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 the customer has a server room, an enterprise data center, or a server farm that runs cloud computing, HPE Energy Efficiency Analysis Service helps manage the efficiency of the facilities. It understands the current state of energy use and greenhouse gas emission metrics. The service identifies the mechanical, electrical, infrastructure, and operational issues that affect energy consumption and develops future road map of conservation measures and their ROI.

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 the current data center environment, and its infrastructure and related documentation. It also determines site-specific areas for assessment and identifies members of the customer team who will participate in the assessment. Based on the results of the workshop conference call, HPE creates an assessment plan that specifies the equipment that requires electrical measurement together with the measurement devices required, detail the data gathering and related responsibilities, and schedule on-site data-gathering activities.

2. **On-site interviews and data gathering:** The HPE energy consultants visit the customer site and work in conjunction with the operations staff to gather space, power/cooling, and site operational data.

3. **Analysis and report writing:** The HPE energy consultants analyze the information that is collected, review with the 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, the customer receives a copy of the report and analytics.

**SERVICE BENEFITS**

This service:

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

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>DELIVERY SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service planning</td>
<td>An HPE service specialist plans the necessary activities, including the identification of any prerequisites and schedules the delivery of the service at a time mutually agreed upon by HPE and the customer. This shall be during local HPE standard business hours excluding HPE holidays, unless otherwise agreed to by HPE. Any service provided outside of the HPE standard business hours may be subject to additional charges.</td>
</tr>
</tbody>
</table>
| Assessment preparation | HPE and the customer conduct an assessment planning conference call to prepare for the assessment. During the conference call, HPE and the customer:  
  • 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 provides to HPE prior to conducting the assessment, including:  
    − 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 | Based on the results of the preparatory conference call and an analysis of the drawings and specifications provided by the customer, HPE creates an assessment plan for the mechanical, electrical, and physical infrastructure systems that are analyzed. The plan:  
  • Identifies equipment requiring electrical usage or other site-specific measurements  
  • Specifies the customer’s responsibilities associated with the installation of measurement or data-gathering devices  
  • Outlines expected time commitment from the customer’s staff  
  • Details the schedule for on-site data-gathering activities and defines the level of support that HPE requires from the customer personnel  
  • HPE emails the plan to the customer for review |
| Data collection | Prior to commencing data collection, HPE and the customer review the assessment plan and the customer-provided documentation to verify that the plan and project milestones are complete. HPE and the customer conduct equipment measurement and data collection at the customer’s facility. HPE furnishes the data-gathering devices and provides direction and recommendations to the customer on placement of the devices to obtain the desired data. The customer is responsible for installation and removal of the data-gathering devices. Measurements are conducted to:  
  • 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 (ATSs) |
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 (SOW) 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 an HPE service specialist within 90 days of the 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, grants all approvals, provides information, and otherwise is 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 HPE 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 U.S., 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.

SUPPLEMENTAL TERMS

The following supplemental terms apply to these services and take precedence in the event of any conflict:

• Upon receipt of an acceptable order, HPE will contact the Customer within seven (7) business days to organize a service delivery date. Service delivery dates are subject to resource availability and may be scheduled up to 30 days from the order acceptance date.
• The Customer must schedule and receive delivery of these services within 180 days from order acceptance. HPE reserves the right to reprice for services not scheduled and delivered within 180 days. Backorders or shipment delays may affect the delivery timeline. Orders for services will expire after 365 days (one year) from the order acceptance date for services not scheduled and delivered, and the Customer will not be entitled to a refund for the unused services.

ORDERING INFORMATION

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

• H1Y25A1#002
• H1Y26A1#002
LEARN MORE AT
hpe.com/services/support