042

JUNE 2019

SUBMETERS AND ANALYTICS: WIRELESS CURRENT TRANSFORMERS

OPPORTUNITY

Why is GSA interested in submetering and analytics?

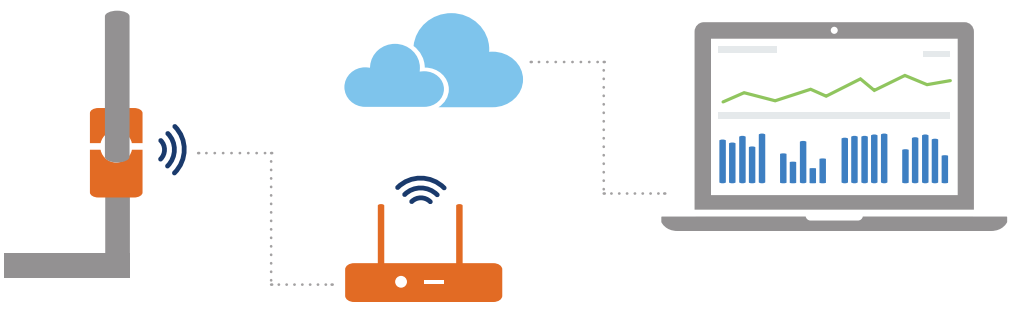
- TENANT OR EQUIPMENT-LEVEL BILLING
- FAULT DETECTION & DIAGNOSTICS (FDD)
- ENERGY CONSERVATION MEASURES (ECMS)

TECHNOLOGY

What are wireless current-transformers (CTs)?

CLIP-ON SENSORS POWERED BY CURRENT IN ELECTRICAL WIRE

No battery, meter, wiring or conduit required; data sent to the cloud



M&V

Where did Measurement and Verification occur?

NATIONAL RENEWABLE ENERGY LABORATORY (NREL) assessed wireless CTs at the Cesar Chavez Memorial Building in Denver, Colorado. Technology was provided by Centrica.

RESULTS

How did wireless CTs perform in M&V?

FDD ACTIONABLE

Insights included short-cycling, on/off issues, and seasonal trends[1]

1 DAY INSTALLATION

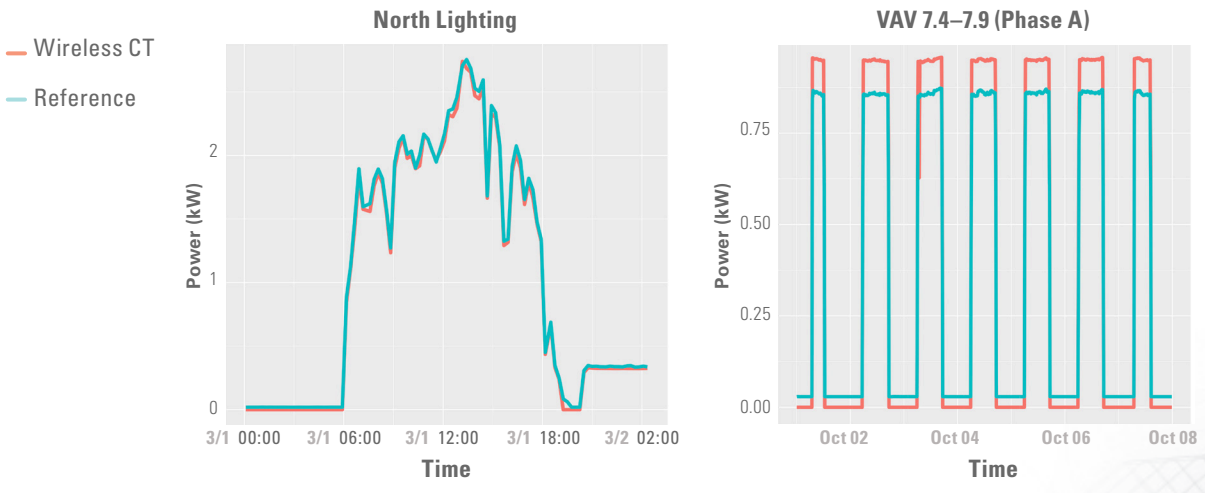
for 144 individual circuits in 13 panels and 4 HVAC equipment disconnects. Configuration software streamlined the process with real-time feedback[2]

7% AVG. ERROR IN MEASUREMENT

up to 52% measured error for VAV loads with heavy cycling; not accurate enough for tenant billing[3]

Accurately Tracks Load Profile Trends

Precisely tracks on/off state of equipment, supporting FDD



DEPLOYMENT

Where does the study recommend deploying wireless CTs?

FAULT DETECTION & DIAGNOSTICS

Wireless CTs can monitor systems not typically captured by a building automation system and can be integrated into GSA's smart building platform, GSALink. Pilot project is recommended to determine best practices, cost-benefit analysis and site selection.

[1]Case Study: Laboratory and Field Evaluation of Circuit-level Electrical Submetering with Wireless Current Transformers, Willy Bernal Heredia, Dylan Cutler, Jesse Dean (NREL), June 2019, p.32 [2]Ibid, p.31 [3]Ibid, p.28