

Applicability

This Schedule is applicable to individual family accommodations devoted primarily to residential, household and related purposes (as distinguished from commercial, professional and industrial purposes), to general farm service on a farm, where the residence on such farm is supplied through the same meter, and to public dwelling units as provided in Special Provision 1.

Character of Service

Alternating current at a frequency of approximately 60 Hertz: 120 volts, 120/208 volts or 120/240 volts, single phase, as specified by the District. Three phase service may be specified and supplied by the District at its option for residential heating and/or air conditioning loads.

Monthly Charges

The total amount of a customer's bill, excluding applicable local and state taxes and surcharges, will be the sum of the charges listed below and any adjustments for Special Provisions, effective on the date of meter reading for each account.

Customers provided service on this Rate have been granted a fifty percent (50%) discount on the first 500 kilowatt-hours of usage per month. Remaining kilowatt-hours will be billed at the applicable Rate Schedule. All special conditions and minimum charges of the Residential Rate Schedule remain in force.

Summer (May – September)	Winter (October – April)
Fixed Monthly\$20.00	Fixed Monthly\$20.00
Electric Usage (per kWh):	Electric Usage (per kWh):
First 500 kWh\$0.0725	First 500 kWh\$0.0601
Over 500 kWh\$0.1808	Over 500 kWh\$0.1498

Territory Served

The entire area within the Modesto Irrigation District electric service boundary or any other area served by Modesto Irrigation District pursuant to the laws of the State of California and the District's Electric Service Rules.

Special Provisions

1. Multiple Dwelling Units

Apartment houses, or groups of apartments in the same building or on the same premises, which are not "NEW BUILDINGS" as that term is used in Section 113(b)(1) of the Public Utility Regulatory Policies Act of 1978 (PURPA), may receive service under this Schedule through one meter, provided that such energy is not resold by the apartment owner or any other agency. When service is thus taken, the customer shall be put on the applicable Residential D Rate.

2. Medical Life Support Discount

Residential customers who provide the required physician's certification, approved by the District, will be able to apply for the discounted Medical Life Support Rate. To qualify, a physician licensed to practice medicine in the state of California must establish that a resident of the household is the doctor's patient and the resident is:

- a) Dependent uses an electric wheelchair, oxygen concentrator, in-home dialysis cyclor or other life support device. Devices used for therapy rather than life support do not qualify. The device must be plugged in and not battery operated.
- b) A paraplegic, hemiplegic or quadriplegic person with special heating or air conditioning needs.
- c) A person with multiple sclerosis, scleroderma or has a compromised immune system, life threatening illness, or any other condition for which additional heating or cooling is medically necessary to sustain the person's life or prevent deterioration of the person's medical condition.
- d) The life support device(s) and/or condition requiring additional heating or cooling will be required for a minimum of 12 months.

Eligibility for the Medical Life Support Rate must be approved by the Energy Services Supervisor and physician's confirmation is required annually, except when the patient is permanently disabled and income information is confirmed by official documentation, confirmation is required every two years. It is the responsibility of the District's customer to notify the District of a change of equipment or if the equipment is no longer needed.

To be eligible to receive this Rate, the customer must qualify under the eligibility criteria set forth herein and meet certification requirements thereof to the satisfaction of the District. Total gross annual income for all persons in the customer's household may not exceed the California Department of Housing and Community Development (HCD) ~~HUD~~ median family income published ~~ineffective October 1~~ of the previous year (the higher of San Joaquin or Stanislaus counties).

3. Income Certification

Customers must submit an application to the District or its designated certification agent(s) with proof of income satisfactory to the District including Internal Revenue Service Form 4506-T for all adults (18 years of age or greater) living in the residence. Eligibility will be determined based on this Rate Schedule.

Customers suspected of providing incorrect or incomplete information for this Rate may be required to re-certify at any time. Further, the District reserves the right to conduct random audits to determine a customer's eligibility. Failure by any customer asked to provide proper proof of eligibility will result in disqualification of customer's eligibility to receive this Rate. It is the responsibility of the customer to immediately notify the District when the customer is no longer eligible for this Rate.

4. Air Conditioning Controlled Load Service (S.T.E.P.)¹

Service under this Schedule is provided to customers who have District-controlled electric central refrigerative air conditioning which, in the opinion of the District, is suitable for controlled service.

4.1 Written Consent

Service under this Schedule shall be provided only upon the written consent of the customer and the owner of the air conditioning equipment (or their authorized agents). Written consent to stop service under this Provision shall be obtained from new customers and owners within thirty (30) days after such service is established at locations where control equipment is in place.

4.2 Control Period

Air conditioning cycling control will be accomplished between the hours of 8:30 a.m. and 10:30 p.m. by interruption of controlled air conditioners for a period not to average more than 10 minutes nor exceed 12 minutes each half-hour. Air conditioners will not be interrupted on Sundays except as noted in Special Provision 4.7.

4.3 Rate Discount

The following discount will commence with the first billing period reflecting June consumption, and the following three consecutive billing periods. If electric service is terminated, the current available S.T.E.P. credit will be issued on a prorated basis.

	Monthly Discount
<u>June 1 to September 30:</u>	<u>(Dollars per Controlled Load per Month)</u>
Central Air Conditioning Cycling.....	\$ 5.00

4.4 Discount Billing Period

The control discount for central air conditioning is in effect for four (4) consecutive summer billing periods beginning with the June billing period.

4.5 Suitable Equipment

Controlled loads will be limited to permanently installed electric central refrigerative air conditioning equipment served from a branch circuit(s) exclusively devoted to such loads. Air conditioning equipment must have a compatible low voltage control circuit, control energy source, and accessible control equipment mounting location as determined by the District.

4.6 Multiple Central Air Conditioning Units

Electric central refrigerative air conditioning systems equipped with multiple compressor units require the installation of District control equipment on all compressors. Multiple discounts apply to such installations.

4.7 Emergency Control

All controllable loads shall be subject to curtailment when, in the District's sole judgment, its generation and purchase capacity or energy resources, transmission capacity, or any combination of these is needed to meet the demands of its other customers and to prevent an otherwise avoidable outage. Emergency control under these circumstances may exceed the restrictions of Special Provision 4.2.

¹ S.T.E.P. service under this Schedule is re-opened for new sign-ups effective January 1, 2001, and will remain open subject to the availability of load control equipment in the District's inventory. The District may terminate acceptance of new sign-ups without further notice if it determines that its inventory of load control equipment is or will be fully utilized.

4.8 Installation, Maintenance and Removal

Control mechanisms and associated equipment will be installed, tested, and maintained at the direction of the District at locations selected by the District and at no expense to the customer. Upon termination of this Schedule with respect to any customer, all wiring will be returned to normal operating conditions at the District's expense.

5. Energy Assistance Program

A discount of 60% will be applied to the Fixed Monthly Charge and a discount of 23.1% will be applied to the first 850 kWh of Electric Usage for low income customers who meet eligibility requirements and are enrolled in the MID CARES program as outlined in Electric Service Rule No. 19.

6. Electric Service Rules

Service under this Schedule is subject to the District's Electric Service Rules as they may be amended from time to time.

Applicability

The Feed-in Tariff (FIT) is optional for customers who wish to sell the output from an eligible renewable energy resource as defined by the current version of the California Energy Commission's eligibility guidebook, with a capacity of at least 30 Kilowatts and not more than 3 Megawatts. The facility must be located within the District's electric service territory and must be interconnected to and operate in parallel with the District's transmission and distribution system. Application for the FIT is on a first-come, first-served basis until the program cap of 8 Megawatts is reached. The project owner must negotiate and sign both a Power Purchase Agreement (PPA) and a Small Generator Interconnection Agreement (SGIA) with the District in order to qualify for the FIT.

~~The District is currently meeting its renewable energy targets and is not actively pursuing additional renewable energy contracts. This tariff is offered primarily to satisfy the requirements of Public Utilities Code, section 399.32.~~

Duration of Term

The FIT shall be offered for contract duration not to exceed 10 years.

Participation in other ~~District~~ **MID** Programs

~~Projects~~Customers taking service under this schedule may not also obtain benefits from, or have previously taken benefits from, any ~~District~~ **MID** solar photovoltaic incentive program or similar programs, the District's net metering program or have a pre-existing PPA for the sale of output from the same facility.

Territory Served

The entire area within the Modesto Irrigation District electric service boundary or any other area served by Modesto Irrigation District pursuant to the laws of the State of California and the District's Electric Service Rules.

Fees

~~1.~~ **Interconnection Review Fee**

~~Applicants are required to pay a non-refundable interconnection review fee at the time of application, equal to that specified by the District's Electric Service Rule No. 21.~~

~~2-1.~~ **Application Fee**

A non-refundable application fee of \$500 will be due at the time of application.

~~2.~~ **Interconnection Study Fee**

~~The cost to conduct interconnection and facility studies will be determined upon review of a project application.~~

3. Security Deposit

A security deposit will be due at the time of application equal to \$10 ~~multiplied by times~~ the proposed project capacity in kilowatts. The security deposit will be applied to the interconnection and facility study cost and to any estimated costs for modifications to the District's distribution and transmission systems that are identified through these studies~~the interconnection review procedure specified by Rule 21.~~ Any shortfall between the security deposit amount and the estimated study and distribution system modification costs shall be collected from the applicant prior to entering into an interconnection agreement. ~~Additionally, if actual costs exceed the deposit amount, additional funds will be collected from the applicant prior to the continuation of work as required by Rule 21.~~ Any remaining deposit amount above the actual study and system modification cost shall be returned to the applicant ~~in accordance with the Rule 21 payment reconciliation procedure.~~

4. Compensation

Compensation under the FIT is determined on a time-of-delivery basis. The FIT rates (listed in the FIT Time-of-Delivery Rates table) are calculated based on estimated avoided energy costs, Greenhouse Gas (GHG) and Renewable Portfolio Standard (RPS) benefits and avoided transmission losses; the time-of-delivery variation is based on the District's observed load profile.

Special Provisions

1. Renewable & Environmental Attributes

As a condition of this tariff, the applicant shall agree to provide and deliver to the District~~MID~~ all rights and ownership to Renewable Energy Credits (RECs) or other future renewable and/or environmental credits or certificates associated with energy from the

eligible renewable energy resource throughout the contract duration, excluding greenhouse gas offset credits, as defined by the California Cap & Trade Regulation.

2- ~~Electric Service Rule No. 21~~

~~The interconnection procedure for this tariff shall be governed by the District's Electric Service Rule No. 21. The applicant must meet all the requirements specified under Rule 21 prior to receiving authorization for parallel operation.~~

3-2. Time-of-Delivery Rates

The time-of-delivery rates are listed below in \$/MWh:

	Summer (May – September)	Winter (October – April)
On Peak.....	\$63,5879.42	Onff Peak.....\$40,9053.94
Partial Peak.....	\$50,3665.00	Off Peak\$33,2042.57
Off Peak	\$41,9352.52	

4-3. Time-of-Delivery Periods

Time periods are defined as follows:

Winter: (October 1 through April 30)

On Peak: 8:00 a.m. to 11:00 p.m. Monday through Friday, excluding holidays.

Off Peak: All other hours.

Summer: (May 1 through September 30)

On Peak: 1:00 p.m. to 9:00 p.m. Monday through Friday, excluding holidays.

Partial Peak: 8:00 a.m. to 1:00 p.m. and 9:00 p.m. to 11:00 p.m. Monday through Friday, excluding holidays.

Off Peak: All other hours.

Holidays are: New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day.

5-4. Electric Service Rules

Service under this Schedule is subject to the District's Electric Service Rules as they may be amended from time to time.

Applicability

This Schedule is applicable to small, constant, non-metered incidental loads for utilities, communication agencies, state and city agencies, and applicable special districts where the customer owns and maintains the equipment. The District will have sole discretion of the ultimate applicability of this Schedule. The customer must supply equipment wattage to the District. Such loads would include:

- Cathodic Protection Stations
- Motorized Radial Gates
- Irrigation Controllers Pressure Point Automatic Watering Systems
- Flashing Beacons
- Sign Illumination
- Communication Power Booster Devices

Character of Service

Energy will be supplied at 120/240 volt single-phase service. Load must be tested by the District and verified that it does not exceed 2000 watts.

A new service application with a completed load sheet including the exact location(s) of the load device noted must be submitted to and approved by the District before any incidental electric load device is installed.

Any overload of a District circuit where incidental loads are present or the unauthorized installation of incidental load has occurred will result in incidental loads being disconnected.

Incidental electrical loads covered by this Rate Schedule where the customer is unable to meet the requirements set forth in this Schedule or fails to notify the District of incidental electric devices installed on unmetered services must install, at the customer's expense, an individually metered service in order to serve these loads under the appropriate General Service Rate Schedule.

Territory Served

The entire area within the Modesto Irrigation District electric service boundary or any other area served by Modesto Irrigation District pursuant to the laws of the State of California and the District's Electric Service Rules.

Rates

Service charge per end use connected load:

	kWh Per Day	Per Lamp Per Day
Not Exceeding 50% Load Factor (to be verified by District):		
0 - 200 Watt	0.87	\$0.58
201 - 400 Watt	2.57	\$0.84
401 - 600 Watt	4.27	\$1.10
601 - 800 Watt	5.97	\$1.37
801 - 1000 Watt	7.67	\$1.63
1001 - 1200 Watt	9.40	\$1.89
1201 - 1400 Watt	11.10	\$2.15
1401 - 1600 Watt	12.80	\$2.42
1601 - 1800 Watt	14.50	\$2.68
1801 - 2000 Watt	16.20	\$2.94
In Excess of 50% Load Factor:		
0 - 200 Watt	0.87	\$0.65
201 - 400 Watt	2.57	\$1.05
401 - 600 Watt	4.27	\$1.45
601 - 800 Watt	5.97	\$1.85
801 - 1000 Watt	7.67	\$2.25
1001 - 1200 Watt	9.40	\$2.66
1201 - 1400 Watt	11.10	\$3.06
1401 - 1600 Watt	12.80	\$3.46
1601 - 1800 Watt	14.50	\$3.86
1801 - 2000 Watt	16.20	\$4.26

Term

One year, and from year to year thereafter, until canceled at the end of any one year term by either party upon ninety (90) days prior written notice to the other.

Special Provisions

1. Relocation and Changes: District-Owned and Maintained Equipment

The District will, at a customer's request, relocate District's existing equipment, provided the customer reimburses the District for the cost of necessary labor and materials, including engineering, supervision and general expenses.

2. Termination of Service

Upon termination of service, the District shall have the right to remove all of its facilities placed, installed, erected or used in supplying services hereunder.

3. Electric Service Rules

Service under this Schedule is subject to the District's Electric Service Rules as they may be amended from time to time.

Applicability

This section of this Schedule is applicable to all night lighting on the public streets, alleys, highways and parks for cities, lighting districts or other public bodies. Public outdoor area lighting for other than all night lighting is supplied under Rate Schedule GS.

Character of Service

Alternating current at a frequency of approximately 60 Hertz, single phase, at voltages specified by the District, all night service approximately 4,150 hours per year, supplied from multiple or series circuits at the option of the District. Lamps will be supplied from an overhead source except as otherwise specified herein.

Territory Served

The entire area within the Modesto Irrigation District electric service boundary or any other area served by Modesto Irrigation District pursuant to the laws of the State of California and the District's Electric Service Rules.

Rates

A) Metered Installation

Fixed Monthly.....	\$7.09
Per kilowatt-hour.....	\$0.1263

B) District-Owned and Maintained Equipment (subject to Special Provisions 1 and 4)

	kWh Per Day	Per Lamp Per Day
Sodium Vapor		
100 Watt	1.50	\$0.74
150 Watt	2.17	\$0.83
200 Watt	2.67	\$0.89
250 Watt	3.47	\$0.99
400 Watt	5.37	\$1.23
High Intensity Discharge Lamp		
100 Watt	1.50	\$0.74
200 Watt	2.67	\$0.89

C) Customer-Owned and Maintained Equipment served from either an underground or overhead source

Effective January 1, 2015, this option C) will be closed to new or expanding lighting services. Unmetered street lighting will only be applicable to customers with a specified and verified number of street lights billed under this option C) prior to January 1, 2015. All customer-owned and maintained street lighting installed or upgraded after January 1, 2015, will be billed under option A) and will require the installation of a metered service.

Unmetered multiple installation (subject to Special Provision 6)

	kWh Per Day	Per Lamp Per Day
Incandescent		
300 Watt	3.47	\$0.44
500 Watt	5.77	\$0.73
Mercury Vapor (subject to Special Provision 4)		
175 Watt	2.30	\$0.29
250 Watt	3.30	\$0.42
400 Watt	5.20	\$0.66
1,000 Watt	12.40	\$1.57
Sodium Vapor (subject to Special Provision 4)		
100 Watt	1.50	\$0.19
150 Watt	2.17	\$0.27
200 Watt	2.67	\$0.34
250 Watt	3.47	\$0.44
400 Watt	5.37	\$0.68

Minimum Charge

The minimum charge for each billing period or portion thereof shall be the daily charge computed in accordance with the provisions given under Rates above.

Term

One year, and from year to year thereafter, until cancelled at the end of any one year term by either party upon ninety (90) days prior written notice to the other.

Special Provisions

1. Standard Facilities

Charges in Paragraph (B) under Rates are based upon the installation of street lighting fixtures of design specified by the District and mounted by means of brackets or mast arms up to eight (8) feet in length.

2. Service from Underground Facilities

When fixtures are served from the District's underground distribution facilities, the customer shall install, own, and maintain its equipment to the District's nearest distribution terminal.

3. Lamp Ratings

Ratings for various sizes of lamps in Paragraphs (B) and (C) under Rates are nominal ratings, approximate only, and do not necessarily indicate the lamp's power requirements.

4. Lamp Power Factor

High intensity discharge lamp energy charges in Paragraph (B) under Rates shall apply only to luminaries with ballasts of 90% or above power factor. Energy charges shall be increased accordingly for lower factor luminaries.

5. Lamp Servicing: District-Owned and Maintained Equipment

Upon failure of a lamp to operate as scheduled, the District will, within a reasonable period of time after notification or discovery, make the necessary repairs during normal working hours; however, no credit will be given for non-burning lamp time.

6. Metered Installations

All series systems shall be metered. Metering shall be made ahead of customer's control and transformer equipment. The District reserves the right to require any lighting installation hereunder to be metered.

7. Charge for Lamp Sizes and Types not Listed

If lamps are of sizes and types not listed in Paragraph (C) under Rates, the charge shall be based on the table below (wattage to include ballasts).

Rate Tier	Minimum Wattage	Maximum Wattage	kWh Per Day	Per Lamp Per Day	Rate Tier	Minimum Wattage	Maximum Wattage	kWh Per Day	Per Lamp Per Day
SL1 Tier 1	1	25	0.30	\$0.04	SL1 Tier 11	251	275	3.17	\$0.40
SL1 Tier 2	26	50	0.57	\$0.07	SL1 Tier 12	276	300	3.47	\$0.44
SL1 Tier 3	51	75	0.87	\$0.11	SL1 Tier 13	301	325	3.73	\$0.47
SL1 Tier 4	76	100	1.17	\$0.15	SL1 Tier 14	326	350	4.03	\$0.51
SL1 Tier 5	101	125	1.43	\$0.18	SL1 Tier 15	351	375	4.33	\$0.55
SL1 Tier 6	126	150	1.73	\$0.22	SL1 Tier 16	376	400	4.60	\$0.58
SL1 Tier 7	151	175	2.03	\$0.26	SL1 Tier 17	401	425	4.90	\$0.62
SL1 Tier 8	176	200	2.30	\$0.29	SL1 Tier 18	426	450	5.20	\$0.66
SL1 Tier 9	201	225	2.60	\$0.33	SL1 Tier 19	451	475	5.47	\$0.69
SL1 Tier 10	226	250	2.87	\$0.36	SL1 Tier 20	476	500	5.77	\$0.73

8. Relocation and Changes: District-Owned and Maintained Equipment

The District will, at a customer's request, relocate District's existing equipment, provided the customer reimburses the District for the cost of necessary labor and materials, including engineering, supervision and general expenses.

9. Termination of Service

Upon termination of service, the District shall have the right to remove all of its facilities placed, installed, erected or used in supplying service hereunder.

10. Electric Service Rules

Service under this Schedule is subject to the District's Electric Service Rules as they may be amended from time to time.

Applicability

This section of this Schedule is applicable to all night outdoor non-metered area lighting service supplied from an existing, overhead, 120-volt source, where the lighting facilities are installed, owned, and maintained by the District.

Character of Service

Alternating current at a frequency of approximately 60 Hertz, 120 volts, single phase, with luminaire and bracket as specified by District and supported on District-owned wood poles. Lamps will be controlled to operate from dusk to dawn giving approximately 4,150 hours of lighting service annually.

Territory Served

The entire area within the Modesto Irrigation District electric service boundary or any other area served by Modesto Irrigation District pursuant to the laws of the State of California and Modesto Irrigation District Resolution 95-138.

Rates

A) Lamp and Fixture on Existing Pole

	kWh Per Day	Per Lamp Per Day
<u>Sodium Vapor LED</u>		
Light output comparable to 100-Watt Sodium Vapor	0.44	\$0.58
Light output comparable to 200-Watt Sodium Vapor	1.31	\$0.73
<u>Sodium Vapor</u>¹		
100 Watt	1.50	\$0.58
200 Watt	2.67	\$0.73
<u>Mercury Vapor</u>¹		
175 Watt	2.30	\$0.68
400 Watt	5.20	\$1.05

B) Lamp and Fixture With Pole

	kWh Per Day	Per Lamp Per Day
<u>Sodium Vapor LED</u>		
Light output comparable to 100-Watt Sodium Vapor	0.44	\$0.78
Light output comparable to 200-Watt Sodium Vapor	1.31	\$0.93
<u>Sodium Vapor</u>¹		
100 Watt	1.50	\$0.78
200 Watt	2.67	\$0.93
<u>Mercury Vapor</u>¹		
175 Watt	2.30	\$0.89
400 Watt	5.20	\$1.25

C) Pole Rental Charge

	Per Pole Per Month
30' or 35' pole and secondary extension for lighting service	\$6.16

Term

A) Lamp and Fixture on Existing Pole

Twelve (12) continuous months and thereafter until cancelled on 30 days prior written notice to the District.

B) Lamp and Fixture with Pole

Thirty-six (36) continuous months and thereafter until cancelled on 30 days prior written notice to the District.

Service to lamps hereunder shall be continuous and temporary disconnection shall not be made.

¹ Mercury Vapor and Sodium Vapor installations are no longer an available option and available only for existing service.

Special Provisions

1. Poles

When suitable District-owned wood poles are available on an existing distribution circuit or on the customer's service lateral, lighting service will be supplied in accordance with rate (A), Lamp and Fixture on Existing Pole. Where the District does not have an available and suitable existing pole; subject to voltage drop, span, and equipment access limitations; a pole may be installed, owned, and maintained by the District and lighting service will be supplied in accordance with rate (B), Lamp and Fixture With Pole. Where an additional pole(s) is required to provide a secondary extension for lighting service; subject to voltage drop, span and equipment access limitations; such pole(s) may be installed, owned, and maintained by the District in accordance with rate (C), Pole Rental Charge. Should the District utilize a lighting service pole for a purpose in addition to supporting the lamp unit and supplying electrical energy thereto, the pole rental charge shall terminate and lighting service will be supplied in accordance with rate (A), Lamp and Fixture on Existing Pole.

2. Tenant Requesting Service

When requested by a tenant to provide service under this section, District may require that the property owner(s) enter into agreement with the District concerning placement of lighting facilities before service is established.

3. Lamp Servicing

Upon receipt of notice from a customer of the failure of a lamp to operate as scheduled, the District will within a reasonable period of time, make the necessary repairs during normal working hours. It shall be the customer's responsibility to make such notification.

4. Billing

Billing shall coincide with that of the customer's primary premise account, where such account exists at the same location. No credit will be given for non-burning lamp time resulting from the failure of a fixture when repaired by the District in a reasonable period of time after notification. No billing shall be apportioned among two or more customers. At the customer's option, charges may be paid in advance.

5. Relocation

The District will, at a customer's request, relocate its lighting facilities, provided that the customer reimburses the District for the cost of necessary labor and material including engineering, supervision and general expense required to complete such relocation.

6. Termination of Service

Upon termination of service, the District shall have the right to remove all of its facilities placed, installed, erected or used in supplying service hereunder.

If service is cancelled prior to the expiration of the initial 12- or 36-month period, the customer shall pay the District the calculated charges for the remaining portion of the period.

7. Mercury Vapor and Sodium Vapor Lighting

Mercury Vapor and Sodium Vapor lighting service is not available for new installations after January 1.

8. Light Emitting Diode (LED) Service

Effective January 1, 2020 all new installations of Private Outdoor Area Lighting (Dusk to Dawn) will use LED technology. The District will have sole determination as to when and if existing Sodium Vapor or Mercury Vapor lamps and fixtures will be replaced with LED technology.

~~8.9.~~ Electric Service Rules

Service under this Schedule is subject to the District's Electric Service Rules as they may be amended from time to time.

Applicability

The Net Metering option is applicable to all customers who use a Renewable Electrical Generating Facility with a capacity of not more than one megawatt that is located on the customer's owned, leased, or rented premises; is interconnected and operates in parallel with the District's electric grid and is intended primarily to offset part or all of the customer's own electrical requirements (see Rule 21); and where the District must stand ready at all times to supply the customer's residual electrical requirements.

—A Renewable Electrical Generating Facility is defined as a facility that generates electricity from a renewable source listed in paragraph (1) of Section 25741 of the California Public Resource Code, with the exception that a small hydroelectric generation facility is not eligible if it will cause an adverse impact on instream beneficial uses or cause a change in the volume or timing of streamflow.

The customer must sign the appropriate District Interconnection Agreement and Net Metering Agreement.

Metering Equipment

The customer will bear all costs of the metering required by Rule 21, including the incremental costs of operating and maintaining the metering equipment. The District will provide and install a self-contained meter for Net Generation Output Metering for NEM accounts.

Net Energy Methodology

For customers with a generating facility, electricity can flow in two directions: from District to customer (Usage) or from customer to District (Excess Generation). Usage occurs whenever the generating facility produces less energy than the customer requires and Excess Generation occurs whenever the generating facility produces more energy than the customer requires.

Under this Rate Schedule, Usage and Excess Generation are the net energy values used for billing. Both accrue from the concurrent interaction between the customer's generating facility, the customer's energy requirement, and the District's electric grid. Usage is net of the customer's generation and Excess Generation is net of the customer's energy requirement. Usage and Excess Generation are measured by the District-installed metering equipment and tracked as separate values. Net Usage, which is Usage minus Excess Generation, is not used for billing.

Excess Generation is not stored or "banked" by the District and does not reduce Usage. Excess Generation is delivered to the District's electric grid and used at other sites, so its value accrues to the customer at the District's NEM 2.0 Credit Rate (see below). The credit rate reflects the value of local, renewable energy delivered to the grid: avoided costs plus associated environmental attributes. Avoided costs include capacity charges, transmission/ancillary service charges and transmission/distribution system losses.

Consumed Generation is the energy produced by the generating facility that meets customer energy requirements in real time. Consumed Generation reduces Usage, so its value accrues to the customer at the District's retail energy rate.

Settlement Period

Every billing cycle, Usage is charged and the monetary value of Excess Generation is credited (see Monthly Charges, below). As described above, these net energy values accrue in real time.

Monthly Charges

The total amount of a customer's bill, excluding applicable local and state taxes and surcharges, will be the sum of the charges and credits from paragraphs 1 and 2 listed below.

1. Usage (Energy Delivered from MID)

Energy that is delivered from the grid, as measured by the District-installed metering equipment, shall be billed according to the customer's applicable Rate Schedule.

2. Excess Generation (Energy Delivered to MID)

Energy that is received from the customer, as measured by the District-installed metering equipment, will be converted to a monetary value based on the District's Credit Rate (listed below) and credited to the customer's account.

Total Charges

The sum of the charges and credits for both the energy delivered and generated along with any applicable adjustments, surcharges and taxes will equal the customer's monthly bill.

Credit Rate

\$0.0760 (per kWh)

Applicable to customers receiving service on the District's Residential and Small Commercial Rates.

- 1. **Customer Name:** _____
Customer Address: _____
- 2. **MID Electric Service Account Number:** _____, **MID Electric Service Rate Code:** _____
- 3. **Service Address:** _____

4. Applicability

The Net Metering Option is applicable to Customers owning and operating a wind turbine or solar electrical generation facility with a capacity of not more than 1 megawatt ("MW") at the Customer's premises which operates in parallel with the District's transmission and distribution facilities and is intended primarily to offset part or all of the Customer's own electrical requirements.

-In addition to this Agreement, the Customer is subject to meeting all additional requirements of the Net Metering 2.0 Schedule and must sign the District's "Electrical Interconnection Agreement For Net Energy Metering from Solar Electric or Wind Turbine Generating Facilities of 1 Megawatt or Less" (Interconnection Agreement).

5. Settlement Method

Billing and payments shall be made in accordance with the Net Metering 2.0 Schedule.

The Customer is responsible for all charges due under the otherwise applicable Rate Schedule, including the Fixed Monthly Charge and surcharges and taxes.

On a monthly basis, the District will credit the Customer's account for energy that is received by the District from the Customer, as measured by the District-installed metering equipment, at the Credit Rate as published in the Net Metering 2.0 Schedule. The District shall retain the Renewable Energy Credits associated with the energy received by the District from the Customer.

6. Effective Date, Modification, and Termination

This Agreement shall be in effect when signed by the Customer and the District, and shall remain in effect thereafter until the earlier of the following: (1) the Interconnection Agreement between the District and the Customer is terminated, or (2) the end of the Service Term under the [Interconnection Agreement](#)~~Net Metering 2.0 Schedule~~.

In addition to termination of the Interconnection Agreement and the end of the Service Term under the Net Metering 2.0 Schedule, this Agreement may be terminated only by mutually signed written agreement of both the Customer and the District and such termination shall be effective the last day of the Customer's billing cycle.

7. Rates and Electric Service Rules

This Agreement will at all times be subject to the District's Rates and Electric Service Rules, as amended from time to time. Any changes to the District's Rates or Rules that would act to modify this Agreement shall automatically be incorporated herein without need for a formal amendment.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized representatives.

This Agreement is effective as of the last date set forth below.

Customer

Modesto Irrigation District

Signature

Signature

Print Name

Print Name

Title

Title

Date

Date

_____ (“Customer”) and the Modesto Irrigation District (“the District”), referred to collectively as “Parties,” or individually as “Party,” agree as follows:

1. Solar Or Wind Generating Facility

- 1.1 Generating Facility Identification Number: _____
- 1.2 Photovoltaic/Solar (PV) Array Rating: _____
Wind Turbine (WT) Rating: _____
- 1.3 Customer’s Service Address: _____
- 1.4 Customer’s Billing Address: _____
- 1.5 Customer’s Phone No. at Service Address: () _____ Alternate: () _____
- 1.6 The Facility consists of either a wind turbine or photovoltaic electricity-generating modules, electrical controls, an inverter, automatic disconnect, manual disconnect and wiring to connect all of the above to the District’s electricity distribution system at the District’s meter (collectively referred to hereafter as the “Facility”)
- 1.7 The Facility will be ready for operation on or about: (mm/dd/yy) _____
- 1.8 Exact location of publicly accessible disconnection device: _____
- 1.9 District Account Number for Service Address in Section 1.3: _____

2. Operating Option

- 2.1 Customer has elected to construct, design, install, operate, and maintain the Facility in a manner consistent with the normal and safe operation of the electrical distribution system owned and operated by the District. The Facility is intended primarily to provide part or all of the Customer’s own electrical energy requirements.

By signing this Interconnection Agreement, Customer understands, accepts, and agrees that connection and operation of the Customer’s Facility shall be subject to the terms and conditions set forth in this Interconnection Agreement and in the District’s Electric Service Rules (the “Rules”), a true and correct copy of which is attached hereto and incorporated herein by this reference. Any conflict between this Interconnection Agreement and Rules will be governed by the terms of the Rules.
- 2.2 Pursuant to Electric Service Rule No. 21, based on facility type and size, an Interconnection Fee may be required.

3. Credits For Net Energy

Customer is eligible to receive credits for energy if Customer’s ~~monthly~~ energy generated by the Facility exceeds Customer’s ~~monthly~~ energy requirements, as measured by the District-installed metering equipment calculated by the “Net Metering.” Net Metering uses a non-demand, time differentiated meter or meters to measure the difference between the energy supplied by the District and the energy generated by the Facility and supplied to the District. Net metering account billing options, net energy carryover rules and restrictions, and energy costs for the account in Section 1 are controlled by (1) the District’s Net Metering Schedule in effect at the time of Customer’s signing of this Interconnection Agreement initially, and as revised thereafter, and if applicable, (2) the Net Metering Payment Agreement.

4. Interruption Or Reduction Of Deliveries

- 4.1 The District shall not be obligated to accept, and the District may require Customer to interrupt or reduce, deliveries of energy to the District: (a) when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any of the District’s equipment or part of the District’s system; or (b) if the District determines that curtailment, interruption, or reduction of receipt of energy from Customer’s Facility is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices.
- 4.2 Notwithstanding any other provision of this Agreement, if at any time the District, in its sole discretion, determines that either (a) the Facility may endanger District personnel or members of the general public, or (b) the continued operation of Customer’s Facility may impair the integrity of the District’s electric distribution system, the District shall have the right to disconnect Customer’s Facility from the District’s electric distribution system. Customer’s Facility shall remain disconnected until such time as the District is satisfied that the condition(s) referenced in (a) or (b) of this paragraph have been corrected, and the District shall not be obligated to compensate Customer for any loss of use of generation or energy during any and all periods of such disconnection.

5. Interconnection

- 5.1 Customer shall deliver energy from the Facility to the District at the District’s meter.
- 5.2 Customer, and not the District, shall be solely responsible for all legal and financial obligations arising from the construction, installation, design, operation, and maintenance of the Facility in accordance with all applicable laws and regulations.

- 5.3 Customer, at Customer's sole expense, shall obtain and possess all permits and authorizations in accordance with all applicable laws and regulations for the construction, installation, design, operation and maintenance of the Facility.
- 5.4 The District shall furnish and install one or more standard watt-hour meters to read energy generated by Customer's Facility. Customer shall provide and install a meter socket and connections in accordance with the District's metering standards. If the Customer desires more detailed metering equipment, all associated costs will be incurred by the Customer.
- 5.5 The District shall have the right to have its representatives present at the final inspection made by the governmental authority having jurisdiction to inspect and approve the installation of the Generating Facility. Customer shall notify the District in accordance with the terms of Section 13, herein, at least five (5) days prior to such inspection.
- 5.6 Customer shall not connect the Facility, or any portion of it, to the District's distribution system, until written approval of Facility has been given to Customer by the District. Such approval shall not be unreasonably withheld.
- 5.7 Customer may reconnect its Facility to the District system following normal operational outages and interruptions without notifying the District unless the District has disconnected service, or the District notifies Customer that a reasonable possibility exists that reconnection would pose a safety hazard.
- If the District has disconnected Service to the Facility, or the District has notified Customer that a reasonable possibility exists that reconnection would pose a safety hazard, Customer may call the District Control Center at (209) 526-7501, (209) 526-7502, or (209) 526-7503 to request authorization to reconnect the Facility.

6. Design Requirements

- 6.1 Customer's Facility, and all portions of it used to provide or distribute electrical power and parallel interconnection with the District's distribution equipment shall be designed, installed, constructed, operated, and maintained in compliance with this Agreement. Compliance with this section is mandatory unless prior written District approval is provided for those specific items not in compliance. Exemptions shall be in writing, signed by the District, and shall be attached to and become a part of this Agreement.
- 6.2 Customer shall conform to all applicable solar or wind electrical generating system safety and performance standards established by the District's Electric Service Rule No. 21, the National Electrical Code (NEC), the Institute of Electrical and Electronics Engineers (IEEE), and accredited testing laboratories such as Underwriters Laboratories, and where applicable, rules of the Public Utilities Commission regarding safety and reliability, and applicable building codes.

7. Maintenance And Permits

Customer shall: (a) maintain the Facility and interconnection facilities in a safe and prudent manner and in conformance with all applicable laws and regulations including, but not limited to, requirements of Section 6 above, and (b) to the extent that future requirements may require, obtain any governmental authorizations or permits required for the operation of the Facility. Customer shall reimburse the District for any and all losses, damages, claims, penalties, or liability the District incurs as a result of Customer's failure to obtain or maintain any governmental authorizations and permits required for construction and operation of the Customer's Facility.

8. Access To Premises

The District may enter Customer's premises without prior notice (a) to inspect, at all reasonable hours, Customer's protective devices and read or test any meter for the Facility and (b) to disconnect, at any time, without notice, the Facility if, in the District's sole opinion, a hazardous condition exists and that immediate action is necessary to protect persons, or the District's facilities, or property of others from damage or interference caused by (1) Customer's Facility, or (2) Customer's failure to comply with the requirements of this Agreement.

9. Indemnity And Liability By Customer

Customer shall indemnify and hold the District, its directors, officers, agents and employees harmless against all loss, damages expense and liability to third persons for injury to or death of persons or injury to property caused by the Customer's engineering design, construction, installation, ownership, maintenance or operations of the Facility in connection with this Agreement by reason of omission or negligence, whether active or passive. Customer shall, on the District's request, defend any suit asserting a claim covered by this indemnity. Customer shall pay all costs that may be incurred by the District in enforcing this indemnity.

Nothing in this Agreement shall be construed to create any duty to, any standard of care with reference to, or any liability to, any person not a Party to this Agreement. Neither the District, its officers, agents or employees shall be liable for any claims, demands, costs, losses, causes of action, or any other construction, ownership, maintenance or operation of, or making of replacements, additions or betterment to, Customer's Facility except to the extent actually caused by the sole and gross negligence of the District.

Neither the District, its officers, agents or employees shall be liable for damages of any kind to the Facility caused by any electrical disturbance of the District system or on the system of another, whether or not the electrical disturbance results from the negligence of the District.

10. Insurance

To the extent that Customer has currently in force all risk property insurance and comprehensive personal liability insurance, Customer agrees that it will maintain such insurance in force for the duration of this Agreement in no less amounts than those currently in effect. The District shall have the right to inspect or obtain a copy of the original policy or policies of insurance prior to commencing operation. Such insurance

shall, by endorsement to the policy or policies, provide for thirty (30) calendar days written notice to the District prior to cancellation, termination, alteration, or material change of such insurance.

11. Governing Law

This Agreement shall be interpreted, governed, and construed under the laws of the State of California as if executed and to be performed wholly within the State of California.

12. Amendment Modifications Or Waiver

Any amendments or modifications to this Agreement shall be in writing and agreed to by both Parties. The failure of any Party at any time or times to require performance of any provision hereof shall in no manner affect the right at a later time to enforce the same. No waiver by any Party of the breach of any term or covenant contained in this Agreement, whether by conduct or otherwise, shall be deemed to be construed as a further or continuing waiver of any such breach or a waiver of the breach of any other term or covenant unless such waiver is in writing.

13. Notices

All written notices shall be directed as follows:

The District:

Modesto Irrigation District
 Resource Planning Department
 P.O. Box 4060
 Modesto, CA 95352-4060
 ATTN: Generation Facility Accounts

Customer's notices to the District pursuant to this Section 13 must refer to the Generating Facility Identification Number set forth in Section 1.1.

Customer: Customer name and address as shown in Section 1.4.

14. Term Of Agreement

This Agreement shall be in effect when signed by the Customer and the District. This agreement shall remain in effect until terminated by either Party providing thirty (30) days prior written notice to the other Party in accordance with Section 13.

15. Successors And Assigns

This Agreement is and shall be binding on all successors and assigns of each of the Parties hereto without the necessity of any further documentation.

Customer

Modesto Irrigation District

 Signature

 Signature

 Print Name

 Print Name

 Title

 Title

 Date

 Date

Modesto Irrigation District

Electric Service Rules

July 1, 2019 ~~January 1, 2017~~



Rule No.	Description	Fee¹
2	Engineering Plan Checks	\$75.00
2	Missing or Damaged S.T.E.P. Device	\$150.00
2	Project Cancellation/Postponement Fee	
	Low Voltage Projects	\$300.00
	High Voltage Projects	\$500.00
2	Rolling Truck Fee	\$50.00
2	Totalized Meter and Reading Fee	\$30.00 per meter
3	Priority Service Initiation Fee (Field/Remote)	\$75.00/\$35.00
3	Service Establishment Fee (Field/Remote)	\$35.00/\$10.00
5 & 11	Broken or Damaged District Equipment:	
	Meter Charges (Single Phase/Three Phase)	\$160.00/\$255.00
	Special Ring	\$12.50
	Padlock	\$9.50
6	Deposit Amount:	
	Residential	\$200.00 minimum
	Commercial/Industrial	\$300.00 minimum
	Other Services	\$30.00 minimum
9	Late Payment Fee	1.5% of unpaid balance or \$5.00, whichever is greater.
9	Returned Item Fee	\$25.00 (per item)
10	Meter Re-Read Fee (Field/Remote)	\$35.00/\$10.00
2 & 11	Charges for Tampering Cases	\$145.00
11	Disconnect Fee:	
	Disconnect (Remote)	\$35.00
	Disconnect (Revenue Protection)	\$175.00
	Disconnect at Power Source	\$235.00
11	Inspection Fee (Revenue Protection)	\$175.00
11	Meter Panel Inspection Fee	\$35.00
11	Service Restoration Fee:	
	During Regular Posted Hours (Remote)	\$35.00
	Outside Regular Posted Hours	\$75.00
	Reconnect at Power Source	\$360.00
13	Temporary Service	
	Underground	\$510.00
	Overhead	\$1,038.00
15	Overhead Extensions	
	Single-Phase	\$21.50 per foot in excess of allowance
	Three-Phase	\$22.50 per foot in excess of allowance
	Conversion from Single-Phase to Three-Phase	\$3.50 per foot in excess of allowance
15	Underground Extensions	
	Residential Using Submersible Transformers	\$6,900.00 \$600.00 per transformer
	Dollar Value of Extensions Along Public Rights-of-Way	\$65.00 per foot of allowance
15	Residential Subdivision	\$1,300.00 per lot
152 & 16	Inspection Fee for Residential Subdivisions, Commercial Developments, and Meter and Service Installations	\$100.00 (per trip)
16	Rewire Fee (other fees may apply, Engineering Department to determine)	\$500.00
17	Meter Test for Customers Having an Average Monthly Bill Less than \$400	\$45.00 per test

¹ All fees listed on this schedule are subject to applicable Electric Service Rules and may be waived at the discretion of the District.

Rule No.	Description	Fee ¹
21	Interconnection Fee For 100kW to 1,000kW For less than 100kW	\$800.00 \$300.00

¹ All fees listed on this schedule are subject to applicable Electric Service Rules and may be waived at the discretion of the District.

Revisions

On September 30, 1980, the Board of Directors of the Modesto Irrigation District adopted the "Electric Service Rules." Appendices A, B and C were adopted on December 4, 1990, July 1, 2001, and January 1, 2003, respectively. Rule 19 was adopted effective January 1, 2001 and Rule 21 was adopted effective January 1, 2011. Referenced below are all superseding revisions.

Date Revised	Rule 1	Rule 2	Rule 3	Rule 5	Rule 6	Rule 7	Rule 8	Rule 9	Rule 10	Rule 11	Rule 12	Rule 13	Rule 14	Rule 15	Rule 16	Rule 17	Rule 18	Rule 19	Rule 21	App A	App B	App C
<u>07/01/2019</u>		X			X					X				X	X				X	X		
CONNECT Impl 09/01/2017								X														
01/01/2017			X		X		X		X					X	X				X	X	X	
01/01/2016		X												X	X		X	X	X	X		
01/01/2015	X	X								X				X	X				X	X	X	¹
04/01/2013		X								X				X	X			X		X	X	
01/01/2012		X			X										X			X	X	X		
01/01/2011	X	X	X		X			X		X				X				X	A	X		
02/01/2010			X	X				X		X										X		
06/01/2009																				X		
08/12/2008			X											X	X		X	X		X		
01/01/2008									X					X	X			X		X		
01/01/2007		X		X							X			X	X			X		X		X
01/10/2006					X										X			X			X	
01/01/2005					X													X		X		
CBS Impl								X														
01/01/2004		X													X		X	X		X		
01/01/2003	X	X	X	X	X	²	X	X	X	X	X	X	X	X	X	X		X		X	X	A
02/01/2002															X					X	X	
07/01/2001	X		X											X	X					X	A	
05/22/2001		X																		X		
01/01/2001			X	X	X			X	X			X						A		X		
02/29/2000		X	X	X		X		X		X				X	X	X	X			X		
10/12/1999		X																				
01/01/1999			X	X				X	X	X							X			X		
01/01/1997			X	X	X	X		X												X		
08/23/1994		X	X		X	X																
06/28/1994			X							X											X	
12/04/1990		X			X			X		X		X		X	X	X	X			A		
05/05/1986			X	X	X	X	X		X	X						X						
10/05/1982								X		X												
09/07/1982			X																			

¹ Appendix C discontinued effective January 1, 2015.

² Rule 7 terminated effective January 1, 2003.

A. General

1. All electric service described in this Rule is subject to conditions in the applicable Rate Schedule, other pertinent Rules, and the Electric Service Guides.
2. Alternating-current service will be supplied by the District at a frequency of approximately 60 Hertz (cycles per second). The District will endeavor to maintain its frequency within reasonable limits, but does not guarantee same.
3. It is the responsibility of the customer to determine the type of service available at any particular location by inquiry at the District office prior to final design or the purchase of any equipment.
4. In areas where a certain standard secondary voltage is being served, or is planned to be served, to one or more customers, applicants may be required by the District to receive that same standard voltage.
5. It is the responsibility of the customer to ascertain and comply with the applicable codes and requirements of governmental authorities having jurisdiction unless otherwise specified by the District.
6. Service to a customer is normally established at one delivery point, through one meter, and at one voltage class. Arrangements for service at multiple delivery points, or for services at more than one voltage class, are permitted only where feasible and approved by the District. Metering to a customer will be provided subject to applicable sections of Rule No. 18.
7. District property is solely for the use of the District in the conveyance and supply of electric power. Customers, or third parties, may not use District property (such as poles, underground conduit, or transformers) for any purpose, including but not limited to, supporting customer equipment (such as private lights or antennas) or supporting advertising or banners. Written approval must be obtained by any communication company requesting antenna attachments to District facilities. In addition to written approval, the attaching party must follow the District's standards and procedures. Email MIDJointPole@mid.org to request authorization to attach.
- 7-8. Customer landscaping and property improvements may not impact District property by changing the elevation in the vicinity of District property, or by limiting the ability of the District to access and work on District facilities. The District has the right to remove customer or third-party property from District facilities, and to remove any improvement that impacts access to District property or facilities. Customers may be billed for District's cost in correcting infractions to this Rule. A facility inspection(s) will be required to meet District standards. If additional trips are required because District facilities are damaged or elevation is changed in the vicinity of District property, the District will bill the customer for each additional inspection in the amount of the Inspection Fee listed in Appendix A.
- 8-9. The District reserves the right to replace subsurface transformers with the current District standard pad mounted transformers. The District will replace the transformer(s) at the sole cost of the District. The District has the right to remove any vegetation, fences, or any other type of temporary structure that would otherwise prohibit the installation and/or maintenance of the newly set transformer(s), except where prohibited by separate contract.
- 9-10. To cancel a scheduled appointment with the District's Construction Department, the customer must notify the District's Engineering Department (or supplied contact person) within 24 hours of the scheduled appointment. If the customer fails to notify the District 24 hours prior to the scheduled appointment, a Project Cancellation Fee as specified in Appendix A will apply. Please note, the use of email, phone messages, or other communications media are not acceptable forms of cancelling projects. Customers must make contact and get confirmation from the Engineering Department or supplied contact person in order to properly cancel the appointment.

B. Service Delivery Voltages

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

<u>Distribution Voltages</u>			<u>Transmission Voltages</u>
<u>Single-Phase Secondary</u>	<u>Three-Phase Secondary</u>	<u>Three-Phase Primary</u>	<u>Three-Phase</u>
120, 2-wire	240, 3-wire ¹	4,160Y/2,400, 4-wire	69,000, 3-wire
120/240, 3-wire	240/120, 4-wire	12,000, 3-wire	115,000, 3-wire
120/208, 3-wire	208Y/120, 4-wire	12,000Y/6,930, 4-wire	230,000, 3-wire
	480, 3-wire ²	17,200, 3-wire	
	480Y/277, 4-wire	20,780Y/12,000, 4-wire	

2. All voltages referred to in this Rule and appearing in some Rate Schedules are nominal service voltages at the service delivery point. The District's facilities are designed and operated to provide sustained service voltage at the service delivery point, but the

¹ Not available for new or rebuilt installations.

² Limited availability.

voltage at a particular service delivery point, at a particular time, will vary within a fully satisfactory range of 5% of the nominal values shown. The voltage balance between phases will be maintained as close as practicable to 2½% maximum deviation from the average voltage between three phases.

3. Voltages may be outside the limits specified when the variations:
 - a. Arise from the temporary action of the elements.
 - b. Are infrequent momentary fluctuations of a short duration.
 - c. Arise from service interruptions.
 - d. Arise from temporary separations of parts of the system from the main system.
 - e. Are from causes beyond the control of the District.
4. Where the operation of the customer's equipment requires unusually stable voltage regulation or other stringent voltage control beyond that supplied by the District in the normal operation of its system, the customer, at the customer's 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 customer.
5. Responsibility for designing and operating the system between the service delivery point and the utilization equipment to maintain proper utilization voltage at the line terminals of the utilization equipment shall be borne by the customer.

C. 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 one time, computed to the nearest horsepower, kilowatt or kilovolt-ampere. Motors will be counted at their nameplate rating in horsepower and all other devices at nameplate rating in kilowatts or kilovolt-amperes. Unless otherwise stated in the Rate Schedule, conversions between horsepower, kilowatt and/or kilovolt ampere rating will be made on a one to one basis. The District reserves the right to rate any device by actual test.
2. Motor-generator sets shall be rated at the nameplate rating of the alternating-current drive motor of the set.
3. Where a customer requires new service or modification to existing service to supply x-ray equipment, welding equipment or other equipment which presents large demands of short duration to the District's system, such loads shall be served through a separate meter and transformer. The billing demand for such loads will be based on the sum of the nameplate kVA rating of the equipment or on the nameplate kVA of the District's transformer, whichever is smaller.

D. General Load Limitations

1. Single-Phase Service
 - a. Single-phase service will normally be 120/240 volts (or three-wire 120/208 volts at certain locations as now or hereafter established by the District) where any single motor does not exceed 7½ horsepower. For any single-phase service, the maximum demand as determined by the District is limited to the capacity of a 100 kVA transformer. If a load requires a transformer installation in excess of 100 kVA, the service normally will be three-phase.
 - b. In locations where the District maintains a 120/208 volt secondary system, three-wire single-phase service will be limited to that which can be supplied by a main switch or service entrance rating of 200 amperes. Single-phase loads in these locations in excess of that which can be supplied by a 200 ampere main switch or service entrance rating will normally be supplied with a 208Y/120 volt, three-phase, 4-wire service.
2. Three-Phase Service 480 Volts or Less
 - a. Secondary service normally available from overhead primary distribution systems:

Nominal Voltage	Minimum Load Requirements	Maximum Demand Load Permitted
208Y/120	30 kVA, 3-phase demand	75 kVA
240	5 HP, 3-phase connected	75 kVA
240/120	5 HP, 3-phase connected	75 kVA
480	30 HP, 3-phase demand	112.5 kVA

- b. Secondary service from underground primary distribution systems or from underground taps of overhead primary distribution systems (where the District maintains existing three-phase primary circuits):

Nominal Voltage	Minimum Load Requirements	Maximum Demand Load Permitted
208Y/120	Demand load justifies a 75 kVA transformer	1,000 kVA
480Y/277	Demand load justifies a 75 kVA transformer	2,500 kVA

- c. Where three-phase service is supplied, the District reserves the right to use single-phase transformers connected wye, open-delta, or closed delta, or use three-phase transformers.
- d. Three-phase service will be supplied on request for installations aggregating less than the minimums listed above, but not less than 3 HP, three-phase, where existing transformer capacity is available. If three-phase service is not readily available, or for service to loads less than 3 HP, three-phase service will be provided only if the customer pays to the District its estimated difference between single-phase and three-phase construction costs at that location.
- e. 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 3,000 ampere service rating. Metering for larger installations, or installations having two or more service switches with a combined rating in excess of 3,000 amperes, or service in excess of the maximum demand load permitted, may be installed provided approval of the District has been first obtained as to the number, size and location of switches, circuits, transformers and related facilities. New service supplied to two such approved installations meeting the District's standard design requirements and in excess of the capacity of a single 2,500 kVA transformer (or of a single primary service as described in paragraph 3.c below) may be totalized for billing purposes. In every case, the cost for providing special facilities needed for meter totalization will be borne by the requesting party (see paragraph f below for other conditions relating to totalization of existing services).
- f. Totalization of existing services: Meters which have been in active service for three years may be totalized as one account for billing purposes, provided all meters are at one premise and within an integral parcel of land, or adjacent parcels of land, or served by a single transformer. Meters which are on separate parcels of land, such as those separated by public roads or railroads (other than local railroad spur line easements) are not eligible for totalization. Meters on separate parcels of land that are interconnected by existing customer-owned, private utility facilities such that the separated parcels are made part of an integrated complex that were totalized prior to the adoption of this Rule may continue to be totalized. Once meters are totalized, any subsequent meter installations that meet the criteria above may be totalized when service is energized. If new meters and/or communication facilities are required for totalization, the customer shall pay for the material and installation cost of the totalizing meters, and installation and monthly costs of communications to the totalized meters. Commencing on January 1, 2011, any new meter to be totalized must have a peak demand of 250 kW or greater. Installation will be subject to availability of the totalizing meters. Prior to totalization of meters, the District may impose additional requirements to ensure efficient use of District installed infrastructure, including transformers.

The customer's bill will reflect the appropriate Schedule's rates plus the total number of totalized meters, less one, times the Totalized Meter and Reading Fee in Appendix A. Demand charges will be based on coincident peak demand.

3. Three-Phase Service Above 480 Volts

- a. Three-phase demand loads less than 2,500 kVA will normally be served at a secondary distribution voltage.
- b. Three-phase demand loads in excess of 2,500 kVA, but less than 5,000 kVA may, with District approval, be supplied by means of a primary service at the primary distribution voltage available at the location.
- c. Three-phase demand loads in excess of 5,000 kVA will normally be served by means of a primary service at the distribution or transmission voltage available at the location.
- d. See paragraph 2.f above for conditions relating to totalization of existing services.

4. Load Balance

The customer shall balance the load as nearly as practicable between the two sides of a three-wire service and between all three phases of a three-phase service. The difference in amperes at the customer's peak load shall not be greater than 10% or 50 amperes, whichever is greater; except that the difference between the load on the lighting phase of a four-wire delta service and load on its power phase may be more than these limits. It shall be the responsibility of the customer to keep the load balanced within these limits.

E. Interference with Service

1. General

The District reserves the right to refuse to serve new loads or to continue to supply existing loads of a size or character that may be detrimental to the District'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, furnaces, compressors or other equipment where the use of electricity is

intermittent, causes intolerable voltage fluctuations or service interference, must reasonably limit such interference or restrict the use of such equipment upon request by the District.

2. Harmful Wave Form

Customers shall not operate equipment that superimposes a current of any frequency or wave form upon the District's system, or draws current from the District's system of a harmful wave form, which causes interference with the District's operations, or the service to other customers, or inductive interference to communication facilities. Please reference IEEE 519-~~2014~~⁹⁹² for specified limits.

3. Customer Responsibility

Any customer causing service interference to others must take corrective action within the specified time limit approved by the District. If the customer does not take timely corrective action within the specified time period, the District may, after written notice to customer, either install and activate control devices at the customer's expense on the District's facilities that will temporarily prevent the detrimental operation, or discontinue electric service until a suitable permanent solution, provided by the customer, 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 or interfere with the operation of the District's distribution or transmission system, or to the service of any of the District's customers.
- b. Motor starting current is defined as the steady state current taken from the supply line with the motor rotor or rotors locked, with all other power consuming components, including a current reducing starter, if used, connected in the starting position, and with rated voltage and frequency applied.
- c. Motor starting current limitations are as follows:

1) Single-phase

- a) Automatically controlled, single-phase motorized equipment (except as provided in paragraph b) below) shall be equipped with motors having starting currents not in excess of the following:

- (1) 50 amperes at 120 volts
- (2) 80 amperes at 208 volts
- (3) 100 amperes at 240 volts

- b) Manually controlled, single-phase motorized equipment shall be equipped with motors having starting currents not in excess of the following:

- (1) 100 amperes at 120 volts
- (2) 160 amperes at 208 volts
- (3) 200 amperes at 240 volts

Unitary air-conditioners and heat pumps, because of their long operating cycles and infrequent starts, will be governed by this section even if they are automatically controlled.

2) Three-phase

- a) Automatically controlled three-phase motors shall comply with all applicable NEMA standards and shall have maximum starting currents not in excess of the following:

- (1) 830 amperes at 208 volts
- (2) 722 amperes at 240 volts
- (3) 361 amperes at 480 volts

The values listed permit, in general, the installation of a single 50 HP NEMA standard motor without starting current reducing equipment.

- b) Manually controlled three-phase motors shall comply with all applicable NEMA standards and shall have starting currents not in excess of the following:

- (1) 1,660 amperes at 208 volts
- (2) 1,444 amperes at 240 volts
- (3) 722 amperes at 480 volts

The values listed permit, in general, the installation of a single 100 HP NEMA standard motor without starting current reducing equipment.

- d. The starting current values in paragraph c above apply only to the installation of a single motor. Starting current reducing equipment 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. The customer shall contact the District regarding motors with voltage ratings in excess of 480 volts.
- f. Three-phase motors to be used where large loads or special conditions exist may, with specific permission of the District, have starting currents in excess of the values shown.
- g. It is the responsibility of the customer to insure that the customer's electrical system is capable of handling the starting currents permitted without excessive voltage drop.
- h. Notwithstanding the foregoing, the District may limit the maximum size and the type of any motor that may be operated at any specific location on its system to that which, in the opinion of the District, will not be detrimental to the District operation or to the service of its customers.

5. S.T.E.P. Device

Any customer with a S.T.E.P. device found disconnected, bypassed, or disabled in any way shall forfeit any discounts for the year.

Any customer with a S.T.E.P. device found missing or damaged shall forfeit any discounts for the year and shall be subject to the fee listed in Appendix A of these Rules.

6. Meters

Any customer that interferes with the ability of the District to remotely read the meter will be charged a Rolling Truck Fee as depicted in Appendix A.

Repeat offenders will have their service disconnected after the second instance and be charged a Rolling Truck Fee and a tampering fee, in addition to a Restoration of Service Fee (per Rule No. 11) as depicted in Appendix A, prior to service reactivation.

F. Protective Devices

1. It shall be the customer's responsibility to furnish, install, inspect and keep in good and safe condition at the customer's own risk and expense, all appropriate protective devices of any kind or character, which may be required to properly protect the customer's facilities. The District shall not be responsible for any loss or damage occasioned or caused by the negligence, or wrongful act of the customer or of any of the customer's agents, employees or licensees in omitting, installing, maintaining, using, operating or interfering with any such protective devices.
2. It shall be the customer's responsibility to select and install such protective devices as may be necessary to coordinate properly with the District's protective devices to avoid exposing other customers to unnecessary service interruptions.
3. It shall be the customer's responsibility to equip the customer's three-phase motor installations with appropriate devices, or use motors with inherent features to completely disconnect such motors from their power supply, 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.
4. The available short-circuit current varies from one location to another, and also depends on the ultimate design characteristics of the District's supply and service facilities. Consult the District for the ultimate maximum short-circuit current at each service termination point.
5. Any non-District owned emergency standby generation equipment that can be operated to supply power to facilities that are also designed to be supplied from the District's system shall be controlled with suitable protective devices by the customer to prevent parallel operation with the District's system in a fail-safe manner, such as the use of a double-throw switch to disconnect all conductors, except where the District has given permission to parallel through a written agreement or contract.
6. For primary customers, see District document, "Protection Requirements for Electric Service Interconnection at Primary Distribution Voltages and Transmission Voltages." Contact the District Electrical Engineering Department.

G. Power Factor Correction

In the case of neon, fluorescent, luminous, gaseous or mercury vapor lighting equipment, electric welders and other devices having low power factors, the customer may be required by the District to provide, at the customer's expense, the necessary power factor corrective equipment to increase the power factor of such devices to not less than 90%.

H. Relocation of District Facilities

1. Relocations Requested by Non-Governmental Agencies

The District will relocate District-owned electric facilities upon customer request, provided that the relocation is technically feasible, that easements or rights-of-way can be acquired for the relocated facilities, and that the relocated facilities are acceptable to neighboring customers. The customer is responsible for all costs associated with the relocation.

2. Relocations Requested by Governmental Agencies

The District will relocate District-owned electric facilities upon request of a governmental agency, provided that the relocation is technically feasible, that easements or rights-of-way can be acquired for the relocated facilities, and that the relocated facilities are acceptable to neighboring customers.

Governmental agencies requesting pole relocations due to the safety of the travelling public will be done at the District's cost provided the requesting agency adheres to the following steps. Otherwise, the requesting agency will be responsible for all costs associated with the relocation.

- a. Pole relocation projects that request District funding assistance shall have included in its request an independent Traffic Engineer assessment regarding whether the project is needed for the safety of the travelling public.
- b. Requesting agency must include utility or pole relocation costs in its initial request for grant funding (such evidence to be provided to the District upon request) prior to requesting District funding for pole relocation projects.
- c. Requesting agency shall provide the District with an opportunity to review and comment on any pole relocation project plans (with the District to provide timely comments) prior to seeking grant funding or prior to a project plan's submission to the agency's Council or Board for approval. A collaborative approach should reduce project costs and avoid redesign delays by both the agency and the District.

I. Non-Residential Customer Requested Scheduled Outages

The District will disconnect service(s), per customer request, under the following conditions:

1. The customer shall provide a written request with the necessary information (scheduled date, time, site address, purpose of the outage, etc.) to the Electrical Engineering Department with a minimum of seven to ten (7-10) business days' notice.
2. The customer shall be required to submit a signed District service letter. Note: The District service letter will be provided by the Electrical Engineering Department.
3. The customer shall pay to the District, prior to scheduling construction, the estimated cost of the District's work. The estimated cost provided by the District will include labor, material, transportation, and administration fee.
4. After completion of the project, the District will audit the work order. After completion of the work order audit, the customer will be billed or refunded the difference between the actual costs and the estimated costs.
5. Additional cost will be incurred if the customer requests a District crew to stand by for the duration of the outage.
6. Per Rule No. 16, Section D, if the major parts of this electric service(s) are replaced during the outage, the District will require an electrical inspection signed by the local governing authority prior to re-energizing the service(s).

J. Special Facilities

Where the customer requests the District to install special facilities and the District agrees to make such an installation, the additional cost thereof including the present value of continuing ownership costs, if any, shall be borne by the customer.

K. Engineering Services

Customers are responsible for the cost of Engineering Services they request. After the first plan check, all subsequent plan reviews are subject to an Engineering Plan Check Fee as per Appendix A. Other services are estimated with a true-up of charges at the conclusion of the work.

A. Account Deposits - All Classes of Service

Deposits will be required for any residential and non-residential class of electric service if any of the following occur:

1. The account becomes impaired as set forth in Rule No. 11, Section A.
2. The account is deemed impaired by the existence of past due notices and other factors including, but not limited to, unsatisfactory payment history, previous or existing unpaid electric bills due the District, etc.
3. A new customer cannot provide evidence of a satisfactory payment history for comparable utility services over the past twelve (12) months. The applicant must have received no more than two (2) past due notices, no returned items, no non-payment disconnects, nor had an unpaid balance of sixty (60) days more than two (2) times during the most recent twelve (12) month period.

B. Amount of Deposit

1. Residential Services

The amount of a residential deposit shall be two times the customer's estimated highest monthly bill, but shall not be less than the amount designated in Appendix A.

2. Commercial/Industrial Service

The amount of a commercial or industrial deposit shall be three times that customer's estimated highest monthly bill, but shall not be less than the amount designated in Appendix A.

3. Other Services

The amount of deposit for other services shall be three times the customer's highest estimated monthly bill, but shall not be less than the amount designated in Appendix A.

C. Types of Acceptable Security Deposits

1. Cash, check, cashier's check, money order, credit card, debit card
2. A Time Certificate in the District's name
3. Surety Bond payable to the District
4. Other means acceptable to the District.

D. Deposit Refund

1. Upon discontinuance of service, the customer's cash deposit will be applied to the final bill. Any deposit balance in excess of the unpaid bills for service will be refunded by the District. Non-cash deposits will be released after payment of final bill.
2. Any deposit amount refunded under this Service Rule will be credited to the customer's account except as noted in Section D.1 above.
3. Deposits are reviewed and processed periodically for the purpose of refunding or adjusting deposit amounts.
4. If for ~~twelvethirty-six~~ **(1236)** months following termination of service, the District cannot, with reasonable diligence, locate the depositor, and the depositor fails to call for the deposit, the deposit will become the property of the District.
5. Residential Services
 - a. After a residential customer has paid bills for residential service for twelve (12) consecutive months without disconnection of service pursuant to Rule No. 11, Discontinuance & Restoration of Service, and without having had more than two (2) past due bills or any returned items, the District will release the deposit.
 - b. If the customer has had service disconnected pursuant to Rule No. 11, Discontinuance & Restoration of Service, or has had more than two (2) past due bills, the District will thereafter review the account and will release the deposit when the customer's payment history has been established to the satisfaction of the District.
6. Commercial/Industrial Service
 - a. For Commercial/Industrial service the District will release the deposit upon discontinuation of service. Any deposit balance in excess of the unpaid bills for service will be refunded by the District. Non-cash deposits will be released after payment of the final bill.
7. Other Services
 - a. After the customer has paid bills for twenty-four (24) consecutive months without disconnection of service pursuant to Rule No. 11, Discontinuance & Restoration of Service, or without having had more than two (2) past due bills or any returned items during the last twenty-four (24) consecutive months, the District will release the deposit.

- b. If the customer has had service disconnected pursuant to Rule No. 11, Discontinuance & Restoration of Service, or has had more than two (2) past due bills, the District will thereafter review the account and will release the deposit when the customer's payment history has been established to the satisfaction of the District.

E. Commercial/Industrial Service

Interest will be credited to the customer's account on an annual basis for an active cash deposit. Interest accrued will be based on the interest rate in effect at the beginning of each calendar year that the deposit is active. The interest rate will be adjusted on an annual basis reflecting the interest rate for the California Local Agency Investment Fund (LAIF) as published by the California State Treasurer.

A. Discontinuance of Service

Electric customers of the District may request discontinuance of service or move from one location to another within the District's service area. The District may discontinue or refuse to establish or restore electric service, after proper notification, and the Disconnect Fee designated in Appendix A will be assessed for any one or more of the reasons contained in this Rule.

1. Nonpayment of Bills

The District may discontinue electric service if the bill for such service has not been paid by the designated due date, which will be no less than 19 days from the billing date, and remains unpaid by the scheduled disconnect date.

2. Failure to Maintain Account

The District may discontinue or refuse service or refuse to reestablish service to a customer who has not made a deposit or otherwise established or maintained the customer's account in accordance with Rule No. 3 and Rule No. 6.

3. Returned Items

The District may discontinue or refuse service or refuse to reestablish service to a customer whose item or items are returned unpaid by a financial institution. If the returned item is not redeemed within the time designated in the notification, service will be disconnected or requests for service will be denied.

4. Access

The District may discontinue or refuse service or refuse to reestablish service to a customer who does not provide permanent accessibility to the District's equipment for the purposes related to the furnishing of electric service, including, but not limited to meter reading, testing, inspection, construction, maintenance and repair of facilities.

5. Unsafe or Illegal Apparatus

The District may discontinue or refuse service or refuse to reestablish service if any part of a customer's wiring or equipment or use thereof is either unsafe or in violation of law, until such apparatus shall have been placed in a safe condition or the violation remedied and all related charges and fees for meter tampering, power theft/energy diversion, and broken or damaged District equipment have been paid. If, in the District's judgment, the operation of a customer's equipment constitutes a dangerous condition, the District may discontinue service to that customer without prior notice.

a. Tampering means removal of the District's meter or meter seals without District consent, as well as any and all energy diversion.

b. Energy diversion means the unauthorized use of energy due to, but not limited to, unauthorized connection/reconnection, theft, fraud, and/or intentional/unintentional use of energy.

6. Service Detrimental to Other Customers

The District may discontinue or refuse service or refuse to reestablish service if, in the District's judgment, the operation of customer's equipment is, or will be, detrimental to the service of other customers.

7. Fraud

The District may discontinue service without prior notice or may refuse service or refuse to reestablish service if the customer's actions or the condition of the customer's premises are such as to indicate intent to defraud the District.

8. Noncompliance

The District may discontinue or refuse service or refuse to reestablish service if the customer does not comply with the Rules of the District.

9. Consumption With No Customer of Record

The District may discontinue or refuse service for failure to apply for electric service in accordance with Rule No. 3, Application for Services, when consumption is recorded during monthly meter readings at a location.

10. Resale of Electricity

Customers who re-sell the electricity that the District supplies or are receiving service in conflict with Rule No. 18 and who fail to bring themselves into conformity within a reasonable time after receiving written notice from the District will be subject to discontinuance of service.

B. Disconnection of Service for Multi-unit Accounts

1. If accounts designated as master metered residential accounts (i.e., those with one meter serving more than one customer) are subject to disconnection of services as described in Section A above:

a. Occupants shall be informed of the pending disconnect by means of a written notice posted in each accessible common area and each point of access to the facility 15 days prior to the scheduled disconnection date.

- b. Occupants shall have the right to become utility customers if each resident or designated representative agrees to the conditions of service described by these Service Rules and establishes credit worthiness as described in Rule No. 3 and Rule No. 6. Proof of residence and prompt payment of rent would be sufficient to establish a satisfactory pay history under Rule No. 6.

C. Restoration of Service

1. The District will assess and collect a Service Restoration Fee in an amount set forth in the schedule of fees in Appendix A before restoring electric service that has been discontinued.
- ~~2. A customer may request restoration of service connections outside regular hours, as defined in Rule No. 3, and will be assessed for service connections according to the schedule of fees in Appendix A.~~
- ~~3.2.~~ A Meter Panel Inspection Fee, as specified in Appendix A, will be assessed for a second meter panel inspection request due to unsafe conditions. Each subsequent visit will also incur this fee. There is no fee for the first visit.

D. Discontinuance of Service at Customer's Request

When a customer desires to terminate responsibility for service, the customer shall so notify the District not less than ~~threeone (31)~~ working days in advance, or such period in advance as may be specified in the customer's contract for service, and state the date on which the customer wishes the termination of such responsibility for service to become effective. A customer ~~maywill~~ be held responsible for all service furnished at the customer's premises until the date of termination specified in the notice, or a date two (2) days beyond the date of such notice, or a greater number of days after such notice as may be specified in such contract, whichever date is later.

E. Service Reactivation

Before service can be restored after disconnection of services for non-payment, the customer is required to pay in full or make payment arrangements acceptable to the District for the delinquent amount, fees assessed and deposit amount defined in Rule No. 6.

F. Discontinuance of Service Due to Power Diversion

Power diversion occurs when non-District apparatus has been installed on service conductors or in a meter panel to allow electricity to flow around the meter.

The District will remove the meter and the service conductors from the premises if power diversion is detected.

G. Service Reactivation Due to Power Diversion

1. In order to reestablish service, the customer and/or property owner shall, at its sole expense:
 - a. Replace the flush-mount service panel with a surface-mount installation. Customer must install 1-1/2" struts, mounted horizontally between the panel and the wall, to provide an unobstructed view of the back of the panel.
 - b. Install new service per current Service Rules and current electric codes.
 - c. Permit unrestricted, permanent access to the service panel. This may require relocation of the service panel at the customer's expense.
 - d. Reimburse the District the cost of restoring any services from damage which caused a public health and safety concern.
 - e. Pay all power diversion fees to include (but not limited to): consumption losses, labor, equipment, materials, and fees per Appendix A of these Rules.
2. Underground services require the following:
 - a. Conduit riser into the panel must be relocated outside the building.
 - b. Conduit riser into the panel must be galvanized rigid.
 - c. Conduit must be reinstalled between the new panel and the District point of connection (transformer or pull box). Customer may utilize existing conduit system upon approval from the District's Electric Engineering Department.
 - d. Conduit size is to be determined by engineering requirements letter.
 - e. Customer must have all work inspected by District personnel and a local inspecting authority.
 - f. Customer will receive "Power Diversion Requirements" letter from the District.
3. Overhead services require the following:
 - a. Inspection must be made by District engineering personnel to determine the location of the new panel.
 - b. Customer must have all work inspected by District personnel and a local inspecting authority.

- c. Customer will receive "Power Diversion Requirements" letter from the District.
4. The District will install new service conductors and a new meter once all above requirements have been met. Charges will be calculated and added to the fees per Section G.1.e of this Rule.

A. Individual Applications & Advance Notice

Individual applicants shall provide sufficient advance notice in order that service can be rendered by the time such service is required. The required advance notice will vary in consideration of the scope of the project, availability of equipment and material, and the District's workload at the time of the application.

B. ~~Extensions, or Line Upgrades, or Electrical Infrastructure Installations of Questionable Permanency or in Remote Areas, or with Customer Generation~~

1. Line extensions to provide temporary service ~~or to serve installations which, in the opinion of the District, are of a speculative nature or of questionable permanency,~~ shall be served under Rule No. 13.
2. Any line ~~reconductor or extension,~~ upgrade, or electrical infrastructure installation ("new facility") required to provide service to new load ~~that is not in the vicinity of existing infrastructure,~~ determined by the District to be inadequately sized to serve the total anticipated additional load, will be made by the District provided that the applicant pays to the District, as applicable, in advance of construction, a non-refundable sum in the amount of half of the total ~~estimated~~actual costs related to the new ~~line~~ facility. In the event there are multiple applicants for such new ~~line~~ facility, a pro-rata share of the applicant payment shall be paid by each applicant.
3. The District provides free footage allowances for new line extensions where projected revenue will likely offset any discounts or allowances provided. New line extensions where all or part of the customer load may be supplemented with customer owned or leased generation resources at the time of connection will not be granted free footage allowances. Customers who interconnect customer owned or leased generation during the first three (3) years after a new line extension is performed will be subject to repayment of all of the District's cost of line extension provided.

C. Joint Electric Distribution Service Area

1. Costs for engineering estimates in the Joint Electric Distribution Service Area will be collected in advance. The amount collected will be based upon the amount of time the engineering technician estimates it will take to do the engineering estimate. Should the customer decide to proceed with the project with the District, this fee shall be refunded to the customer subsequent to energization of the project. Should the project not proceed within twelve (12) months of the estimate, the customer will forfeit the fees collected by the District.
2. New municipal departing load will be responsible for paying the District the amount to cover any new municipal departing load charges imposed by PG&E on the District. These charges will be initially paid through a District Board-approved fund, on a first-come, first-served basis, until the fund has been exhausted, at which time the charges will be paid by the developer. These amounts will be charged as part of the facilities extension fee.

D. Extensions Subject to Rights-of-Way or Easement

District line extensions will be constructed only along public roads and highways and upon private property across which satisfactory rights-of-way may be obtained without cost to or condemnation by the District.

E. Basis for Extension of District Facilities

1. Extensions of electric distribution lines will normally be made at standard voltages as specified in Rule No. 2 to supply electric service to applicants of a permanent character.
2. The length of an extension shall be considered as the distance along the shortest practical route, as determined by the District, between the District's nearest permanent and available distribution facility and either the transformer location or, in the case of a primary service, the location of the primary cable terminal pole or the primary metering pole.
3. For applicants that require a line extension in both a public right-of-way extension and an extension on private property, the applicable allowance for the respective extensions shall be evaluated separately. These allowances cannot be used to offset each other. In no case will the actual allowance granted for any type of extension exceed its respective maximum.
4. For applicants that are discontinuing electric service from another utility in conjunction with receiving electric service from the District, line extensions under this Rule and service connections under Rule No. 16 will be made by the District subject to the following:
 - a. The applicant pays to the District, in advance of construction, a non-refundable sum in the amount equal to the estimated cost of the District installed facilities, not including transformers or meters, as reduced by the dollar value of any applicable free allowance(s).
 - b. The dollar value of the free allowance for line extensions shall be based on the applicable fee listed in Appendix A of these Rules.
 - c. The applicant installs any facilities as required for new installations as per the applicable sections of these Rules and the District's Standard Agreements.

5. Subject to the approval of its Board of Directors, the District may extend or construct electric distribution facilities for system reliability, competitive positioning, or other strategic reason.

F. Underground Extensions

1. General

- a. Underground extensions of electric distribution lines will be installed by the District in areas where required to comply with applicable laws and ordinances or similar requirements of governmental authorities having jurisdiction. The applicant must install and convey to the District the trench, conduits and substructures and any needed rights-of-way for all of the District's infrastructure proposed for the applicant's property.
- b. In areas where underground lines are optional, the District may continue to construct and use overhead distribution facilities subject to the following:
 - 1) Where overhead distribution facilities already exist and are expected to remain indefinitely.
 - 2) In areas where growth and development indicate the area will remain unchanged for many years.
 - 3) In certain areas, lines may be constructed along major rights-of-way to supply bulk power to the areas beyond the area they traverse.
- c. In areas where underground lines are optional, and when requested by an applicant and agreed upon by the District, underground distribution line extensions may be installed by the District provided that the applicant installs and conveys to the District the trench, conduit, and substructures and any needed rights-of-way for all the District's infrastructure proposed for the applicant's property or pays to the District, in advance of construction, a non-refundable sum in the amount equal to the District's estimated cost of those facilities.
- d. For underground extensions on private property where the applicant provides the trench, conduit, and substructures and any needed rights-of-way, a free primary installation length of 150 feet will be allowed. If the length of the required extension exceeds 150 conduit feet, the applicant shall compensate the District for its estimated cost of the primary installation in excess of 150 feet.
- e. The District will determine the location of the permanent service connection.

2. Along Public Rights-of-Way

a. Underground Extensions to Serve Residential Loads

Underground electric line extensions along public rights-of-way to serve applicants with Residential loads will be made by the District subject to the following:

- 1) A free extension length of up to 15 feet per lot will be allowed.
- 2) Extensions greater than 15 feet per lot will be made by the District provided that the applicant pays to the District, in advance of construction, a non-refundable sum in the amount equal to the District's estimated cost of the underground extension in excess of 15 feet per lot.
- 3) In no case shall the applicant's cost be less than zero.

b. Underground Extensions to Serve Commercial or Industrial Loads

Underground electric line extensions along public rights-of-way to serve applicants with Commercial or Industrial loads will be made by the District subject to the following:

- 1) A free extension length of up to 3 feet per kilowatt rating of connected load will be allowed. The rating of such load shall be made by the District based on the applicant's load sheet.
- 2) Extensions greater than 3 feet per kilowatt will be made by the District provided that the applicant pays to the District, in advance of construction, a non-refundable sum in the amount equal to the District's estimated cost of the underground extension in excess of 3 feet per kilowatt.
- 3) In no case shall the applicant's cost be less than zero.

c. Underground Extensions to Serve Agricultural Loads

Underground electric line extensions along public rights-of-way to serve applicants with Agricultural loads will be made by the District subject to the following:

- 1) A free extension length of up to 1.5 feet per horsepower rating of connected load, as defined in Rate Schedule P-3, will be allowed.
- 2) Extensions greater than 1.5 feet per horsepower will be made by the District provided that the applicant pays to the District, in advance of construction, a non-refundable sum in the amount equal to the District's estimated cost of the underground extension in excess of 1.5 feet per horsepower.
- 3) In no case shall the applicant's cost be less than zero.

3. Private Rights-of-Way

a. Residential

Underground electric line extensions to serve applicants with Residential loads within recorded subdivisions or on individual lots will be made by the District subject to the following:

- 1) Recorded subdivisions such as master planned subdivisions, apartment complexes, condominiums, townhouse complexes, and mobile home parks are deemed to be residential developments.
- 2) Within recorded subdivisions, the District will extend all permanent distribution lines underground and connect only to underground services under the following sections and under Rule No. 16. Such extensions within a recorded subdivision will be made by the District provided that the applicant pays, to the District in advance of construction, a non-refundable sum in the amount designated in Appendix A of these Rules.
- 3) Underground services to individual lots will normally be installed by the District at no cost to the applicant provided that such services are installed under the applicable provisions of Rule No. 16.
- 4) If the applicant desires the use of a submersible transformer, a non-refundable sum (indicated in Appendix A of these Rules), in addition to the amount listed in paragraph 2) above, must be paid to the District in advance of construction.

b. Commercial, Industrial or Agricultural Developments

Underground electric line extensions to serve applicants with Commercial, Industrial or Agricultural loads within recorded subdivisions or on individual private property will be made by the District subject to the following:

- 1) Within recorded subdivisions, the District will extend all permanent distribution lines underground and connect only to underground services under the following sections and under Rule No. 16. Such extensions within a recorded subdivision will be made by the District at no cost to the applicant provided that the applicant installs facilities as per the District's Standard Agreement.
- 2) Underground extensions to individual lots within recorded subdivisions and to individual applicants will be per District Standard Agreements. In general, the applicant must provide and convey to the District the trench, conduit, and substructures and any needed rights-of-way for all of the District's underground electric facilities proposed for the applicant's property.
- 3) Underground services will be supplied under the applicable provisions of Rule No. 16.

G. Overhead Extensions

1. General

- a. In areas where underground lines are optional, the District may continue to construct and use overhead distribution facilities subject to the conditions of Section F.1.b of this Rule.
- b. The District will determine if an underground service connection must be provided in areas with existing overhead lines.
- c. The District will determine the location of the permanent service connection.

2. Along Public Rights-of-Way

a. Overhead Extensions to Serve Residential Loads

Overhead electric line extensions along public rights-of-way to serve applicants with Residential loads will be made by the District subject to the following:

- 1) A free extension length of up to 90 feet per lot will be allowed.
- 2) Extensions greater than 90 feet per lot will be made by the District provided that the applicant pays to the District, in advance of construction, a non-refundable sum in the amount designated in Appendix A of these Rules per foot of three-phase or single-phase extensions in excess of 90 feet per lot.
- 3) Where it becomes necessary to convert an existing District overhead line from single-phase to three-phase in order to furnish three-phase service to an applicant, the applicant shall pay to the District, in advance of construction, a non-refundable sum in the amount designated in Appendix A of these Rules per foot of line converted in excess of 90 feet per lot.
- 4) In no case shall the applicant be entitled to a credit or refund.

b. Overhead Extensions to Serve Commercial or Industrial Loads

Overhead electric line extensions along public rights-of-way to serve applicants with Commercial or Industrial loads will be made by the District subject to the following:

- 1) A free extension length of up to 18 feet per kilowatt rating of connected load will be allowed. The rating of such load shall be made by the District based on the applicant's load sheet.

- 2) Extensions greater than 18 feet per kilowatt will be made by the District provided that the applicant pays to the District, in advance of construction, a non-refundable sum in the amount designated in Appendix A of these Rules per foot of three-phase or single-phase extensions in excess of 18 feet per kilowatt.
- 3) Where it becomes necessary to convert an existing District overhead line from single-phase to three-phase in order to furnish three-phase service to an applicant, the applicant shall pay to the District, in advance of construction, a non-refundable sum in the amount designated in Appendix A of these Rules per foot of line converted in excess of 18 feet per kilowatt.
- 4) In no case shall the applicant be entitled to a credit or refund.

c. Overhead Extensions to Serve Agricultural Loads

Overhead electric line extensions along public rights-of-way to serve applicants with Agricultural loads will be made by the District subject to the following:

- 1) A free extension length of up to 9 feet per horsepower rating of connected load, as defined in Rate Schedule P-3, will be allowed.
- 2) Extensions greater than 9 feet per horsepower will be made by the District provided that the applicant pays to the District, in advance of construction, a non-refundable sum in the amount designated in Appendix A of these Rules per foot of three-phase or single-phase extensions in excess of 9 feet per horsepower.
- 3) Where it becomes necessary to convert an existing District overhead line from single-phase to three-phase in order to furnish three-phase service to an applicant, the applicant shall pay to the District a non-refundable sum in the amount designated in Appendix A of these Rules per foot of line converted in excess of 9 feet per horsepower.
- 4) In no case shall the applicant be entitled to a credit or refund.

3. Private Rights-of-Way

Overhead electric line extensions on private property to serve applicants with Residential, Commercial, Industrial or Agricultural loads will be made by the District subject to the following:

- 1) A single free extension length of 150 feet will be allowed for one or more service locations on a parcel.
- 2) Extensions greater than 150 feet will be made by the District provided that the applicant pays to the District, in advance of construction, a non-refundable sum in the amount designated in Appendix A of these Rules per foot of three-phase or single-phase extensions in excess of 150 feet.
- 3) Where it becomes necessary to convert an existing District overhead line from single-phase to three-phase in order to furnish three-phase service to an applicant, the applicant shall pay to the District, in advance of construction, a non-refundable sum in the amount designated in Appendix A of these Rules per foot of line converted in excess of 150 feet.
- 4) In no case shall the applicant be entitled to a credit or refund.

A. Service in Areas Supplied by Underground Facilities

In areas supplied by the District's underground facilities located in the public right-of-way or immediately adjacent to the customer's premises, the District will, at its expense, extend an underground service connection to facilities provided by the customer, at a point designated by the District, subject to the following:

1. Residential Installations; Secondary Service

a. Residential Subdivisions Where Service is Extended Under Rule No. 15, Section F.2 or F.3.a.

The customer will furnish and install and the District will own and maintain underground conduits and service conductors to the customer's service equipment panel provided the customer meets the provisions of the prevailing District standard titled "Minimum Requirements for Terminating Residential Underground Electric Services" located in the District's Electric Service Guides.

b. Individual Residential Premises and Apartments and Mobile Home Parks Where the Customers are Primarily Subject to the District's Rate Schedule D

1) The District will own and maintain service conductors to the customer's service equipment panel provided the customer supplies and installs all necessary conduits, substructures and service conductors to District specifications to a point designated by the District, and has made satisfactory arrangements for extension of District facilities under Rule No. 15.

2) The District may, at its option, require that certain multi-unit complexes be served by means of one or more pad-mounted transformers. In these circumstances the primary system and transformer(s) will be installed under paragraph 2.b below and the secondary services will be supplied under paragraph 1) above.

2. Service to Commercial, Industrial and Agricultural Installations

a. Installations with Demand Less than or Equal to 75 kVA

Installations which, in the opinion of the District, will have a demand less than or equal to 75 kVA will be supplied by the District provided the customer installs and maintains all necessary conduits and conductors along with pull boxes or splice boxes required by the District to a point designated by the District. Normally, the point designated will be at the customer's property line at a location most convenient to the District's facilities.

b. Installations with Demand Greater than 75 kVA

1) Installations which, in the opinion of the District, will have a demand in excess of 75 kVA will be supplied by the District provided that the customer provides a site for either a totally enclosed, pad-mounted transformer or outdoor transformer station enclosure, or provides an indoor transformer room or vault. Site selection and related improvements shall be according to specifications prescribed by the District.

2) The customer will also be required, in general, to do the following at the customer's expense:

a) Construct the concrete pad and grounding system for the transformer(s).

b) Construct the enclosure, if required.

c) Supply, install and maintain the necessary conduits and pull boxes between points designated by the District.

d) Supply, install and maintain the secondary cable or busway system. The actual connection at the transformer secondary terminals will, in all cases, be made by the District.

3) If the length of the required service exceeds 150 conduit feet, the customer shall pay to the District, in advance of installation, a non-refundable sum equal to its estimated cost of the primary installation in excess of 150 feet, per Rule 15, Section E.2.

4) Where special conditions exist, the District, at its option, may elect to serve installations with demands in excess of 75 kVA directly at secondary voltages without the installation of a transformer on the customer's premises.

c. Primary Cable Service

Whenever, in the opinion of the District, adequate service requires and it is practical to do so, the District will install a primary cable service on the customer's premises subject to the following:

1) The customer shall install, own and maintain a conduit system to District specifications between a point designated by the District and the customer's service equipment. Normally, the point designated will be at the customer's property line at locations most convenient to the District.

2) If the length of the required service exceeds 150 conduit feet, the customer shall pay to the District, in advance of construction, a non-refundable sum equal to its estimated cost of the primary installation in excess of 150 feet, per Rule 15, Section E.2.

B. Service in Areas Supplied by Overhead Facilities

In areas supplied by the District's overhead facilities located in the public right-of-way or immediately adjacent to the customer's premises, the District, at its option, may elect to grant underground service under Section A of this Rule or, at its expense, to extend overhead service to the customer's service equipment at a point designated by the District, subject to the following:

1. Residential Installations; Secondary Service

Overhead Service will be provided to Individual Residential Premises, Apartments and Mobile Home Parks where the District's Rate Schedule D is primarily applicable, subject to the following:

- a. The District will install, own and maintain an overhead service, at its expense, provided the customer's service equipment meets the District's specifications.
- b. If the length of the service in paragraph a above exceeds 200 feet as measured along the shortest practical route from the customer's property line or the District's transformer pole, if located on the customer's property, to the customer's service equipment, the customer shall pay to the District, in advance of construction, a non-refundable sum equal to the District's estimated cost of such overage.

2. Commercial, Industrial, and Agricultural Installations

a. Installations with Demand Less than or Equal to 75 kVA

For installations which, in the opinion of the District, will have a demand of less than or equal to 75 kVA, the District will, at its expense, install, own and maintain an overhead service provided:

- 1) That the customer's service equipment meets the specifications of the District.
- 2) If the length of the service in paragraph 1) above exceeds 100 feet as measured along the shortest practical route from the customer's property line or the District's transformer pole, if located on the customer's property, to the customer's service equipment, the customer shall pay to the District, in advance of construction, a non-refundable sum equal to the District's estimated cost of such overage.

b. Installations with Demand Greater than 75 kVA

- 1) Installations which, in the opinion of the District, will have a demand in excess of 75 kVA will normally be supplied under the provisions of Section A.2.b above.

c. Primary Overhead Service

Whenever, in the opinion of the District, adequate service requires and it is practical to do so, the District will install a primary overhead service on the customer's premises, subject to the following:

- 1) The location and design of terminal and metering facilities shall be as per District specifications.
- 2) If the length of the required service exceeds 150 feet, the customer shall pay to the District, in advance of construction, a non-refundable sum equal to its estimated cost of the overage.
- 3) For Agricultural installations that are not primary metered, the following conditions shall apply:
 - a) If the length of the required service exceeds the allowance as defined in Rule 15, Section G.3, the customer shall compensate the District under the provisions of Rule 15, Section G.3 for the excess.
 - b) The secondary service will be supplied under the provisions of paragraph B.2.a or B.2.b above, whichever is applicable.

3. Commercial and Industrial in the Downtown Improvement District

The City of Modesto has designated a portion of the Downtown Modesto area as the "Business Improvement District" or "Downtown Improvement District." Within this area, the District requires all new, modified, or upgraded commercial electrical service equipment normally served from overhead lines to be converted to connect to underground lines. Secondary service voltage within this area will be 208Y/120 volt or 480 volt, three-phase four wire or 208Y/120 volt single-phase three wire.

- a. The customer will be required to supply and install all secondary conduits, pull boxes, and secondary service conductor from the customer's electrical main to the customer's property line at a location approved by the District.
- b. Electrical loads in excess of 75 kW demand will normally be served from a high voltage pad-mount transformer. With this installation, the customer will be required to supply and install the transformer pad, primary conduit, secondary conduit and secondary conductor. The customer may be required to provide easements to the District to provide access to the District's equipment once it is installed.
- c. Residential secondary overhead services within this area are exempt from this Rule. Residential customers may upgrade or modify their electric service equipment and maintain the existing overhead 120/240-volt single-phase three wire service.

C. Temporary Services

Temporary services, including services to installations of a speculative nature or of questionable permanency, shall be provided under Rule No. 13.

D. Electrical Service Inspections

1. No new or newly rewired electrical service installation will be energized by the District without a signed electrical inspection tag from the appropriate governing electrical inspection authority.
2. If, in the case of installations owned or regulated by certain public agencies, the appropriate governing inspection authority declines jurisdiction, the District will require an inspection tag signed by a California State Registered Engineer or by a person authorized by the public agency owning or regulating the installation.
3. The District will make a maximum of two (2) trips to installations requiring a new underground service. The purpose of the first trip will be to inspect the service trench and conduit. The purpose of the second trip will be to ensure that the proper inspection tags are in place and to install the meter. If additional trips are required because customer installed facilities are not ready for inspection, or do not pass inspection, the District will bill the customer for each additional inspection in the amount of the Inspection Fee listed in Appendix A.
4. The District will make a maximum of one (1) trip to installations requiring a new overhead service. The purpose of the trip will be to make sure that the proper inspection tags are in place, and to install the service conductor and meter. If additional trips are required because customer installed facilities are not properly installed, not ready for inspection, or do not pass inspection, the District will bill the customer for each additional inspection in the amount of the Inspection Fee listed in Appendix A.
5. If the inspection by the local governing authority is more than six (6) months old, the District will require a re-inspection prior to energizing the service.

E. Service Connections

1. The District will not connect to any one building or premise, more than one service for each voltage classification, either overhead or underground, except:
 - a. For the District's operating convenience.
 - b. Where such additional services may be warranted because of load requirements. See Rule No. 18 D.2.c.
 - c. Where the customer is required by law to have certain emergency services.
2. Connection of service to, or disconnection from, the District's lines shall be made only by authorized employees of the District.

F. Ownership of Facilities

1. All facilities installed on a customer's premises, including, but not limited to poles, conductors, transformers, meters, etc., which are furnished by the District in order to render service, shall remain the sole property of the District.
2. The customer shall not charge the District rent or any other charge for the facilities placed on the customer's premises.

G. Right of Access

1. The District shall have the right of access to the customer's premises, without payment of any charge therefore, at all reasonable hours for any purpose related to the furnishing of electric service, including, but not limited to meter reading, testing, inspection, construction, maintenance and repair of facilities.
2. Service may be refused or disconnected pursuant to Rule No. 11 if permanent accessibility is not provided by the customer.
3. Upon termination of service, the District shall have right of access to the customer's premises to remove its facilities installed thereon.

H. Service Metering Installations

1. General Metering Requirements

The District's metering requirements are, in general, those of the Electric Utility Service Equipment Requirements Committee (E.U.S.E.R.C.). Contact the District for specific details.

2. Location

- a. All meters and metering equipment will be supplied and installed by the District upon the customer's premises at a location approved by the District.
- b. All meters shall be accessible to authorized employees of the District at all times for inspection, testing and reading. Normally, meters for single occupancy buildings shall be located on the ground floor and meters for multiple occupancy

buildings shall be grouped at one location and located at the ground floor. Grouped meter locations for high rise buildings, as defined in the Uniform Building Code, may be permitted on one or more floors upon approval by the District.

- c. The District may require a customer to relocate a metering installation, at the customer's expense, if an existing meter location becomes inaccessible.

3. Sealing

The customer shall furnish a suitable means for the District to place its seal on the main switch and on the meter and any other enclosure which contains un-metered service conductors.

I. Customer Responsibility for Facilities

1. The customer shall exercise reasonable care to prevent facilities of the District installed on the customer's premises from being damaged or destroyed and shall refrain from tampering or interfering with such facilities, and if any defect therein is discovered by the customer, the customer shall promptly notify the District thereof.
2. The customer shall, at the customer's sole risk and expense, furnish, install, inspect, and keep in good and safe condition all electrical facilities required for receiving electric energy from the lines of the District, regardless of the location of the transformers, meters, or other equipment of the District, and for utilizing such energy, including all necessary protective devices and suitable housing therefore, and the customer shall be solely responsible for the transmission and delivery of all electric energy over or through the customer's wires and equipment, and the District shall not be responsible for any loss or damage occasioned thereby.

J. Rewires

1. This Rule applies to the replacement of meter panels that are damaged or unsafe due to age, power diversion, vandalism, or other reasons, and to panels that are being upgraded for any reason.
2. This Rule applies to all residential, commercial, or agricultural meter panels and to all customers who are replacing a non-metered service with a metered service.
3. Customers will be required to pay a Rewire Fee according to Appendix A of these Rules.
4. All panels which require replacement shall adhere to the most current Electric Service Guides' requirements for panel, service conductors and conduit. District may authorize exceptions for direct replacement (same ampacity) of meter panel; however, no exception for power diversion.

A. Background

This Rule is consistent with the technical aspects of the California Public Utility Commission (CPUC) and California Energy Commission's (CEC) Rule 21 Interconnection Rules while supporting District Rates and Rules.

B. Applicability

This Rule describes the interconnection, operating and metering requirements for Generating Facilities to be connected to the District's Distribution System. Subject to the requirements of this Rule, the District will allow the interconnection of Generating Facilities with its Distribution System.

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

C. Definitions

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

Active Anti-Islanding Scheme: 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 standard form submitted to the District for interconnection of a Generating Facility.

Board: The publicly elected Board of Directors of the Modesto Irrigation District.

Certification Test: A test pursuant to California Public Utility Commission (CPUC) and California Energy Commission's (CEC) Rule 21 that verifies conformance of certain equipment with approved performance standards in order to be classified as certified equipment. Certification tests are performed by a Nationally Recognized Testing Laboratory (NRTL).

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 or person that receives or is entitled to receive Distribution Service through the Distribution System under the District's Rate Schedules and Rules.

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 Rates and Rules of the District 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 the District, other than Interconnection Facilities, by which the District provides Distribution Service to its customers.

Electric Utility Service Equipment Requirements Committee (EUSERC): Designation that metering equipment meets the requirements of the member utilities developed to promote safe and uniform electric service equipment requirements.

Emergency: An actual or imminent condition or situation which jeopardizes the District's Distribution System integrity.

Field Testing: Testing performed in the field to determine whether equipment meets the District'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. A Generating Facility comprises one or more Generators.

Gross Nameplate Rating; Gross Rating; Gross Capacity or 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.

In-rush Current: The maximum, instantaneous input current drawn by an electrical device when first turned on as determined by the In-rush Current test.

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

Interconnection Agreement: An agreement between the District and the Producer providing for the interconnection of a Generating Facility that gives certain rights and obligations to effect or end interconnection. Interconnection Agreements are required for all Generating Facilities.

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 Facilities may be owned by either Producer or the District.

Interconnection Request: An applicant's request to interconnect a new Generating Facility, or to increase the capacity of, or change the operating characteristics of, an existing Generating Facility that is interconnected with the District's Distribution System.

Interconnection Study: A study to establish the requirements for interconnection of a Generating Facility with the District's Distribution System following receipt of an application. The study will determine the following: (a) the Generating Facility qualifies for interconnection with the District system with no modifications; or (b) if the Generating Facility requires system modifications to the District System to be able to interconnect.

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

Line Section: That portion of the District'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 the District's Distribution System consistent with reliability and safety under the circumstances being evaluated.

Mandatory Operation: The Smart Inverter operates at maximum available current without tripping during District's Distribution System excursions outside the region of continuous operation. Any functions that protect the Smart Inverter from damage may operate as needed.

Metering: The measurement of electrical power flow in kilowatts (kW) and/or energy in kilowatt-hours (kWh), and, if necessary, reactive power in kVAR at a point, and its display to the District, as required by this Rule.

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

Momentary Cessation: The Smart Inverter momentarily reduces current output to the District's Distribution System to below 10% of the maximum continuous output current rating. The Smart Inverter is allowed to increase current output to the District's Distribution System without any intentional reconnection delay once voltage exits the Momentary Cessation region and Permissive Operation region or Continuous Operation region.

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 eCertification tTesting requirements under this Rule.

Net Energy Metering: Metering for the receipt and delivery of electricity between the Producer and the District pursuant to the District's Net Energy Metering Rate Schedule.

Net Generation Output Metering: Metering of the net electrical power of energy 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.

Net Rating; 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 Secondary System; Networked Secondary: An AC distribution system where the secondary~~ies~~ of the distribution transformers are connected to a common bus for supplying electricity directly to consumers. There are two types of secondary networks: Grid Networks (also referred to as area networks or street networks) and Spot Networks. Synonym: Secondary Network. Refer to IEEE 1547.6 for additional detail.

Nominal: Standard frequency and voltage.

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

Non-Islanding: Designed to detect and disconnect from 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.

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.

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

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 reestablish instrument or protective function set-points.

Point of Common Coupling (PCC): The transfer point for electricity between the electrical conductors of the District 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 Output 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 the Distribution System. This may or may not be coincident with the point of common coupling, but is typically a dedicated breaker in the load side compartment of customer's main panel.

Producer: The applicant, customer, or person/entity that executes an Interconnection Agreement with the District. 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 and this Rule.

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 modified 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.

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

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.

Smart Inverter: A Generating Facility's inverter that performs functions that, ~~when activated,~~ can autonomously contribute to grid support during excursions from normal operating voltage and frequency system conditions by providing: dynamic reactive/real power support, voltage and frequency ride-through, ramp rate controls, communication systems with ability to accept external commands and other functions.

Spot Networks: A Spot Network is a type of distribution system found within modern commercial buildings to provide high reliability or service to a single customer.

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).

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

Telemetry: The electrical or electronic transmittal of metering data in real-time to the District.

Transfer Trip: A protective function that trips a Generating Facility remotely by means of an automated communications link controlled by the District.

Trip: The act of a Generating Facility to cease to energize or disconnect from the District's Distribution System automatically due to a District Distribution System disturbance. Following a trip, the Smart Inverter must delay re-energization or reconnection for a preset period of time once the voltage and frequency of the District's Distribution System are within normal ranges.

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 the District's Distribution System, without the approval of the District.

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.

Utility Service Meter: The meter located in a customer's main electrical panel. This meter is capable of separately recording power flow into, and power flow out of, a customer's facility or premise.

Visible Disconnect: An electrical switching device that can separate the Generating Facility from the District's Distribution System and is designed to allow visible verification that separation has been accomplished. This requirement can be met by opening the enclosure to observe the contact separation.

VRefOfs: The offset from the reference voltage due to the location of the Smart Inverter system on a distribution feeder. This may be a setting or may be calculated dynamically from local voltage measurements.

D. General Rules, Rights, and Obligations

1. A Producer must comply with this Rule, execute an Interconnection Agreement with the District, and receive the District's express written permission before parallel operation of its Generating Facility with the District's Distribution System.
2. A Producer requiring other electric services from the District including, but not limited to, Distribution Service provided by the District during periods of curtailment or interruption of the Producer's Generating Facility, will enter into agreements with the District for such services in accordance with the District's Rates and Rules.
3. A Producer shall ascertain and comply with applicable District Rates and Rules; applicable rules of the Public Utilities Commission (PUC); applicable rules, tariffs and regulations of the Federal Energy Regulatory Commission (FERC); 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.
4. The District shall have the right to review the design of a Producer's Generating and Interconnection Facilities and to inspect a Producer's Generating and/or Interconnection Facilities prior to the commencement of parallel operation with the District's Distribution System. The Producer is responsible for all local building permits and final inspections with local governing agencies before the District performs its final inspection. The District may require a Producer to make modifications as necessary to comply with the requirements of this Rule. The District may require proof that the Producer's protection system is performing to the level required in this Rule and the Interconnection Agreement. The District'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. The District shall not, by reason of such review or lack of review, be responsible for the strength, adequacy or capacity of such equipment.
5. A Producer's Generating Facility and Interconnection Facilities shall be reasonably accessible to District personnel as necessary for the District to perform its duties and exercise its rights, in accordance with any Interconnection Agreement between the District and the Producer. Per District's Electric Service Rules, District-owned meters shall be readily accessible and capable of being reached quickly and conveniently 24 hours a day in case of an emergency.
6. The District shall treat Interconnection information provided to the District by an applicant, Producer, and/or customer in a confidential manner, unless disclosure is otherwise required by applicable law, or as deemed necessary by the District. Notwithstanding the foregoing, the District may be entitled to disclose Generator information to a person, entity, and/or other regulatory bodies with authority or concern over the construction, operation, or development of the Generating Facility.
7. 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.
8. The District may limit the operation, disconnect, or require the disconnection of a Producer's Generating Facility from the District's Distribution System at any time, with or without notice, in the event of an emergency, or to correct unsafe operating conditions. The District may also limit the operation, disconnect, or require the disconnection of a Producer's Generating Facility from the District's Distribution System upon the provision of reasonable written notice: (1) to allow for routine maintenance, repairs or modifications to the District's Distribution System; (2) upon the District'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, the District shall provide a written explanation of the reason for such curtailment or disconnection. The District shall not be obligated to compensate Producer for any loss of use of generation of electricity during any and all periods of such disconnection.

9. A Producer may transfer its Interconnection rights to another person or entity in the Interconnection Agreement or Application as long as the new Interconnection Agreement or Application is submitted and approved by the District. The point of interconnection shall not change.

E. Application and Interconnection Process

1. Application Process

- a. Applicant Initiates Contact with the District. Upon request, the District will provide information and documents to a potential applicant. Unless otherwise agreed upon, all such information shall normally be sent to the applicant within five (5) business days following the initial request from the applicant.
- b. Applicant Completes an Application which is on file at the District (~~Small-Generator Facility Interconnection Application, Net Energy Metering 2.0 Request or a PV Program Reservation Request Form~~). Applicant shall complete and file the application and supply any relevant additional information requested by the District. A non-refundable Interconnection Fee (as specified in Appendix A) shall be included with the application.
- 1) Normally, within ten (10) business days of receiving the application, the District shall acknowledge its receipt and state whether the application has been completed adequately. If defects are noted, the applicant shall, in a timely manner, correct the deficiencies needed to establish a satisfactory application. The District reserves the right to reject any application that it considers deficient.
- 2) Applications that are over one year old (from the date of the District'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 the District; however, the District will not cancel an application if the Producer provides reasonable evidence that the project is still active.
- c. The District Performs the Interconnection Review and Develops Preliminary Cost Estimates and Interconnection Requirements.
- 1) Upon receipt of a satisfactorily completed application, fees, and any additional information necessary to evaluate the interconnection of a Generating Facility, the District shall perform the Interconnection Review. This Review will determine if: (a) the Generating Facility can be connected to the District's Distribution System with no modifications; (b) the Generating Facility requires system modifications to the District's Distribution System to accommodate the applicant's Generating Facility; or (c) the Generating Facility cannot be connected to the District's Distribution System.
- 2) The District shall complete the Interconnection Review, absent any extraordinary circumstances, within 45 business days after its determination that the application is complete. If the Review determines the proposed Generating Facility can be interconnected with no modifications to the District's Distribution System, the District will provide the applicant with an Interconnection Agreement for the applicant's signature. If the Review determines the proposed Generating Facility will require improvements to the District's Distribution System, the District will provide a cost estimate for these improvements in order to accommodate the applicant's Generating Facility.
- 3) The Interconnection Review will result in the District providing the interconnection requirements for the interconnection, an Interconnection Agreement for the applicant's signature, and a cost estimate for the system modifications to the District's Distribution System to accommodate the applicant's Generating Facility, if system modifications to the District's Distribution System are required.

2. Interconnection Process

- a. Applicant and the District enter into an Interconnection Agreement and, where required, an agreement for Distribution System modifications. The District shall provide the applicant with an executable version for signature of the Electrical Interconnection Agreement on file at the District (Small Generator Interconnection Agreement or Electrical Interconnection Agreement for Net Energy Metering). Where the Interconnection Review performed by the District has determined that modifications to its Distribution System are required, the applicant shall submit to the District the estimated costs for the required work prior to entering into the Interconnection Agreement.
- b. After executing the applicable agreements, the District will commence engineering, construction, and installation of the District'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. Where applicable, the District installs required Interconnection Facilities and/or modifies the District's Distribution System.
- c. Producer arranges 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 L.3 to ensure compliance with the safety and reliability provisions of this Rule prior to being operated in parallel with the District's Distribution System.
- d. The District Authorizes Parallel Operation or Momentary Parallel Operation. The District shall authorize the Producer's Generating Facility for parallel operation or momentary parallel operation with the District's Distribution System, in writing, within five (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 the District. A Producer

shall not commence parallel operation of its Generating Facility with the District's System unless it has received the District's express written permission to do so.

- e. Interconnection Agreement. Any operation of a generator interconnected to the District's electrical system, other than for brief on-site testing by the electrical contractor, where the District has not provided formal authorization for operation will be deemed an electrical safety violation and will be subject to immediate disconnection from the District's system (as per Rule No. 11) at the service point of the electrical service to which the generation is interconnected. All applicable fees listed in Appendix A shall apply, including the Disconnect Fee.

~~F. — Generating Facility Design and Operating Requirements~~

~~1. — General Interconnection and Protective Function Requirements~~

~~a. — Protective Functions Required. — Generating Facilities operating in parallel with the District's Distribution System shall be equipped with the following protective functions to sense abnormal conditions on the District's Distribution System and cause the Generating Facility to be automatically disconnected from the District's Distribution System or to prevent the Generating Facility from being connected to the District'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 the District's Distribution System unless the District'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 District's System within two (2) seconds of the formation of an Unintended Island. — The Generating Facility shall cease to energize the District's Distribution System for faults on the District's Distribution System circuit to which it is connected (IEEE 1547-4.2.1). — The Generating Facility shall cease to energize the District's Distribution System circuit prior to reclosure by the District's Distribution System equipment (IEEE 1547-4.2.2).~~

~~b. — Momentary Paralleling Generating Facilities. — With the District's approval, the transfer switch or scheme used to transfer the Producer's loads from the District's Distribution System to Producer's Generating Facility may be used in lieu of the protective functions required for parallel operation. — Momentary Paralleling to the District's System shall be one second (60 cycles) or less.~~

~~c. — Purpose of Protective Functions. — The protective functions and requirements of this Rule are designed to protect the District'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 the District's Distribution System in a manner that would affect the District's capability of providing reliable service to its customers.~~

~~d. — Suitable Equipment Required. — Circuit breakers or other interrupting devices located at the point of common coupling (PCC) 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 one device shall not potentially compromise the safety and reliability of the District's Distribution System. — The Generating Facility paralleling device shall be capable of withstanding 220% of the Interconnection Facility rated voltage (IEEE 1547-4.1.8.3). — 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 and shall comply with IEEE 1547-5.1.3.2.~~

~~e. — Visible Disconnect Required. — When required by the District's operating practices, the Producer shall furnish and install a ganged, manually-operated isolating switch (or a comparable device mutually agreed upon by the District and the Producer) near the point of interconnection to isolate the Generating Facility from the District's Distribution System. — The device does not have to be rated for load-break nor provide overcurrent 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 District personnel for construction, maintenance, testing, reading, or to isolate the Generating Facility from the District's Distribution System, 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 District prior to installation. — If the device is not adjacent to the PCC, permanent signage must be installed at a District-approved location providing a clear description of the location of the device.~~

- ~~f. Drawings Required. Prior to parallel operation or momentary parallel operation of the Generating Facility, the District shall approve the Producer's protective function, control diagrams, and location of Producer's disconnect switch and utility meter. Generating Facilities equipped with a protective function and control scheme previously approved by the District for system-wide application may satisfy this requirement by reference to previously approved drawings and diagrams.~~
- ~~g. Generating Facility Conditions Not Identified. In the event this Rule does not address the interconnection conditions for a particular Generating Facility, the District and Producer may agree upon other arrangements.~~
- ~~h. Generating Facility Modification. Customer may not make modifications to the Generating Facility, including but not limited to addition of storage devices, upgraded panels or other equipment that increase the installed capacity of the Generating Facility system, or that otherwise materially modify the Generating Facility, without the prior written authorization of the District. To secure prior written authorization, customer must sign a new Net Metering Agreement with the District and secure advance written approval of Generating Facility modifications from the District prior to interconnection of any modified Generating Facility to the District's system. The modified Generating Facility will be subject to the Net Metering Schedule in effect at the time the application for modification of Generating Facility is approved subject to the following: A customer may modify a Generating Facility and remain on its existing Rate Schedule provided that the modified Generating Facility does not exceed 110% capacity of the original interconnected Generating Facility.~~

~~2. Prevention of Interference~~

~~The Producer shall not operate Generating or Interconnection Facilities that superimpose a voltage or current upon the District's Distribution System that interferes with District operations, service to the District's 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 the District. If the Producer does not take corrective action in a timely manner, or continues to operate the Facilities causing interference without restriction or limit, the District may, without liability, disconnect the Producer's Facilities from the District's Distribution System, in accordance with Section D.8 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 PCC while in parallel with the District'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 (IEEE 1547 4.1.1).~~
- ~~b. Operating Voltage Range. The voltage ranges in Table 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 the District's Distribution System within the prescribed trip time whenever the voltage at the PCC 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 the District'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 PCC or the point of interconnection. However, the voltage range at the PCC, with the generator on line, shall stay within $\pm 5\%$ of nominal.~~
 - ~~2) Generating Facilities (greater than 30 kVA). The District 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 PCC or the point of interconnection, with settings compensated to account for the voltage at the PCC. However, the voltage range at the PCC, with the generator on line shall stay within $\pm 5\%$ of nominal.~~
 - ~~3) Voltage Disturbances. Whenever the District's Distribution System voltage at the PCC varies from and remains outside normal (nominally 120 volts) by the predetermined amounts set forth in Table 1, the Generating Facility's protective functions shall cause the Generator(s) to become isolated from the District's Distribution System.~~~~

Table 1: Voltage Trip Settings for Generating Facilities

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

⁽¹⁾ The ranges above are used to trip the generator during abnormal system conditions.

⁽²⁾ Maximum Trip Time refers to the time between the onset of the abnormal condition and the Generating Facility ceasing to energize the District's Distribution System. Protective function sensing equipment and circuits may remain connected to the District'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 1 may be negotiated with the District.

- e. ~~Paralleling. The Generating Facility shall parallel with the District's Distribution System without causing a voltage fluctuation at the PCC greater than ±5% of the prevailing voltage level of the District's Distribution System at the PCC, and meet the flicker requirements of F.2.d. Section M provides technology specific tests for evaluating the paralleling Function (IEEE 1547-4.1.3).~~
- d. ~~Flicker. The Generating Facility shall not create objectionable flicker for other customers on the District's Distribution System. To minimize the adverse voltage effects experienced by other customers (IEEE 1547-4.3.2), flicker at the PCC caused by the Generating Facility should not exceed the limits defined by the Figure 10.3 "Maximum Permissible Voltage Fluctuations" identified in IEEE 519-1992 (IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems). This requirement is necessary to minimize the adverse voltage effects experienced by other customers on the District's Distribution System. Induction Generators may be connected and brought up to synchronous speed (as an induction motor) provided these flicker limits are not exceeded.~~
- e. ~~Integration with the District's Distribution System Grounding. The grounding scheme of the Generating Facility interconnection shall not cause overvoltages that exceed the rating of the equipment connected to the District and shall not disrupt the coordination of the ground fault protection on the District's Distribution System (IEEE 1547-4.1.2).~~
- f. ~~Frequency. The District's controls system frequency and the Generating Facility shall operate in synchronism with the District's Distribution System. Whenever the District's Distribution System frequency at the PCC varies from and remains outside normal (nominally 60 Hz) by the predetermined amounts set forth in Table 2, the Generating Facility's protective functions shall cease to energize the District's Distribution System within the stated maximum trip time.~~

Table 2: Frequency Trip Settings

Generating Facility Rating	Frequency Range (Assuming 60-Hz Nominal)	Maximum Trip Time ⁽¹⁾ (Assuming 60 Cycles per Second)
Less than or equal to 30 kW	Less than 59.3 Hz	10 cycles
	Greater than 60.5 Hz	10 Cycles
Greater than 30 kW	Less than 57 Hz	10 Cycles
	Less than an adjustable value between 59.8 Hz 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 the District's Distribution System. Protective function sensing equipment and circuits may remain connected to the District'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 2 may be negotiated with the District.

⁽²⁾ Unless otherwise required by the District, 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 the District's Distribution System at the PCC shall not exceed the limits stated below in Table 3. The harmonic current injections shall be exclusive of any harmonic currents due to harmonic voltage distortion present in the District's Distribution System without the Generating Facility connected (IEEE 1547-4.3.3). 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 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⁾ IEEE 1547-4.3.3

⁽²⁾ I = the greater of the maximum Host Load current average demand over 15 or 30 minutes without the GF, or the GF rated current capacity (transformed to the PCC when a transformer exists between the GF and the PCC).

⁽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 the District'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 the District. The Producer shall notify the District if it is using the Generating Facility for power factor correction. Unless otherwise agreed upon by the Producer and the District, Generating Facilities shall automatically regulate power factor, not voltage, while operating in parallel with the District'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 the District's Distribution System by means of either manual or automatic synchronizing Function. 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 F.2.d (Flicker) (IEEE 1547-4.2.5). Unless otherwise agreed upon by the Producer and the District, synchronous generators shall automatically regulate power factor, not voltage, while operating in parallel with the District'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 the District'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 PCC,~~

~~the District 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 the District's Distribution or Transmission 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. Limitations on Inverters Not Classified as Smart Inverters~~

- ~~a. Inverter based systems may continue to be installed per Section F until the later of either (1) December 31, 2015, or (2) twelve (12) months after the date the Supplement SA of UL-1741 (with California requirements) is approved. Section G may be used, in all or in part, for inverter based technologies by mutual agreement of the District and the applicant.~~
- ~~b. The replacement of an existing inverter to an inverter that is of equal or greater ability than the original is allowed per Section F. Section G may be used, in all or in part, for replacement inverter based technologies by mutual agreement of the District and the applicant.~~

~~5. Supplemental Generating Facility Requirements~~

- ~~a. Fault Detection. A Generating Facility with an SCCR exceeding 0.1 or one that does not cease to energize the District's Distribution System within two (2) 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 the District's Distribution System within two (2) 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 ceases to energize the District's Distribution System within two (2) seconds, the District may require a transfer trip system or an equivalent protective function.~~
- ~~c. Reclose Blocking. Where the aggregate Generating Facility capacity exceeds 50% of the minimum load on any automatic reclosing device, the District may require additional protective functions, including, but not limited to reclose blocking on some of the automatic reclosing devices.~~
- ~~d. Unintended Islanding. Generating Facilities must mitigate their potential contribution to an Unintended Island. This can be accomplished by one of the following options: (1) incorporating certified Non-Islanding control functions into the Protective Functions, (2) verifying that local loads sufficiently exceed the Net Nameplate Rating of the Generating Facility, or (3) incorporating a transfer trip or an equivalent Protective Function.~~

G.F. Smart Inverter Generating Facility Design and Operating Requirements

~~Section F shall continue to be used for interconnection of inverter based technologies until the later of either (1) December 31, 2015, or (2) twelve (12) months after the date of the Supplement SA of The District will ONLY accept interconnection requests that use certified (Section L), Smart Inverters with the advanced grid functions specified in California Public Utilities Commission Rule 21 as referenced in the California UL-1741 SA (with California requirements) is approved by the full UL-1741 Standards Technical Panel (STP). Following such date, this Section G shall apply for interconnection of inverter based technologies. Until such date, this Section G may be used, in all or in part, for inverter based technologies by mutual agreement of the District and the applicant.~~

The inverter requirements are intended to be consistent with the latest approved revision of ANSI/IEEE 1547, 2003 and 1547a Standard for Interconnecting Distributed Resources with Electric Power Systems (IEEE 1547 including amendment 1547a). In the event of conflict between this Rule and IEEE 1547-2003, this Rule shall take precedence. This Rule does not adopt the Generating Facility power limitation of 10 MW incorporated in IEEE 1547.

Customers that need to replace their existing inverter must replace their existing inverter with an inverter that is of equal or greater ability than the original.

1. General Interconnection and Protective Function Requirements

- a. Protective Functions Required. Smart Inverters operating in parallel with the District's Distribution System shall be equipped with the following protective functions to sense abnormal conditions on the District's Distribution System and cause the Smart Inverter to be automatically disconnected from the District's Distribution System or to prevent the Smart Inverter from being connected to the District'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 Smart Inverter from energizing a de-energized Distribution System circuit and to prevent the Smart Inverter from reconnecting with the District's Distribution System unless the District'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 Smart Inverter from contributing to the formation of an Unintended Island, and cease to energize the District's System within two (2) seconds of the formation of an Unintended Island. The Smart Inverter shall cease to energize the District's Distribution System for faults on the District's Distribution System circuit to which it is connected (IEEE 1547-4.2.1). The Smart Inverter shall cease to energize the District's Distribution System circuit prior to reclosure by the District's Distribution System equipment (IEEE 1547-4.2.2).
- b. Momentary Paralleling Generating Facilities. With the District's approval, the transfer switch or scheme used to transfer the Producer's loads from the District's Distribution System to Producer's Generating Facility may be used in lieu of the protective functions required for parallel operation. Momentary Paralleling to the District's System shall be one second (60 cycles) or less.
- c. Purpose of Protective Functions. The protective functions and requirements of this Rule are designed to protect the District'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 the District's Distribution System in a manner that would affect the District's capability of providing reliable service to its customers.
- d. Suitable Equipment Required. Circuit breakers or other interrupting devices located at the PCC 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 Smart Inverter and Interconnection Facilities shall be designed so that the failure of any one device shall not potentially compromise the safety and reliability of the District's Distribution System. The Smart Inverter paralleling device shall be capable of withstanding 220% of the Interconnection Facility rated voltage (IEEE 1547-4.1.8.3). 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-~~2012~~2002.
- e. Visible Disconnect Required. When required by the District's operating practices, the Producer shall furnish and install a ganged, manually-operated isolating switch (or a comparable device mutually agreed upon by the District and the Producer) near the point of interconnection to isolate the Smart Inverter from the District's Distribution System. The device does not have to be rated for load break nor provide overcurrent 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 District personnel for construction, maintenance, inspection, testing, reading, or to isolate the Smart Inverter from the District's Distribution System, 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 District prior to installation. If the device is not adjacent to the PCC, permanent signage must be installed at a District-approved location providing a clear description of the location of the device.
- f. Drawings Required. Prior to parallel operation or momentary parallel operation of the Smart Inverter, the District shall approve the Producer's protective function, control diagrams, and location of Producer's disconnect switch and utility meter. Generating Facilities equipped with a protective function and control scheme previously approved by the District for system-wide application may satisfy this requirement by reference to previously approved drawings and diagrams.
- g. Generating Facility Conditions Not Identified. In the event this Rule does not address the interconnection conditions for a particular Smart Inverter, the District and Producer may agree upon other arrangements.

2. Prevention of Interference

The Producer shall not operate Smart Inverters that superimpose a voltage or current upon the District's Distribution System that interferes with District operations, service to the District's 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 the District. If the Producer does not take corrective action in a timely manner, or continues to operate the Facilities causing interference without restriction or limit, the District may, without liability, disconnect the Producer's Facilities from the District's Distribution System, in accordance with Section D.8 of this Rule. To eliminate undesirable interference caused by its operation, each Smart Inverter shall meet the following criteria:

- a. Voltage Regulation. If approved by the District, the Smart Inverter may actively regulate the voltage at the PCC while in parallel with the District's Distribution System. The Smart Inverter shall not cause the service voltage at other customers to go outside the requirements of ANSI C84.1-1995, Range A (IEEE 1547-4.1.1).
- b. Voltage Trip and Ride-Through Settings. The voltage ranges in Table 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 the District's Distribution System within the prescribed trip time whenever the voltage at the PCC deviates from the

allowable voltage operating range. The protective function shall detect and respond to voltage on all phases to which the Smart Inverter is connected.

- 1) Smart Inverters. Smart Inverters shall be capable of operating within the voltage range normally experienced on the District's Distribution System from plus to minus 5% of the nominal voltage (e.g. 114 volts to 126 volts, on a 120 volt base), at the service panel or PCC. The trip settings at the generator terminals may be selected in a manner that minimizes nuisance tripping in accordance with Table 1 to compensate for voltage drop between the generator terminals and the PCC. Voltage may be detected at either the PCC or the point of interconnection. However, the voltage range at the PCC, with the generator on-line, shall stay within $\pm 5\%$ of nominal.
- 2) Voltage Disturbances. Whenever the District's Distribution System voltage at the PCC varies from and remains outside normal (nominally 120 volts) by the predetermined amounts set forth in Table 1, the Smart Inverter's protective functions shall cause the Smart Inverter(s) to become isolated from the District's Distribution System:
 - a) The Smart Inverter shall stay connected to the District's Distribution System while the grid remains within the "Ride-Through Until" voltage-time range and must stay connected in the corresponding Operating Mode.
 - b) For voltage excursions beyond the near nominal (NN) magnitude range and within the range of the HV1 or LV3 regions, the Smart Inverter shall momentarily cease to energize within 0.16 second.
 - c) In the HV1 region, the Smart Inverter is permitted to reduce power output as a function of voltage under mutual agreement between the Producer and the District.
 - d) If the distribution system voltage does not exit the ride-through region and recovers to normal system voltage, the Smart Inverter shall restore continuous operation within two (2) seconds.
 - e) If District's Distribution System voltage does not exit the ride-through region and returns from the LV3 region to the LV2 or LV1 region, the Smart Inverter shall restore available current within two (2) seconds.
 - f) Different voltage-time settings ~~may~~ be permitted ~~by~~ with the District ~~approval~~.

Table 1: Voltage Ride-Through

Region	Voltage at PCC (% Nominal Voltage)	Ride-Through Until	Operating Mode	Maximum Trip Time
High Voltage 2 (HV2)	$V \geq 120\%$			0.16 Second
High Voltage 1 (HV1)	$110\% < V < 120\%$	12 Seconds	Momentary Cessation	13 Seconds
Near Nominal (NN)	$88\% \leq V \leq 110\%$	Indefinite	Continuous Operations	Not Applicable
Low Voltage 1 (LV1)	$70\% \leq V < 88\%$	20 Seconds	Mandatory Operations	21 Seconds
Low Voltage 2 (LV2)	$50\% \leq V < 70\%$	10 Seconds	Mandatory Operations	11 Seconds
Low Voltage 3 (LV3)	$V < 50\%$	1 Second	Momentary Cessation	1.5 Seconds

- c. Paralleling. The Generating Facility shall parallel with the District's Distribution System without causing a voltage fluctuation at the PCC greater than $\pm 5\%$ of the prevailing voltage level of the District's Distribution System at the PCC, and meet the flicker requirements of F.2.d. Section L provides technology specific tests for evaluating the paralleling Function (IEEE 1547-4.1.3).
- d. Flicker. The Generating Facility shall not create objectionable flicker for other customers on the District's Distribution System. To minimize the adverse voltage effects experienced by other customers (IEEE 1547-4.3.2), flicker at the PCC caused by the Generating Facility should not exceed the limits defined by the Figure 10.3 "Maximum Permissible Voltage Fluctuations" identified in IEEE 519-~~2014~~~~1992~~ (IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems). This requirement is necessary to minimize the adverse voltage effects experienced by other customers on the District'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 the District's Distribution System Grounding. The grounding scheme of the Generating Facility interconnection shall not cause overvoltages that exceed the rating of the equipment connected to the District and shall not disrupt the coordination of the ground fault protection on the District's Distribution System (IEEE 1547-4.1.2).
- f. Frequency. The District's controls system frequency and the Generating Facility shall operate in synchronism with the District's Distribution System. Whenever the District's Distribution System frequency at the PCC varies from and remains outside normal (nominally 60 Hz) by the predetermined amounts set forth in Table 2, the Generating Facility's protective functions shall cease to energize the District's Distribution System within the stated maximum trip time.
 - 1) Frequency Ride-Through Requirements. Smart Inverter based systems shall remain connected to the District's Distribution System while the grid is within the frequency-time range indicated in Table 2, and shall disconnect from the electric grid during a high or low frequency event that is outside that frequency-time range. The frequency values are shown in Table 2. These values provide default interconnection system response to abnormal frequencies.

The inverter shall disconnect by the default clearing times. In the high frequency range between 60.2 Hz and 61.5 Hz, or some other mutually agreed range, the Smart Inverter is permitted to reduce real power output until it ceases to export power by 61.5 Hz, or other frequency value mutually agreed between the Generating Facility operator and the District.

Table 2: Frequency Ride-Through and Trip Settings

System Frequency Default Settings (Hz)	Minimum Range of Adjustment (Hz)	Ride-Through Until	Ride-Through Operational Mode	Maximum Trip Time
$f > 62$	62 - 64	No Ride Through	Not Applicable	0.16 Second
$60.5 < f \leq 62$	60.1 - 62	299 Seconds	Mandatory Operation	300 Seconds
$58.5 \leq f \leq 60.5$	Not Applicable	Indefinite	Continuous Operation	Not Applicable
$57.0 \leq f < 58.5$	57 - 59.9	299 Seconds	Mandatory Operation	300 Seconds
$f < 57.0$	53 - 57	No Ride Through	Not Applicable	0.16 Second

- g. Harmonics. When the Generating Facility is serving balanced linear loads, harmonic current injection into the District's Distribution System at the PCC shall not exceed the limits stated below in Table 3. The harmonic current injections shall be exclusive of any harmonic currents due to harmonic voltage distortion present in the District's Distribution System without the Smart Inverter connected (IEEE 1547-4.3.3 [and IEEE 519-2014](#)). The harmonic distortion of a Smart Inverter located at a customer's site shall be evaluated using the same criteria as for the Host Loads.

Table 3: Maximum Harmonic Current Distortion in Percent of Current (I)⁽¹⁾⁽²⁾

Individual Harmonic Order h, (odd harmonics) ⁽³⁾	$h < 11$	$11 \leq h < 17$	$17 \leq h < 23$	$23 \leq h < 35$	$35 \leq h$	Total demand distortion (TDD)
Max Distortion (%)	4.0	2.0	1.5	0.6	0.3	5.0

⁽¹⁾ IEEE 1547-4.3.3

⁽²⁾ I = the greater of the maximum Host Load current average demand over 15 or 30 minutes without the GF, or the GF rated current capacity (transformed to the PCC when a transformer exists between the GF and the PCC).

⁽³⁾ Even harmonics are limited to 25% of the odd harmonic limits above.

- h. Direct Current Injection. Smart Inverters should not inject direct current greater than 0.5% of rated output current into the District's Distribution System. Any harmonic current injection by customer's Smart inverter that adversely affects District's voltage waveform or other customers is prohibited. If customer's interconnected equipment is found to superimpose a current of any frequency or wave form which causes interference with District's system, customer will be responsible for fixing the issue(s) at their expense or District may discontinue electric service. Refer to Rule No. 2, Section E. Interference with Service.
- i. Power Factor. Producer shall provide adequate reactive power compensation on site to maintain the Smart Inverter power factor near unity at rated output or a District-specified power factor in accordance with the following requirements:
- 1) Default Power Factor setting: 1.0 ± 0.01 (0.99 Lagging to 0.99 Leading).
 - 2) Aggregate Generating Facility is greater than 15 kW: 1.0 ± 0.15 (0.85 Lagging to 0.85 Leading) down to 20% rated power based on available reactive power.
 - 3) Aggregate Generating Facility is less than or equal to 15 kW: 1.0 ± 0.10 (0.90 Lagging to 0.90 Leading) down to 20% rated power based on available reactive power.
- j. Dynamic Volt/VAR Operations. The Smart Inverter shall be capable of operating dynamically within a power factor range of ± 0.85 PF for larger (>15 kW) systems, down to 20% of rated power, and ± 0.9 PF for smaller systems (≤ 15 kW), down to 20% of rated power, based on available reactive power. This dynamic Volt/VAR capability shall be able to be activated or deactivated in accordance with the District requirements. The District may permit or require the Smart Inverter systems to operate in larger power factor ranges, including in 4-quadrant operations for storage systems with the implementation of additional anti-islanding protection as determined by the District. The Smart Inverter shall be capable of providing dynamic reactive power compensation (dynamic Volt/VAR operation) within the following constraints:
- 1) The Smart Inverter shall not cause the line voltage at the PCC to go outside the requirements of the latest version of ANSI C84.1, Range A.
 - 2) The Smart Inverter shall be able to consume reactive power in response to an increase in line voltage, and produce reactive power in response to a decrease in line voltage.

- 3) The reactive power provided shall be based on available reactive power, but the maximum reactive power provided to the system shall be as directed by the District.

Table 4 depicts the default settings which should be applied for all inverter sizes. Default open loop response time for volt/var operation setting should be five (5) seconds.

Table 4: Voltage and Reactive Default Settings

Voltage Setpoint	Voltage Value	Reactive Setpoint	Reactive Value	Operation
V1	92.0%	Q1	30%	Reactive Power Injection
V2	96.7%	Q2	0	Unity Power Factor
V3	103.3%	Q3	0	Unity Power Factor
V4	107.0%	Q4	30%	Reactive Power Absorption

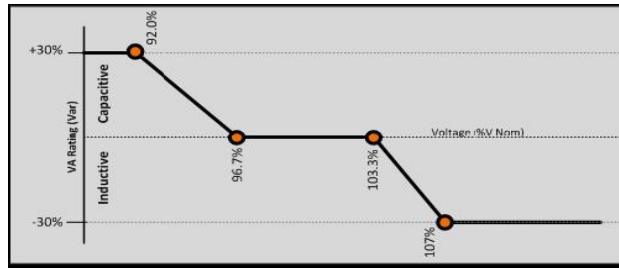


Figure 1: Representation of Settings Shown in Table 4

- k. Ramp Rate Requirements. The Smart Inverter is required to have the following ramp controls for at least the following conditions. These functions can be established by multiple control functions or by one general ramp rate control function. Ramp rates are contingent upon sufficient energy available from the Smart Inverter.

- 1) Normal ramp-up rate: For transitions between energy output levels over the normal course of operation. The default value is 100% of maximum current output per second with a range of adjustment between 1% to 100%, with specific settings as mutually agreed upon by the District and the Producer.
- 2) Connect/Reconnect Ramp-up rate: Upon starting to inject power into the grid, following a period of inactivity or a disconnection, the inverter shall be able to control its rate of increase of power from 1% to 100% maximum current per second. The default value is 2% maximum current output per second, with specific settings as mutually agreed upon by the District and the Producer.

l. Recommended Frequency-Watt Settings. The Smart Inverters, which have this optional function available, may enable this function with the following recommended settings. Smart Inverters with different frequency-watt capabilities may be enabled with District approval.

- 1) When system frequency exceeds 60.1 Hz, the active power output produced by the Smart Inverter shall be reduced by 50% of real power nameplate rating per hertz (5% of real power nameplate rating reduction per 0.1 Hz).
- 2) When system frequency moves under 59.9 Hz, the active power output produced by the Smart Inverter shall be increased by 50% of real power nameplate rating per hertz (5% of real power nameplate rating increase per 0.1 Hz) when inverter is capable of increasing real power production.
- 3) The default dead-band should be ±0.1 Hz from 60 Hz (59.9 Hz to 60.1 Hz). When the system frequency is in range of 59.9 Hz and 60.1 Hz, the Smart Inverter is not required to increase or decrease power as a function of system frequency.

Open loop response time for Frequency-Watt shall be five (5) seconds.

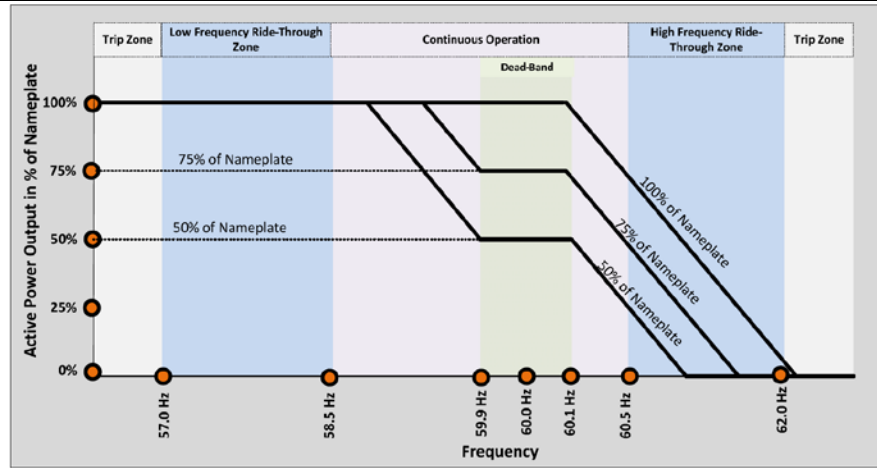


Figure 2: Active Power as a Function of System Frequency

m. Default Activation States for Phase 1 Functions. Unless otherwise provided by the District, the default settings will be as follows:

- 1) Anti-islanding → a Activated
- 2) Low/High Voltage Ride-Through → a Activated
- 3) Low/High Frequency Ride-Through → a Activated
- 4) Dynamic Volt/VAR operations → dea Activated
- 5) Ramp rates → a Activated
- 6) Fixed power factor → De deactivated
- 7) Reconnect by “soft-start” methods → a Activated
- 8) Frequency-Watt (optional) → Implemented when available
- 7)9) Volt-Watt (optional) → Deactivated. Activated under mutual agreement with Distribution Provider instruction(s)

10) These default activation states may be modified by mutual agreement between the District and Producer.

m.n. Automatic Transfer (Load Shedding or Transfer). The voltage and frequency ride-through requirements of Section F.2.b.2) and F.2.f shall not apply if either:

- 1) The real power across the PCC is continuously maintained at a value less than 10% of the aggregate rating of the Smart Inverters connected to the Generating Facility prior to any voltage disturbance, and the Generating Facility disconnects from the District’s Distribution system, along with Generating Facility load, such that the net change in real power flow from or to the District is less than 10% of the aggregate Smart Inverter capacity; or
- 2) Generating Facility load real power demand equal to 90% to 120% of the pre-disturbance aggregate Smart Inverter real power output is shed within 0.1 second of Smart Inverter disconnection.

3. Technology Specific Requirements

Grid-interactive inverters do not require separate synchronizing equipment. Non grid-interactive or “stand-alone” inverters shall not be used for Parallel Operation with District’s Distribution System.

4. Supplemental Smart Inverter Requirements

- a. Fault Detection. A Smart Inverter with an SCCR exceeding 0.1 or one that does not cease to energize the District’s Distribution System within two (2) 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 the District’s Distribution System within two (2) 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 ceases to energize the District’s Distribution System within two (2) seconds, the District 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, the District may require additional protective functions, including, but not limited to reclose-blocking on some of the automatic reclosing devices.

H-G. Maintenance and Permits

The Producer shall: (1) maintain the Facility and Interconnection Facilities in a safe and prudent manner and in conformance with all applicable laws and regulations including, but not limited to, requirements of Sections ~~F and F~~ above and (2) to the extent that future requirements may dictate, obtain any government authorizations or permits required for the operation of the Generator or Generating Facility. The Producer shall reimburse the District for any and all losses, damages, claims, penalties or liability the District incurs as a result of the Producer's failure to obtain or maintain any government authorizations and permits required for construction and operation of the Generating Facility.

H-H. Access to Premises

~~Per District's Electric Service Guide Rules, T~~he District may enter the customer's premises without prior notice (1) to inspect at all reasonable hours the Generating Facility's protective devices and read or test any meter for the Generator or Generating Facility; and (2) to disconnect, at any time, without notice, the Generator or Generating Facility if, in District's sole opinion, a hazardous condition exists and that immediate action is necessary to protect persons, or District's facilities or property of others from damage or interference caused by (a) the Generator or Generating Facility or (b) the customer and/or Producer's failure to comply with requirements of these provisions; ~~and (3) if applicable, monthly to read the digital meter for billing purposes. Self-reads and reads from adjacent properties are not permitted.~~ Failure to comply with this policy may result in disconnection of service and/or termination of Interconnection Agreement with the District.

H-I. Conditions of Facility Operations

1. The producer shall deliver electricity from the Generating Facility to the District at District's meter.
2. The Producer, and not the District, shall be solely responsible for all legal and financial obligations arising from the construction, installation, design, operation and maintenance of the Generator or Generating Facility in accordance with all applicable laws and regulations.
3. The Producer, at the Producer's sole expense, shall obtain and possess all permits and authorizations in accordance with all applicable laws and regulations for the construction, installation, design, operation and maintenance of the Generator or Generating Facility.
4. The Producer shall not connect the Generator or Generating Facility, or any portion of it, to the District's Distribution System, until the Generator or Generating Facility has passed District inspection. Such approval shall not be unreasonably withheld. The District shall have the right to have representatives present at the initial testing of the Generator or Generating Facility.
5. The Producer may reconnect its Generator or Generating Facility to the District's Distribution System following normal operational outages and interruptions without notifying the District unless the District has disconnected services, or the District notifies the Producer that a reasonable possibility exists that reconnection would pose a safety hazard.
6. If the District has disconnected service to the Generator or Generating Facility, or the District has notified the Producer that a reasonable possibility exists that reconnection would pose a safety hazard, the Producer may call the District at 1-209-526-7373 to request authorization to reconnect the Generator or Generating Facility.

H-J. Interconnection Facilities and Distribution System Modifications Ownership and Financing

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 the District'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 Review described in Section E.
 - b. Ownership. Interconnection Facilities installed on Producer's side of the PCC may be owned, operated and maintained by the Producer or the District. Interconnection Facilities installed on the District's side of the PCC and Distribution System modifications shall be owned, operated and maintained only by the District.
2. Responsibility of Costs of Interconnecting a Generating Facility
 - a. Review and Additional Commissioning Test Verifications (pre-parallel inspections) Costs. A Producer shall be responsible for the reasonably incurred costs of the reviews and additional commissioning test verifications (pre-parallel inspections) conducted pursuant to Section E of this Rule. If the initial commissioning test verification (pre-parallel inspection) is not successful through no fault of the District, the District 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 in advance. The cost estimate provided by the District shall consist of the hourly rate multiplied by the hours estimated to be incurred by the District. If the initial commissioning test verification (pre-parallel inspection) is not successful through the fault of the District, that visit will not be considered the initial commissioning test verification (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 the District in providing, operating,

or maintaining the Interconnection Facilities and Distribution System modifications required solely for the interconnection of the Producer's Generating Facility with the District's Distribution System.

- c. Separation of Costs. Should the District combine the installation of Interconnection Facilities or Distribution System modifications required for the interconnection of a Generating Facility with modifications to the District's Distribution System to serve other customers or producers, the District shall not include the costs of such separate or incremental facilities in the amounts billed to the Producer.
- d. Reconciliation of Costs and Payments. Within a reasonable time after the interconnection of a Producer's Generating Facility, the District will reconcile its actual costs related to the Generating Facility against any advance payments made by the Producer. The Producer will receive either a bill for any balance due or a reimbursement for overpayment as determined by the District's reconciliation.

K. Metering, Monitoring and Telemetry

1. General Requirements

All Generating Facilities shall be metered in accordance with this Section K and shall meet all applicable standards of the District contained in the District's applicable Rules and published the District documents dealing with metering specifications.

2. Metering

The ownership, installation, operation, reading and testing of revenue metering equipment for Generating Facilities shall be by the District.

3. Net Generation Output Metering (NGOM)

Generating Facility customers may be required to install NGOM for evaluation, monitoring and verification purposes and to determine applicable standby and non-bypassable charges as defined in the District's Rules, and for Distribution System planning and operations.

4. Point of Common Coupling Metering

For purposes of assessing the District charges for retail service, the Producer's PCC metering shall be reviewed by the District, and if required, replaced to ensure that it will appropriately measure electric power. Where required, the customer's existing meter may be replaced with 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 the District to install multi-metering equipment to separately record power deliveries to the District's Distribution System and retail purchases from the District. Where necessary, such PCC metering shall be designed to prevent reverse registration.

5. Telemetry

If the nameplate rating of the Generating Facility is 1 MW or greater, telemetry equipment may be required at the District's discretion and at the Producer's expense. Telemetry may also be required for those Generating Facilities that are not Net Energy Metering Facilities.

6. Location

Where the District-owned metering is located on the Producer's premises, Producer shall provide, at no expense to the District, a suitable location as approved by the District 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.

L. Certification and Testing Criteria

1. Introduction

This Section describes the test procedures and requirements for equipment used for the interconnection of Generating Facilities to the District's Distribution System. Included are 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, IEEE 929, and IEEE 1547.

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

2. Certified Interconnection Equipment

Equipment tested and approved by an accredited Nationally Recognized Testing Laboratory (NRTL) as having met both the type testing and production testing requirements described in California Rule 21 is considered to be certified equipment for purposes of interconnection with the District's Distribution System. Certification may apply to either a pre-packaged system or an assembly of components that address the necessary functions. Equipment certified by a NRTL shall have a Certificate containing, at a minimum, the following information for each device:

a. 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).

b. 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.
- 9) 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.

3. Commissioning Testing

a. For Generating Facilities that incorporate certified equipment that have, at a minimum, passed the type tests and production tests described in California Rule 21 and are judged to have little or no potential impact on the District's Distribution System, 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 will be checked by operating a load break disconnect switch to verify the interconnection equipment ceases to energize the District'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 under power) are met.

b. Additional 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.

c. The District may require a written commissioning test procedure be submitted to the District at least ten (10) working days prior to the performance of the commissioning test. The District has the right to witness commissioning tests. The District may also require written certification by the installer describing which tests were performed and their results. Protective functions to be tested during commissioning may consist of the following:

- Over and under-voltage
- Over and under-frequency
- Anti-Islanding function (if applicable)

- Non-Exporting function (if applicable)
- Inability to energize dead line
- Time delay on restart after utility source is stable
- Utility system fault detection (if used)
- Synchronizing controls (if applicable)
- Other interconnection protective functions that may be required as part of the Interconnection Agreement.

Commissioning tests shall include visual inspections of the interconnection equipment and protective settings to confirm compliance with the interconnection requirements. ~~Smart Inverters shall be marked as "Grid Support Utility Interactive Inverter" and certified by a nationally recognized testing facility per Certification and Testing Criteria, Table 5~~Table 5.

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

- Verifying final protective function settings
- Trip test (Section L.3.f)
- In-service test (Section L.3.g)

e. Verification of Settings

At the completion of the commissioning testing, the Producer shall confirm all devices are set to the District -approved settings. Approved settings should be displayed on each protective device. 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.

4. Periodic Testing

The Producer or applicant shall perform Periodic Testing of Interconnection-related Protective Functions as specified by the manufacturer, or at least every four (4) years. All periodic tests prescribed by the manufacturer shall be performed. The Producer or applicant shall maintain periodic test reports or a log for inspection by the District. Periodic testing conforming to the District test intervals for the particular Line Section may be specified by the District 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 (4) years, these batteries must be either replaced or a discharge test must be performed.

Table 5: Certification and Testing Criteria

Type Test	Reference ⁽¹⁾	Smart Inverter	Synchronous Generators	Induction Generators
<u>Utility Interaction</u>	<u>UL 1741 - 39, 40</u>	X	X	X
<u>Utility Compatibility (required testing to 1547 and 1547.1)</u>	<u>UL 1741 - 46</u>	X	X	X
<u>DC Isolation</u>	<u>IEEE 1547.1⁽⁶⁾ -5.6</u>	X	-	-
<u>Dielectric Voltage Withstand</u>	<u>IEEE1547.1⁽⁶⁾ -5.5.3</u>	X	X	X
<u>Harmonic Distortion</u>	<u>IEEE-1547.1⁽⁶⁾ -5.11</u>	X	X	X
<u>DC Injection</u>	<u>IEEE1547.1⁽⁶⁾ -5.6</u>	X	-	-
<u>Distribution Provider Voltage Variations</u>	<u>IEEE1547.1 - 5.2</u>	-	X	X
<u>Distribution Provider Frequency Variations</u>	<u>IEEE1547.1 - 5.3</u>	-	X	X
<u>Abnormal Tests</u>	<u>UL 1741 - 47</u>			
<u>Loss of Control Circuit</u>	<u>UL 1741 - 47.8</u>	X	X	X
<u>Short Circuit</u>	<u>UL 1741 - 47.3</u>	X	X	X
<u>Load Transfer</u>	<u>UL 1741 - 47.7</u>	X	X	X
<u>Surge Withstand Capability</u>	<u>IEEE C62.41.2-2002</u>	X	X	X
<u>Anti-Islanding (Traditional)</u>	<u>UL 1741 - 46.3</u>	-	⁽²⁾	⁽²⁾
<u>Non-Export</u>	<u>Sec. L 2 b</u>	⁽³⁾	⁽³⁾	⁽³⁾
<u>In-rush Current</u>	<u>Starting Volt Drop</u>	-	-	⁽⁴⁾
<u>Synchronization</u>	<u>IEEE 1547-5.1.1B</u>	⁽⁵⁾	X	⁽⁵⁾
<u>Anti-islanding (Smart Inverters)</u>	<u>UL 1741 SA - SA8</u>	X	-	-
<u>Low and High Voltage Ride-through</u>	<u>UL 1741 SA - SA9</u>	X	-	-
<u>Low and High Frequency Ride-through</u>	<u>UL 1741 SA - SA10</u>	X	-	-
<u>Normal and Soft-Start Ramp Rate</u>	<u>UL 1741 SA - SA11</u>	X	-	-
<u>Specified Power Factor</u>	<u>UL 1741 SA - SA12</u>	X	-	-
<u>Volt/Var Mode (Q/V)</u>	<u>UL 1741 SA - SA13</u>	X	-	-
<u>Frequency-Watt (optional)</u>	<u>UL 1741 SA - SA14</u>	X	-	-
<u>Volt-Watt (optional)</u>	<u>UL 1741 SA - SA15</u>	X	-	-
<u>Markings and Instructions</u>	<u>UL 1741 SA - SA6 , SA16</u>	X	-	-

Table Notes:

- ⁽¹⁾ References are to section numbers in either UL 1741 and/or UL 1741 – Supplement SA (Inverters, Converters and Charge Controllers for Use in Independent Power Systems). 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 Distribution Provider 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 Distribution Provider’s Distribution or Transmission System.
- ⁽⁶⁾ IEEE-1547.1 refers to the 2005 revision

X Required
- Not Required