HPE Energy Efficiency Certification Service

HPE Technology Consulting

As power consumption and heat generation in the data center increase due to information explosion, big data, e-commerce, and Internet traffic, data center infrastructures need to become more efficient and reliable. Data center certification and third-party accreditation is becoming increasingly popular to help win new business, improve social responsibility, or increase resiliency as demanded by service level agreements.

A strong opportunity and large potential for improvements still remain in data centers. The awareness of data center resiliency, sustainability, and energy efficiency certifications originated from the IT and facilities infrastructure levels where limitations regarding power supply, cooling, building, fire protection, and security started to cause operational problems. Data center certification is becoming a tool to help design, build, and operate efficient data centers inline with business needs and control.

HPE Data Center Facilities (DCF) certified professionals and licensed engineers provide resources and expertise to data center building owners and operators to benchmark their buildings' energy performance, identify opportunities to reduce energy use, adopt energy efficiency strategies, reduce operational costs, and regain capacity lost through inefficient infrastructures.

A growing number of certifications are available for data center and office buildings. HPE consultants can assist with most global and regional certification programs, such as:

- U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) for buildings and data centers

- U.S. Environmental Protection Agency ENERGY STAR for buildings and data centers

- U.S. Department of Energy Save Energy Now (SEN) for data centers

- European Code of Conduct for data centers

Obtaining one of these certifications demonstrates to the community your dedication to making your facilities as environmentally responsible as possible.

HPE DCF consultants possess the professional engineering certifications (PE, LEED AP, CEM) as well as the significant knowledge, certified training, and skills required to identify and provide expertise to qualify data centers and buildings to meet the ENERGY STAR performance criteria. Using the EPA Portfolio Manager rating tool, HPE DCF experts will identify and evaluate energy efficiency opportunities in data centers and other commercial buildings to allow them to meet the energy performance targets required for the ENERGY STAR certification. Of the registered professional engineers (PEs), many possess the USGBC LEED AP certification, and those will provide LEED gap analysis and subsequent LEED certification for existing facilities.

Additionally, a number of HPE DCF consultants are part of the DOE's Data Center Energy Practitioner (DCEP) generalists and specialists program. These consultants have the knowledge to accelerate energy savings in data centers and benchmark facilities using the DOE Save Energy Now DC Pro Data Center Software Tool Suite.

Outside of the United States, HPE is a registered endorser and participant of the European Commission Code of Conduct for data centers. As an endorser, HPE is expected to develop and implement products, solutions, and strategies that enable HPE and clients' data centers to be more efficient while meeting goals and expectations.

Service benefits

This service:

- Can provide, depending on the chosen certification program, nationally recognized building ENERGY STAR efficiency rating and potential certification, worldwide LEED gap analysis and certification, DOE Save Energy Now benchmarking, and energy auditing or other worldwide rating and certification programs such as the European Commission Code of Conduct for data centers, Singapore Green Mark, and others.

- Provides the required utility bill analyses as well as pertinent energy and thermal measurements to provide comprehensive and detailed input data to your certification program of choice.

- Encompasses submittal of the data per the certification program requirements, including building energy data, water consumption data, systems description, and other building-related general data.

- Details key findings and observations from the facility, as required by the certification program, including all findings and engineering observations from the various infrastructures as well as operational and maintenance procedures associated with the building.

- Provides energy conservation best practices that improve energy efficiency in alignment with the certification program.

- Includes a comprehensive, prioritized, and practical list of conservation measures, as required, that will improve the efficiency—and, thus, the certification program score.

The HPE Energy Efficiency Certification Service follows a four-phase process that includes capture, analysis, and reporting of data, followed by a presentation of program rating/certification and recommendations.

1. Planning and preparation. This phase starts with an assessment planning teleconference workshop to discuss the project objectives, verify the eligibility of the building by checking the certification program eligibility criteria checklist, review the current building/facility environment and its existing energy metering, determine specific areas for assessment, and identify members of your staff who will participate in the assessment. Based on the results of the workshop, HPE will create an assessment plan that specifies the required energy utilization data, energy sources, areas and equipment that will be evaluated including any measurement, instruments/devices required, frequency of measurements, details regarding data gathering, roles and responsibilities, and schedule of the site data-gathering activities.

2. Onsite and virtual interviews and data gathering. The HPE assessment team will visit your site and work in conjunction with your facilities and/or operations staff to verify the as-built conditions, matching them with the single-line mechanical and electrical drawings, and to collect data, including utility bills, energy data at the Uninterruptible Power Supply (UPS) output for data center buildings, historical power use, building envelope details, building operating schedules, and operational characteristics. The team will verify the installation of continuous physical energy meters at the building service entrance and at UPS output for data center buildings. For data center buildings, the team will verify the loads allocation on the UPS power distribution, determining whether the UPS system is feeding any non-IT loads. If so, the team will determine the percentage of the UPS feeding non-IT loads. Depending on this percentage, the team will determine if energy metering is required.

3. Analysis and report writing. The HPE consulting team will analyze the information that is collected and provide a written report that presents the certification program rating and gap analysis to achieve the associated certification. For the ENERGY STAR rating/certification process, this report will include analysis, submitted data, ENERGY STAR Portfolio Manager statement of energy performance, benchmarking, and score. The DOE SEN energy assessment and benchmarking report will include calculated metrics, DC Pro submitted data and analysis, and benchmarking. The LEED certification report will show the baseline status and credit gap analysis to achieve the desired LEED certification level. All of the reports will also present findings, energy conservation opportunities, and energy efficiency metrics and intensities. The energy conservation measures will target conservation in a variety of areas, such as chillers, pumps, control set points, cooling towers, building envelope, lighting systems, operating schedules, steam traps, boilers, indoor air quality, and water efficiency.

4. Presentation. A conference call or in-person meeting is arranged to share the certification program rating or certification score, gap analysis, benchmarking, findings, and conservation strategies and recommendations.

Service feature highlights

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

Table 1. Service features

Feature	Delivery specifications
Service planning	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 upon by HPE. Any service provided outside of HPE standard business hours may be subject to additional charges.

Assessment preparation	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:
	- Review and discuss the project objectives and methodologies
	- Determine the project team members, their 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
	  – Facility floor plans that indicate layout of electrical power distribution, cooling equipment, and space type
	  – Electrical system drawings, including lighting systems
	  – Mechanical system drawings
	  – Utility bill history, including fuel delivery, and purchased water (chilled and hot) and steam (for 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 will create an assessment plan for the building systems, including mechanical, electrical, and other infrastructure systems to be analyzed. The plan will: - Identify equipment requiring electrical usage or other site-specific measurements - Specify responsibilities associated with the installation of continuous measurement or data-gathering devices (see 'Customer responsibilities') - Outline the 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 the Customer's personnel HPE will email the assessment plan to the Customer for review.
Data collection	Prior to commencing data collection and verification of installed energy meters, HPE and the Customer will review the assessment plan and the Customer-provided documentation to verify that the plan and project milestones are complete. HPE and the Customer will conduct any needed equipment measurement and data collection at the Customer's facility. The Customer is responsible for installing energy meters at locations where required by the ENERGY STAR program, depending on the building type and designation. HPE will provide direction on where the meters should be installed to meet program requirements. Data will be gathered from meters and utility bills to determine the total electricity use of the building. This is the total monthly energy consumption based on the utility bills. The HPE team will verify that the energy consumption identified in the utility bills is matched with main building energy meter data. For data center buildings, monthly energy consumption data will be gathered from energy meters installed previously at the UPS output.

Power and thermal measurements may be required from equipment serving spaces or other buildings that are not under certification. This is for equipment that feed multiple buildings. Examples include:

- Air-handling equipment
- Chillers
- Condensing units
- Dry coolers
- Cooling towers
- Pumps
- Lighting systems
- Office equipment

In addition, Hewlett Packard Enterprise 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 other sources of energy consumption data, such as monthly fuel quantities, natural gas, steam, or chilled water

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 4 hours in duration to present and review these findings with the Customer. The report will consist of the following, as appropriate:
	
	- Management summary/Introduction
	- Certification program requirements for the Customer's specific building type and verification that it meets eligibility requirements
	- Data submitted to the certification program, including general building data, monthly electricity consumption, monthly fuel consumption, monthly natural gas consumption, systems description, and other sources of energy, such as purchased steam or chilled water
	- Certification program rating or certification results—for example, ENERGY STAR Portfolio Manager statement of energy performance, including:
	  – Site energy use summary from all fuels
	  – Site and source energy intensity, Energy Utilization Index (EUI)
	  – Annual greenhouse gas emissions
	  – Benchmarking; comparison to national average site and source EUI and other energy performance comparisons
	  – ENERGY STAR data checklist
	  – Data submittal from all energy meters and fuel types
	  – ENERGY STAR score
	- Key findings and observations from the facility, including all findings and engineering observations from the various infrastructures, and operational and maintenance procedures associated with the building
	- Energy and water conservation best practices that improve energy efficiency
	- Comprehensive prioritized practical list of high-level conservation measures that will improve the efficiency and thus the certification program score

Service limitations

- This service is limited to the identification of a building's ENERGY STAR or other energy efficiency rating and general energy efficiency issues; it does not include any remedial activity. Any corrective measures to implement the recommendations identified during delivery of 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 Certification Service is available for all data center buildings as well as general office buildings.

Customer responsibilities

The Customer will:

- Install permanent continuous energy meters where required as directed by HPE DCF engineers to meet program requirements

- Complete and return any custom questionnaires or checklists within 5 days of receipt, if applicable

- Prior to the assessment planning teleconference 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 any 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

General provisions/Other exclusions

- 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.

For more information

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

www.hpe.com/services/support

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