Section 4: Metering

GENERAL

A Load Data Sheet is required for all three phase services and any single phase service greater than or equal to 400 amps.

NHEC may refuse to connect a service or install a meter on any metering installation that does not conform to NHEC's "Requirements for Electric Service Connections".

Meter sockets will be provided by Member.

Meters will be furnished, owned, and maintained by NHEC and shall be installed, removed, and changed only by authorized NHEC employees.

NHEC does not allow Master Metering; See NHEC Terms & Conditions.

REMOVING AND INSTALLING METERS

Only qualified personnel authorized by NHEC (Meter and/or Operations department), are permitted to cut seals, and remove or install meters. Under emergency conditions, exceptions may be granted to qualified electricians by contacting NHEC. When this occurs the party accepts all liability for damage or alteration to equipment, injury to persons or property, and loss of revenue to NHEC from the time the seal is removed until 72 hours after NHEC has been notified that the equipment is ready to be re-sealed. The Member or electrical contractor must promptly notify NHEC when repairs or modifications have been completed. Extreme caution must be used when meters are removed or installed. Depending upon the type of service or meter base, removal of the meter might not de-energize the service.

METER LOCATION

The Member must install the meter socket where it will be accessible to NHEC personnel. Meter socket locations require prior approval by a representative of NHEC. The Member must provide a location to install metering equipment. The meter location must be free from obstruction, corrosive atmosphere, abnormal temperature, vibration, and be convenient to NHEC distribution system. All meters, meter equipment, and enclosures must be readily accessible by NHEC's personnel during normal business hours for meter reading, maintenance, testing, installation, or removal.

The acceptable locations for meter socket are:

- Located outside, except for a pre-approved electrical room.
- Located on the front one-third of the house closest to normal public access and/or NHEC's service point.
- Located on the driveway gable side.
- Located in an area that is not subject to being fenced.
- Located on a structure that is owned by the Member.

The unacceptable locations for meter socket are:

- Above the first story level or below the first basement level of a building. Any exceptions to this rule must have the approval of NHEC's Meter Department before electrical installation begins.
- On poles not owned by NHEC.
- On any line pole occupied solely by the telephone company, except to serve telephone company equipment.
- In commercial occupancies they do not serve.
- Any place where safety may be compromised.
- Located under an eave with less than a 12 inch overhang, meter will require a shelter over it to prevent ice damage.
- On pad mount transformers.

The reasons for these requirements are:

- If there is a fire or other disaster, NHEC can disconnect service.
- So NHEC can read the meters in a safe, cost effective manner.
- So NHEC can efficiently maintain the meter.
- So NHEC employees can stay out of the Member's backyard.

METER SOCKET REQUIREMENTS

- Require NHEC approval (see approved listing at www.nhec.com)
- Meter socket must have an integral main breaker for services of 400 amp or less.
- Any Commercial or three-phase installations, 400 amps or less, require a meter socket with an integral main breaker and a lever by-pass.
- Be rated for exterior use, and be rain tight according to NEMA-3R
- Be UL (Underwriters Laboratory) approved for application.
- Have all unused openings tightly sealed from the inside of the socket
- Be plumb and securely fastened to the supporting structure.
- The meter socket may be ring or ringless type.
- Meter sockets shall not be altered or bypassed to provide power.
- Any meter socket containing energized equipment must be covered and sealed with a transparent cover plate when a meter is not installed.
- Terminals must be clearly marked with a Manufacturers listing and labeling for the intended use.

METER SOCKET LABELING

Multiple meter sockets shall be permanently labeled to indicate the section or unit they serve. The label shall be placed directly adjacent to the service switch or circuit breaker for the identified unit. Labels shall not be mounted on removable covers. The Member's name is not acceptable. The labels must be engraved phenolic identifying plates, fade resistant and at least one inch high. Felt-tip pens and label maker tape are not considered permanent markings. Service will not be established until marking is complete and verified for accuracy. For multi-metered unit locations each meter socket shall be marked with the appropriate unit number and verified by the installation electrician.

FACTORY BUILT MULTIPLE METER PANEL

Prior to shipment from the factory, the manufacturer must submit commercial multiple meter panel drawings to the NHEC Meter Department for approval.

SERVICE CONDUCTORS

Metered circuits must not enter raceways or enclosures containing unmetered circuits, except for meter loops on poles, or in specific situations approved by NHEC Meter Department. Enclosures and raceways that contain unmetered conductors must have provisions for sealing or locking by NHEC.

MEMBER LOAD MONITORING

The Member's load monitoring equipment must be installed only on the load side of the meter. No Member equipment is allowed inside a meter or current transformer enclosure.

CLEARANCE REQUIREMENTS

- The Member must provide and maintain the following clearances around all meter installations.
- The center of the meter must be between 5 and 5 1/2 feet above finished grade.
- A working space of 3 feet wide by 3 feet deep is required around the meter. This working space is to be kept clear of any obstructions including landscaping.

- Metering equipment must remain accessible, at all times.
- For propane device or equipment clearances, please see SP-4, located in the back of the book.
- Must meet the National Electrical Code clearance requirements.

ELECTRICAL ROOMS

Meter sockets may be located inside an electrical equipment room. The electrical room must be used solely for power and communication equipment. The electrical room must be well lit, accessible during normal business hours, and not used for storage. The Member is responsible for providing a location near the door for installation of a key box, a key for the box, and for installing a sign on the exterior door saying "Electrical Room."

GROUNDING

All meter sockets, enclosures, and conduit must be bonded and grounded in accordance with the latest edition of the NEC. A suitable means must be provided by the Member for attachment of other utilities to the Member's grounding electrode system.

SERVICES 400 AMPS OR LESS

SERVICE CONDUCTORS FOR SELF-CONTAINED METERING

Line-side conductors must always be connected to the top terminals of the meter socket. Service conductors must be arranged in the socket to avoid interfering with the meter installation or operation of the bypass. The member is responsible for ensuring that the connection of service entrance conductors in the meter socket are inspected and tightened before the service is energized. Meters will not be installed if conductors place undue strain on the terminal facilities. Terminals must be rated for the size of the conductor to be used. Strands must not be removed to make conductors fit under-sized terminals.

SEQUENCE OF EQUIPMENT

All self-contained service equipment must be metered ahead of the disconnect switch. Under special conditions, permission may be granted to modify this sequence in multiple meter installations of more than six meters, provided that all equipment ahead of the meters is capable of being sealed by NHEC.

BASIC SINGLE-PHASE SERVICE

The 120/240 volt, 200 ampere service is the most common service, and is typically installed on homes and some small businesses. However it is the Member's responsibility to determine electrical requirements and to notify NHEC of the service size needed.

SINGLE –PHASE 120/208 VOLT SERVICES

A five terminal meter socket is required on all single-phase networked 120/208 volt service. The fifth terminal must be in the nine o'clock position, connected to the socket neutral bus conductor.

THREE-PHASE

Three–phase service requires a seven terminal meter socket, the neutral (grounded) conductor must be connected to the third terminal from the left on the lower terminals.

SERVICES GREATER THAN 400 AMP

Provisions for current transformers must be made when the current-carrying capacity of the **service entrance conductors** exceeds 400 amps single phase or three phase, as determined by NHEC.

The Member is responsible for the following:

- **Member must supply load data survey sheet to the Meter Department for proper sizing of CT's.** ***See page 7 for "load Data Survey Sheet".***
- Provide and install a current transformer (CT) enclosure where designated by NHEC. The Member must install the CT enclosure on the supply side of the main disconnect, unless otherwise approved by NHEC's Meter Department.
- All CT enclosures require a minimum front clearance of 36 inches. Hinged CT enclosure doors must not block a safe exit or the meter while open. *Refer to Section 7 Specifications SP-4.*
- The top of the CT enclosure is a maximum of 8 feet above finished grade; the bottom is a minimum of 2 feet above the finished grade.
- All CT enclosures shall be located on the exterior of the building.
- All Member-supplied CT mounting equipment shall be listed and labeled, and shall be installed and used in accordance with any instructions included with that equipment.
- CT cabinet shall be mounted within 25' of the meter socket.
- CT cabinet and meter socket shall be mounted on the building wall, a back board or suitable pedestal.
- **NHEC may require a main breaker after the CT cabinet.**

SERVICE EQUIPMENT

The Member is responsible for furnishing, installing, and maintaining all required service entrance equipment, including the service conductors to the point of delivery designated by NHEC. For services where current transformers (CTs) are required, the Member must also run conduit from the CT enclosure to the meter base. NHEC supplies the CTs and meter wiring.

EQUIPMENT

Current transformer (CT) enclosures, switch gear, gutters that contain unmetered conductors, and metering equipment must have provisions for sealing. Contact NHEC's Meter Department to obtain access for inspection.

NHEC will furnish, install, and maintain the following equipment:

- Revenue meters
- Current transformers
- CT meter wiring

The Member is responsible for furnishing, installing, and maintaining the following equipment beyond the point of delivery:

- Approved meter sockets, see approved list for Meter Socket and CT enclosures on the NHEC website or call and one will be provided.
- All necessary wiring, connectors, and lugs (except CT meter wiring).
- Current transformer cabinet upon NHEC's approval.
- Switches
- Conduit

CT METERING CIRCUIT CONDUIT.

NHEC requires 1 ¼ inch conduit between the meter socket and CT enclosure which shall be provided and installed by the Member. Conduit must be as short as possible and cannot exceed 25 feet in length, and shall be installed according to NHEC's requirements. A pull-string of 1/4 inch polypropylene rope is required in all meter conduits.