

1. GENERAL

Building-level utility meter location, design specifications, installation and commissioning requirements should be determined by UI-FOD based on the latest Federal requirements: EAct 2005 § 103 (42 U.S.C § 8253(e), EISA 2007 § 434 (42 U.S.C. § 8253(e)(1)), and [Federal Building Metering Guidance](#). UI-FOD is responsible for reporting site-wide and facility specific energy consumption data on an annual basis to the DOE. Additionally, UI-FOD is responsible for preparing monthly invoices for non-LANL customers connected to the LANL-owned portion of the utility system.

Utility meters fall under the jurisdiction of UI-FOD, and are owned, maintained, and monitored by FOD-8. When projects need direction or support in determining what (if any) utility meter design requirements are applicable to their project scope, they should contact umetering@lanl.gov for additional directions as early in the project phases as possible.

2. BUILDING-LEVEL UTILITY METER REQUIREMENTS

New Facility or Structure Construction

Building-level utility meters are required for electric, potable water, steam, and natural gas services in new facilities or structures where the total square footage is greater than or equal to 5,000. Where a new facility or structure is less than 5,000 square feet, utility meters are recommended but not required, unless the planned facility or structure is designed with a substantial demand load¹ increase on any one of the utilities, in which case utility meters are then required. Utility meters are also required on all new facilities or structures that are not owned by LANL but are being connected to LANL utilities for billing purposes, regardless of square footage or expected demand loads.

Existing Facilities

Existing facilities undergoing modernization², renovation, equipment replacement and/or upgrade efforts, utility meters are required for electric, potable water, steam, and natural gas services. Existing meters require periodic maintenance which may be completed during a renovation or equipment replacement project. Contact umetering@lanl.gov.

Communication Requirements

Where utility meters are required, they are also required to be connected to the UI owned and managed Metering Program monitoring system (PME) via an active yellow network connection, or a pre-approved alternative network connection. For cyber security and device firmware management purposes, water, gas, and steam meters require a gateway device which also

¹ All projects of facilities or structures below 5,000 square feet should contact umetering@lanl.gov for review of applicability of metering for each system.

² From Chapter 14 Definitions: The comprehensive replacement or restoration of virtually all major systems (such as plumbing, mechanical, electrical), interior finishes (such as ceilings, partitions, doors, and floor finishes), and building features (such as exterior wall and roof).

requires a power source. Electric meters may be connected directly. Design documents should reflect these requirements.

Where other non-utility level meters, facility level meters, or sub-meters are installed or used, they can be connected into one or more of the below UI owned monitoring systems where available:

- Power Monitoring Expert (PME) System
- Supervisory Control and Data Acquisition (SCADA) System
- Equipment Surveillance Systems (ESS)
- Building Automation Systems (BAS)

3. EXCLUSIONS

A project may follow the ESM Chapter 1 General, Section Z10 General Requirements for all Disciplines/Chapters, for submission of a formal Conduct of Engineering Request for Variance or Alternative Method, Form 2137 for any proposed deviations from the identified utility metering requirements.

Where an existing building is metered with shared infrastructure, i.e. two or more buildings with one meter, a separate or sub-meter may not be required depending on the size, function, and complexity of the building(s). The Variance or Alternative Method, Form 2137 process shall be followed to determine the requirements.

For any other special use facilities which definition does not fit into any of the above, please, contact umetering@lanl.gov for further guidance.

4. METER TYPE

Due to rapid changes in manufacturer's available products, make and model information is continually changing. Checking with UI-FOD is imperative to specifying the correct models and connections.

- a. Electric Meter
 - i. Meter manufacturer and model shall be determined by LANL Utilities and Infrastructure. Send email to umetering@lanl.gov to request direction for current approved meter selection which may differ from LANL ESM Chapter 7, D5010 2.4.2 and LANL Master Specification Section 26 2713, Electricity Metering.
 - ii. Refer to Specification Section 26 2713 for additional material installation details and yellow network connection requirements.
 - iii. Refer to LANL Standard Drawings ST-D5010-3, -4, and -5 for meter installation details and connection requirements.
 - iv. For electrical systems that are connected to the LANL distribution system but are considered non-LANL loads, contact umetering@lanl.gov for further direction.
 - v. Prior to acceptance, UI must review and commission the meter installation.

b. Natural Gas Meter

- i. Meter manufacturer and model shall be determined by LANL Utilities and Infrastructure. Send email to umetering@lanl.gov to request direction which may differ from LANL ESM Chapter 6, D10-30GEN Section 11 LANL Master Specification (if any) for building-level natural gas metering.
- ii. The meter will require a live yellow network connection into UI's monitoring systems and a dedicated 120V circuit. Contact umetering@lanl.gov to request current approved meter selection, required communication gateway device information, and additional direction.
- iii. The meter shall incorporate pressure and temperature compensation.
- iv. The meter may be installed upstream or downstream of the regulator station. Final approval required by umetering@lanl.gov.
- v. Prior to acceptance, UI must review and commission the meter installation.

c. Water Meter

- i. Meter manufacturer and model shall be determined by LANL Utilities and Infrastructure. Send email to umetering@lanl.gov to request direction which may differ from LANL ESM Chapter 6 D10-30GEN, Section 11 and LANL Master Specification (various locations) for building-level Water Metering.
- ii. Refer to Mechanical Drawing(s) ST-D2020-1 for building water meter location.
- iii. The meter will require a live yellow network connection into UI's monitoring systems and dedicated 120V circuit. Contact umetering@lanl.gov to request current approved meter selection, required communication gateway device information, and additional direction.
- iv. Cooling Towers and/or any other equipment with a high water usage should be separately metered in addition to the facility supported (See ESM Chapter 6 D10-30GEN, Section 11). These additional meters should also follow the above requirements for water meters and be connected to the UI monitoring systems.
- v. Prior to acceptance, UI must review and commission the meter installation.

d. Steam Meters

- i. Meter type shall be determined by LANL Utilities and Infrastructure. Send email to umetering@lanl.gov to request current approved meter selection and additional direction which may differ from LANL Master Specification (if any) for Building Level Steam Metering.
- ii. The meter will require a live yellow network connection into UI's monitoring systems and dedicated 120V circuit. Contact umetering@lanl.gov to request current approved meter selection, required communication gateway device information, and additional direction.
- iii. Prior to acceptance, UI must review and commission the meter installation.