UI
An Avangrid company

DER SPECIFIC CLARIFICATIONS
to the
GUIDEBOOK OF REQUIREMENTS FOR ELECTRIC SERVICE 2017 EDITION

October 1, 2025

1.1 Requirements for Meter Relocations

To ensure safety, accessibility, and optimal remote meter reading coverage, United Illuminating (UI) requires that, by default, all electric meters be installed outside customer premises. This policy is documented in the UI Guidebook and supports our commitment to minimizing unnecessary entry onto customer property by UI personnel.

This requirement is particularly applicable to commercial installations involving single transformer-rated metering adjacent to CT compartments. In such cases, UI will require the billing meter and any DG-associated meters to be relocated to an accessible exterior wall.

For interconnection projects where no service work is being performed (only interconnecting generation), UI will evaluate whether the existing service configurations and metering locations are compliant with current standards and requirements. Where feasible, exceptions may be granted on a case by-case basis by the UI engineering team. UI is committed to preserving the safety of our employees and complying with applicable standards while providing appropriate flexibility when possible.

Exceptions to the Default Outdoor Metering Requirement

- Existing Indoor Meters
  Interior revenue meters may be granted an exception only if they are verified to meet access, safety, safe working clearances, and labeling requirements.

  If an older installation already contains multiple indoor meters, additional metering may be grandfathered indoors to maintain consistency and avoid extensive relocation work.
- Self-Contained Metering
  While UI prefers all meter provisions to be grouped and located outside, the company recognizes that in certain situations, relocation of existing self-contained billing meters to the outside may not be necessary unless specific site conditions or safety concerns warrant it. During the technical review phase of the project, UI will provide guidance on where additional DG-associated meters must be installed and whether the self-contained billing meter may require relocation.
- High-Rise Buildings
  Exceptions may be considered for buildings with more than three floors or where the geometry of the building prevents feasible outdoor metering. Final determination will be made by UI Engineering.

Approval Requirements and Process

- Meter Location Identification
  Electricians are required to apply permanent markers to utility disconnects to clearly

map and identify meter locations. This process aligns with UI's new construction standards.

- Indoor Metering Requests
  If a DG vendor believes indoor metering is necessary for a specific project, they must submit a formal request via email to: indoormeterrequest@uinet.com
  Please note: submission of a request does not guarantee approval. Each case will be reviewed in accordance with UI standards.

1.2 Disconnect Switch Requirements for Solar-only Interconnections

To ensure the safety of UI personnel and the public, generator interconnections require a disconnect switch to be installed ahead of the interconnection point on the load side of the utility meter. This requirement is in place to ensure that all potential sources can be safely disconnected when necessary. These situations include but are not limited to:

- Maintenance or replacement of utility owned equipment
- Disconnection to facilitate storm restoration or utility system repairs.
- Emergencies which endanger personnel, the public, or property, such as fires, natural disasters, and downed wires.

For solar-only interconnections, the requirement for an additional switch to be installed on the load side of the utility meter may be waived by the EDC on a case-by-case basis. The specific circumstances surrounding the installation will be reviewed by the engineering team for a determination if the requirement for an additional load side switch can be waived.

Utility personnel are not trained in, nor allowed to operate customer owned inverters, power control systems, or main service disconnects. Furthermore, utility personnel must be able to confidently disconnect, lock, and tag, all power sources, this is consistent with utility work practices and NESC requirements.

Exceptions to the Default Disconnect Switch Requirement

- Interconnections which are "solar-only" and include a visible, lockable, grouped means of disconnect may have the default requirement for an additional disconnect switch waived. Final determination shall be made by the UI engineering team during the design review phase based on the point of interconnection, service layout, and metering configuration. Existing disconnects must be manual-throw and include locking provisions. Inverter based or electronically controlled switches will not be accepted.

Approval Requirements and Process

- This arrangement must satisfy the NEC and utility safety standards. Disconnects must be installed in an accessible location, ideally co-located with all service and metering

provisions. Disconnects must be "grouped" with clear labeling. Labeling must include the electric one line and language stating the need to operate multiple disconnects to safely isolate utility equipment.

- Meter Location Identification

  Electricians are required to apply permanent markers to utility disconnects to clearly map and identify meter locations. This process aligns with UI's new construction standards.

- Waiver Requests

  Requests may be made during the technical review and/or study phases of the project. Requests will be evaluated by the engineering team and a final determination will be made.

1.3 Distance Requirements between Instrument Transformer Enclosures and Main Switches

UI does not currently maintain a specific distance requirement between an instrument transformer enclosure and load/line side disconnect switches within the UI Guidebook.

However, UI does prefer that disconnect switches remain within 3 ft. of the instrument transformer enclosure or as close in proximity to it as possible and understands certain installations may present unique challenges.

UI will continue to review installation locations of the disconnect switch on a case-by-case basis and requests that developers meet the 3 ft. requirement wherever possible. In cases where electrical and safety standards can be maintained, UI will review any proposed location with the UI Metering group and the project's respective DER engineering team.

Disconnect switches should remain in the same general vicinity and be visible from where the transformer enclosure is located. The switch should not be behind walls, or other barriers or require use of stairs or a ladder to access.

Similarly to the distance from the enclosure to the disconnect switch, UI does maintain requirements over the total length of the connection between the enclosure and the meter. UI guidelines remain in place per the UI guidebook (Section 10.2 Metering installation requirements Article S 5, Page 37):

"For services of 800 A or below, the maximum circuit length from the metering transformers to the meter socket must not exceed 75 feet. For services of more than 800 A, the maximum circuit length from the metering transformers to the meter socket must not exceed 150 feet. Any exceptions to this requirement must be approved in writing by UI's Standard Field Department."

However, UI Meter Engineering is always willing to meet onsite to clarify and find amicable solutions with DG developers if meter conduit exceeds the limits outlined in the UI Guidebook. Please continue to use the established methods of communication to schedule site visits.

The 75-foot maximum distance between the instrument transformer (CT) compartment and the meter is not an arbitrary UI policy, it is grounded in electrical theory, signal integrity and metering accuracy.

Technical explanation:

- Current Transformers function as signal generators, producing a current proportional to the load. This signal must travel through control wires to the meter, where it is interpreted in combination of a voltage reference to calculate energy usage (Watthours).
- Signal degradation occurs over distance due to wire resistance and inductive losses. For a standard #10 AWG conductor, the round-trip signal path (CT to meter and back) is limited to 150 feet before accuracy begins to degrade.
- UI's 75-foot one-way limit ensures the round-trip stays within this 150-foot threshold, preserving measurement accuracy, especially for CT ratios below 800:5, which produce lower signal strength.
- Avoidance of calibration drift: Longer wire runs can introduce phase shifts and burden errors, which could bill/credit inaccuracies buyer or seller.

Operational Considerations:

- Standardization across installations: Enforcing a consistent distance limit simplifies training, documentation, and inspection, reducing the risk of non-compliant installations.
- Higher CT ratios (e.g., 1200:5 or above) generate stronger signals and may tolerate longer distances. However, UI applies a conservative, standardized approach to avoid misapplication and ensure consistent performance across installations.
- Safety and troubleshooting: Shorter wire runs simplify fault isolation and reduce the risk of signal interference from nearby electrical equipment.
- Cost control: Longer runs require more wire or double wire runs, longer conduit, and labor, increasing installation costs without proportional benefit to the customers and rate payers.

1.4 Requirements for Utility Controlled Outages

UI requires utility-controlled outages only in situations where it is necessary to safely isolate a potential source. Outage requirements for the installation or removal of equipment are reviewed during the technical review and study phase of the project. UI reserves the right to make the final decision on whether a utility outage is required. However, in most instances, UI will waive the requirement for a utility-controlled outage if all the following conditions are met.

a. An existing accessible, utility-approved disconnecting device is present. The disconnecting device must be lockable and provide an open visible disconnect consistent with utility work practices. Typically, switches which are internal to customer owned equipment, and circuit breakers which cannot be physically "drawn out" of position do not meet this requirement. This requirement is consistent with practices when working on utility owned equipment and follows a zero-risk approach.

b. The disconnect must be in good working condition, free of any defects, and properly labeled. On-site personnel must be able to clearly identify all sources of potential, perform any required tests, and confirm with 100% certainty that the disconnect is able to safely isolate the equipment in question.

c. On-site utility personnel must be able to lock and tag out the disconnecting device in question to ensure their safety while performing work.

1.5 Jurisdictions and Code Compliance

Section 1.3 Safety, Article B of the UI Guidebook of Requirements for Electric Service – 2017 Edition (Guidebook) states:

UI designs, builds, and operates its electric system in accordance with the applicable Connecticut General Statutes, Occupational Safety & Health Administration (OSHA) regulations, the National Electrical Safety Code (NESC) and to UI's own safety rules. Only authorized personnel are allowed to work on utility poles and equipment.

Section 1.4 Electrical Codes of the Guidebook states:

A. UI designs, builds and operates its electric system in accordance with the latest revision of the National Electrical Safety Code (NESC). The requirements of this code are incorporated in our Company Standards. For new construction and renovations, certain customer-owned facilities fall under the jurisdiction of the NESC and must also comply with this code.

B. Customer-owned facilities are built in accordance with the latest approved version of the National Electrical Code (NEC) and the latest versions of the Building and Fire Safety Codes that have been adopted by the State of Connecticut Department of Public Safety. Approval by the

authority having jurisdiction must be received by UI and posted in our system before any new or renovated or substantially repaired electric service can be energized.

C. Where there is a conflict with the requirements of UI, the NESC and the NEC, the more stringent requirements shall prevail. If necessary, UI and the authority having jurisdiction will jointly confer. UI reserves the right to make all final determinations.

UI frequently works directly with the AHJ's of the municipalities it serves to review designs, discuss requirements, and clarify requirements as needed. However, the EDCs and the AHJ's have an overlapping interest in the design, construction, and operation of equipment that is planned to connect to the UI system. UI's requirements are not in lieu of the National Electric Code (NEC) or additional building code requirements. Instead, they are in addition to them, or in some cases enhance those requirements.

UI services approximately 341,000 customers and must maintain a level of standardization that allows us to minimize risk to personnel, the customer, and the public. This means that installations across the territory must maintain similarities, and in some cases, additional equipment which allows the EDC to maintain standardized work practices and further limit risks to personnel. Metering diagrams are available on the UI Distributed Generation website which show the requirements for various installation types.

In Figure 1 below a Commercial Buy-All with Transformer Rated Metering, the jurisdiction has been labeled to provide some additional clarity on jurisdictional overlaps.

For areas under joint authority, the EDC reserves the right to dictate requirements as this equipment either may be worked on/in by EDC personnel or directly effects the energization status of equipment which EDC personnel may work on/in. Furthermore, it reserves this right for equipment which may directly affect the stability or reliability of the distribution system, or the integrity of communications and/or metering data.

The examples below provide some descriptions of requirements for the associated equipment labeled in Figure 1. This is not a complete list of all requirements, please refer to the IX Guidelines, and Guidebook for specific requirements. For the items listed below, the AHJ maintains authority of requirements of local and state building codes and the National Electric Code. Typically, the AHJ also has awareness of EDC requirements for these installations.

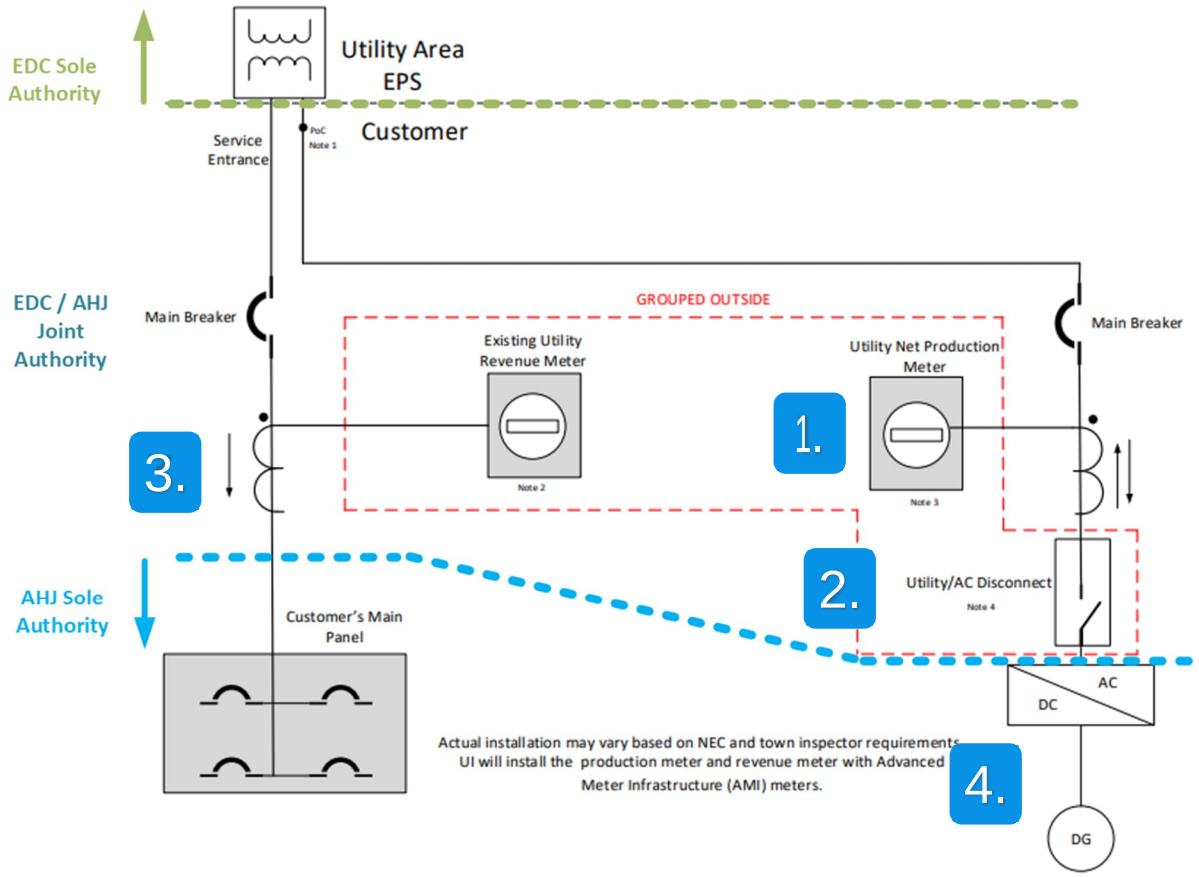

Figure 1

1. Utility Production Meter

   The EDC sets requirements for the type of meter socket and its location. The EDC is responsible for meter installation and must be able to ensure the meter socket is in good working condition and meets the requirements within the Guidebook for Electric Service. Furthermore, the EDC sets additional requirements such as the required separation of load and line side conductors (as seen at the meter).

2. AC Disconnect

   The EDC sets requirements for where the disconnect may be located and rating requirements such as minimum short-circuit capabilities, continuous current rating, and outdoor service capabilities. This disconnect provides a visible disconnect for EDC personnel from the customers generation equipment when work within the current

transformer cabinet or production meter is needed. It also provides emergency shutdown in case of fire or other situational need.

3. Current Transformer Cabinet

   Similarly to the Meter socket and AC Disconnect, the EDC sets requirements for where the transformer cabinet may be located and required equipment ratings for the service size. For example, the EDC requires the current transformer cabinet to be located within 75 ft. of the meter. This requirement is set to ensure proper operation of the metering equipment and minimal signal degradation.

4. Generator / Inverter

   While the EDC does not have specific requirements for the physical installation of this equipment, it does maintain approval authority over the inverter size, capabilities, and settings. This is necessary to ensure there are no negative impacts to the distribution system.

1.6 Summary

While UI understands that additional equipment requirements may create additional complexity to a project, we must reiterate that these requirements operate both independently and in conjunction with the NEC and local requirements to ensure maximum safety and reliability. UI makes every attempt make reasonable accommodations to it's customers whenever possible in order to arrive at a solution which is reasonable in cost and satisfies the companies strong safety and reliability standards.