LOW-COST SUBMETERING

Guidance for GSA: Lessons Learned and Best Practices from GSA Proving Ground Evaluations

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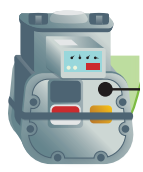
Help Select your Facility's Submetering System

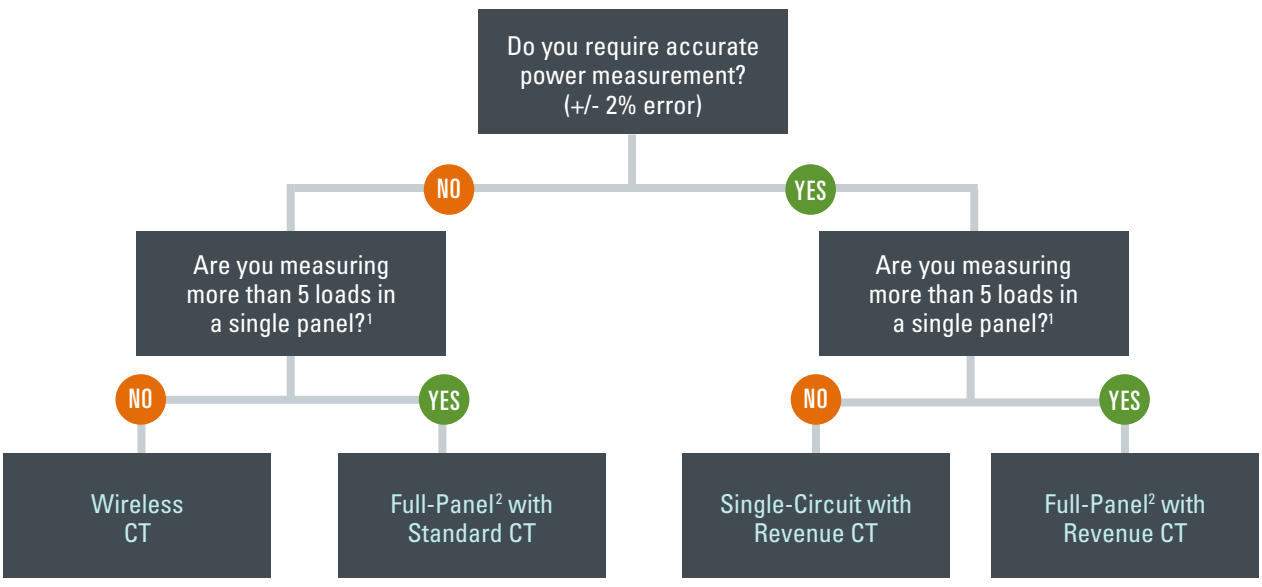
Submetering energy consumption of individual spaces or pieces of equipment can improve tenant billing practices and optimize building operations through fault detection and diagnostics (FDD) and the identification of energy conservation measures (ECMs). Submetering can also aid in meeting policy goals and reporting requirements, such as for renewable energy generation.

	ELECTRICAL			GAS/WATER
	GPG-041 **Full-Panel**  Monitors up to 42 circuits per panel; includes a bridge and CTs powered by voltage taps. Requires revenue-grade CTs for 2% accuracy. Ideal for tracking overtime utilities or multiple high-power devices.	GPG-042 **Wireless Current Transformers (CTs)**  Standard CTs clip onto electrical wires, powered by the current. The bridge collects data from up to 250 CTs, accurately tracking load profiles to identify equipment faults. 7% average accuracy.	GPG-046 **Single-Circuit**  Monitors single or 3-phase circuits, integrating a meter, gateway, and non-proprietary split-core CTs. Best for devices or end uses with high power consumption such as chillers or data centers.	GPG-051 **Non-Invasive Gas or Water**  Attaches a probe to the side of a gas or water meter. Collects real-time data and enables anomaly detection and insight into off-hour usage and gas leaks. *GPG did not evaluate water.*
Tenant Billing*	✓		✓	✓**
Fault Detection and Diagnostics	✓	✓	✓	✓
Energy Tracking	✓	✓	✓	✓
ECM Measurement & Verification*	✓		✓	✓
Analytics/ Subscription	Dashboard with annual subscription. Requires FedRAMP authorization.	No meter or annual subscription. Download data via API for integration into local systems.	Optional analytics subscription or download data via API for integration into local systems.	No annual subscription. Integrates into the Building Automation System.

*Assumes revenue-grade CTs with voltage tap **Real-time whole building data supports calculation of overtime utilities

DECISION FLOWCHART FOR ELECTRICAL SUBMETERING

Required accuracy level and number of circuits being monitored influence the selection process



[1] General guidelines based on space available in the panel and set-up costs [2] Full-Panel requires an annual subscription and FedRAMP authorization [1] Standard CTs have <10% measurement error

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GSA

The Center for Emerging Building Technologies' programs, GSA Proving Ground (GPG) and Pilot to Portfolio (P2P), enable GSA to make sound investment decisions in next-generation building technologies based on their real-world performance.