection Facilities, by which MVU provides Distribution Service to its Customers.

Emergency: An actual or imminent condition or situation, which jeopardizes MVU's Distribution System Integrity.

Field Testing: Testing performed in the field to determine whether equipment meets MVU's requirements for safe and reliable Interconnection.

Function: Some combination of hardware and software designed to provide specific features or capabilities. Its use, as in Protective Function, is intended to encompass a range of implementations from a single-purpose device to a section of software and specific pieces of hardware within a larger piece of equipment to a collection of devices and software.

Generating Facility: All Generators, electrical wires, equipment, and other facilities owned or provided by Producer for the purpose of producing electric power.

Generator: A device converting mechanical, chemical or solar energy into electrical energy, including all of its protective and control Functions and structural appurtenances. One or more Generators comprise a Generating Facility.

Gross Nameplate Rating; Gross Nameplate Capacity: The total gross generating capacity of a Generator or Generating Facility as designated by the manufacturer(s) of the Generator(s).

Host Load: The electrical power, less the Generator auxiliary load, consumed by the Customer, to which the Generating Facility is connected.

Initial Review: The review by MVU, following receipt of an Application, to determine the following: (a) the Generating Facility qualifies for Simplified Interconnection; or (b) if the Generating Facility can be made to qualify for Interconnection with a Supplemental Review determining any additional requirements.

In-rush Current: The current determined by the In-rush Current Test.

Interconnection Agreement: An agreement between MVU and the Producer providing for the Interconnection of a Generating Facility that gives certain rights and obligations to effect or end Interconnection. For the purposes of this Rule, Net Energy Metering or Power Purchase Agreements authorized by the Commission are also defined as Interconnection Agreements.

Interconnection; Interconnected: The physical connection of a Generating Facility in accordance with the requirements of this Rule so that Parallel Operation with MVU's Distribution System can occur (has occurred).

Interconnection Facilities: The electrical wires, switches and related equipment that are required in addition to the facilities required to provide electric Distribution Service to a Customer to allow Interconnection. Interconnection Facilities may be located on either side of the Point of Common Coupling as appropriate to their purpose and design. Interconnection Facilities may be integral to a Generating Facility or provided separately.

Interconnection Study: A study to establish the requirements for Interconnection of a Generating Facility with MVU's Distribution System.

Island; Islanding: A condition on MVU's Distribution System in which one or more Generating Facilities deliver power to Customers using a portion of MVU's Distribution System that is electrically isolated from the remainder of MVU's Distribution System.

Line Section: That portion of MVU's Distribution System connected to a Customer bounded by automatic sectionalizing devices or the end of the distribution line.

Load Carrying Capability: The maximum electrical load that may be carried by a section of MVU's Distribution System consistent with reliability and safety under the circumstances being evaluated.

Metering: The measurement of electrical power in kW and/or energy in kWh, and, if necessary, reactive power in kVAR at a point, and its display to MVU, as required by this Rule.

Metering Equipment: All equipment, hardware, software including meter cabinets, conduit, etc., that are necessary for Metering.

Momentary Parallel Operation: The interconnection of a Generating Facility to the Distribution System for one second (60 cycles) or less.

Nationally Recognized Testing Laboratory (NRTL): A laboratory accredited to perform the Certification Testing requirements under this Rule.

Net Energy Metering: Metering for the receipt and delivery of electricity between the Producer and MVU pursuant to Section 2827, 2827.8, 2827.9, or 2827.10 of the Public Utilities Code.

Net Generation Output Metering: Metering of the net electrical power output in kW or energy in kWh, from a given Generating Facility. This may also be the measurement of the difference between the total electrical energy produced by a Generator and the electrical energy consumed by the auxiliary equipment necessary to operate the Generator. For a Generator with no Host Load and/or Public Utilities Code Section 218 Load (Section 218 Load), Metering that is located at the Point of Common Coupling. For a Generator with Host Load and/or Section 218 Load, Metering that is located at the Generator but after the point of auxiliary load(s) and prior to serving Host Load and/or Section 218 Load.

Net Nameplate Rating: The Gross Nameplate Rating minus the consumption of electrical power of a Generator or Generating Facility as designated by the manufacturer(s) of the Generator(s).

Network Service: More than one electrical feeder providing Distribution Service at a Point of Common Coupling.

Non-Export; Non-Exporting: Designed to prevent the transfer of electrical energy from the Generating Facility to MVU's Distribution System.

Non-Islanding: Designed to detect and disconnect an Unintended Island with matched load and generation. Reliance solely on under/over voltage and frequency trip is not considered sufficient to qualify as Non-Islanding.

Parallel Operation: The simultaneous operation of a Generator with power delivered or received by MVU while Interconnected. For the purpose of this Rule, Parallel Operation includes only those Generating Facilities that are Interconnected with MVU's Distribution System for more than 60 cycles (one second).

Paralleling Device: An electrical device, typically a circuit breaker, operating under the control of a synchronization function or by a qualified operator to connect an energized generator to an energized electric power system or two energized power systems to each other.

Periodic Test: A test performed on part or all of a Generating Facility/ Interconnection Facilities at pre-determined time or operational intervals to achieve one or more of the following: (1) Verify specific aspects of its performance; (2) Calibrate instrumentation; and (3) Verify and re-establish instrument or Protective Function set-points.

Point of Common Coupling (PCC): The transfer point for electricity between the electrical conductors of MVU and the electrical conductors of the Producer.

Point of Common Coupling Metering: Metering located at the Point of Common Coupling. This is the same Metering as Net Generation Metering for Generating Facilities with no Host Load and/or Section 218 Load.

Point of Interconnection: The electrical transfer point between a Generating Facility and MVU's Distribution System. This may or may not be coincident with the Point of Common Coupling.

Producer: The entity that executes an Interconnection Agreement with MVU. The Producer may or may not own or operate the Generating Facility, but is responsible for the rights and obligations related to the Interconnection Agreement.

Production Test: A test performed on each device coming off the production line to verify certain aspects of its performance.

Protective Function(s): The equipment, hardware and/or software in a Generating Facility (whether discrete or integrated with other functions) whose purpose is to protect against Unsafe Operating Conditions.

Prudent Electrical Practices: Those practices, 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.

Scheduled Operation Date: The date specified in the Interconnection Agreement when the Generating Facility is, by the Producer's estimate, expected to begin operation pursuant to this Rule.

Secondary Network: A network supplied by several primary feeders suitably interlaced through the area in order to achieve acceptable loading of the transformers under emergency conditions and to provide a system of extremely high service reliability. Secondary networks usually operate at 600 V or lower.

Section 218 Load: Electrical power that is supplied in compliance with California Public Utilities Code Section 218. Public Utilities Code Section 218 defines an "Electric Corporation" and provides conditions under which a transaction involving a Generating Facility would not classify a Producer as an Electric Corporation. These conditions relate to "over-the-fence" sale of electricity from a Generating Facility without using MVU's Distribution System.

Short Circuit (Current) Contribution Ratio (SCCR): The ratio of the Generating Facility's short circuit contribution to the short circuit contribution provided through MVU's Distribution System for a three-phase fault at the high voltage side of the distribution transformer connecting the Generating Facility to MVU's system.

Simplified Interconnection: Interconnection conforming to the Initial Review requirements under this Rule, as determined by Section I.

Single Line Diagram; Single Line Drawing: A schematic drawing, showing the major electric switchgear, Protective Function devices, wires, Generators, transformers and other devices, providing sufficient detail to communicate to a qualified engineer the essential design and safety of the system being considered.

Special Facilities: As defined in MVU's Rules governing Special Facilities.

Starting Voltage Drop: The percentage voltage drop at a specified point resulting from In-rush Current. The Starting Voltage Drop can also be expressed in volts on a particular base voltage, (e.g., 6 volts on a 120-volt base, yielding a 5% drop).

Supplemental Review: A process wherein MVU further reviews an Application that fails one or more of the Initial Review Process screens. The Supplemental Review may result in one of the following: (a) approval of Interconnection; (b) approval of

Interconnection with additional requirements; or (c) cost and schedule for an Interconnection Study.

System Integrity: The condition under which MVU's Distribution System is deemed safe and can reliably perform its intended functions in accordance with the safety and reliability rules of MVU.

Telemetering: The electrical or electronic transmittal of Metering data in real-time to MVU.

Transfer Trip: A Protective Function that trips a Generating Facility remotely by means of an automated communications link controlled by MVU.

Type Test: A test performed on a sample of a particular model of a device to verify specific aspects of its design, construction and performance.

Unintended Island: The creation of an island, usually following a loss of a portion of MVU's Distribution System, without the approval of MVU.

Unsafe Operating Conditions: Conditions that, if left uncorrected, could result in harm to personnel, damage to equipment, loss of System Integrity or operation outside pre-established parameters required by the Interconnection Agreement.

I. REVIEW PROCESS FOR APPLICATIONS TO INTERCONNECT GENERATION FACILITIES

1. INTRODUCTION

This Review Process allows for rapid approval for the interconnection of those Generating Facilities that do not require an Interconnection Study. The review process includes a screening to determine if a Supplemental Review is required.

Note: Failure to pass any screen of the review process means only that further review and/or studies are required before the Generating Facility can be approved for Interconnection with MVU's Distribution System. It does not mean that the Generating Facility cannot be Interconnected. Though not explicitly covered in the Initial Review Process the Generating Facility shall be designed to meet all of the applicable requirements in Section D.

2. PURPOSE

The review determines the following:

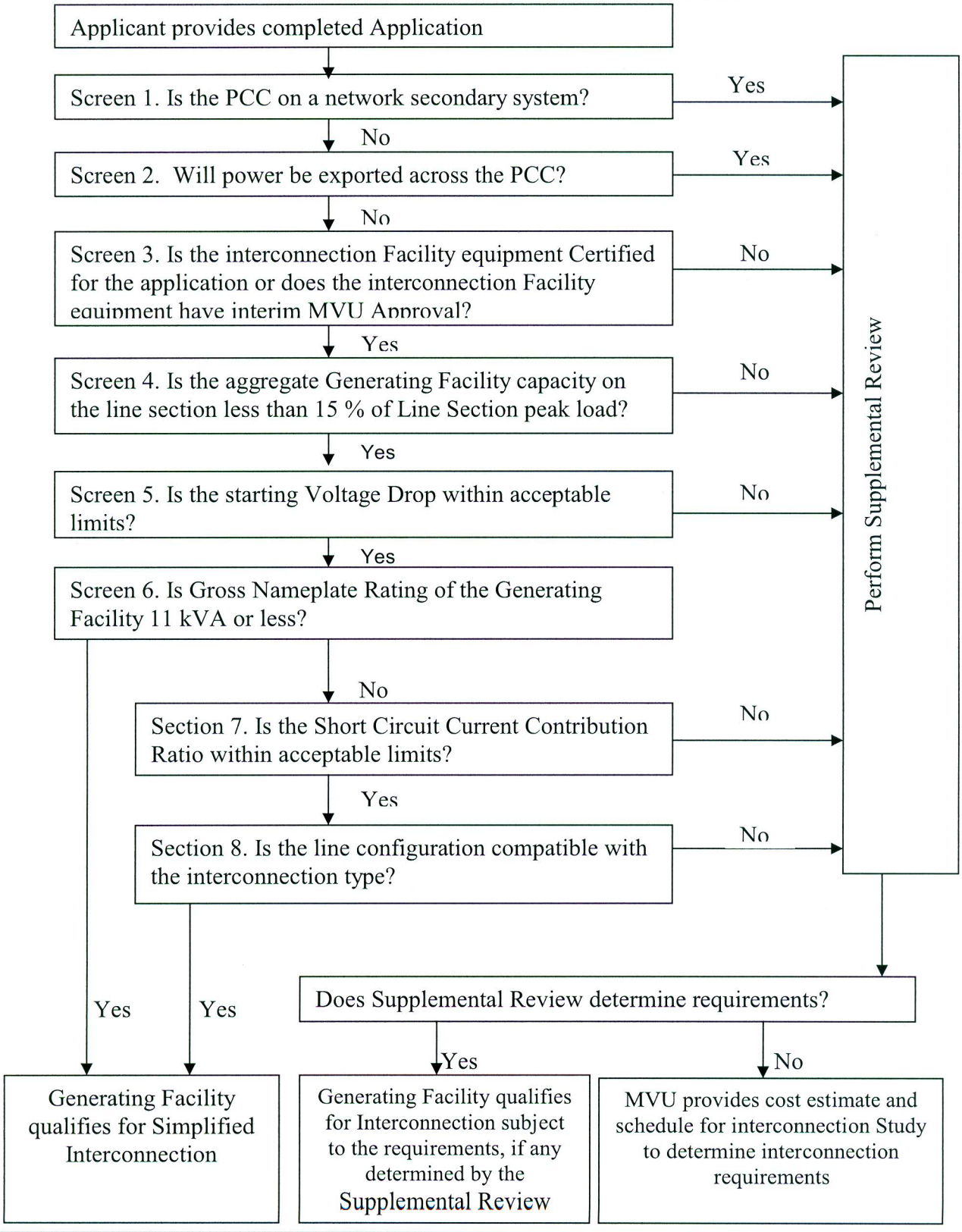
a. If a Generating Facility qualifies for Simplified Interconnection;

b. If a Generating Facility can be made to qualify for Interconnection with a Supplemental Review determining any additional requirements; or

c. If an Interconnection Study is required, the cost estimate and schedule for performing the Interconnection Study.

3. REVIEW PROCESS DETAILS

Initial and Supplemental Review Process Flow Chart



a. Screen 1: Is the PCC on a Networked Secondary System?

- If yes, the Generating Facility does not qualify for Simplified Interconnection. Perform Supplemental Review.

- If No, continue to next screen.

Significance: Special considerations must be given to Generating Facilities proposed to be installed on networked secondary Distribution Systems because of the design and operational aspects of network protectors. There are no such considerations for radial Distribution Systems.

b. Screen 2: Will power be exported across the PCC?

- If yes, the Generating Facility does not qualify for Simplified Interconnection. Perform Supplemental Review.

- If No, the Generating Facility must incorporate one of the following four options:

Option 1 ("Reverse Power Protection"): To ensure that power is not exported across the PCC, a reverse power Protective Function may be provided.. The default setting for this Protective Function, when used, shall be 0.1% (export) of the service transformer's rating, with a maximum 2.0 second time delay.

Option 2 ("Minimum Power Protection"): To ensure that at least a minimum amount of power is imported across the PCC at all times (and therefore, that power is not exported), an under-power Protective Function may be provided.. The default setting for this Protective Function, when used, shall be 5% (import) of the Generating Facility's total Gross Nameplate Rating, with a maximum 2.0 second time delay.

Option 3 ("Certified Non-Islanding Protection"): To ensure that the incidental export of power across the PCC is limited to acceptable levels, this option, when used, requires that all of the following conditions be met: (a) the total Gross Nameplate Capacity of the Generating Facility must be no more than 25% of the nominal ampere rating of the Producer's service equipment; (b) the total Gross Nameplate Capacity of the Generating Facility must be no more than 50% of the Producer's service transformer capacity rating (this capacity requirement does not apply to customers taking primary service without an intervening transformer); and (c) the Generating Facility must be certified as Non-Islanding.

The ampere rating of the Customer's Service Equipment to be used in this evaluation will be that rating for which the customer's utility service was originally sized or for which an upgrade has been approved. It is not the intent of this provision to allow increased export simply by increasing the size of the customer's service panel, without separate approval for the resize.

Option 4 ("Relative Generating Facility Rating"): This option, when used, requires Net Nameplate Rating of the Generating Facility to be so small in comparison to its host facility's minimum load, that the use of additional Protective Functions is not required to insure that power will not be exported to MVU's Distribution System. This option requires the Generating Facility capacity to be no greater than 50% of the Producer's verifiable minimum Host Load over the past 12 months.

Significance:

1) If it can be ensured that the Generating Facility will not export power, MVU's Distribution System does not need to be studied for Load-Carrying Capability or Generating Facility power flow effects on MVU voltage regulators.

2) This Screen permits the use of reverse-power or minimum-power relaying as a Non-Islanding Protective Function (Options 1, 2 and 3).

3) This Screen allows, under certain defined conditions, for Generating Facilities that incorporate Certified Non-Islanding protection to qualify for Simplified

c. Screen 3: Is the Interconnection Facilities equipment Certified for the application or does the Interconnection Facilities equipment have interim MVU approval?

• If Yes, continue to next screen.
• If No, the Generating Facility and/or Interconnection Facilities does not qualify or Simplified Interconnection. Perform Supplemental Review.

Interim approval allows the MVU to treat equipment that has not completed the Rule 21 certification requirements as having met the intent of this screen. Interim approval is granted, at MVU's discretion, on a case by case basis, and approval for one Generating Facility does not guarantee approval for any other Generating Facility

Significance: If the Generating Facility and/or Interconnection Facilities has been Certified or previously approved by MVU, MVU does not need

to repeat its full review and/or test of the Generating and/or Interconnection Facilities' Protective Functions. Site Commissioning Testing may still be required to insure that the Protective Functions are working properly.

Certification indicates that the criteria in Section J, as appropriate, have been tested and verified.

d. Screen 4: Is the aggregate Generating Facility capacity on the Line Section less than 15% of Line Section peak load?

• If Yes, continue to next screen.
• If No, the Generating Facility does not qualify for Simplified Interconnection. Perform Supplemental Review to determine cumulative impact on Line Section.

Significance:

1) Low penetration of Generating Facility installations will have a minimal impact on the operation and load restoration efforts of MVU's Distribution System.

2) The operating requirements for a high penetration of Generating Facilities may be different since the impact on MVU's Distribution System will no longer be minimal, therefore requiring additional study or controls.

e. Screen 5: Is the Starting Voltage Drop within acceptable limits?

• If Yes, continue to next screen.
• If No, the Generating Facility does not qualify for Simplified Interconnection. Perform Supplemental Review.

Note: This Screen only applies to Generating Facilities that start by motoring the Generator(s).

MVU has two options in determining whether Starting Voltage Drop is acceptable. The option to be used is at MVU's discretion:

Option 1: MVU may determine that the Generating Facility's starting In-rush Current is equal to or less than the continuous ampere rating of the customer's service equipment.

Option 2: MVU may determine the impedances of the service distribution transformer (if present) and the secondary conductors to Customer's service equipment and perform a voltage drop calculation. Alternatively, MVU may use tables or nomographs to determine the voltage drop.

Voltage drops caused by starting a Generator as a motor must be less than 2.5% for primary interconnections and 5% for secondary interconnections.

Significance:

1) This Screen addresses potential voltage fluctuation problems that may be caused by Generators that start by motoring.

2) When starting, Generating Facilities should have minimal impact on the service voltage to other MVU Customers.

3) Passing this screen does not relieve the Producer from ensuring that its Generating Facility complies with the flicker requirements of this Rule, Section D.2.d.

f. Screen 6: Is the Gross Nameplate Rating of the Generating Facility 11 kVA or less?

- If Yes, the Generating Facility qualifies for Simplified Interconnection. Skip remaining screens.
- If No, continue to next screen.

Significance:

The Generating Facility will have a minimal impact on fault current levels and any potential line overvoltages from loss of MVU's Distribution System neutral grounding.

g. Screen 7: Is the Short Circuit Current Contribution Ratio within acceptable limits?

- If Yes, continue to next screen.
- If No, the Generating Facility does not qualify for Simplified Interconnection. Perform Supplemental Review.

The Short Circuit Current Contribution Ratio Screen consists of two criteria; both of which must be met when applicable:

1) When measured at primary side (high side) of a Dedicated Distribution Transformer serving a Generating Facility, the sum of the Short Circuit Contribution Ratios of all generating facilities connected to MVU's Distribution System circuit that serves the Generating Facility must be less than or equal to 0.1, and

2) When measured at the secondary side (low side) of a shared distribution transformer, the short circuit contribution of the

proposed Generating Facility must be less than or equal to 2.5% of the interrupting rating of the Producer's Service Equipment.

Significance:

If the Generating Facility passes this screen it can be expected that it will have no significant impact on MVU's Distribution System's short circuit duty, fault detection sensitivity, relay coordination or fuse-saving schemes.

h. Screen 8: Is the Line Configuration compatible with the Interconnection type?

• If Yes, the Generating Facility qualifies for Simplified Interconnection.

• If No, then the Generating Facility does not qualify for Simplified Interconnection. Perform Supplemental Review.

Line Configuration Screen: Identify primary distribution line configuration that will serve the Generating Facility. Based on the type of Interconnection to be used for the Generating Facility, determine from the Table I.1 if the proposed Generating Facility passes the screen.

Table I.1

Primary Distribution Line Type Configuration	Type of Interconnection to be Made to Primary Distribution Line	Results/Criteria
Three-phase, three wire	Any type	Pass Screen
Three-phase, four wire	Single-phase, line-to-neutral	Pass Screen
Three-phase, four wire (For any line that has such a section OR mixed three wire and four wire)	All others	To pass, aggregate GF Nameplate Rating must be less than or equal to 10% of Line Section peak load

Significance: If the primary distribution line serving the Generating Facility is of a "three-wire" configuration, or if the Generating Facility's distribution transformer is single-phase and connected in a line-to-neutral configuration, then there is no concern about overvoltages to MVU's, or other Customer's equipment caused by loss of system neutral grounding during the operating time of the Non-Islanding Protective Function.

J. CERTIFICATION AND TESTING CRITERIA

1. INTRODUCTION

This Section describes the test procedures and requirements for equipment used for the Interconnection of Generating Facilities to MVU's Distribution System. Included are Type Testing, Production Testing, Commissioning Testing and Periodic Testing. The procedures listed rely heavily on those described in appropriate Underwriters Laboratory (UL), Institute of Electrical and Electronic Engineers (IEEE), and International Electrotechnical Commission (IEC) documents—most notably UL 1741 and IEEE 929, as well as the testing described in *May 1999 New York State Public Services Commission Standardized Interconnection Requirements.* As noted in Section A, this rule has been revised to be consistent with ANSI/IEEE 1547-2003 *Standard for Interconnecting Distributed Resources with Electric Power Systems.*

The tests described here, together with the technical requirements in Section D of this Rule, are intended to provide assurance that the Generating Facility's equipment will not adversely affect MVU's Distribution System and that a Generating Facility will cease providing power to MVU's Distribution System under abnormal conditions. The tests were developed assuming a low level of Generating Facility penetration or number of connections to MVU's Distribution System. At high levels of Generating Facility penetration, additional requirements and corresponding test procedures may need to be defined.

Section J also provides criteria for "Certifying" Generators or inverters. Once a Generator or inverter has been Certified per this Rule, it may be considered suitable for Interconnection with MVU's Distribution System. Subject to the exceptions described in Section J, MVU will not repeat the design review or require retesting of such Certified Equipment. It should be noted that the Certification process is intended to facilitate Generating Facility Interconnections. Certification is not a prerequisite to interconnect a Generating Facility.

The revisions made to this rule relative to IEEE 1547-2003 have resulted in changes in set points, test criteria, test procedures, and other requirements that will impact previously certified or listed equipment as well as equipment currently under evaluation. These changes were made to provide consistency with IEEE 1547. Equipment that is certified or that has been submitted to a Nationally Recognized Testing Laboratory (NRTL) for testing prior to the adoption of the revised Underwriters Laboratories (UL) 1741 titled Inverters, Converters, Controllers and Interconnection Systems Equipment for use with Distributed

Energy Resources and that subsequently meet the provisions Rule 21 certification requirements will continue to be accepted as Certified Equipment for Interconnection Applications submitted through May 7, 2007, the effective date of the revised UL 1741. [this change will be incorporated by Advice Letter in Dec. 2005]

2. CERTIFIED AND NON-CERTIFIED INTERCONNECTION EQUIPMENT

a. Certified Equipment

Equipment tested and approved (e.g., "Listed") by an accredited NRTL as having met both the Type Testing and Production Testing requirements described in this document is considered to be Certified Equipment for purposes of Interconnection with MVU's Distribution System. Certification may apply to either a pre-packaged system or an assembly of components that address the necessary functions. Type Testing may be done in the manufactures' factory or test laboratory, or in the field. At the discretion of the testing laboratory, field-certification may apply only to the particular installation tested. In such cases, some or all of the tests may need to be repeated at other installations.

When equipment is certified by a NRTL, the NRTL shall provide to the manufacturer, at a minimum, a Certificate with the following information for each device:

Administrative:

1) The effective date of Certification or applicable serial number (range or first in series), and/or other proof that Certification is current;

2) Equipment model number(s) of the Certified Equipment;

3) The software version utilized in the equipment, if applicable;

4) Test procedures specified (including date or revision number); and

5) Laboratory accreditation (by whom and to what standard).

Technical (as appropriate):

1) Device ratings (kW, kVA, Volts, Amps, etc.);

2) Maximum available fault current in Amps;

3) In-rush Current in Amps;

4) Trip points, if factory set (trip value and timing);

5) Trip point and timing ranges for adjustable settings;

6) Nominal power factor or range if adjustable;

7) If the equipment is Certified for Non-Exporting and the method used (reverse power or under power); and

8) If the equipment is Certified Non-Islanding.

It is the responsibility of the equipment manufacturer to ensure that Certification information is made publicly available by the manufacturer, the testing laboratory or by a third party.

b. Non-Certified Equipment

For non-Certified Equipment, some or all of the tests described in this Rule may be required by MVU for each Generating Facility and/or Interconnection Facilities. The manufacturer or a laboratory acceptable to MVU may perform these tests. Test results for Non-Certified Equipment must be submitted to MVU for the Supplemental Review. Approval by MVU for equipment used in a particular Generating Facility and/or Interconnection Facilities does not guarantee MVU's approval for use in other Generating Facility and/or Interconnection Facilities.

3. TYPE TESTING

a. Type Tests and Criteria for Interconnection Equipment Certification. Type Testing provides a basis for determining that equipment meets the specifications for being designated as Certified Equipment under this Rule. The requirements described in this Section cover only issues related to Interconnection and are not intended to address equipment safety or other issues.

Table J.1. defines the test criteria by Generator or inverter technology. While UL 17411 was written specifically for inverters, the requirements are readily adaptable to synchronous Generators, induction Generators, as well as single/multi-function controllers and protection relays. Until a universal test standard is developed, MVU or NRTL shall adapt the procedures referenced in Table J.1 as appropriate and necessary for a Generating Facility and/or Interconnection Facilities or associated equipment performance and its control and Protective Functions. The tests shall be performed in the sequence shown in Table J.2 below.

Table J.1 Type Tests and Requirements for Interconnection Equipment Certification

Type Test	Reference (1)	Inverter	Synchronous Generator	Induction Generator
Utility Interaction	UL 1741 – 39	X	X	X
DC Isolation	UL 1741 – 40.1	X	-	-
Simulated PV Array (Input) Requirements	UL 1741 – 41.2	X	-	-
Dielectric Voltage Withstand	UL 1741 – 44	X	X	X
Power Factor	UL 1741 – 45.2.2	X	X	X
Harmonic Distortion	UL 1741 – 45.4	X	X	X
DC Injection	UL 1741 – 45.5	X	-	-
Utility Voltage and Frequency Variation	UL 1741 – 46.2	X	X	X
Reset Delay	UL 1741 – 46.2.3	X	X	X
Loss of Control Circuit	UL 1741 – 46.4	X	X	X
Short Circuit	UL 1741 – 47.3	X	X	X
Load Transfer	UL 1741 – 47.7	X	X	X
Surge Withstand Capability	J.3.e	X	X	X
Anti-Islanding	J.3.b	(2)	(2)	(2)
Non-Export	J.3.c	(3)	(3)	(3)
In-rush Current	J.3.d	-	-	(4)
Synchronization	J.3.f	(5)	X	(5)

Table Notes: (1) References are to section numbers in either UL 1741 (Inverters, Converters and Charge Controllers for use in Independent Power Systems) or this Rule. References in UL 1741 to "photovoltaics" or "inverter" may have to be adapted to the other technologies by the testing laboratory to appropriately apply in the tests to other technologies.

(2) Required only if Non-Islanding designation

(3) Required only if Non-Export designation is desired.

(4) Required for Generators that use MVU power to motor to speed.

(5) Required for all self-excited induction Generators as well as Inverters that operate as voltage sources when connected to MVU's Distribution System.

X = Required , - = Not Required

Table J.2 Type Tests Sequence for Interconnection Equipment Certification

Test No.	Type Test
1	Utility Voltage and Frequency Variation
2	Synchronization
3	Surge Withstand Capability
4	Utility Voltage and Frequency Variation
5	Synchronization
6	Other Required and Optional Tests
Tests 1, 2, and 3, must be done first and in the order shown. Tests 4 and on follow in order convenient to the test agency.	

b. Anti-Islanding Test

Devices that pass the Anti-Islanding test procedure described in UL 1741 Section 46.3 will be considered Non-Islanding for the purposes of these interconnection requirements. The test is required only for devices for which a Certified Non-Islanding designation is desired.

c. Non-Export Test

Equipment that passes the Non-Export test procedure described in Section J.7.a. will be considered Non-Exporting for the purposes of these Interconnection requirements. This test is required only for equipment for which a Certified Non-Export designation is desired.

d. In-rush Current Test

Generation equipment that utilizes MVU power to motor up to speed will be tested using the procedure defined in Section J.7.b. to determine the maximum current drawn during this startup process. The resulting In-rush Current is used to estimate the Starting Voltage Drop.

e. Surge Withstand Capability Test

The interconnection equipment shall be tested for the surge withstand requirement in D.1.c in all normal operating modes in accordance with IEEE Std C62.45-2002 for equipment rated less than 1000 V to confirm that the surge withstand capability is met by using the selected test level(s) from IEEE Std C62.41.2-2002. Interconnection equipment rated greater than 1000 V shall be tested in accordance with manufacturer or system integrator designated applicable standards. For interconnection equipment signal and control circuits, use IEEE Std C37.90.1-2002. These tests shall confirm the equipment did not fail, did not misoperate, and did not provide misinformation (IEEE1547-5.1.3.2). The location/exposure category for which the equipment has been tested shall be clearly marked on the equipment label or in the equipment documentation. External surge protection may be used to protect the equipment in harsher location/exposure categories.

f. Synchronization Test

This test is applied to synchronous Generators, self-excited induction generators, and inverters capable of operating as voltage-source while connected to MVU's Distribution System. The test is also applied to the

resynchronization Function (transition from stand-alone to parallel operation) on equipment that provides such functionality. This test may not need to be performed on both the synchronization and re-synchronization functions if the manufacturers can verify to the satisfaction of the testing organization that monitoring and controls hardware and software are common to both functions. This test is not necessary for induction generators or current-source inverters. Instead, the ln-rush Current test Section J.3.d shall be applied to those generators.

This test shall demonstrate that at the moment of the paralleling-device closure, all three synchronization parameters in Table J.3 are within the stated limits. This test shall also demonstrate that if any of the parameters are outside of the limits stated in the table, the paralleling-device shall not close (IEEE 1547- 5.1.2A). The test will start with only one of the three parameters: (1) voltage difference between Generating Facility and MVU's Distribution System; (2) frequency difference; or (3) phase angle outside of the synchronization specification. Verify that the Generating Facility is brought within specification prior to synchronization. Repeat the test five times for each of the three parameters. For manual synchronization with synch check or manual control with auto synchronization, the test must verify that paralleling does not occur until the parameters are brought within specifications.

Table J.3. Synchronization Parameter Limits *[1]*

Aggregate Rating of Generator Units (kVA)	Frequency Difference (Δf, Hz)	Voltage Difference (ΔV, %)	Phase Angle Difference (Δϕ,□)
0-500	0.3	10	20
> 500-1,500	0.2	5	15
> 1,500-10,000	0.1	3	10

[1] – IEEE 1547-5.1.1B

g. Paralleling Device Withstand Test

The di-electric voltage withstand test specified in Section J.1 shall be performed on the paralleling device to ensure compliance with those requirements specified in Section D.1.c (IEEE 1547-5.1.3.3).

4. Production Testing

As a minimum, each interconnection system shall be subjected to the Utility Voltage and Frequency Variation Test procedure described in UL1741 under Manufacturing and Production Tests, Section 68 and the Synchronization test specified in Section J.3.f

Interconnection systems with adjustable set points shall be tested at a single set of set points as specified by the manufacturer. This test may be performed in the factory or as part of a Commissioning Test (Section J.5.).

5. Commissioning Testing

a. Commissioning Testing, where required, will be performed on-site to verify protective settings and functionality. Upon initial Parallel Operation of a Generating Facility, or any time interface hardware or software is changed that may affect the functions listed below, a Commissioning Test must be performed. An individual qualified in testing protective equipment (professional engineer, factory–certified technician, or licensed electrician with experience in testing protective equipment) must perform Commissioning Testing in accordance with the manufacturer's recommended test procedure to verify the settings and requirements per this Rule.

MVU may require written Commissioning test procedure be submitted to MVE at least 10 working days prior to the performance of the Commissioning Test. MVU has the right to witness Commissioning Test, MVU may also require written certification by the installer describing which tests were performed and their results. Protective Functions to be tested during commissioning, particularly with respect to non-Certified equipment, may consist of the following:

(1) Over and under voltage
(2) Over and under frequency
(3) Anti-Islanding function (if applicable)
(4) Non-Exporting function (if applicable)
(5) Inability to energize dead line
(6) Time delay on restart after utility source is stable
(7) Utility system fault detection (if used)
(8) Synchronizing controls (if applicable)
(9) Other Interconnection Protective Functions that may be required as part of the Interconnection Agreement

Commissioning Test shall include visual inspections of the interconnection equipment and protective settings to confirm compliance with the interconnection requirements.

b. Other checks and tests that may need to be performed include:

(1) Verifying final Protective Function settings
(2) Trip test (J.5.f)
(3) In-service tests (J.5.g)

c. Certified Equipment

Generating Facilities qualifying for Simplified Interconnection incorporate Certified Equipment that have, at a minimum, passed the Type Tests and Production Tests described in this Rule and are judged to have little or no potential impact on MVU's Distribution System. For such Generating Facilities,
it is necessary to perform only the following tests:

(1) Protective Function settings that have been changed after Production Testing will require field verification. Tests shall be performed using injected secondary frequencies, voltages and currents, applied waveforms, at a test connection using a Generator to simulate abnormal utility voltage or frequency, or varying the set points to show that the device trips at the measured (actual) utility voltage or frequency.

(2) The Non-Islanding function shall be checked by operating a load break disconnect switch to verify the Interconnection equipment ceases to energize MVU's Distribution System and does not re-energize it for the required time delay after the switch is closed.

(3) The Non-Exporting function shall be checked using secondary injection techniques. This function may also be tested by adjusting the Generating Facility output and local loads to verify that the applicable Non-Exporting criteria (i.e., reverse power or underpower) are met.

The Supplemental Review or an Interconnection Study may impose additional components or additional testing.

d. Non-Certified Equipment

Non-certified Equipment shall be subjected to the appropriate tests described in Type Testing (Section J.3.) as well as those described in Certified Equipment Commissioning Tests (Section J.5.c.). With MVU's approval, these tests may be performed in the factory, in the field as part of commissioning, or a combination of both. MVU, at its discretion, may also approve a reduced set of tests for a particular Generating Facility or, for example, if it determines it has sufficient experience with the equipment.

e. Verification of Settings

At the completion of Commission testing, the Producer shall confirm all devices are set to MVU-approved settings. Verification shall be documented in the Commissioning Test Certification.

f. Trip Tests

Interconnection Protective Functions and devices (e.g. reverse power relays) that have not previously been tested as part of the Interconnection Facilities with their associated interrupting devices (e.g. contactor or circuit breaker) shall be trip tested during commissioning. The trip test shall be adequate to prove that the associated interrupting devices open when the protective devices operate. Interlocking circuits between Protective Function devices or between interrupting devices shall be similarly tested unless they are part of a system that has been tested and approved during manufacturing.

g. In-service Tests

Interconnection Protective Functions and devices that have not previously been tested as part of the Interconnection Facilities with their associated instrument transformers or that are wired in the field shall be given an in-service test during commissioning. This test will verify proper wiring, polarity, CT/PT ratios, and proper operation of the measuring circuits. The in-service test shall be made with the power system energized and carrying a known level of current. A measurement shall be made of the magnitude and phase angle of each Alternating Current (AC) voltage and current connected to the protective device and the results compared to expected values. For protective devices with built-in Metering Functions that report current and voltage magnitudes and phase angles, or magnitudes of current, voltage, and real and reactive power, the
metered values may be used for in-service testing. Otherwise, portable ammeters, voltmeters, and phase-angle meters shall be used.

6. Periodic Testing

Periodic Testing of Interconnection-related Protective Functions shall be performed as specified by the manufacturer, or at least every four years. All Periodic Tests prescribed by the manufacturer shall be performed. The Producer shall maintain Periodic Test reports or a log for inspection by MVU. Periodic Testing conforming to MVU test intervals for the particular Line Section may be specified by MVU under special circumstances, such as high fire hazard areas. Batteries used to activate any Protective Function shall be checked and logged once per month for proper voltage.
Once every four years, the battery must be either replaced or a discharge test performed.

7. Type Testing Procedures Not Defined in Other Standards

This Section describes the additional Type Tests necessary to qualify a device as Certified under this Rule. These Type Tests are not contained in Underwriters Laboratories UL 1741 Standard *Inverters, Converters and Controllers for Use in Independent Power Systems,* or other referenced standards.

a. Non-Exporting Test Procedures

The Non-Exporting test is intended to verify the operation of relays, controllers and inverters designed to limit the export of power and certify the equipment as meeting the requirements of Screen 2, Options 1 and 2, of the review process. Tests are provided for discrete relay packages and for controllers and inverters with the intended Functions integrated.

(1) Discrete Reverse Power Relay Test

This version of the Non-Exporting test procedure is intended for discrete reverse power and underpower relay packages provided to meet the requirements of Options 1 and 2 of Screen 2. It should be understood that in the reverse power application, the relay will provide a trip output with power flowing in the export (toward MVU's Distribution System) direction.

Step 1: Power Flow Test at Minimum, Midpoint and Maximum Pickup Level Settings

Determine the corresponding secondary pickup current for the desired export power flow of 0.5 secondary watts (the minimum pickup setting, assumes 5 amp and 120V CT/PT secondary). Apply nominal voltage with minimum current setting at zero (0) degrees phase angle in the trip direction. Increase the current to pickup

level. Observe the relay's (LCD or computer display) indication of power values. Note the indicated power level at which the relay trips. The power indication should be within 2% of the expected power. For relays with adjustable settings, repeat this test at the midpoint, and maximum settings. Repeat at phase angles of 90, 180 and 270 degrees and verify that the relay does not operate (measured watts will be zero or negative).

Step 2: Leading Power Factor Test

Apply rated voltage with a minimum pickup current setting (calculated value for system application) and apply a leading power factor load current in the non-trip direction (current lagging voltage by 135 degrees). Increase the current to relay rated current and verify that the relay does not operate. For relays with adjustable settings, this test should be repeated at the minimum, midpoint, and maximum settings.

Step 3: Minimum Power Factor Test

At nominal voltage and with the minimum pickup (or ranges) determined in Step 1, adjust the current phase angle to 84 or 276 degrees. Increase the current level to pickup (about 10 times higher than at 0 degrees) and verify that the relay operates. Repeat for phase angles of 90, 180 and 270 degrees and verify that the relay does not operate.

Step 4: Negative Sequence Voltage Test

Using the pickup settings determined in Step 1, apply rated relay voltage and current at 180 degrees from tripping direction, to simulate normal load conditions (for three-phase relays, use Ia at 180, Ib at 60 and Ic at 300 degrees). Remove phase-1 voltage and observe that the relay does not operate. Repeat for phases-2 and 3.

Step 5: Load Current Test

Using the pickup settings determined in Step 1, apply rated voltage and current at 180 degrees from the tripping direction, to simulate normal load conditions (use Ia at 180, Ib at 300 and Ic at 60 degrees). Observe that the relay does not operate.

Step 6: Unbalanced Fault Test

Using the pickup settings determined in Step 1, apply rated voltage and 2 times rated current, to simulate an unbalanced fault

in the non-trip direction (use Va at 0 degrees, Vb and Vc at 180 degrees, Ia at 180 degrees, Ib at 0 degrees, and Ic at 180 degrees). Observe that the relay, especially single phase, does operate properly.

Step 7: Time Delay Settings Test

Apply Step 1 settings and set time delay to minimum setting. Adjust the current source to the appropriate level to determine operating time, and compare against calculated values. Verify that the timer stops when the relay trips. Repeat at midpoint and maximum delay settings.

Step 8: Dielectric Test

Perform the test described in IMVU 414 using 2 kV RMS for 1 minute.

Step 9: Surge Withstand Test

Perform the surge withstand test described in IEEE C37.90.1.1989 or the surge withstand capability test described in J.3.e.

(2) Discrete Underpower Relay Test

This version of the Non-Exporting test procedure is intended for discrete underpower relay packages and meets the requirements of Option 2 of Screen 2. A trip output will be provided when import power (toward the Producer's load) drops below the specified level.

Note: For an underpower relay, pickup is defined as the highest power level at which the relay indicates that the power is less than the set level.

Step 1: Power Flow Test at Minimum, Midpoint and Maximum Pickup Level Settings

Determine the corresponding secondary pickup current for the desired power flow pickup level of 5% of peak load minimum pickup setting. Apply rated voltage and current at 0 (zero) degrees phase angle in the direction of normal load current. Decrease the current to pickup level. Observe the relay's (LCD or computer display) indication of power values. Note the indicated power level at which the relay trips. The power indication should be within 2% of the expected power. For relays with adjustable settings, repeat

the test at the midpoint, and maximum settings. Repeat at phase angles of 90, 180 and 270 degrees and verify that the relay operates (measured watts will be zero or negative).

Step 2: Leading Power Factor Test

Using the pickup current setting determined in Step 1, apply rated voltage and rated leading power factor load current in the normal load direction (current leading voltage by 45 degrees). Decrease the current to 145% of the pickup level determined in Step 1 and verify that the relay does not operate. For relays with adjustable settings, repeat the test at the minimum, midpoint, and maximum settings.

Step 3: Minimum Power Factor Test

At nominal voltage and with the minimum pickup (or ranges) determined in Step 1, adjust the current phase angle to 84 or 276 degrees. Decrease the current level to pickup (about 10% of the value at 0 degrees) and verify that the relay operates. Repeat for phase angles 90, 180 and 270 degrees and verify that the relay operates for any current less than rated current.

Step 4: Negative Sequence Voltage Test

Using the pickup settings determined in Step 1, apply rated relay voltage and 25% of rated current in the normal load direction, to simulate light load conditions. Remove phase 1 voltage and observe that the relay does not operate. Repeat for Phases-2 and 3.

Step 5: Unbalanced Fault Test

Using the pickup settings determined in Step 1, apply rated voltage and two times rated current, to simulate an unbalanced fault in the normal load direction (use Va at 0 degrees, Vb and Vc at 180 degrees, Ia at 0 degrees, Ib at 180 degrees, and Ic at 0 degrees). Observe that the relay (especially single-phase types) operates properly.

Step 6: Time Delay Settings Test

Apply Step 1 settings and set time delay to minimum setting. Adjust the current source to the appropriate level to determine operating time, and compare against calculated values. Verify that the timer stops when the relay trips. Repeat at midpoint and maximum delay settings.

Step 7: Dielectric Test

Perform the test described in IEC 414 using 2 kV RMS for 1 minute.

Step 8: Surge Withstand Test

Perform the surge withstand test described in IEEE C37.90.1.1989 or the surge withstand test described in Section J.3.e.

(3) Tests for Inverters and Controllers with Integrated Functions

Inverters and controllers designed to provide reverse or underpower functions shall be tested to certify the intended operation of this function. Two methods are acceptable:

Method 1: If the inverter or controller utilizes external current/voltage measurement to determine the reverse or underpower condition, then the inverter or controller shall be functionally tested by application of appropriate secondary currents and potentials as described in the Discrete Reverse Power Relay Test, Section J.7.a.(1) of this Rule.

Method 2: If external secondary current or voltage signals are not used, then unit-specific tests must be conducted to verify that power cannot be exported across the PCC for a period exceeding two seconds. These may be factory tests, if the measurement and control points are integral to the unit, or they may be performed in the field.

b. In-rush Current Test Procedures

This test will determine the maximum In-rush Current drawn by the Generator.

(1) Locked-Rotor Method

Use the test procedure defined in NEMA MG-1 (manufacturer's data is acceptable if available).

(2) Start-up Method

Install and setup the Generating Facility equipment as specified by the manufacturer. Using a calibrated oscilloscope or data acquisition equipment with appropriate speed and accuracy, measure the current draw at the Point of Interconnection as the Generating Facility starts up and

parallels with MVU's Distribution System. Startup shall follow the normal, manufacturer-specified procedure. Sufficient time and current resolution and accuracy shall be used to capture the maximum current draw within 5%. In-rush Current is defined as the maximum current draw from MVU during the startup process, using a 10-cycle moving average. During the test, the utility source, real or simulated, must be capable of maintaining voltage within +/- 5% of rated at the connection to the unit under test. Repeat this test five times. Report the highest 10-cycle current as the In-rush Current. A graphical representation of the time-current characteristic along with the certified In-rush Current must be included in the test report and made available to MVU.

CHART OF CHARGES AND FEES

Item	Charge
Service Initiation Charge	
Next Day, Normal Business Hours	$15.00
Identity Verification Fee	$5.00
Additional Charge for Same Day Turn On of Service	$30.00
Additional Charge for Weekends and After Hours Turn On of Service	$50.00
Deposits	
Residential Service – Single Family	Twice Average Monthly Bill, minimum $235
Residential Service – Mulit-Family	Twice Average Monthly Bill, minimum $105
Non Residential Service	Twice Maximum Monthly Bill
Reestablishment of Credit	Twice Maximum Monthly Bill
Interest on Deposits	1/12th of the Interest Rate on Commercial Paper (Prime, 3 Months)
Interest on Unauthorized Use Billings	10% Per Annum
Interest on Amortized Repayment Agreements	10% Per Annum
Return Check Charge	$31.00
Field Assignment Charge	$10.00
Field Disconnect Charge	$30.00
Meter Test Deposit – (Refunded if Meter Registers within Parameters)	
Meter Installed without Current or Potential Transformer	$20.00
Meter Installed with Current or Potential Transformer	$100.00
Late Charge	0.9% per Month of Unpaid Balance
Utility Users Tax	5.75%
Reconnection Charge	
Meter Panel – Next Day	$20.00
Meter Panel – Same Day During Working Hours	$30.00
Meter Panel – Weekends and After Hours	$50.00
Pole / Service Structure – Next Day	$60.00
Pole / Service Structure – Same Day During Working Hours	$75.00
Pole / Service Structure – Weekends and After Hours	$90.00
Transformer/Structure Due to Energy Theft	$150.00
Damaged Steel Lock-ring	$15.00
Damaged Aluminum Lock-ring	$ 5.00
Replaced Damaged Meter	Actual cost (time and material)

PLAN CHECKING and INSPECTION/TESTING FEES

Upon submittal of improvement plan(s) for a project's electrical distribution system, line extension facilities and/or structures for plan review, the submittal shall be accompanied with a deposit of an amount equal to 3.25% of the engineer's estimated construction costs for improvements. Prior to second submittal of improvement plans, the City Engineer will approve a final cost for improvements and a plan review fee will be established. From this final fee, the deposit will be deducted. This fee shall be paid prior to the second submittal of the improvement plan(s).

Improvement Plans

(Total cost of construction)

Off-Site & On-Site 1-3 submittals

First $20,000.00	4.0%
Next $80,000.00	3.5%
Over $100,000.00	3.25%
4th and subsequent submittals per sheet	$248.00/sheet or as directed by City Engineer

Revisions (Improvement Plans)

Minor per sheet	$261.00
Major per sheet (minimum fee)	$269.00

Inspection and Testing

(Total cost of construction)

Off-Site & On- Site

First $20,000.00	4.0%
Next $80,000.00	3.5%
Over $100,000.00	3.25%