# Section 3 – General Metering and Services

# 3-1 Company Metering Policies

## 3-1.1 Metering Safety

Only Company-authorized personnel are permitted to make connections, cut meter seals, and remove meters. If any such customer actions are suspected or detected, the Company will investigate. Unauthorized removing of Company seals is unlawful and may result in a billing for the investigation and replacement of the seal, as well as criminal prosecution.

An unobstructed and level working space in front of the meter and Company facilities on customer property shall be provided. This space shall be a minimum of 3 feet in front of the meter with a vertical clearance of 6 feet 6 inches and two feet of horizontal clearance on either side. Free space in front of instrument transformer cabinets shall be 2 feet beyond the cover in the extended position or a minimum of 3 feet, whichever is greater. (See NEC 110.26). Clearances around all other company facilities is 6 feet in front of the work location.

Indoor meter locations, where grandfathered, shall be dry and free of hazardous conditions.

If customer-owned equipment is found in an unsafe condition, the customer shall be required to make changes to their equipment to make the condition safe. The customer will be notified of the condition in writing and provided with a timeline to correct the issue. If a customer fails to correct the issue and comply with these rules within a reasonable length of time after receiving notification of being in noncompliance, the Company reserves the right to discontinue electric service until the customer has made the required changes.

## 3-1.2 Available Voltages

The Company furnishes 60 hertz alternating current, single- and three-phase, at various voltages. Not all types of service are available at every location.

The Company should be consulted as to the type of service available in any area before wiring layouts are made, equipment is purchased, or when extensive wiring changes are contemplated.

Service types and nominal voltages furnished are as follows:

Single-Phase, 120/240 Volt, 3-Wire - This service is available to customers whose demand will not exceed 800 amp (250 KVA). For services greater than 400 amps, customers are encouraged to consider a three phase service.

Three-Phase, 120/208 Volt, 3-Wire - This service is available to customers whose demand will not exceed 200 amps (50 KVA) due to high secondary neutral currents, associated voltage drop issues, and the severe phase imbalance problems on the three-phase transformer bank feeding this voltage. **This voltage is not preferred by the Company and is only available where 3 phase is present.**

Three-Phase, 480 Volt, 3-Wire - Existing customers with this service voltage will be allowed to increase their demand at this voltage at the existing location up to the existing main switch rating, not to exceed 2500 KVA. **This voltage is closed to new customers.**

Single & Three-Phase, 120/240 Volt, 4-Wire Delta - Existing customers with this voltage or 240 volt, 3-phase, 3-wire delta will be allowed to increase their demand at this voltage at the existing location up to the existing main switch rating, not to exceed 1500 kVA. **This voltage is closed to new customers.**

Combination Single & Three-Phase, 120/208 Volt, 4-Wire Wye - This service is available to customers where the demand will not exceed 2000 amp (750 KVA). The upper limit of 750 KVA is intended to prevent overly large

services and the resulting congestion at the transformer setting and customer service entrance. For service capacities above 1600 Amperes, contact the Company for details.

Combination Single & Three-Phase, 277/480 Volt, 4-Wire Wye - This service is available to customers where the demand will not exceed 3000 amp (2500 KVA). The upper demand limit is intended to prevent overly large services and the resulting congestion at the transformer setting and customer service entrance. For service capacities above 1600 Amperes, contact the Company for details.

## 3-1.3 Service Location

The location of the customer's service entrance shall in all cases be designated by the Company. The Company or its representatives shall make all connections to its lines. In no case shall these connections be made by anyone other than a Company representative. To avoid misunderstanding and additional expense, the Company shall be consulted concerning all new service connections.

## 3-1.4 Number of Services

A customer is allowed one meter per voltage class for each structure.

Rate orders and administrative law require that all customer load be metered through one-meter point. This requirement is to avoid circumventing the intent of a rate and to minimize utility investment. MI R460.3605(2) states "Every reasonable effort shall be made to measure at 1 point all the electrical quantities necessary for billing a customer under a given rate."

For example, a customer may not have a 120/240V single phase-service and a 120/240V three-phase service to the same structure. However, a customer is permitted to have a 120/240V single-phase service and a 277/480V three-phase service at the same structure.

Customers with an existing three-phase service do not qualify for a second three-phase service of the same voltage class unless approved by the Company. For example, a customer with a 120/208V three phase-service does not qualify for a 120/240V three-phase service at the same structure.

Unless approved by the Company, any second service and/or meter shall be billed as a separate customer.

Examples for this rule are:

1. A property with two separate residences (different structures) would qualify for one service to each residence.
2. A property with a residence and a second building or facility used for domestic purposes would qualify for one service unless the second building is greater than 150 feet from the residence at their closest point. The second building is assigned a residential rate when used for domestic purposes only.
3. A property containing a residence and another building used for commercial purposes would qualify for one service to each building.
4. A property containing multiple commercial buildings used for the same business, qualifies for one service. The intent is that electricians should weigh the cost of the Company providing the feeds to other buildings (using special facility charges) with the cost of doing it themselves. Note that it is not acceptable to provide additional services just to circumvent the intent of a rate design.
5. A property containing two commercial buildings engaged in two separate businesses would qualify for one service to each building.
6. Multiple conductors originating from the same transformer, following the same route to the building, and hitting multiple side-by-side disconnects, are considered by code to be one service. (NEC 230.2).

Exceptions to these rules are:

a. Multiple Metering - Where more than one point of metering is necessary because of interruptible service rate, governmental requirements or regulatory rules.
Examples:
1. House meters or common area meters for multi residential occupancy buildings, as required by NEC 210.25.
2. Multiple-occupancy buildings where there is no available space for service equipment accessible to all occupants. This case requires inspector approval. NEC 230.2(B).
3. Legacy programs.

b. Large Loads - An additional service may be granted for loads that exceed the available service sizes listed in Section 3-1.2. These cases must meet the electrical code requirements, including inspector approval. The Company may refuse to supply two separate services where there is no indication of sufficient load.

c. Voltage Drop / Power Quality - In cases where loads experience significant voltage drop or power quality issues and where voltage regulation and power conditioning would be unreasonable. The customer must exhaust all possible solutions to mitigate the problem to the satisfaction of the Company.

d. Fire Walls - Where a structure is divided by a substantial firewall extending through the roof in accordance with state codes. The county electrical and/or building inspector must approve all firewalls.

e. Fire Pumps / Misc - Fire pumps, other emergency electrical systems, parallel power production systems, or multiple sources of supply for purposes of enhanced reliability, that require a separate service (special facilities charge). (See Subsection 6.2-8 on fire pumps.)

If not approved by the Company, the customer shall pay in advance for the second service as special facilities; however, the customer shall be given the option of a written agreement to receive a refund of the special facilities payment if its entire load is converted to the new service within a five- (5) year period. The Company reserves the right to deny all special facilities.

## 3-1.5 Customer Service Laterals

The customer service laterals (underground conductors past the metering point) are owned and maintained by the customer. The customer is responsible for maintaining and locating underground cable. (NEC 300.5 requires the use of locating ribbon for customer-owned service laterals). There may be charges involved in de-energizing the customer service laterals for customer work. The Company highly recommends that an overcurrent protection device be installed ahead of such direct buried cable.

One service to a group of buildings used in the same business is encouraged. The Company reserves the right to specify service location and service voltage. Any additional services, meters, or transformers requested by a customer that do not meet the rules below will be treated as **special facilities**.

See Appendix B for additional NEC code information regarding multiple service laterals.

## 3-1.6 Increased/Decreased Loads

The Company shall be given reasonable notice of an increase to customer loads to avoid outages, poor power quality, and/or damage to Company equipment. This policy applies to both temporary/portable equipment (welders, air compressors, RVs, etc) and permanent facilities (sawmills, growing operations, etc). The Company cannot be held liable for damage associated with an unauthorized increase in load or delays in restoration of service due to damaged facilities/equipment. The Company may charge for the replacement cost of damaged Company facilities/equipment.

The Company reserves the right to decrease the size of the transformer servicing a customer facility to minimize the losses associated with a lightly loaded transformer.

The Company reserves the right to install power quality monitoring equipment to ensure equipment is properly sized.

Advanced notice of load changes shall be given to UPPCO Customer Service (See Section 1 for contact numbers).

## 3-1.7 Load Balancing

Customers shall connect their load to be as balanced as practicable. Three-phase customers (except 3-phase, 4-wire delta) shall attempt to connect equipment so that the load of any one phase will not exceed the load of any other phase by more than ten (10) percent.

## 3-1.8 Relocation of Facilities

A customer may be billed for the relocation of Company facilities requested by the customer or for the relocation as a result of a customer created code or company policy violations.

If changes are made to the customer's structure making the existing meter location unsafe or inaccessible for reading and testing, the customer shall be required to make changes in the wiring so that the meter may be relocated to comply with Company policy. If a customer fails to comply with Company policy within a reasonable length of time after receiving a written notification of being in noncompliance, the Company reserves the right to discontinue electric service until the customer has made the required changes.

## 3-1.9 Underground Service Installation

The Company is responsible for the installation of conduit and wire before the point of metering, including the digging of the trench. The Company will not use any wire supplied by the Customer.

Company service conductors will be placed in conduit if conditions warrant. Examples include:

- under surfaces where laying out conductors on the ground for emergency conditions is not practical
- where soil conditions warrant, such as rock, gravel, and areas prone to frost heave

## 3-1.10 Resale of Energy

Service shall be for the customer's use only and may not be sold, re-metered or otherwise disposed of by the customer to lessee, tenants or others, except with the consent of the Company in accordance with the Company's appropriate rate and appropriate state laws.

This does not prohibit the installation of test or check meters for informational purposes.

Including the cost of electric service in the rent without identification as such is permitted.

Refer to Section 7 for distributed generation requirements.

## 3-1.11 Theft of Service

Theft of service or tampering may result in criminal prosecution and/or billing.

The Company utilizes Advanced Metering Infrastructure (A.M.I) which provides near real time tamper and theft detection.

Only Company-authorized personnel are permitted to make connections, cut meter seals, and remove meters. If any such customer actions are suspected or detected, the Company will investigate for the possibility of theft of service.

If the investigation determines that electricity is being stolen, the service will be disconnected.

Prior to restoration of service, the customer's service entrance equipment shall be made tamper resistant in accordance with Company requirements; and satisfactory arrangements will have been made for payment of the estimated amount of unmetered electricity.

For Michigan rules dealing with theft or interference with the providing of electric service, see Rule 460.3409 - Utility Rights and Requirements, Rule 750.282 - Utility interference Penal Code, and Rule 750.356 - Larceny Penal Code.

## 3-2 General Metering Requirements

1. Ground electrode conductors will not be allowed in the meter socket or meter pedestal or CT cabinet unless that is also where the main is located.
2. The K-7 bolt in meter sockets are no longer acceptable for any installation.
3. The Company will not re-energize any 60 amp service that has been de-energized and requires an electrical inspection. (NEC 230.79 (C))
4. The main disconnect must be rated for a minimum of 22,000 amps of fault current.
5. For service capacities above 1600 Amperes, contact the Company for details
6. The Company requires all facilities to be metered unless consumption can be readily computed. (MI Rule 460.3301)
7. The customer shall furnish, install, and maintain all metering equipment, including meter sockets, switches, fuses, circuit breakers, termination enclosures, and associated equipment, as well as, electrical masts and service conductors below the weather head.
8. The electric meter shall be outside.
9. The electric meter shall not be covered or caged.
10. Customers shall provide a suitable location for meters and associated equipment determined by and without charge to the Company.
11. Meters shall be installed in an accessible location to enable them to be safely read, inspected and tested at reasonable times with a minimum of inconvenience to the customer and Company.
12. Line-side lugs shall be furnished and installed by Company. Load-side lugs shall be furnished and installed by the customer.
13. The customer shall be responsible for providing protection for the meter(s) from damage caused by falling ice, snow or other objects. In locations where the meter is not protected by roof overhang, the customer shall provide a protective shield. (See Subsection 3-4 for shield specifications).
14. The meter location shall be on a solid structure free from vibration and possible mechanical damage.
15. Metering equipment shall be adequately supported to maintain the meter socket in a level and plumb position. [NEC 110.13(A)].
16. Meters shall not be installed in patio, porch, deck, lean-to, or carport areas or areas likely to be enclosed.
17. Soil or groundwater conditions generally require the installation of above-ground entry of underground service conductors to prevent seepage or water entering through the entrance conduit. The Company shall not be responsible for any damage caused by water seeping into the structure.
18. At earth berm buildings that do not have an exposed side suitable for the meter location, the service shall be terminated at a meter pedestal. (Subsection 2-7).
19. Customer-owned lightning arresters or other surge protection devices, if used, shall be installed on the load side of the customer's service overcurrent protective devices unless specific approval has been received from the Company to install them ahead of the overcurrent protective devices.
20. Insulated neutral or grounded conductors of a service entrance shall be identified by a white or natural gray color. Four-wire 120/240 volt delta installations shall have the conductor with the higher voltage to ground identified orange over its entire length or shall be identified with orange paint or tape at any point when a connection is to be made.
21. The Company will under no circumstance permit "jumpers" to be placed in meter sockets which results in unbilled energy. Jumpers in the meter socket will be considered theft and prosecuted as such.
22. Metered and unmetered conductors shall not be installed in the same conduit or raceway.
23. The Company shall not permit meters or instruments other than its own to be connected to its meter wiring
24. In March of 2024, Michigan adopted both the 2020 and 2023 NEC code:
    a. An emergency disconnect is now required per section 230.85 for all one- and two-family dwellings.
    b. The location of the main service disconnect shall be located either adjacent to the metering installation or at the nearest point of entry on the building or structure.
    c. If using an external disconnect to the meter pedestal or base, the exiting wires from the disconnect can't go back into the meter base/pedestal.
    d. The disconnect must be fused or a breaker.
    e. For existing installations, a disconnect will be required if the service wire is changed or meter base/pedestal.

## 3-3 Multiple Occupancy Metering / Cell Towers

1. All metering shall be outside.
2. One service per voltage class
3. Michigan law requires the disconnects to be grouped.
    - It is the customer's responsibility to label the location being served by each meter and disconnect as required by NEC 110.22. The Company shall not be responsible for errors as a result of poor labeling.
4. Multi-occupancy Buildings:
    - The Company can only run one service to a multi-occupancy building.
    - To be considered separate buildings, a multi-occupancy building must have a fire wall extending through the roof. The county electrical and/or building inspector must approve all firewalls.
    - NEC 210.25 requires a separate meter for common areas of multi-occupancy buildings.
    - NEC 230.2(A & B) allows an additional service for special occupancies, please consult the Regional Engineer in these cases.
    - See Section 2-6 for clearances pertaining to large multiple metering installations.
5. Cell Towers:
    - Only one service will be run to a tower or a group of towers under one management (owner).
    - The Company will terminate the service at a single location. Acceptable points are pre-manufactured multiple meter packs (refer to metering requirements and Appendix A) or approved termination enclosures.
    - The Company will allow multiple services and/or metering locations, to preserve continuity of service, for a period of 6 months when the customer is performing upgrades.

## 3-4 Meter Protection from Snow and Ice

The customer is responsible to provide a safe location for the electric meter to protect them from damage. An ice/snow shield is mandatory on the pitched side of metal buildings (provided by the customer). A shield is highly recommended for other areas.

The shield must be constructed to handle the force of falling ice/snow from a given height. A metal shield should be constructed, primed, and painted with a minimum of 10-gauge metal. The protective shield does not have to be constructed using metal but must be constructed using good engineering and construction practices.

Below is a recommended design and construction drawing.