LAFAYETTE UTILITIES SYSTEM

Net Metering & Distributed Generation Interconnection Standards

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1 Introduction

1.1 Purpose

The purpose of these interconnection standards for Qualified Small Customer / QF Energy Facilities is to describe the requirements and procedures for safe and effective connection and operation of Small electric generators on the LUS Electric Distribution System.

A Net Metering (NM) or Distributed Generation (DG) Renewable Energy Facility Owner may operate an Electric Generator at 60 Hertz (Hz), single- or three- phase at voltages up to and including 480V in parallel with LUS's Electric Secondary Delivery System pursuant to an Interconnection Agreement, provided that the equipment meets or exceeds the requirements of this standard. Any interconnection request above the 480V level will be considered on a case by case basis. Contact Lafayette Utilities Chief Electrical Engineer to discuss any interconnection requests of this type.

Two objectives must be met to arrive at compliance by the proposed installation:

1. **Safety** - The Renewable Energy Facility will be held to the same Standard of Care, as LUS is required to maintain. In addition, the safety of the general public and the personnel and equipment of LUS shall in no way be reduced or impaired as a result of the Interconnection.
   a. The Renewable Energy Facility shall be equipped with Protective Functions designed to prevent the Renewable Energy Facility from being connected to a de- energized circuit owned by LUS.
   b. The Renewable Energy Facility shall be equipped with the necessary Protective Functions designed to prevent connection or Parallel Operation of the Renewable Energy Facility with the Electric Secondary Delivery System unless the Electric Secondary Delivery System service voltage and frequency are of normal magnitude. The design of some systems provides these functions without adding equipment at the PCC. Each system not providing additional devices at the PCC must be shown to be capable of these functions.
2. **Customer Impact** - The reliability, availability, and Quality of Service to LUS's other Customers shall not be diminished or impaired as a result of the Interconnection.

This standard describes typical connection requirements. Some installations, however, may require more extensive Interconnection Facilities, and will be addressed on a case by case basis. This is most likely to be required when several Customers desire to connect Renewable Energy Facilities to the same transformer or on the same distribution feeder.

1.2 Scope

Renewable Energy Facilities may be installed within LUS's service area on the NM or DG Customer's side of the meter. These facilities will be connected to the Electric Secondary Delivery System when the Electric Secondary Delivery System is operating under normal conditions. The NM or DG Customer's entire load or any part of it may be supplied with energy by the Renewable Energy Facility. LUS's facilities will be available to handle the NM or DG Customer's entire load as needed.

Applications for Net Metering are limited to:

Residential Maximum Generator Size Total	Non-Residential Maximum Generator Size Total	Type of Fuel
25 kW	300 kW	Renewable fuel as solar, wind or qualified biomass

Generators that do not qualify for NM or DG and desire interconnection shall contact LUS's Chief Electrical Engineer.

The provisions contained in this document are the minimum requirements for safe and effective Interconnection and operation of Renewable Energy Facilities operating in parallel with LUS's Electric Secondary Delivery System.

2 Definitions

Abnormal Operating Conditions – A situation in which LUS is operating the Electric Distribution System and the Electric Secondary Delivery System in a manner inconsistent with normal configuration or under conditions that do not normally exist. Examples of abnormal operating conditions are times when LUS must switch distribution feeder circuits out of use for repairs and switch other alternate feeders into use to deliver energy to Customers.

Customer - Any entity interconnected to LUS's Electric Secondary Delivery System who takes electric service under one of LUS's rate schedules.

Displaced Load – The Net Metering or Distributed Generation Customer's entire electrical requirement or a portion of it that, except for the output of the Net Metering or Distributed Generation Customer's Renewable Energy Facilities, would have been served by LUS.

Distributed Generation (DG) Customer- Any Customer that takes service under LUS's distributed generation provisions.

Distributed Generation Facility - The hardware and software installed to measure the energy flow both into and out of the Distributed Generation facilities for the purpose of determining the usage for customer billing, if any.

Electric Distribution System – All of LUS's wires, equipment, and facilities having a voltage of 13.8kV or below including the Electric Secondary Delivery System

Electric Secondary Delivery System - LUS's wires, equipment, and facilities having a voltage of 480V or below to which the Net Metering or Distributed Generation Facility is interconnected (the Electric Secondary Delivery System is a subset of the Electric Distribution System).

Facility Owner – Ownership of a facility defined by LA Civil Code Article 477.

MGO – See LCG Online Permit and Project Search Engine

Interconnection - The physical connection of facilities to the Electric Secondary Delivery System so that Parallel Operation can occur.

Interconnection Agreement - The Standard Interconnection Agreement for Net Metering and Distributed Generation Facilities approved by the Lafayette Utilities System.

Interconnection Facilities - All facilities installed solely to interconnect the Net Metering or Distributed Generation system with that of LUS to facilitate the exchange of power between the Net Metering or Distributed Generation Renewable Energy Facilities and LUS's power system including, but not limited to, connection, transmission, distribution, engineering, transformation, switching, metering, and safety equipment. Interconnection Facilities shall include any additions and/or modifications to LUS's system deemed by LUS to be necessary.

LUS – Lafayette Utilities System

LCG Online Permit and Project Search Engine – An online permit tracking database accessible to the public used to track permits and inspections. https://www.myprojectnow.org/Login.aspx

Network Service - Two or more primary distribution feeder sources electrically connected on the secondary (or low voltage) side to form one power source for one or more Customers. This configuration is designed to maintain service to the Customers even after the loss of one of these primary distribution feeder sources.

Net Metering (NM) Customer - Any Customer that takes service under LUS's net metering provisions.

Net Metering Facility - The hardware and software installed to measure the energy flow both into and out of the Net Metering facilities for the purpose of determining the usage for customer billing, if any.

Parallel Operation - The operation of Renewable Energy Facilities by a Net Metering or Distributed Generation Customer while the Net Metering or Distributed Generation facilities are physically and electrically interconnected to LUS's Electric Secondary Delivery System.

Point of Common Coupling (PCC) - The point where transfer of any electric power between the Customer's facilities and LUS's Electric Secondary Delivery System takes place, normally at the point of attachment.

Protective Function - Unsafe Operating Conditions shall be prevented from occurring before, during, and after the Interconnection of a Renewable Energy Facility with LUS's Electric Secondary Delivery System. This system typically uses hardware (including switching devices), relay protection schemes and software that and shall be designed to isolate the Net Metering or Distributed Generation Renewable Energy Facility or to disconnect it from LUS's Electric Secondary Delivery System under Unsafe Operating Conditions or outages.

Quality of Service - An operating state of the Electric Secondary Delivery System that provides usable power to a Customer. This state of usable power includes the parameters specified for power factor, voltage surges and sags, voltage flicker, frequency and harmonics. For more information on these parameters, refer to the first page of this standard for these sections.

Renewable Energy Facility - A system of hardware and software (which includes Net Metering Facility & Distributed Generation Facility) by which electric energy is generated using sun, wind, or biomass products as the source and is allowed to be interconnected to LUS's Electric Secondary Delivery System.

Stabilized - The Electric Secondary Delivery System is considered stabilized when, following a disturbance, the system returns to the normal range of voltage and frequency for duration of five minutes.

Standard of Care - A term defining the level of awareness to maintain workplace and public safety in the design, installation and operation of facilities which generate power.

System Protection Facilities - The equipment required to protect LUS's system and its other Customers' facilities from Unsafe Operating Conditions occurring at the Net Metering or Distributed Generation Renewable Energy Facilities. The protection requirements shall be met at the PCC, although the devices and functions providing the Protective Functions can be located elsewhere.

Unsafe Operating Conditions - A situation that if left uncorrected would result in: (1) harm to any personnel or damage to any equipment, (2) unacceptable system stability or, (3) operation outside established parameters affecting the Quality of Service to other Customers connected to the Electric Secondary Delivery System.

3 Details

3.1 Available Voltage Systems

LUS's Electric Secondary Delivery Systems available for parallel generation operations are of grounded wye or closed delta configurations. Generally, all secondary voltage levels from 120/240 V to 480 V single-phase or three-phase (except open-delta and open-wye) are available for Interconnection. Open-delta and open-wye secondary voltage configurations require special evaluation prior to Interconnection. The voltage level available for connecting the Renewable Energy Facility in parallel with the system depends on the desired location on LUS's Electric Secondary Distribution System and the size of the NM or DG Renewable Energy Facility.

3.2 Reasons for Disconnection from the Electric Secondary Delivery System

LUS may disconnect the NM or DG Renewable Energy Facilities from the Electric Secondary Delivery System under the following conditions:

1. Upon termination of the Interconnection Agreement;
2. Non-compliance of the Renewable Energy facility with any of the requirements in this document;
3. System emergency –
   a. LUS may temporarily disconnect a Renewable Energy facility without prior written notice in cases where continued Interconnection will endanger persons or property;
   b. During the forced outage of the Electric Distribution System, LUS shall have the right to temporarily disconnect a Renewable Energy facility to make immediate repairs on the Electric Distribution System;
4. During routine maintenance, repairs, and modifications to LUS's Electric Distribution System;
5. Lack of approved Interconnection Agreement – In order to interconnect the NM or DG Renewable Energy Facility to LUS's Electric Secondary Delivery System, a Renewable Energy Facility Owner must first submit to LUS an executed Standard Interconnection Agreement for Net Metering & Distributed Generation. LUS may refuse to connect or may disconnect the Renewable Energy facility if such agreement has not been received and approved.

When possible, LUS will provide the Renewable Energy Facility Owner with reasonable notice of disconnection and will reconnect the Renewable Energy Facility as quickly as reasonably practical.

3.3 Electrical Current and Voltage of Existing Service

LUS shall ascertain if the proposed Renewable Energy Facility output exceeds the current carrying capability and matches the voltage of the existing secondary service wires and transformers. LUS will advise the Renewable Energy Facility Owner of any costs which may be incurred if upgrades are required and the voltage and load carrying ability of the existing service.

3.4 System Changes

3.4.1 Lafayette Utilities System Changes to Electric Distribution System

The Electric Distribution System is a dynamic and changing system. If LUS changes the distribution voltage, the Renewable Energy Facility Owner will be responsible for paying for all modifications to the Renewable Energy facilities required for reconnecting to LUS's reconfigured Electric Secondary Delivery System.

3.4.2 Renewable Energy Facility Changes to Interconnection

The Renewable Energy Facility Owner shall notify and obtain prior approval from LUS prior to performing any modifications to the interconnecting scheme.

3.5 Allowable Tie Points

One tie point between the Renewable Energy facilities and LUS's Electric Secondary Delivery System will be allowed. This point will be the Point of Common Coupling (PCC).

3.6 Energy Flow during Emergencies

Power flow from or to a Renewable Energy facility during periods of system emergencies may be discontinued. LUS shall pay for kWh actually received, not for Customer potential capacity.

3.7 Types of Allowed Generators

Single or three-phase alternating current generating units may be operated in parallel with the Electric Secondary Delivery System. They may be synchronous generators, induction generators, or inverter-controlled systems. Direct-current generation shall not be connected to LUS's Electric Secondary Delivery System.

3.8 General Interconnection Requirements

The Net Metering Customer's Renewable Energy Facility shall meet the technical requirements as prescribed in this section and in IEEE 1547, latest version.

3.8.1 Net Metering & Distributed Generation Equipment and Interconnection Standards

The NM or DG Renewable Energy Facilities and Interconnection installation must meet all applicable national, state, and local construction and safety codes. The Renewable Energy Facility Owner shall be responsible for the design, installation, operation and maintenance of all equipment and facilities installed or that will be installed on the NM or DG Customer's side of the PCC specified by the parties involved. Such design shall meet the latest standards of Institute of Electrical and Electronic Engineers, National Electric Manufacturers Association, American National Standards Institute, National Electric Code, other national codes and local codes pertaining to the design and construction of electrical facilities in effect at the time of installation. The facility shall be subject to the requirements of all authorities having jurisdiction and shall comply with all applicable codes and ordinances. **A visible opening General Duty, Single Throw, NEMA 3R AC disconnect, which is accessible to and lockable by LUS personnel at all hours without notice, shall be furnished and installed by the Customer.** This disconnect shall be located within ten feet (10') of the customer meter base and shall disconnect the Renewable Energy Facility from the Electric Distribution System. This disconnect must be labeled as per NEC requirements.

The meter base must be labeled as per NEC requirements. In addition to NEC requirements, the meter base must be labeled with the following criteria:

- Directional arrow pointing towards AC disconnect
- Distance to AC disconnect
- AC output, in kW, of generation system.

3.8.2 Rating of Renewable Energy Equipment

The equipment selected by the Renewable Energy Facility Owner shall be rated for continuous Parallel Operation with LUS's system. Renewable Energy Facilities that are intended to provide the Customer with power during periods when LUS's facilities are unavailable shall be equipped with an automatic transfer switch to prevent energizing a non-energized LUS Electric Secondary Delivery System consistent with sections 3.12.3 and 3.8.1 of this policy.

3.8.3 Protection of Renewable Energy Equipment

The Renewable Energy Facility Owner will be responsible for protecting its facilities in such a manner that Electric Secondary Delivery System outages, short circuits or other disturbances, including zero sequence currents and ferroresonant over-voltages, do not damage the Renewable Energy facilities. The Renewable Energy's protective equipment shall be installed to prevent

the Renewable Energy Facility from causing unnecessary tripping of the Electric Distribution System breakers that would affect the Electric Distribution System's ability to provide reliable service to other Customers.

3.8.4 Required Drawings

Adequate drawings of the proposed Renewable Energy Facility must be submitted to LUS for review during the planning stage. They shall include, at a minimum:

- A complete one-line diagram originating at the generation source and ending at the utility meter, including all equipment and Over-Current Protection Device (OCPD) ratings, directly connected to or associated with the Renewable Energy Facility
- Site address
- Generator/Inverter manufacturer, model number and quantity
- Solar panel manufacturer, model number and quantity and number of strings/panels per string
- AC disconnect distance to meter base

Additional drawings may be required on a case by case basis.

3.8.5 Changes to Lafayette Utilities System Facilities

The total cost of any additional equipment that must be installed by LUS on its Electric Distribution System to allow Parallel Operation must be paid for by the Renewable Energy Facility Owner, including the transformers and any facilities which must be added due to increased fault current or special operating conditions.

3.8.6 Power Factor

The power factor of the Renewable Energy Facility at the PCC shall be according to the appropriate rate schedule for this installation. The presence of the Renewable Energy Facility shall not cause the power factor to be lower than it was prior to installation and operation of the Renewable Energy Facility.

3.8.7 Reactive Power Requirements

NM or DG Renewable Energy Facility's shall normally be responsible for supplying the facility's own reactive power as required by the load to which it supplies power.

3.8.8 Voltage Surges or Sags

The Renewable Energy Facility Owner will operate its Renewable Energy Facility in such a manner that the voltage levels on the Electric Distribution System are in the same range (±5% from nominal voltage) as if the facilities were not connected to LUS's system. The Renewable Energy Facility Owner shall be responsible for any damages to the Renewable Energy facilities, and shall be liable for any damages to LUS's facilities or the facilities of other Customers due to any under voltage or over voltage contribution from the Renewable Energy Facility. The Renewable Energy Facility Owner shall provide an automatic method of disconnecting the generating equipment from the Electric Secondary Delivery System consistent with IEEE Standard 1547 latest version.

Shall trip—Category I				
Shall trip function	Default settings[a]		Ranges of allowable settings[b]	
	Voltage (p.u. of nominal voltage)	Clearing time (s)	Voltage (p.u. of nominal voltage)	Clearing time (s)
OV2	1.20	0.16	fixed at 1.20	fixed at 0.16
OV1	1.10	2.0	1.10–1.20	1.0–13.0
UV1	0.70	2.0	0.0–0.88	2.0–21.0
UV2	0.45	0.16	0.0–0.50	0.16–2.0

[a]The Area EPS operator may specify other voltage and *clearing time* trip settings within the *range of allowable settings*, e,g., to consider Area EPS protection coordination.
[b]Nominal system voltages stated in ANSI C84.1, Table 1 or as otherwise defined by the Area EPS operator. The *ranges of allowable settings* do not mandate a requirement for the DER to ride through this magnitude and duration of abnormal voltage condition. The Area EPS operator may specify the voltage thresholds and maximum *clearing times* within the *ranges of allowable settings*; settings outside of these ranges shall only be allowed as necessary for DER equipment protection and shall not conflict with the voltage disturbance ride through requirements specified in 6.4.2. For the overvoltage (OV) and undervoltage (UV) trip functions *clearing time* ranges and for the OV trip functions voltage ranges, the lower value is a limiting requirement (the setting shall not be set to lower values) and the upper value is a minimum requirement (the setting may be set above this value). For the UV trip functions voltage ranges, the upper value is a limiting requirement (the setting shall not be set to greater values) and the lower value is a minimum requirement (the setting may be set to lower values).

3.8.9 Voltage Flicker

The Renewable Energy Facility shall not create objectionable flicker for LUS's other Customers. The Renewable Energy Facility contribution (emission values) to the flicker, measures at the PCC, shall not exceed the greater of limits listed in the Table below. The creation of objectionable flicker shall result in disconnection by LUS until such time that all objectionable flicker problems are corrected.

Minimum Individual DER Flicker Emission Limits (IEEE Std 1547)

Epst	Eplt
0.35	0.25

95% probability value should not exceed the emission limit based on a one-week measurement period.

3.8.10 Frequency

When the operating frequency of the Customer's generating equipment deviates from the 60 Hz base, as outlined in IEEE Standard 1547, the generating equipment shall be automatically disconnected from the Electric Secondary Delivery System:

DER response (shall trip) to abnormal frequencies for DER of abnormal operating performance

Shall trip function	Default settings[a]		Ranges of allowable settings[b]	
	Frequency[c] (Hz)	Clearing time (s)	Frequency (Hz)	Clearing time (s)
OF2	62.0	0.16	61.8–66.0	0.16–1 000.0
OF1	61.2	300.0	61.0–66.0	180.0–1 000.0
UF1	58.5	300.0[c]	50.0–59.0	180.0–1 000
UF2	56.5	0.16	50.0–57.0	0.16–1 000

[a]The frequency and *clearing time* set points shall be field adjustable. The actual applied underfrequency (UF) and overfrequency (OF) trip settings shall be specified by the Area EPS operator in coordination with the requirements of the *regional reliability coordinator*. If the Area EPS operator does not specify any settings, the default settings

shall be used.

[b]The *ranges of allowable settings* do not mandate a requirement for the DER to ride through this magnitude and duration of abnormal frequency condition. The Area EPS operator may specify the frequency thresholds and maximum *clearing times* within the *ranges of allowable settings*; settings outside of these ranges shall only be allowed as necessary for DER equipment protection and shall not conflict with the frequency disturbance ride through requirements specified in 6.5.2. For the overfrequency (OF) and underfrequency (UF) trip functions *clearing time* ranges and for the OF trip functions frequency ranges, the lower value is a limiting requirement (the setting shall not be set to lower values) and the upper value is a minimum requirement (the setting may be set above this value). For the UF trip functions frequency ranges, the upper value is a limiting requirement (the setting shall not be set to greater values) and the lower value is a minimum requirement (the setting may be set to lower values).

[c]This time shall be chosen to coordinate with typical regional underfrequency load shedding programs and expected frequency restoration time

Refer to IEEE 1547-2018 4.10 for criteria for return to service after trip.

3.8.11 Harmonics

In accordance with IEEE Standard 519 latest version, the total harmonic distortion (THD) voltage shall not exceed 8.0% of the fundamental 60 Hz frequency or 5.0% of the fundamental frequency for any individual harmonic when measured at the PCC. Additionally, all harmonic distortion should be within limits defined in IEEE Standard 519 latest version.

3.9 Inspection Prior to Operations and Additional Requirements

LUS reserves the right to impose any herein described but unmet requirements and to make subsequent final inspection before the Renewable Energy Facility operates to verify that all such unmet requirements have been satisfied. However, LUS has no actual or implied responsibility in this regard. The Renewable Energy Facility Owner shall be responsible for making necessary changes, at the Facility Owner's expense, to the facility should such changes be required. Inspection by LUS of the Renewable Energy equipment and Interconnection Facilities shall not constitute a determination by LUS of the continuing suitability of such equipment and Interconnection. An inspection by LUS shall in no way constitute a warranty or representation by LUS against future negligence, misuse, faulty repairs, or subsequently developing defects, and LUS assumes no responsibility or liability therefore.

3.10 Responsibility for Net Metering & Distributed Generation Operations

LUS is not responsible for proper operations of the Renewable Energy Facility upon and after Interconnection to LUS's Electric Secondary Delivery System.

3.11 Responsibility for Net Metering & Distributed Generation Annual Maintenance

Annual maintenance of the Renewable Energy facility is the Facility Owner's sole responsibility. The Renewable Energy Facility Owner shall maintain records of such maintenance activities, which LUS may review at reasonable times. Such maintenance records shall be made available for LUS's inspection upon request. LUS reserves the right to inspect the records, but has no responsibilities for maintenance either actual or implied.

3.12 Protection/Interface Requirements

Protecting both the Renewable Energy facilities and LUS's system are of great importance. Proper protective systems shall be established in the design phase and confirmed prior to start-up of the Renewable Energy Facility. An Interconnection between LUS and the Renewable Energy Facilities will not be allowed prior to the proper coordination of protective devices. The Renewable Energy Facility Owner shall be responsible for providing to LUS the necessary documentation certifying that maintenance and testing have been satisfactorily performed.

3.12.1 Changes to Lafayette Utilities System Fault Interruption Equipment

Renewable Energy Facilities that are installed on LUS's Electric Secondary Delivery System will provide additional fault current to the Electric Distribution System. Thus, in special circumstances it is possible that the added facilities will necessitate the modification of the existing fault interrupting devices on the distribution feeder. The Renewable Energy Facility Owner will be responsible for paying the cost of these changes to LUS's system. It is also possible that the added facilities will increase the available fault current on the Electric Distribution System beyond the interrupting capability of the existing devices on the Electric Distribution System. The Renewable Energy Facility Owner may be required to limit the fault current contribution from the Renewable Energy Facility. Should LUS also be required to make changes, the Renewable Energy Facility Owner shall pay the cost of the required changes. These issues will be examined on a case-by-case basis.

3.12.2 Tests of the Renewable Energy Equipment

LUS reserves the right, but has no responsibility either actual or implied, to observe the Renewable Facility Owner's tests and/or inspection of any of the Renewable Energy Facilities protective equipment that is essential to the Interconnection, including relays, circuit breakers, protective devices and related equipment. Inspection may include simulated test tripping of the Renewable Energy Facility's Interconnection breakers by the protective relays to verify all protective set points and relay/breaker trip timing prior to Interconnection to LUS system. Inspection by LUS of the Renewable Energy equipment and Interconnection Facilities shall not constitute a determination by LUS of the continuing suitability of such equipment and Interconnection. An inspection by LUS shall in no way constitute a warranty or representation by LUS against future negligence, misuse, faulty repairs, or subsequently developing defects, and LUS assumes no responsibility or liability therefore. The Renewable Energy Facility Owner shall provide LUS with notice at least two weeks before the initial energizing and start-up testing of the Renewable Energy facilities so that LUS may witness the testing of any equipment and protective systems associated with the Interconnection. If upon connecting to LUS's system a system emergency develops, safety issues arise, or the Quality of Service to other Customers is affected, LUS may then require additional inspections or tests of the Renewable Energy Facility's protective equipment as per IEEE 1547, latest version.

3.12.3 Requirements for Specific Technologies

Various technologies require unique control, protection, and safety equipment to be installed. The specifications in this section list those requirements unique to the technologies.

3.12.3.1 Induction Generators and Inverter Systems

Induction generation may be connected and brought up to synchronous speed (as an induction motor) if it can be demonstrated that the initial voltage drop measured on the Electric Secondary Delivery System side of the PCC is within the allowable visible flicker standard in Section 3.7.9. Otherwise, the Renewable Energy Facility Owner may be required to install hardware or employ other techniques to bring voltage fluctuations to acceptable levels. Self-commutated inverters whether of the utility-interactive type or stand-alone type shall be used in parallel with the Electric Secondary Delivery System only with synchronizing equipment. Line-commutated inverters do not require synchronizing equipment. For Renewable Energy Facilities using a line commutated inverter system, no other fault-interrupting device is required. The inverter interrupts the fault.

3.13 Susceptibility to Transmission Faults

Faults, single-phasing events, or other Abnormal Operating Conditions occurring on the LUS's transmission system could affect a Renewable Energy Facilities connected to LUS's Electric Secondary Delivery System. It is the Renewable Energy Facility Owner's responsibility to protect the Renewable Energy Facilities from these conditions.

3.14 Synchronizing Requirements

The Renewable Energy Facility Owner shall be solely responsible for synchronizing and properly connecting and disconnecting its electrical system relative to Parallel Operation with LUS's system. The Renewable Energy Facility Owner shall provide an automatic synchronizing scheme to prevent the closing of its circuit breaker when the two electrical systems are out of synchronism. The Renewable Energy Facility should be automatically disconnected from LUS's Electric Distribution System if it does not meet the requirements of 3.7.8 and 3.7.10.

3.15 Metering Requirements

Based on LUS's standard practices, LUS will provide the meter base. The Customer may pick up a standard 200A meter base from the warehouse at 1314 Walker Road during normal business hours which are typically 7:00 am and 3:30 pm on weekdays. To obtain a meter base larger than 200A, the Customer will be required to provide LUS with information regarding the total connected load.

LUS shall furnish and install a standard bi-directional kilowatt-hour meter for NM & DG customers. The Renewable Energy Facility Owner shall install a meter socket for the bi-directional kilowatt-hour meter and any related interconnection equipment per the system's technical requirements, safety standards, and performance standards. The Renewable Energy Facility Owner shall be responsible for all costs associated with installation of the bi-directional kilowatt-hour meter and any testing of the meter deemed necessary by LUS.

LUS reserves the right to install a meter to measure the actual power generated by the Renewable Energy Facility. The cost of the meter and its installation shall be borne by the Renewable Energy Facility Owner.

LUS's standard deposit requirements for service will apply for net metering service. For additional information on interconnection rates and/or deposits, see LUS's website – www.lus.org.

3.16 Standard Interconnection Requirements

A written agreement will be required between LUS and the Renewable Energy Facility Owner specifying the liability provisions, indemnities, terms of payment of cost to modify Electric Distribution System (if not paid in advance), and other items affecting service under this document. This agreement will explain in detail the authority or responsibilities of the parties involved.

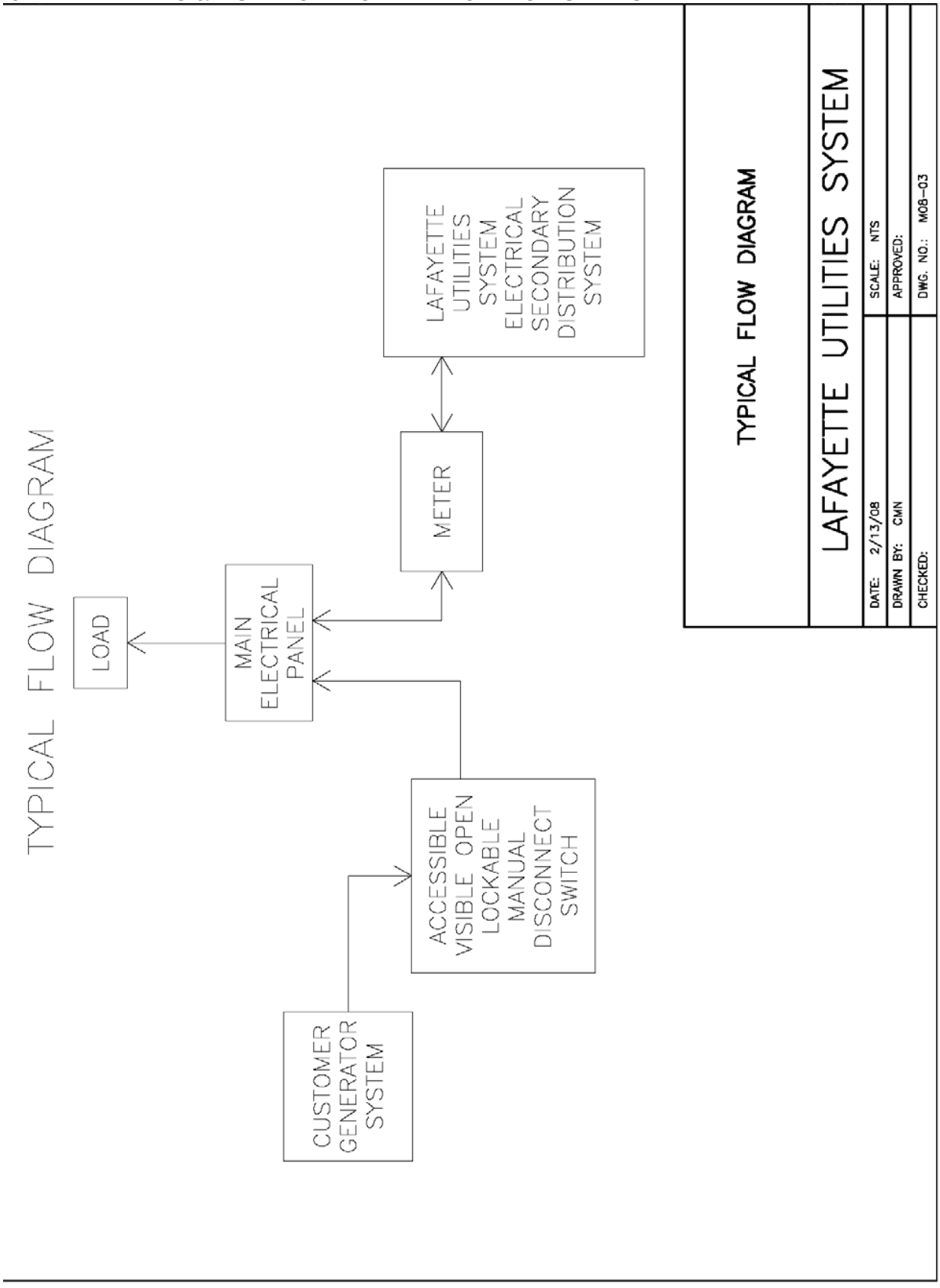
An Interconnection between LUS's Electric Secondary Delivery System and a Renewable Energy Facility will not be allowed prior to LUS having a fully executed Standard Interconnection Agreement for Net Metering and Distributed Generation Facilities on file.

4 References

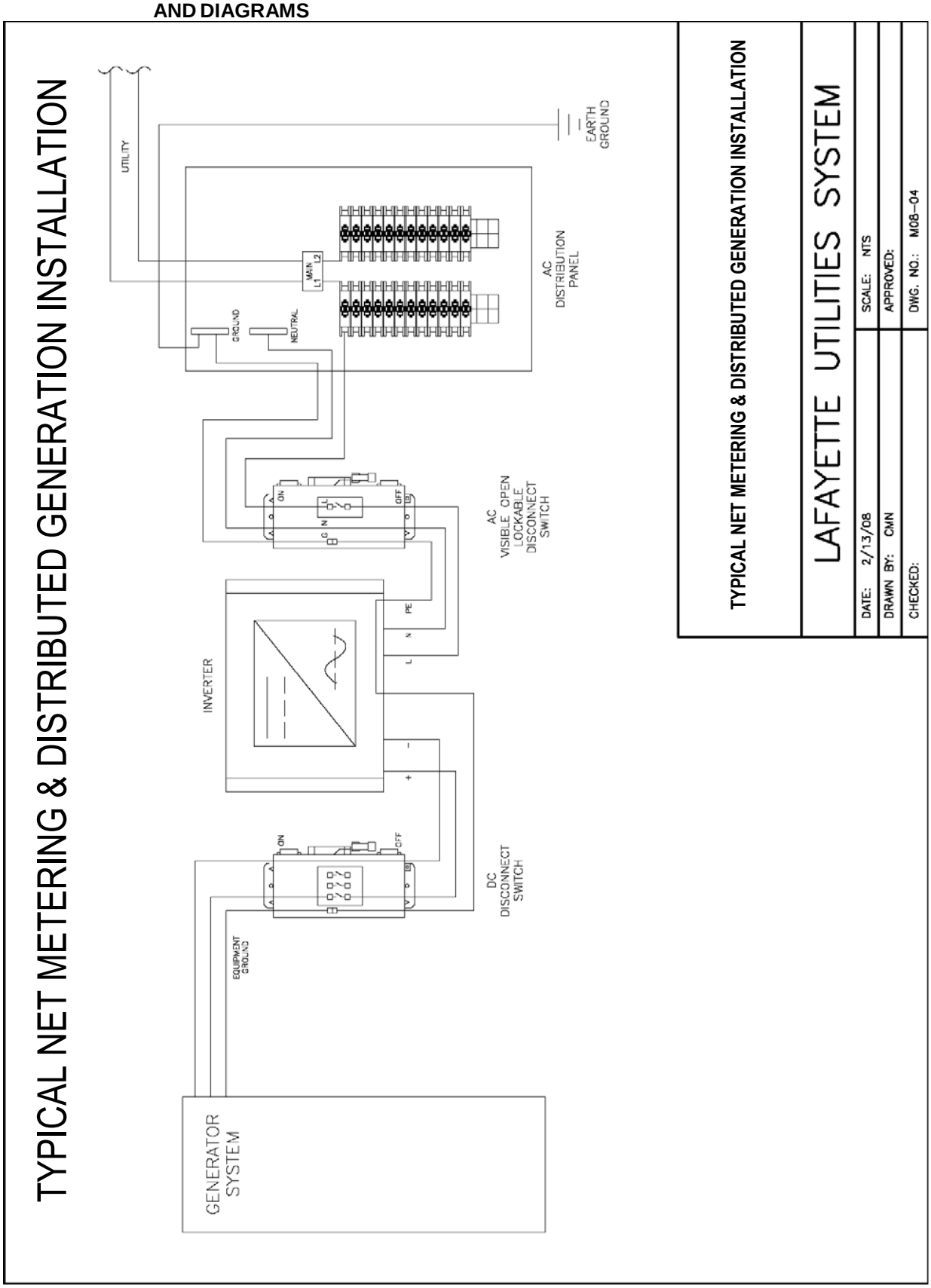
IEEE Guide for Protective Relaying of Utility-Consumer Interconnection C37.95 (Latest revision)
IEEE Recommended Practices and Requirements for Harmonic Control in Electric Power Systems, 519-2022
IEEE Recommended Practice for Electric Power Distribution for Industrial Plants, 141-1993
IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems, 1547-2018

Net Metering & Distributed Generation Flow Sheets and Diagrams

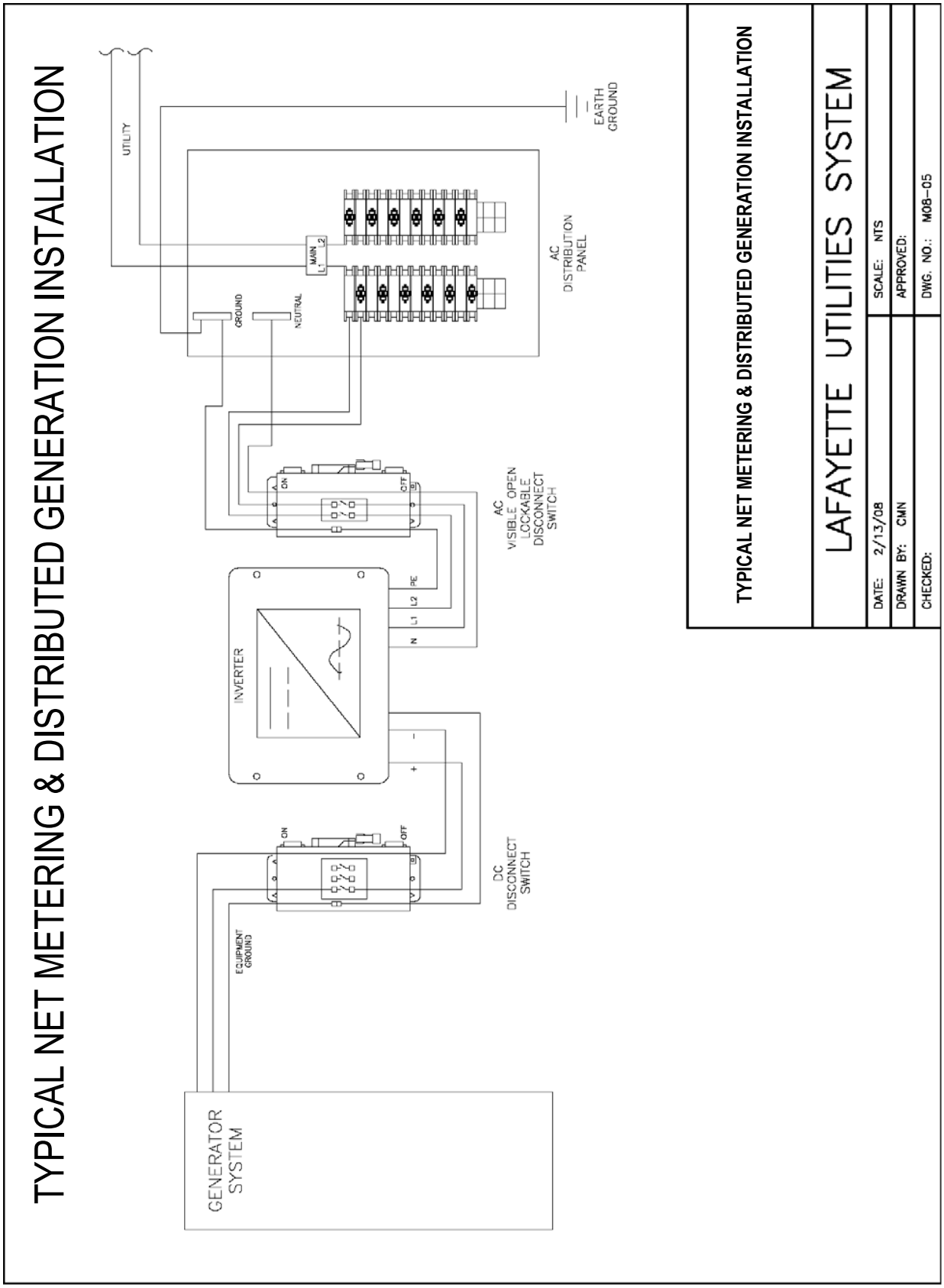
5. NET METERING & DISTRIBUTED GENERATION FLOW SHEETS



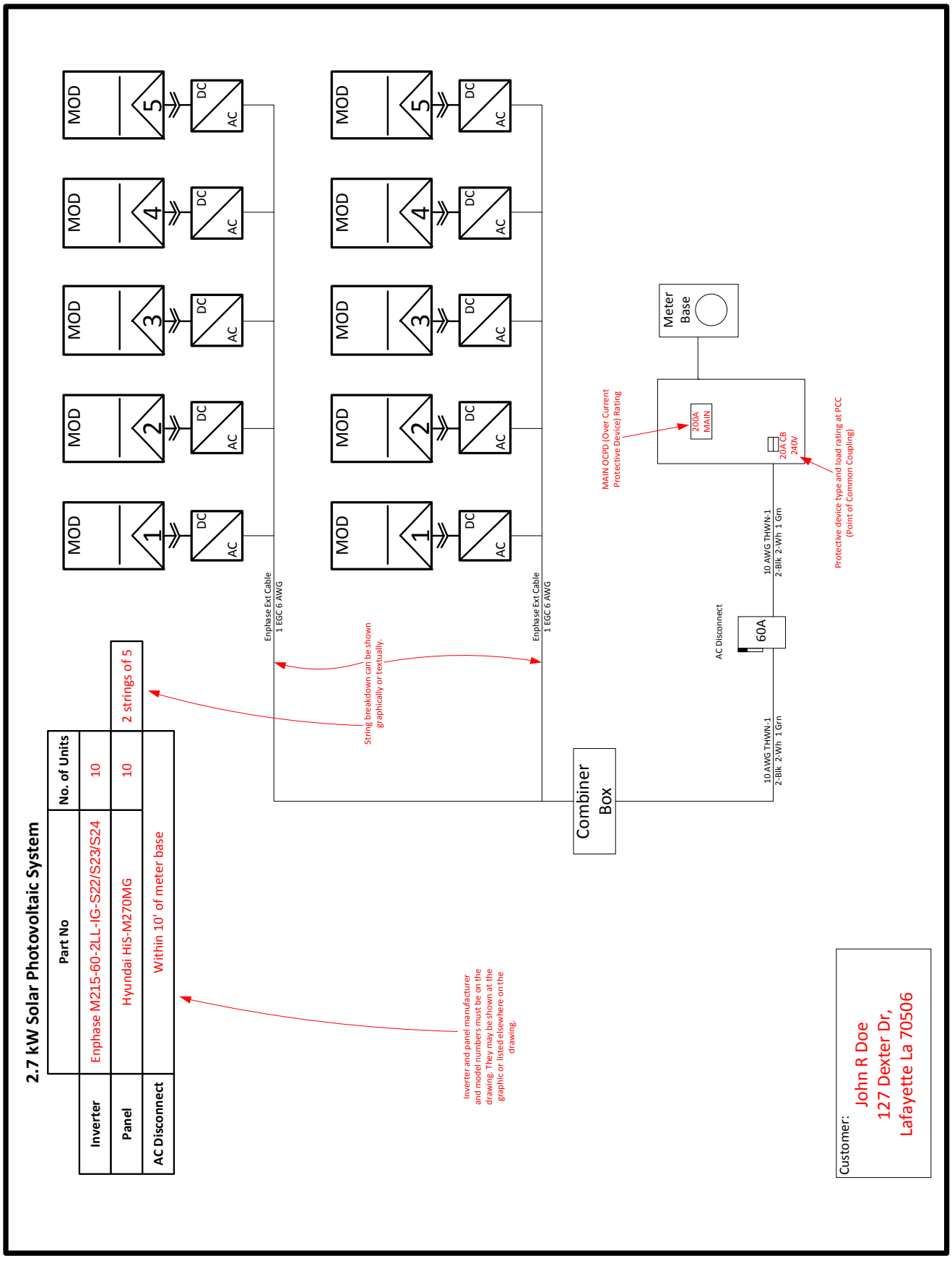
5. NET METERING & DISTRIBUTED GENERATION FLOW SHEETS AND DIAGRAMS



5. NET METERING & DISTRIBUTED GENERATION FLOW SHEETS AND DIAGRAMS



Sample Drawing



Annex A

Net Metering & Distributed Generation Interconnection Application

Net Metering & Distributed Generation Interconnection Application

LAFAYETTE UTILITIES SYSTEM

This form shall be completed and approved before the customer/contractor is allowed to apply for building and electrical permitting through the Lafayette Consolidated Government Planning, Zoning and Codes Division.
Enter information in the empty fields below. The Customer may want to have the contractor help fill out this application. Once complete, submit this form either electronically (email), through hand-delivery or by mail to:

Lafayette Utilities System
Net Metering
1314 Walker Rd.
Lafayette, LA 70506

Facility Address: _____ **Application Date:** _____

Facility Owner Information

Facility Owner Name: _____ Contact: _____

Mailing Address: _____ City: _____ State: ____ Zip: _____

Phone No (Daytime):_____ Phone (Evening): _____

System Information

Type (circle one): Solar Wind Biomass

Generator/Inverter Mfr. and Model No: _____ Qty: _____

Voltage: _____ VAC Phase: _____ Power Factor: _____ Frequency: _____ hz

AC Output: _____ kW Meets applicable standards? ☐ UL1741 ☐ IEEE1547

Solar Panel Mfr. And Model No: _____ Qty: _____

Location of AC Disconnect (relative to meter base): _____

Installer Information

Installer: _____ Contractor License No: _____

Mailing Address: _____ City: _____ State: ____ Zip: _____

Phone No (Daytime):_____ Phone (Evening): _____

Drawing Requirements:

- A complete one line diagram originating at the generation source and ending at the utility meter, including all equipment and Over-Current Protection Device (OCPD) ratings, directly connected to or associated with the Renewable Energy Facility
- Site address
- Generator/Inverter manufacturer, model number and quantity
- Solar panel manufacturer, model number and quantity, number of strings, panels per string
- AC disconnect distance to meter base

NOTE: *All equipment and quantities should match application.*

Lafayette Utilities System Use Only

Approved: _____ Date: _____

Annex B

Net Metering & Distributed Generation Interconnection Agreement

Lafayette Utilities System
STANDARD INTERCONNECTION AGREEMENT FOR NET METERING AND DISTRIBUTED GENERATION FACILITIES

I. STANDARD INFORMATION

Section 1. Facility Owner's Information

Name: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Facility Location (if different from above): _____

Daytime Phone: _____ Evening Phone: _____

Section 2. Renewable Energy Facility Information

System Type (circle one): Solar Wind Hydro Geothermal Biomass Fuel Cell Micro Turbine

Generator Inverter Manufacturer/Model: __ No of Units: _____

Generator/Inverter Input Rating (kW): ____ AC or DC Output Rating (kW): ____ AC

Generator/Inverter Power Rating (KVA): _____

Generator/Inverter Location: _____

Solar Panel Manufacturer/Model: _ No of Units: _____

Describe Location of Accessible and Lockable Disconnect: _____

_____

Section 3. Installation Information

Attach a detailed electrical diagram of the net metering or distributed generation facility.

Installer: _____ Contractor License Number: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Installation Date: _____

Section 4. Certification

The facility has been installed in compliance with the local Building/Electrical Code of Lafayette Parish and the municipality of _____. Permit Number: _____ Date: _____

Section 5. Utility Verification and Approval

Facility Interconnection Approved: _____ Date: _____

Metering Facility Verification By: _____ Date: _____

II. INTERCONNECTION AGREEMENT TERMS AND CONDITIONS

This Interconnection Agreement for Net Metering and Distributed Generation Facilities ("Agreement") is made and entered into by Lafayette Utilities System ("Utility") and _, a(n) _____, each hereinafter sometimes referred to individually as "Party" or collectively as the "Parties". In consideration of the mutual covenants set forth herein, the Parties agree as follows:

Section 1. The Net Metering Distributed Generation Facility

The Net Metering or Distributed Generation Facility meets the requirements of "Net Metering Facility" or "Distributed Generation Facility", as defined in the Lafayette Utilities System Net Metering & Distributed Generation Interconnection Standards ("Net Metering & Distributed Generation Facility Standards").

Section 2. Governing Provisions

The terms of this agreement shall be interpreted under and subject to Louisiana Law. The parties shall be subject to the provisions of The Louisiana Renewable Energy Development Act, La. R.S. 51:3061 et seq., the terms and conditions as set forth in this Agreement, and the Net Metering & Distributed Facility Standards.

Section 3. Interruption or Reduction of Deliveries

The Utility shall not be obligated to accept and may require the Facility owner to interrupt or reduce deliveries when necessary in order to construct, install, repair, replace, remove, investigate, or inspect any of its equipment or part of its system; or if it reasonably determines that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with prudent electrical practices. Whenever possible, the Utility shall give the Facility owner reasonable notice of the possibility that interruption or reduction of deliveries may be required. Notwithstanding any other provision of this Agreement, if at any time the Utility reasonably determines that either the facility may endanger the Utility's personnel or other persons or property, or the continued operation of the Facility owner's facility may endanger the integrity or safety of the Utility's electric system, the Utility shall have the right to disconnect and lock out the Facility owner's facility from the Utility's electric system. The Facility owner's facility shall remain disconnected until such time as the Utility is reasonably satisfied that the conditions referenced in this Section have been corrected.

Section 4. Interconnection

The metered customer of the facility owner shall deliver the as-available energy to the Utility at the Utility's meter. Utility shall furnish and install a standard bi-directional kilowatt-hour meter if one does not already exist. The Facility owner shall install a meter socket, provided by the Utility, for the Utility's meter and any related interconnection equipment per the Utility's technical requirements, including safety and performance standards.

Following notification by the Facility owner, the utility shall review the plans of the facility and provide the results of its review to the Facility owner within fifteen (15) calendar days. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

To prevent a net metering or distributed generation system from back-feeding a de-energized line, the Facility owner shall install a manual disconnect switch with lockout capability that is accessible to utility personnel at all hours. This requirement for a manual disconnect switch may be waived if the following three conditions are met: 1) The inverter equipment must be designed to shut down or disconnect and cannot be manually overridden by the Facility owner upon loss of utility service; 2) The inverter must be warranted by the manufacturer to shut down or disconnect upon loss of utility service; and 3) The inverter must be properly installed and operated, and inspected and/or tested by utility personnel. The decision to grant the waiver will be at the Utility's discretion.

The Facility owner, at its own expense, shall meet all safety and performance standards established by local and national electrical codes including the National Electrical Code (NEC), the Institute of Electrical and Electronics Engineers (IEEE), the National Electrical Safety Code (NESC), and Underwriters Laboratories (UL). The Facility owner, at his own expense, shall meet all safety and performance standards adopted by the utility and pursuant to Net Metering & Distributed Generation Facility Standards 3.8.1 that

are necessary to assure safe and reliable operation of the net metering and distributed generation facility with the utility's system.

The Facility owner shall not commence parallel operation of the net metering or distributed generation facility until the net metering or distributed generation facility has been inspected and approved by the Utility. Such approval shall not be unreasonably withheld or delayed. Notwithstanding the foregoing, the Utility's approval to operate the Customer's net metering or distributed generation facility in parallel with the Utility's electrical system should not be construed as an endorsement, confirmation, warranty, guarantee, or representation concerning the safety, operating characteristics, durability, or reliability of the Facility owner's net metering or distributed generation facility.

Modifications or changes made to a net metering or distributed generation facility shall be evaluated by the Utility prior to being made. The Facility owner shall provide detailed information to the Utility in writing describing the modifications or changes prior to making the modifications to the net metering or distributed generation facility. The Utility shall review the proposed changes to the facility and provide the results of its evaluation to the Facility owner within fifteen (15) calendar days of receipt of the Facility owner's proposal. Any items that would prevent parallel operation due to violation of applicable safety standards and/or power generation limits shall be explained along with a description of the modifications necessary to remedy the violations.

Section 5. Maintenance and Permits

The Facility owner shall obtain any governmental authorizations and permits required for the construction and operation of the net metering or distributed generation facility and interconnection facilities. The Facility owner shall maintain the net metering or distributed generation facility and interconnection facilities in a safe and reliable manner and in conformance with all applicable laws and regulations.

Section 6. Access to Premises

The Utility may enter the premises to inspect net metering or distributed generation facility's protective devices and read or test the meter. The Utility may disconnect the interconnection facilities without notice if the Utility reasonably believes a hazardous condition exists and such immediate action is necessary to protect persons, or the Utility's facilities, or property of others from damage or interference caused by the Facility owner's facilities, or lack of properly operating protective devices.

Section 7. Indemnity and Liability

Each party shall indemnify the other party, its directors, officers, agents, and employees against all loss, damages expense and liability to third persons for injury to or death of persons or injury to property caused by the indemnifying party's engineering design, construction ownership or operations of, or the making of replacements, additions or betterment to, or by failure of, any of such party's works or facilities used in connection with this Agreement by reason of omission or negligence, whether active or passive. The indemnifying party shall, on the other party's request, defend any suit asserting a claim covered by this indemnity. The indemnifying party shall pay all costs that may be incurred by the other party in enforcing this indemnity. It is the intent of the parties hereto that, where negligence is determined to be contributory, principles of comparative negligence will be followed and each party shall bear the proportionate cost of any loss, damage, expense and liability attributable to that party's negligence.

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 Utility, its officers, agents or employees shall be liable for any claims, demands, costs, losses, causes of action, or any other liability of any nature or kind, arising out of the engineering, design construction, ownership, maintenance or operation of, or making replacements, additions or betterment to, the Facility owner's facilities by the Facility owner or any other person or entity.

Section 8. Notices
All written notices shall be directed as follows:

Attention:
[Utility]
Lafayette Utilities System
1314 Walker Rd.
Lafayette, LA 70506

Attention:
[Facility owner]
Name: _____
Address: _____
City: _____

Section 9. Term of Agreement
The term of this Agreement shall be the same as the term of the utility's electric service to the property at the Facility Location specified in this Agreement. This Agreement shall remain in effect until modified or terminated in accordance with its terms or applicable regulations or laws.

Section 10. Installation Costs
Per Section 94-209 of Lafayette Consolidated Government code of Ordinances the Customer shall be responsible for all costs associated with the installation of the bi-directional kilowatt-hour meter. LUS shall charge the Facility owner an installation fee of sixty (60) dollars.

Section 11. Assignment
This Agreement and all provisions hereof shall inure to and be binding upon the respective parties hereto, their personal representatives, heirs, successors, and assigns. The Facility owner shall not assign this Agreement or any part hereof without the prior written consent of the Utility, and such unauthorized assignment may result in termination of this Agreement.

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

Facility Owner

By: _____
(PRINT FACILITY OWNER NAME)
Title: _____

By: _____
(PRINT FACILITY OWNER NAME)
Title: _____

Lafayette Utilities System

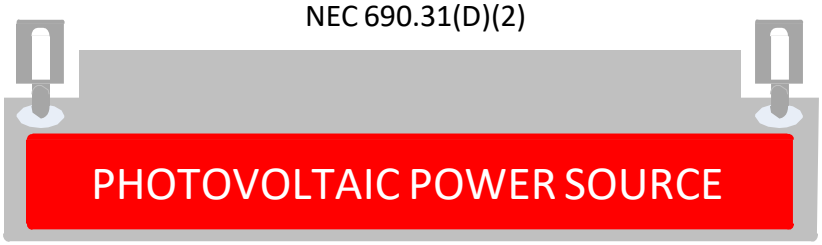
By: _____
Title: LUS Director
Dated: _____

Annex C

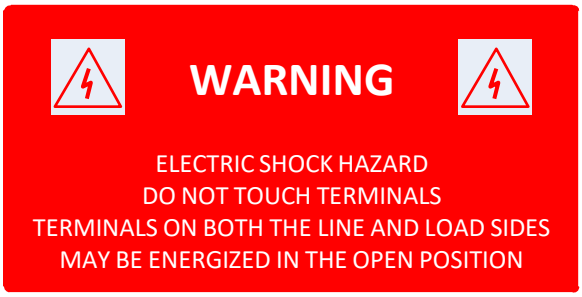
NEC 2023 Labeling Requirements

NEC 2023 Labeling Requirements

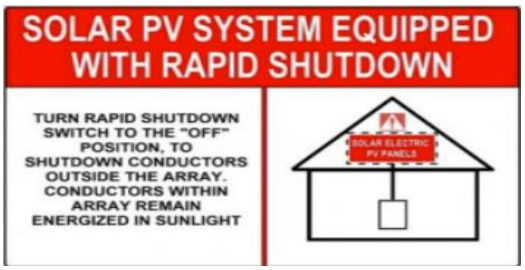
NEC 690.31(D)(2)



NEC 690.13(B)



NEC 690.12 (D)



NEC 690.31(E)(3)

NEC 690.15(B)

NEC 690.13(B)

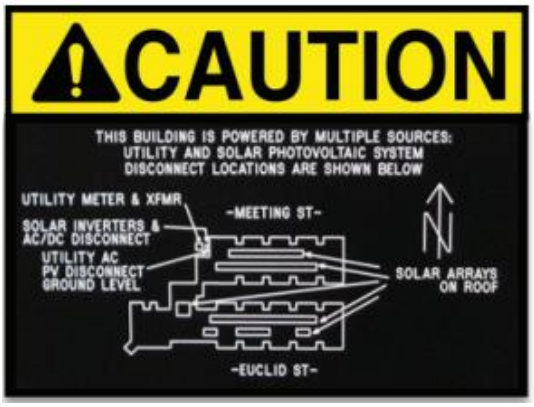
NEC 690.7

NEC 705.30 (C)

NEC 705.12 (B)(3)

NEC 705.12 (B)(2)

NEC 690.56 / 705.10



Some NEC articles require labeling or placards specific to the system installed. It is the responsibility of the installer to ensure these labels and placards are installed and designed such that they convey the intended information required by the NEC article. Those articles are not limited to the ones listed below.

NEC 690.7(D)
NEC 690.12(D)
NEC 690.13(B)
NEC 690.15(B)
NEC 690.31(D)(2)
NEC 690.31(E)(2)
NEC 690.56/705.10
NEC 705.12(B)(2)
NEC 705.12(B)(3)
NEC 705.30(C)