

As Better Buildings partners in the commercial sector continue to pursue energy efficiency improvements at their facilities, they often face a growing need for more granular energy data that can help them make targeted performance investments and building improvements. This document contains a variety of resources intended to help commercial partners gain better access to energy data through the use of submetering. Submeters can provide important insights into the resource consumption of equipment and building systems.

The resources in this document can help partners address these challenges related to submetering implementation:

- ▶ *Correctly sizing submeters for current and future needs*
- ▶ *Managing and analyzing collected data*
- ▶ *Taking targeted action based on the data collected*
- ▶ *The automation of actions based on data collected*

Resource Category	Resource Description
<p>Making the Business Case for Submetering</p>	<ul style="list-style-type: none"> ▶ Submetering of Building Energy and Water Usage – a National Science and Technology Council report that provides an overview of the benefits and complexities of advanced metering technologies for real-time measurement of energy systems in buildings. ▶ Metering Best Practices – a Pacific Northwest National Laboratory guide that highlights the benefits of using metered data to identify opportunities and drive cost-effective energy management and investment practices. ▶ Submetering Business Case – this U.S. General Services Administration (GSA) document discusses the financial implications of using submetering as a means of energy cost management and reduction in federal facilities or commercial leased buildings. ▶ Put a Meter on It – this Better Buildings presentation covers best practices, benefits, and current costs to meter energy, water, and data centers in buildings.
<p>Specification and Procurement of Submeters</p>	<ul style="list-style-type: none"> ▶ What Type of Submetering is Right for Me? – a simple GSA guide that compares the strengths and limitations of available submeter types. ▶ Laboratory and Field Evaluation of Circuit-Level Electrical Submetering with Wireless Current Transformers – a National Renewable Energy Laboratory (NREL) report that evaluates submetering solutions that provide end-use consumption data. ▶ Saint-Gobain Corporation: Advanced Energy Monitoring with Wireless Submetering – this Better Buildings partner’s showcase project addresses the number of submeters needed to provide insight into a site’s energy usage. ▶ Implement EMIS – this toolkit from Better Buildings provides background information and best practices for implementing energy management information systems (EMIS) in a building portfolio. ▶ EMIS SPEC and Procurement – this guide walks through the specification, procurement, and selection of an energy information system or related building energy performance monitoring and diagnostic technology.

<p>Tracking and Analyzing Data from Submeters</p>	<ul style="list-style-type: none"> ▶ Metering Best Practices Applied in the National Renewable Energy Laboratory's Research Support Facility – this NREL guide provides best practices for analyzing metered data to draw conclusions about energy performance. ▶ Synthesis of Year Three Outcomes in the Smart Energy Analytics Campaign – this Lawrence Berkeley National Laboratory report presents the importance of analytic software in uncovering the energy savings potential of collected data. ▶ Analytics in Commercial Buildings – this Better Buildings webinar explores the current state of fault detection and diagnostics technology and associated potential energy savings.
<p>Submetering Success Stories</p>	<ul style="list-style-type: none"> ▶ Unprecedented Visibility – a case study that presents a real estate company's effort to engage its submetered tenant base in its energy reduction and sustainability efforts. ▶ General Mills: Energy Reduction Continuous Improvement Program – a Better Buildings case study that shows an industrial partner's successes in obtaining energy savings due to submetering. ▶ Legrand: Submetering Initiative and Energy Dashboards – a Better Buildings case study that provides insight on the successful installation and use of submeters and energy dashboards to collect and communicate facility-wide energy use data. ▶ Mission Complete: The Challenge to Develop A \$100 Wireless Submeter – a Better Buildings webinar on the outcomes of the Low-Cost Wireless Metering Challenge, which encouraged manufacturers to produce a cost-effective, accurate wireless system capable of measuring various electric loads within a building and wirelessly communicating the data.

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