U.S. Department of Energy
Data Center Energy Assessment Process

Introduction

The U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) is working to evaluate energy efficiency opportunities in data centers. As part of this process, energy assessments of data center facilities will be conducted under the Save Energy Now program. These assessments are designed to help data center professionals identify energy-saving measures that are most likely to yield the greatest energy savings. The assessments are not intended to be a complete energy audit but rather the process is meant to educate data center staff and managers on an approach that can be used to identify potential energy saving opportunities that can be further investigated.

Assessment Process

The table below outlines the process steps as well as the currently available tools and resources that can be utilized for each step. The objective is to standardize and streamline the data center assessment process to reduce cost and assure quality and consistency. DOE is continuing to develop tools to support the assessment process, with the long term goal of having a comprehensive tool suite to enable a fully standardized assessment process. New tools will be integrated into the process as they become available.

#	**Process Step**	**Current Tools and Resources**
1	Use DC Pro Profiling tool for preliminary assessment. Complete on-line survey of profiling tool.	**Profiling tool**
2	Hold kickoff conference call to review goals and scope; Identify needed information and documents	Use report from **Profiling tool** as a discussion prompter
3	Compile existing information from drawings, trend logs, etc. Enter available information into tools/worksheets.	**Assessment Tools** or **Worksheets** (if tool not available)
4	On-site meeting with all stakeholders: • Site tour (if needed) • Overview presentation (if needed) • Review, confirm and document efficiency actions to be studied, metrics to be analyzed, and measurement plan (assign roles and responsibilities)	**Assessment Tools** or **Worksheets** (if tool not available)
5	Conduct on-site measurements as needed to complete inputs for assessment tools.[1]	**Assessment Tools** or **Worksheets** (if tool not available)

#	Process Step	Current Tools and Resources
6	Estimate savings for actions in each assessment area: • Electrical power chain • IT equipment and software • Air Management • HVAC • On-site generation (Can be done off-site)	**Assessment Tools**
7	Estimate costs for each action in conjunction with site personnel (can be done off-site)	
8	Compile assessment report and present to site	**Report Template**
9	Provide report to DOE (sanitized if necessary, and if site approves) and provide feedback on overall assessment process	

Table notes:

1 Some measurement data will be readily available, including data which can be collected from building management systems, equipment readouts (e.g. UPS), operating information, and design data. Other data collection may require temporary metering. The assessment team should review the readily available data and determine the existence of any gaps for which on-site measurements or other collection processes may be necessary. As examples, the assessment team could decide to use a design value in lieu of a measured value, or decide to use estimates rather than actual data.

Timeline for Assessment (calendar time)

Steps 1-2: 1 week
Steps 3: 2 weeks
Steps 4-7: 3 weeks
Steps 8-9: 1 week