Hewlett Packard Enterprise

Reference guide

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ENERGY COST SAVINGS OF HPE GREENLAKE VERSUS TRADITIONAL CAPEX PURCHASE METHODOLOGY

CONTENTS

Hewlett Packard Enterprise accelerates sustainable digital transformation, offering efficient IT solutions to decrease the energy consumption and carbon footprint of digital infrastructure. Our as-a-service offerings, HPE GreenLake, deliver energy savings through a consumption-based IT model that is aligned to capacity usage—further compounding the efficiencies of HPE's already efficient portfolio of IT solutions. By rightsizing infrastructure and precisely metering capacity growth, HPE GreenLake customers not only avoid paying for unused assets but also increase data center energy efficiency and decrease overall energy costs.

To understand the energy and related cost savings of HPE GreenLake, HPE modeled the energy consumption of HPE GreenLake configurations versus a traditional capital expenditure (CAPEX) model over five years. The analysis found that each scenario resulted in 33% energy savings when transitioning to an HPE GreenLake model.

This document outlines the methodology for energy saving calculations.

ENERGY CONSUMPTION AND RELATED ENERGY COSTS: ASSUMPTIONS AND CALCULATIONS

The following data inputs were used to calculate energy cost savings:

- Estimated energy consumption of devices
- Cost of electricity (USD/kWh)[1]
- Cooling efficiency[2]

For demonstrative purposes, the following is an example of a European HPE GreenLake contract valid in 2020. The configurations for the underlying HPE GreenLake deal were made in the One Configuration Advanced (OCA) tool, which provides information about the estimated power consumption of each device. This data is provided by HPE.[3]

Solution category	Subcategory	Solution example
HPE GreenLake and hardware products	Complete HPE DC solution	2x HPE Synergy 12000 frame and 8x HPE Synergy 480 Gen10
	Composable infrastructure	HPE Synergy 480 Gen10
	Storage	HPE Primera A650
	ITaaS	HPE GreenLake

Note: Examples for demonstrative purposes only

CAPEX DELIVERY MODEL

In a traditional CAPEX delivery model, the purchase configuration at the start (Year 1) includes planned growth into the projected end configuration (Year 5). Therefore, the start and end capacity in a CAPEX delivery configuration are equivalent. For this estimate, start configuration is used as the baseline of the CAPEX scenario.

Based on the energy figures from OCA, the calculation includes total energy consumption of the installed IT infrastructure extrapolated over five years. The same is extrapolated for total energy consumption of cooling.[4, 5]

CAPEX scenario	Year 1	Year 2	Year 3	Year 4	Year 5
Electricity consumption, including IT infrastructure and cooling (kWh)	83,974.65	83,974.62	83,974.62	83,974.62	83,974.62
Total electricity consumption over five years (kWh)	419,873.24				

Note: Examples for demonstrative purposes only

[1] Cost of electricity varies from country to country. The greater the value, the more kilowatt hours (kWh) are required for cooling, increasing the overall energy consumption (and associated cost) in the data center. In the European example used for these calculations, this ratio is 0.7 watts of cooling for 1 watt of consumption, on average, among customers' data centers: 1 kWh = $0.24.
[2] Represents the energy (W) required to cool per 1W of equipment consumption.
[3] Calculations based on 50% utilization rate.
[4] Total energy consumption of the IT infrastructure multiplied by the cooling efficiency ratio.
[5] With the same principle, energy costs are calculated for the IT infrastructure as well as for the required cooling: 1 kWh = $0.24.

HPE GREENLAKE DELIVERY MODEL

For the HPE GreenLake delivery model, the purchase configuration (Year 1) is used equal to the installed capacity (reserved capacity) at the start of the contract. The end configuration (Year 5) is equal to the customer-defined planned-growth capacity over the subsequent five years. Therefore, the start and end capacity in an HPE GreenLake delivery model are not equivalent.

Based on the energy figures from OCA, the calculation includes total energy consumption of the installed IT infrastructure extrapolated over five years. The same is extrapolated for total energy consumption of cooling.[6, 7]

The start configuration is the baseline, assuming the customer started with 40% infrastructure utilization at contract start. The planned growth was assumed at more than 26% year over year (as an average).[8]

HPE GreenLake scenario	Year 1	Year 2	Year 3	Year 4	Year 5
Electricity consumption, including IT infrastructure and cooling (kWh)	22,389.86	42,236.90	53,109.94	66,782.03	83,973.73
Total electricity consumption over five years (kWh)	279,692.46				

Note: Example for demonstrative purposes only

RESULTS

Energy consumption and related energy costs calculated under each scenario indicate that an HPE GreenLake model can yield 33% energy savings.

Energy cost savings	Year 1	Year 2	Year 3	Year 4	Year 5
CAPEX scenario: Total electricity costs over five years ($)	20,154	40,308	60,462	80,616	100,770
HPE GreenLake scenario: Total electricity costs over five years ($)	8,062	18,198	30,945	46,972	67,126

- Energy cost savings over five years for HPE GreenLake delivery: $33,643
- Energy cost savings over five years for HPE GreenLake delivery in kWh: 33%

REFERENCES

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- "Cooling Energy Consumption Investigation of Data Center IT Room with Vertical Placed Server," Energy Procedia, 2017
- "The Total Economic Impact of HPE GreenLake," a commissioned study conducted by Forrester Consulting, May 2020
- "The Business Value of HPE GreenLake Management Services," IDC white paper, sponsored by HPE, January 2020

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[6] Total energy consumption of the IT infrastructure multiplied by the cooling efficiency ratio.
[7] With the same principle, energy costs are calculated for the IT infrastructure as well as for the required cooling: 1 kWh = $0.24.
[8] Energy consumption for Year 5 in HPE GreenLake model is equivalent to Year 5 in CAPEX delivery model.

a00111230ENW, March 2021

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