

EnergyStar for UPS Stakeholder Webinar

End User Perspective

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Core Objectives

Problem Statement

- UPS devices protecting IT equipment consume significant amounts of energy both directly, as a result of device losses, and indirectly as a result of the mechanical systems required to reject the heat generated by these devices
- End users often lack consistent and accurate means to view power, energy, and efficiency data of UPS devices
- In many, and possibly a majority of instances, UPS output power and energy can be used as an accurate and/or consistent representation of IT load allowing for the application of broadly accepted performance metrics such as PUE to be used to identify overall data center efficiency

High Level Goals

- Provide accurate, consistently applied, and readily accessible power, energy, and device efficiency data for UPS devices installed to support IT environments
- Encourage aggressive management of data center energy efficiency by providing all operational and management stakeholders within an organization ready access to relevant UPS power and energy performance data

Discussion Points

- **End Users – Who are they?**
 - Facilities engineers, property, managers, IT operations, IT planning, office administrators, etc.
 - Not all operators have access to onsite personnel with the skill to interpret data provided by UPS devices, even when this information is available
 - Not all persons requiring this data have physical access to UPS devices
- **Availability of Data**
 - Power, energy, and efficiency data from UPS devices is often lacking or insufficient to accurately portray output load and/or efficiency across the UPS device
- **Accessibility of Data**
 - Current operating model for data collection from UPS devices is often time and labor inefficient requiring local manual reading of integral display – assuming availability of onsite staff with skill to collect measurements
 - Current UPS metering displays often require operators to actuate keypads that can potentially impact critical load discouraging some users from accessing data
 - Where remote monitoring is available, it often requires the installation of a gateway card and an OEM or third party “front end” system to access data
- **Accuracy/Usability of Data**
 - Efficiency of current UPS devices varies greatly by design, loading, and selected operating mode. In many instances data to validate efficiency at various operating loads is unavailable or requires extrapolation of data that is available
 - In some cases, location of CT’s for measurement of power, energy, and efficiency can be inconsistent, particularly where transformers are used to match voltages

Monitoring Recommendations

- **Area of Focus**
 - UPS devices and systems intended to protect IT infrastructure. Consumer devices and applications to other industries are not addressed in these recommendations
 - While no prescriptive minimum capacity is stated, the assumption is UPS devices are protecting IT installations in commercial office IDF/MDF applications and/or enterprise scale data centers.
 - Recommendations are specific to the benefit of energy management and efficiency. Other requirements such as resiliency, alarming, etc. are excluded
- **Local Monitoring**
 - At minimum, all UPS devices should incorporate integral meter/monitoring capability that clearly indicates the following information for every operational mode
 - Input KW
 - Output KW and KWH
 - Efficiency %
 - Preference would be to have this information available on screen as the default so that operators need not physically interact with the device to obtain data
 - Input and output CT placement should be standardized to assure consistency of data across the various types and configurations of UPS devices and systems
- **Remote Monitoring**
 - Integral remote monitoring capability allowing users to access data through an IP address with a standard web browser. Capability to interface with commercial monitoring and control packages using SNMP and Modbus protocols