SECTION 6

MU - POLICIES AND RULES

6.1 Code Compliance and Inspection

All wiring must be done in accordance with the requirements of the Wisconsin Administrative Code Volume 2 Electrical Code. Volume 2 essentially follows the National Electrical Code (NEC) requirements with few changes and several additions. Wiring must also comply with any MU rules and local requirements which may apply.

All new electrical services or changes to existing services within the city limits of Marshfield will require an inspection by the Marshfield electrical inspector prior to any service work being performed by MU. Service changes within the village limits of Hewitt will require an inspection by the Hewitt electrical inspector. For areas outside the city limits of Marshfield or the village limits of Hewitt, an inspection completed by the authorized township inspector must be completed. A form stating code compliance from the inspector shall be given to MU.

MU will not interpret the electrical code. Questions concerning electrical code interpretations should be referred to the local or state electrical inspector.

MU is not responsible for the inspection of the customer's wiring or electrical equipment. However, if a MU employee discovers the customer's wiring or equipment is unsafe or in violation of the state or local codes, MU will withhold or disconnect service.

6.2 Continuity and Quality of Service

MU will use reasonable care to provide uninterrupted supply of service and shall not be liable for any loss, injury, or damage resulting from interruptions of service not due to negligence on its part.

MU shall have the right to cause service to any customer to be interrupted or limited at any time without liability, by automatic devices or otherwise, when in the judgement of MU such interruption or limitation of service is necessary or desirable due to emergency conditions.

MU may also curtail or temporarily interrupt the customer's electric service in order to make repairs, replacements, or changes to MU's facilities either on or off the customer's premises. MU will, whenever practical, give notice to the customers who might be seriously affected by such suspension or curtailment of service.

MU will use reasonable care to provide service of acceptable quality, but shall not be liable for any loss, injury, or damage resulting from deficiencies or imperfections of service not due to negligence on its part.

6.3 Service Outages

At various times MU will require scheduled or non-scheduled outages to safely perform construction or maintenance work on the electric system. Listed below are some guidelines related to scheduled outages.

a) Utility Requested Outages – Residential
These outages will normally be scheduled during work hours.

b) Utility Requested Outages – Commercial/Industrial
These outages are scheduled during normal work hours whenever feasible. If not feasible, MU will shift work hours to attempt to complete them earlier in the morning or later in the afternoon. If this is not feasible, and if the outage will cause a loss of revenue or significant inconvenience for our customers, we will schedule the outage on weekends at a mutually agreeable time. If the outage time suggested by the customer will result in extraordinary cost or difficulty for MU, the customer shall be responsible for the added costs.

c) Customer Requested Outages
These outages should be done during normal work hours if possible. If the work is requested to be completed after hours or on a weekend, the customer shall be responsible for the full cost incurred by MU.

These guidelines for scheduled outages shall be followed whenever practical. However, each case may have to be reviewed to take into consideration any extenuating circumstances.

6.4 Service Utilization

All motors, appliances, welders, or equipment interconnected to MU system Infrastructure shall be designed, installed, and operated to avoid causing interference to other customers, service equipment, or MU in maintaining proper system conditions.

The customer shall provide motor protection for under-voltage, over-voltage, and loss of phase or phase reversal.

MU will do its best to provide service in compliance with the Wisconsin Administrative Code. This Code allows voltage transients of an infrequent nature, which may adversely affect the operation of certain sensitive equipment. The customer shall provide protection, uninterruptible power supplies, or other accessories needed to prevent undesirable operation of sensitive equipment caused by these transients.

It is normal for MU's system neutral to have low voltage levels, particularly in rural areas. This voltage creates no difficulty for most customers. If the customer experiences a

problem with this voltage, it may be possible to use available measures to reduce it. The customer and electrician can help mitigate any problem by ensuring proper grounding and bonding of wiring and other electrical equipment on the customer's premises.

6.5 Resale of Energy

Generally resale of energy will not be permitted by MU. Conversely, there may be extenuating circumstances necessitating the resale of energy. MU must be consulted for a situation believed to require the resale of energy. If MU grants permission for the resale of energy, the rate charged cannot exceed the current rate MU charges customers. The installation of test or check meters are allowed for informational purposes.
When meters are used for testing or accounting purposes, the customer is responsible for purchasing, installing, and maintaining such meters.

MU does not sell electric meters.

6.6 Diversion (Theft) of Electricity

State law allows MU to prosecute persons who tamper with metering or other service equipment or who attempt to steal electricity. It is the intention of MU to prosecute such offenders to the full extent of the law. Common violations of the law could include:

- Energizing a new service without proper authorization
- Re-energizing a service which has been disconnected by MU for nonpayment or other reasons.
- Bypassing a meter, jumpering a meter socket, or in any other way diverting energy around the meter.
- Breaking meter seals or entering metering equipment, service termination boxes, wire raceways, and service entrance switches containing unmetered conductors without proper MU authorization.

The customer shall be responsible for compensation to MU for any energy consumed, but not metered, whether intentional or not. All costs (labor, vehicle, etc.) associated with investigation, fixing, reconnecting, etc. will be the customer's responsibility. See MU rate file 201.5 for additional information.

6.7 Meter Socket Access

Only MU employees are normally allowed to remove meter seals from MU meter installations. An electrical contractor requiring access to a meter socket is to contact MU. MU will dispatch an employee to the site or grant permission for the electrical contractor to break the meter seal for inspection and testing purposes. Only MU employees are allowed to remove or set meters.

MU will seal all access panels on equipment located ahead of the meter in addition to the meter socket cover.
Only MU employees are to seal meter installations. The socket and related wiring is to be thoroughly inspected before any seal is placed. The electrical inspector may seal a meter on which he/she has broken the seal for inspection purposes. He/She shall not seal an otherwise unsealed meter.

6.8 Utility Equipment on Customers Premises

MU shall have the right to install, inspect, and maintain its equipment on the customer's premises as necessary to furnish proper service. This includes the right to have access to electric meters at all reasonable times, including unrestricted access for meter readings, maintenance, inspections, etc. All such equipment will remain MU property and MU shall have the right to remove it upon discontinuance of service.

The customer shall be responsible for damages and losses resulting from interference, tampering, or damage MU equipment caused or committed by the customer. In the event MU equipment is interfered with, tampered with, or damaged, MU may require the customer to install tamper-proof equipment, relocate equipment, or repair or replace damaged equipment. Such expense will be borne by the customer.

6.9 Cable Locates

State law dictates that no digging or excavating (including the installation of ground rods, etc.) be done in any area where electrical wires are buried until those wires are located and marked by MU. MU or MU contracted locating service will locate MU owned electrical underground wires at no charge. All locate requests are to be called into Digger's Hotline at least three (3) working days before the excavation is to take place. Note: MU is not responsible for locating any underground wires owned by the customer that are located beyond the metering point. Violations of this statute will be reported by MU to the proper authorities.

6.10 Line Extensions on Other than Private Property

MU shall obtain all necessary licenses or permits for rights-of-way along the route, which are not on private right-of-way such as highway permits, railroad licenses, etc. The customer requesting service is responsible for the associated costs, including license and permit fees.

6.11 Line Extensions on Private Property

Extensions of MU overhead and underground distribution lines onto property of the customer will be made in accordance with MU extension rules. These rules provide, among other things, that MU will own and be responsible for the maintenance and operation of such lines and shall have the right of access at all reasonable times for construction, rebuilding, tree trimming, and inspection of lines and equipment. MU also has the right to extend its facilities to serve other customers and to remove lines and equipment upon discontinuance of service.
MU will prepare all necessary easements along the selected route. The customer requesting service shall be responsible for obtaining the necessary signatures and all associated easement costs. When facilities are installed at customer request, the customer shall grant right-of-way satisfactory to MU.

Permanent certified survey stakes identifying property lines shall be installed prior to MU installation of facilities. The developer on all new developments shall provide certified survey stakes.

The customer shall identify all privately owned underground equipment before MU installs its facilities. Repair of damage to customer-owned underground equipment not located and/or identified by the customer shall be the customer's responsibility.

The customer shall provide the following at no expense to MU:

The right-of-way as designated by MU shall be cleared of trees and obstructions. Any clearance of these obstacles by MU must be arranged in advance of construction and the cost of the clearance will be at the expense of the customer.

The grade along the route of proposed underground facilities must be within 3 inches of final grade.

Conductors located or to be located beneath buildings, pavement, or other obstructions shall be placed in conduit extending at least 3 feet beyond the obstruction.

If obstructions are placed on the facilities right-of-way after the facilities are installed, any additional repair costs incurred due to the obstruction(s) will be billed to the customer if repairs to the facilities become necessary.

6.12 Attachments on MU Poles

Attachments to MU poles are not permitted without the knowledge of and explicit written approval of the Electrical Department Manager. Some examples of attachments include lighting, birdhouses, signs, posters, notices, and structural devices such as wires, conductors, electrical apparatus, fencing, antennas, and traffic control units. MU poles must be kept free of these potential climbing hazards.

Section 86.19 of the Wisconsin Statutes requires that:

> *"No signs shall be placed within the limits of any street or highway except such as are necessary for the guidance or warning of traffic…."*

The National Electric Safety Code 217A4 states:

> "No attachment of any kind to a supporting structure of a utility line (including lighting and metering structures) shall be allowed without the concurrence of the structure owner. Non-utility attachments shall also have concurrence of the occupant(s) of the space in which the attachment is made.
>
> a. No attachment shall cause any portion of the resulting installation to be in noncompliance with the clearance, grounding, strength, or other requirements of the NESC.
> b. Attachments shall neither obstruct the climbing space nor present a climbing hazard to utility personnel. Through-bolts shall be properly trimmed. Vines, nails, tacks, or other items which may interfere with climbing should be removed before climbing."

Any items improperly attached or otherwise infringing on MU facilities will be removed at customer expense.

6.13 Service Days

Service work, including both temporary and permanent installations, will be performed on scheduled service days. Service days are any weekday that MU's main office is open.

6.14 Service Location

All metering facilities shall be on the exterior of the building. On overhead services, the proposed route shall be clear of obstructions from trees and have sufficient clearances to windows, doors, etc. The service mast conduit is not to be covered before the meter socket other than what passes through the roof overhang. The customer should consult with MU for the proper meter and service conductor attachment locations to the building if there are any questions. The meter shall be located at least three feet from an existing deck, patio, or door. This clearance may be reduced in certain situations, contact MU for approval before installation. The preferred location for new services will be on the front or sides of the house. Rear house locations are discouraged. Existing services may remain

in the rear but should be relocated to the side or front if there are possible encroachment issues. Ex. Decks, A/C units, etc.

Existing meters, which are in violation of this rule, shall be required to comply when modifications to the service occur, (e.g. an upgrade, replacement, etc.). In addition, any location found unsuitable to MU shall be required to be moved at the customer's expense. Figure 6-1 shows the separation requirements from doors, and gas utility equipment. Code requires 3' of separation between the gas regulator exhaust vent and the electric service.

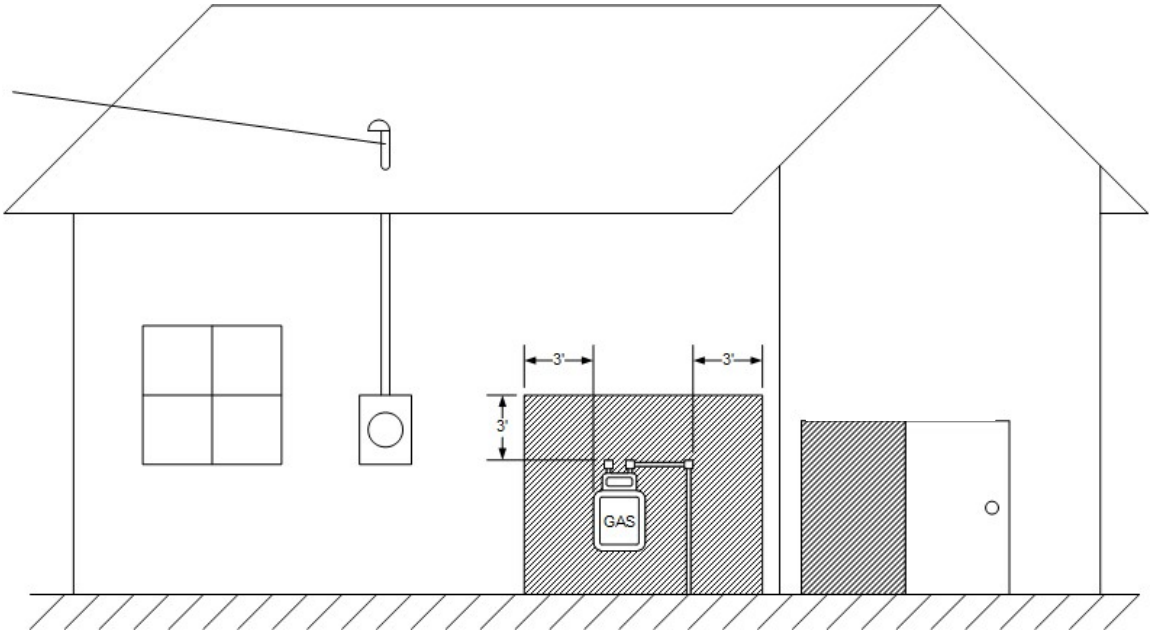

Figure 6-1
Service Location Requirements

6.15 Address Posted

Before any service work is performed on the customer site, the house numbers must be posted on the house or on a construction permit to ensure that MU crews are at the correct address. If the address is not clearly posted, service will be delayed until the next service day after the address is properly posted. Failure to have address posted may result in extra charges for the service hook-up.

6.16 Cut-Off Time

All service orders to be completed must be approved and in MU offices by NOON OF THE DAY PRIOR TO THE DAY WORK IS TO BE COMPLETED.

6.17 Service Entrance Wiring

The main disconnect must be turned off and all service entrance wiring completed, including proper grounding, before connection to MU facilities. Any load connected beyond the meter shall be detected as a fault and, therefore, the meter shall not be set until the suspected fault is removed. Should faulty wiring, lack of proper grounding, or other electrical code violation be detected by MU crew assigned to energize the electrical service, the service shall not be connected until the problem has been corrected. Furthermore, it is MU's option to charge the customer for the crew's time for the second and any subsequent attempts to energize the service.

6.18 Meter on Utility Poles

No permanent metering facilities other than CATV are permitted on Utility owned poles without written authorization from MU's Electrical Department Manager.

6.19 Temporary Services

All customer temporary service locations require Utility approval prior to connection. Temporary service facilities of the customer may be directly attached to MU pole with verbal approval. The customer's temporary service facilities to be served from the overhead MU system shall be located near MU distribution facilities on a customer or contractor furnished meter pole. In underground areas, the temporary service facilities shall be located within 10 feet of a MU secondary pedestal or near the transformer cabinet if no pedestal is available. Verify proposed location with MU before installation.

Payment for temporary service must be made prior to hook-up.

Temporary services must comply with all applicable codes including but not limited to ground fault protection.

6.20 Motors and Associated Equipment

All customer-owned equipment shall be protected from excessive current which may result from overvoltage, undervoltage, or single-phase operation of three phase equipment, phase reversal, or other abnormal conditions with fuses, thermal cutouts, overload relays, or other relays and devices designed to protect the individual device. The customer, considering the characteristics of the utilization equipment and the requirements of the process and function being performed, should apply protection. The customer is also responsible for notifying MU in a timely manner of planned increases in the customer's peak load as well as planned service modifications. The timely notification will permit MU to evaluate the adequacy of the existing facilities to serve the planned load increases and increase the capacity of the facilities if necessary.

In order to prevent impairment of service to other customers, it is necessary to establish limits for the allowable starting currents for motors. Before selecting motor equipment, the customer should consult MU to determine the specific voltages available at any location.

When a motor issued to drive equipment that requires varying torque during each cycle of operation, such as a compressor or reciprocating pump, the combined installation should have enough momentum in its moving parts so that its operation will not interfere unduly with service to other customers. For air conditioner motors, see section 6.26.

1. Types of motor service available on general service lighting rates, single-phase only are as follows:
    a. Single-phase fractional horsepower motors: Automatically controlled and frequently started, whose locked rotor currents do not exceed 23 amperes may be connected to 120-volt circuits.
    b. Single-phase motors, one horsepower or less: Manually controlled or infrequently started, whose locked rotor currents do not exceed 50 amperes may be connected to 120-volt circuits. No single-phase motor larger than 1 horsepower shall be operated on a 120-volt circuit.
    c. Infrequently started single-phase motors of 10 horsepower or less may be connected to 240-volt commercial lighting and residential circuits if their locked rotor currents do not exceed the values shown in the next section describing motor service available on power rates.
    d. In urban areas infrequently started three-phase motors of 10 horsepower or less; connected through single-phase to three-phase converters may be used on residential and commercial lighting circuits.
    e. Single-phase motors above 10 horsepower are not permitted in rural areas.

2. Types of motor service available on power rates and combined light and power rates, single-phase and three-phase are as follows:

   a. Motors with long periods of continuous operation under maximum load conditions and having not more than four starts per hour may be connected if their locked rotor currents do not exceed those listed in the following table. Consult MU where these conditions cannot be met, or where equipment ratings and/or starting characteristics exceed the values in the table:

Table 6-1 Motor Starting Table	
Motors Rated	Total Locked Rotor Current not to Exceed
120 volts, single-phase	50 amperes
240 volts, single-phase	
2 horsepower or less	60 amperes
2 to 6.5 horsepower	60 amperes plus 20 amperes per horsepower in excess of 2 horsepower
6.5 to 15 horsepower	250 amperes plus 10 amperes per horsepower in excess of 6.5 horsepower
240 volts, three-phase	
2 horsepower or less	50 amperes
2 to 19.9 horsepower	50 amperes plus 14 amperes per horsepower in excess of 2 horsepower
20 horsepower to 40 horsepower	300 amperes plus 4 amperes per horsepower in excess of 20 horsepower
50 horsepower and over	8 amperes per horsepower

   b. Motors above 10 horsepower rating are to be three-phase.
   c. New installation of motors of 50 horsepower or larger shall be approved by MU as to motor type, starting and protective equipment, and as to availability of an adequate power supply at the proposed location
   d. For motors of higher voltage rating than shown in the motor starting table, the allowable currents are inversely proportional to the voltages.
   e. Motors subject to frequent starts, such as elevator and hoist motors, when connected to the secondary distribution system, should have their starting current limited to 100 amperes.

6.21 Electric Water Heating

All electric water heaters shall be connected in accordance with local and state electrical codes.

Water heaters shall be equipped with resistive heating elements, which may be connected to 120 volts or 240 volts. If connected at 120 volts, the maximum heating element is 1650 watts. If connected at 240 volts, the maximum heating element size shall be 5500 watts. Water heaters having two or more elements shall have the heating elements interlocked to limit the connected load to the above limits.

Instant recovery water heaters with wattages above 5500 require the permission of MU to connect.

6.22 Electric Space Heating

Electric space heating equipment designed to operate at 120 volts shall be limited to 1650 watts controlled by a single thermostat. Electric space heating equipment designed to operate at 208 volts and greater shall be limited to 6000 watts controlled by a single thermostat. Equipment exceeding 6000 watts shall be energized in stages not exceeding 6000 watts per stage and at time intervals between stages of at last 3 seconds.

6.23 Lighting

Lighting systems utilizing ballasts or transformers shall maintain not less than a 90 percent lagging power factor. Utility owned area lighting is available for installation on customer owned poles. The lighting may be installed on Utility poles if such poles are already available in the area to be lighted. Customer furnished poles must be of sufficient heights and properly guyed to meet all code requirements. This would normally require a minimum of a 30 foot pole set at least 5-1/2 feet deep. MU would install the lights and conductors to provide service to the customer-installed pole. The customer should contact MU about the location and availability of lighting from MU.

Poles are available at a nominal charge from MU for pickup and installation by the customer. The customer will continue to own the pole after installation.

The customer agrees to keep the area lights in service for a period of at least one year.

6.24 Electric Welders and Furnaces

Electric welders and furnaces shall not be operated such that they cause interference or impairment to the service of other customers. MU requests notification before a welder or furnace is connected to ensure that MU's facilities have adequate capacity, and service to other customers is not impaired.

6.25 Harmonics and High Frequency Equipment

All utilization and production equipment causing high frequency current or harmonics must comply with Wisconsin Administrative Code PSC 113.0704, which adopts IEEE Standard 519 as a guide to intolerable voltage and current harmonics.

All wiring carrying high-frequency current shall be located as remotely as possible from the meter and wiring of the building. MU may require the customer to install an isolation transformer or filters to protect the meter and metering devices.

6.26 Air Conditioners

a. Air conditioners for use at 120 volts single-phase are limited to a maximum locked rotor current of 50 amperes and a maximum of 4 starts per hour.
b. Air conditioners and heat pumps for use at 240 volts or 208 volts single-phase are limited to locked rotor currents as follows and a maximum of 4 starts per hour.
c. Two smaller air conditioners should be installed instead of one large unit on larger homes to avoid objectionable flicker at start-up.

Table 6-2 Air Conditioner Locked Rotor Current Limits

BTU per Hour Rating (BTUH)	Total Locked Rotor Current Limitation
Up to 20,000	60 amps
20,000 to 36,000	60 amps plus 3 amps per 1000 BTUH in excess of 20,000 BTUH.
Over 36,000	Consult MU
Note: 12,000 BTU = 1 Ton, 1 Ton is equivalent to 1.4 Hp	

For starting limitations on three-phase air conditioners, refer to Table 6-1.

6.27 Standby Generators

Standby generating equipment shall utilize a double-throw switch or throwover switches that are mechanically interlocked, have adequate current and voltage rating, and are so connected that the customer's generating equipment cannot energize MU's supply lines.

6.28 Parallel Generation

To operate customer-owned generation in parallel with MU's system requires that the owner/operator enter into a contractual agreement with MU. MU uses PSC 119 as its standard. The customer should consult MU for the rules and requirements of this service.

6.29 Marker Balls

All power lines that pose a potential hazard to aircraft should have marker balls installed. The following criteria should be used to determine if a line is a potential hazard to aircraft:

1. Line falls within glide slope criteria for airport hazard per FAA or Wisconsin DOT – Division of Aeronautics guidelines.
2. Accident or near accident which indicates line is a hazard.
3. Notification by airstrip owner that line is a hazard.

MU will provide marker balls. The customer is responsible for the cost of labor and equipment to install the marker balls. An agreement form between MU and the customer must be signed prior to installation.

6.30 Rebates

Rebates available to customers can be found on the MU website. Additional rebates can be found at focusonenergy.com.