PRELIMINARY TECHNOLOGY ASSESSMENT

Plug Load Reduction

What is this Technology?

This technology consists of an automated energy management system (EMS) that tracks how much energy is consumed for typical work days by workspace electronics such as computers, task lights, and printers. EMS data is then fed back to occupants through electronic dashboards showing how their individual behavior contributes to overall building energy use.

Why is GSA Interested?

ENERGY EFFICIENCY Plug loads are estimated to account for 15% to 35% of total building annual energy consumption. Although energy savings associated with dashboards located at an occupant's desktop computer are largely unknown, a recent case study suggests that this technology can reduce plug load energy consumption by up to 24%.

COST EFFECTIVENESS The vendor estimates a 3- to 10-year payback on the equipment through energy savings. Measurement and validation is possible with a high degree of reliability because the technology itself sub-meters energy.

OPERATIONS & MAINTENANCE This technology generally is "plug and play", but requires a well-designed occupant engagement campaign to be effectively utilized. Data analytics and dashboard information is typically administered through third party vendor's sites, which create IT security issues.

APPLICABILITY Plug load control technology and occupant-facing dashboards could be implemented during tenant build-out of any space. While the concept of plug load control and reduction through behavioral change is applicable to all buildings in GSA's portfolio, this is a tenant facing – and funded—solution. It would need to be managed similarly to other occupant engagement programs such as federal recycling initiatives).

Measurement & Verification

The Green Proving Ground program has commissioned the National Renewable Energy Laboratory to perform measurement and verification (M&V) on plug load reduction technology at six sites in the Eastern United States. Findings from that investigation will be available in June 2012.

GPG
Green Proving Ground Program

The Green Proving Ground program leverages GSA's real estate portfolio to evaluate innovative sustainable building technologies. The program aims to drive innovation in environmental performance in federal buildings and help lead market transformation through deployment of new technologies.