



HPE Energy Efficiency Analysis Service

HPE Technology Consulting

Data Centers are the backbone of today's economy. The explosion of digital content, big data, e-commerce, and Internet traffic is making data centers one of the fastest-growing users of energy. In addition, the increase in energy costs, public pressure due to environmental responsibility, and procurement of high-power-density equipment is making the energy management of data centers a high priority. Whether you have server room, enterprise data center or server farm that runs cloud computing; this service helps you manage the efficiency of your facilities by understanding current state energy use and greenhouse gas emission metrics; identifying the mechanical, electrical, infrastructure and operational issues that affect energy consumption; and developing future state roadmap of conservation measures and their ROI.

The HPE Energy Efficiency Analysis Service follows a four-phase process for capturing, analyzing, and reporting data:

1. **Planning and preparation.** This phase starts with an assessment planning workshop to discuss the project objectives, review your current data center environment and its infrastructure and related documentation, determine site-specific areas for assessment, and identify members of your team who will participate in the assessment. Based on the results of the workshop conference call, HPE will create an assessment plan that specifies the equipment that will require electrical measurement together with the measurement devices required, detail your data-gathering and related responsibilities, and schedule the onsite data-gathering activities.
2. **Onsite interviews and data gathering.** HPE energy consultants will visit your site and work in conjunction with your operations staff to gather space, power, cooling, and site operational data.
3. **Analysis and report writing.** HPE energy consultants will analyze the information that is collected, review with your staff and provide a written report of key findings highlighting energy efficiency metrics, qualitative findings, and recommendations for energy efficiency measures with financial analysis.
4. **Executive presentation.** A conference call is arranged to share the findings and recommendations. At the completion of the engagement, you will receive a copy of the report and analytics.

Service benefits

This service:

- Provides tangible metrics of your data center facility's energy efficiency
- Provides energy profile and efficiency benchmarking data of your facility in comparison with other facilities
- Determines the carbon emissions from your facility's operations
- Identifies mechanical, electrical and infrastructure sources of inefficiency
- Identifies operational and maintenance practices that affect energy efficiency
- Determines the levels of air mixing (recirculation and bypass) in the data center

- Builds understanding of data center best practices that increase energy efficiency
- Outlines a roadmap of energy conservation measures that improve efficiency with ROI analysis
- Provides a list of potential local, state, federal and utility incentives

Service feature highlights

- Service planning
- Assessment preparation
- Assessment plan
- Data collection and analysis
- Presentation of findings

Table 1. Service features

Feature	Delivery specifications
Service planning	<p>An HPE service specialist will plan all the necessary activities, including the identification of any prerequisites, and schedule the delivery of the service at a time mutually agreed upon by HPE and the Customer, which shall be during local HPE standard business hours excluding HPE holidays, unless otherwise agreed to by HPE. Any service provided outside of HPE standard business hours may be subject to additional charges.</p>
Assessment preparation	<p>HPE and the Customer will conduct an assessment planning conference call to prepare for the assessment. During the conference call, HPE and the Customer will:</p> <ul style="list-style-type: none"> • Review and discuss the project objectives and methodologies • Determine project team members, roles and responsibilities, and the anticipated time commitment required of the Customer's staff • Review the plan, schedule, and requirements for data collection • Discuss the documentation that the Customer will provide to HPE prior to conducting the assessment, including: <ul style="list-style-type: none"> – Data center facility floor plans indicating layout of technology, power distribution, and cooling equipment – Electrical system drawings – Mechanical system drawings – Utility bill history (prior 12 months) – Available electrical equipment schedules and any manufacturer's data relevant to the Customer's equipment
Assessment plan	<p>Based on the results of the preparatory conference call and an analysis of the drawings and specifications provided by the Customer, HPE will create an assessment plan for the mechanical, electrical, and physical infrastructure systems that will be analyzed. The plan will:</p> <ul style="list-style-type: none"> • Identify equipment requiring electrical usage or other site-specific measurements • Specify the Customer's responsibilities associated with the installation of measurement or data-gathering devices • Outline expected time commitment from the Customer's staff • Detail the schedule for onsite data-gathering activities and define the level of support that HPE will require from Customer personnel <p>HPE will e-mail the plan to the Customer for review.</p>
Data collection	<p>Prior to commencing data collection, HPE and the Customer will review the assessment plan and the customer-provided documentation to verify that the plan and project milestones are complete.</p> <p>HPE and the Customer will conduct equipment measurement and data collection at the Customer's facility. HPE will furnish the data-gathering devices and provide direction and recommendations to the Customer on placement of the devices to obtain the desired data. The Customer will be responsible for installation and removal of the data-gathering devices. Measurements will be conducted to:</p>

- Determine the power consumption of cooling and air distribution systems identified in the assessment plan. Examples include:
 - Air-handling equipment
 - Chillers
 - Condensing units
 - Dry coolers
 - Cooling towers
 - Pumps
 - Determine the input and output power of the critical power distribution equipment identified in the assessment plan: Examples include:
 - Main switchboard
 - Distribution equipment
 - Uninterruptible power supplies (UPSs)
 - Remote power distribution panels (RDPs)
 - Automatic transfer switches (ATS)
 - Obtain any pertinent mechanical and electrical systems data
 - Determine the input and output air temperature measurements from the racks/servers and the cooling units. Examples include: servers' intake air temperature, servers' exhaust air temperature, cooling units' supply air temperature, cooling units' return air temperature
- In addition, HPE will:
- Interview the Customer's designated facilities and operations personnel to gain an understanding of the Customer's operational processes and anecdotal operating history
 - Gather any additional relevant data not obtained during the assessment planning process, such as the Customer's infrastructure equipment operating history and site operations, maintenance, and emergency procedures

Presentation of findings

HPE will provide the Customer with a report detailing the findings of its analysis, and will conduct a conference call up to four hours in duration to present and review these findings with the Customer. The report will consist of the following as appropriate:

- An energy efficiency metric for the facility based on quantitative measurements
 - A measure of the total energy delivered to the facility vs. energy used by IT equipment
 - Qualitative findings based on interviews, site observations, and review of the Customer's operational practices
 - Recommendations for energy efficiency improvements
 - Recommendations to improve air management in the data center
 - Potential solutions for implementing recommendations
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Service limitations

- This service is limited to the identification of data center environmental issues and does not include any remedial activity. Any corrective measures to implement the recommendations identified by this service are the responsibility of the Customer.
- Any services not clearly specified in this document or in an associated Statement of Work are excluded from this service.

Service eligibility

The HPE Energy Efficiency Analysis Service is available for all data centers, IT rooms, server rooms, and server closets with raised or non-raised floor environments.

Customer responsibilities

The Customer will:

- Contact a Hewlett Packard Enterprise service specialist within 90 days of date of purchase to schedule the delivery of the service
- Assign a designated person from the Customer's staff who, on behalf of the Customer, will grant all approvals, provide information, and otherwise be available to assist Hewlett Packard Enterprise in facilitating the delivery of this service

- Provide a suitable work area for delivery of the service, including access to an outside telephone line, power, and any network connections required
- Allow Hewlett Packard Enterprise full and unrestricted access to all locations where the service is to be performed
- Complete and return any custom questionnaires or checklists within five days of receipt, if applicable
- Prior to the assessment planning workshop, provide to HPE all pertinent site, electrical, and mechanical drawings; utility bills; and any other site-specific infrastructure data requested by HPE
- As applicable, assist HPE in identifying manufacturers and model numbers of facilities equipment analyzed as part of this service
- Be responsible for installation and placement of data-gathering devices
- Ensure that properly trained personnel and proper safety equipment are available to support placement of data-gathering devices
- Take reasonable precautions and implement all safety-related procedures reasonably requested by HPE
- Adhere to licensing terms and conditions regarding the use of any Hewlett Packard Enterprise service tools used to facilitate the delivery of this service, if applicable

General provisions/Other exclusions

- Hewlett Packard Enterprise reserves the right to charge, on a time and materials basis, for any additional work over and above the service package pricing that may result from work required to address service prerequisites or other requirements that are not met by the Customer.
- Hewlett Packard Enterprise reserves the right to re-price this service if the Customer does not schedule and provide for subsequent delivery within 90 days of purchase.
- HPE's ability to deliver this service is dependent upon the Customer's full and timely cooperation with HPE, as well as the accuracy and completeness of any information and data the Customer provides to HPE.

This document describes services which may, in certain countries or jurisdictions, be considered professional engineering services. If licensed engineering services are described herein or in a future change order, they are offered and will only be provided by professional, licensed engineers. In the United States, these services are generally offered by EYP Mission Critical Facilities, Inc., ("EYP MCF") which is a wholly owned subsidiary of Hewlett Packard Enterprise, and all engineering services will be performed by EYP MCF or its subcontractors pursuant to a SOW signed by the Customer and EYP MCF.

Ordering information

HPE Energy Efficiency Analysis Service can be ordered using the following service part number(s):

- H1Y25A1#002
- H1Y26A1#002

For more information

For more information on Hewlett Packard Enterprise support services, contact any of our worldwide sales offices or visit the following website:

www.hpe.com/services/support

