

# DATACENTER ENERGY EFFICIENCY & EMISSIONS

## FAQ & TERMINOLOGY

SWISS DATACENTER EFFICIENCY ASSOCIATION



## WHY IS PRECISE EFFICIENCY MEASUREMENT CRUCIAL?

Datacenters (DCs) are the engines of the digital economy, powering essential IT services and data-driven solutions. With the rapid expansion of digital services and products, DCs are experiencing an unprecedented surge in energy demands, significantly impacting their environmental footprint. Accurate measurement of energy efficiency is paramount to manage and mitigate this impact effectively, leading to the concept of full-stack efficiency. This comprehensive assessment captures every aspect of DC operations, including power and cooling systems, IT infrastructure efficiency, waste heat recovery, and the CO<sub>2</sub> footprint. By precisely measuring these components, DC and IT owners can develop strategies for comprehensive energy optimization and sustainable growth.

## WHAT IS THE SDEA NAVIGATOR?

The SDEA Navigator is a unique online tool designed to support the precise measurement of DC and IT efficiency. It provides operators with three distinct calculators: DC Infrastructure Efficiency, IT Infrastructure Efficiency, and CO<sub>2</sub> Footprint. These calculators can be utilized individually to evaluate specific areas of operation or combined to provide a holistic view of full-stack efficiency.

## WHAT IS SDEA LABEL?

SDEA Label formally recognizes DC and IT infrastructures that meet the highest standards of energy and environmental efficiency, as determined through assessments facilitated by the SDEA Navigator. Achieving this label demonstrates a commitment to sustainability, allowing facilities to certify their efficiency in DC infrastructure, IT infrastructure, or both, highlighting their role as leaders in the sustainable digital economy.

## HOW CAN I GET SDEA LABEL?

DC operators and IT owners can apply for the SDEA Label directly through their SDEA Navigator Dashboard. After meeting the specified criteria and undergoing an independent audit, the SDEA board reviews the application. SDEA Label is awarded to those demonstrating outstanding energy efficiency and low emissions in their operations.

## WHO CAN APPLY?

SDEA Label accommodates various operational models within the DC and IT industry, offering flexibility with its modular certification:

- **DC Infrastructure Only:** Targets owners providing physical infrastructure for IT use, focusing solely on facility efficiency.
- **DC Instance:** Suitable for owners managing both DC and IT infrastructures or IT infrastructure hosted within a certified SDEA DC.
- **IT Infrastructure Only:** For IT infrastructure owners seeking independent certification, regardless of the hosting DC's status.

## WHAT IS THE LABEL'S LIFETIME?

Once granted, the SDEA Label remains valid for a period of three years. During this time, label holders are encouraged to communicate their certification status in line with SDEA guidelines. Upon the expiration of this term, a re-evaluation is necessary for continued use, providing an opportunity for possible upgrades based on new sustainability initiatives.

## ABOUT THE ASSOCIATION

SDEA is a consortium of industrial and academic sustainability pioneers, united in crafting a measurable approach to datacenter efficiency and emissions certification. This collaborative effort, initiated by Hewlett Packard Enterprise (HPE), involves key players such as EcoCloud at EPFL, Lucerne University of Applied Sciences and Arts (HSLU), Swiss Data Center Association (SDCA), and Swiss Telecommunications Association (asut).



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## SDEA TERMINOLOGY

**DATACENTER (DC):** A datacenter is defined as a collection of Information Technology (IT) system components including server, network, and storage systems together with dedicated space and housing technology including but not limited to electrical, cooling, heat recycling and physical security systems.

**DC INSTANCE:** The term “DC Instance” is defined as a combination of a DC Infrastructure Instance and an IT Infrastructure Instance. For a certification, each DC Instance requires a separate application and evaluation to receive a label.

**DC INFRASTRUCTURE:** The term “DC Infrastructure” refers to all equipment, including but not limited to electrical, cooling, heat recycling and physical security systems required to host IT system components.

**DC INFRASTRUCTURE INSTANCE:** The term “DC Infrastructure Instance” is used for the implementation of a specific DC Infrastructure; such an instance can host one or more IT Infrastructure Instances.

**IT INFRASTRUCTURE:** The term “IT Infrastructure” refers to server, network, and storage systems.

**IT INFRASTRUCTURE INSTANCE:** The term “IT Infrastructure Instance” is used for the implementation of a specific IT Infrastructure; such an instance is either owned by the DC operator or, in the case of a co-location relationship, by the respective customer.

**ITIE:** The term "ITIE" stands for IT Infrastructure Efficiency; it refers to a proprietary formula used to assess the efficiency of a datacenter's IT Infrastructure.

**PUE+:** The term “PUE+” refers to an enhanced PUE metric that captures energy recovery options in the datacenter.

**CUE:** Carbon Usage Effectiveness (CUE) is a metric for measuring the amount of CO<sub>2</sub>e a datacenter emits. The metric was developed by the non-profit consortium The Green Grid.