INTELLIGENCE UPDATE

EU EED labeling scheme: Uptime feedback

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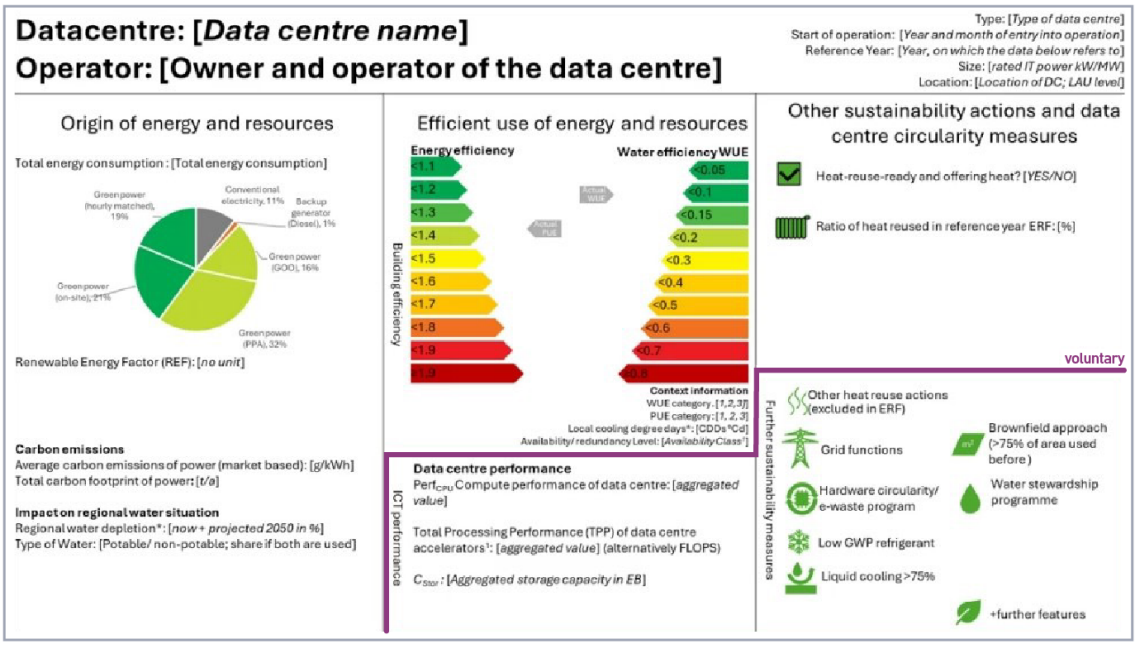
The European Commission is proceeding rapidly to finalize its second delegation report mandated in the EU Energy Efficiency Directive (EED). The EED project manager has indicated that the Commission plans to finalize the data center rating and labeling scheme by the end of 2025. Member states can then review and approve the draft, allowing the Commission to announce the final publication of the authorizing regulation in the first quarter of 2026 (see *EU energy efficiency package may slow digital growth*).

They also intend to announce and open the public consultation process for the PUE, water usage effectiveness (WUE), and renewable energy effectiveness (REF) minimum performance standard (MPS) values at the same time. The consultation process takes 12 to 18 months, progressing through several study and proposal phases and culminating in member state review and European Parliament approval.

The Commission presented a second draft of the label (**Figure 1**) and revised MPS values (**Table 1**) in the European Data Centre Association (EUDCA) fourth consultation workshop. Although the new drafts addressed some of the concerns raised by Uptime Institute's comments on the first drafts presented in the third consultation, they still have significant shortcomings. They also continue to exceed the EED mandate to enhance the energy efficiency of data center operations. An example of this concern are the voluntary sustainability indicators, which detail sustainability aspects outside of energy efficiency and greenhouse gas (GHG) management metrics outside the focus of the EED.

Figure 1 Proposed data center rating scheme/label (June 18, 2025)



ERNEST AND YOUNG PRESENTATION EUDCA FOURTH WORKSHOP

Table 1 Minimum performance standards proposed by the European Commission (June 18, 2025)

Timeline	Power usage effectiveness (PUE)	Water usage effectiveness (WUE)	Renewable energy factor (REF)
Existing data centers by 2030	Operational PUE <1.5	<0.4 (regardless of water origin: potable or non-potable)	100%
Data centers commissioned in 2027 and later	Design PUE <1.3 (with operational PUE <1.4 to be achieved within three years of operation)	<0.4 (regardless of water origin: potable or non-potable)	100% (by 2030)

UPTIME INSTITUTE 2025

Uptime submitted the set of comments (below) to the Commission in response to these fourth consultation proposals. The comments attempt to explain the specific deficiency or limitation of a particular aspect of the label or MPS. Uptime also proposes alternative approach(es) or language that meets the Commission's intent, while better reflecting the realities of data center operations. In some cases, Uptime has recommended removing a specific requirement. Uptime believes these comments to be important considerations, because the next draft of the labeling scheme will be nearly final, with minimal opportunities for further modification.

(*The following comments are the views of the Uptime Intelligence Sustainability team. Members of the Uptime Institute network have been consulted but may not agree with all the recommendations.*)

COMMENTS SUBMITTED TO THE EUROPEAN COMMISSION

Key points

Uptime Intelligence has evaluated the fourth consultation draft of the proposed data center rating scheme and label, as well as the minimum performance standard values.

The reporting of electricity generation sources is confusing and arbitrary. If generation reporting is required, the label should show the percentage of each generation type supplied to the data center, with an indicator of when guarantees of origin cover those sources.
The Commission has not addressed the confidentiality concern associated with reporting the data center's total energy use. The Commissions should resolve this issue for the label and EED reporting.
The focus on the market-based renewable energy factor (REF) and data center Scope 2 emissions ignores the actual emissions associated with the energy use at the data center facility. The Commission should require location-based reporting of REF and Scope 2 emissions, as well as Scope 1 emissions, to accurately characterize the actual impact of CO2 emissions associated with the data center's operation.
The Commission improved the ICT indicators section, changing to reporting the EED ICT indicator values for server and storage product infrastructure. The Commission should consider including the percentage of servers utilized at less than 10% and the percentage of servers with power management functions deployed on the label to encourage operators to better manage their IT infrastructure and power use. The ICT indicator and utilization information should be voluntary through the 2027 operating year and mandatory for the 2028 operating year and beyond.
The addition of definitions for the Further Sustainability Measures clarifies the reporting requirements. However, the voluntary information offers no actionable data within the context of the Energy Efficiency Directive and should be removed from the label.
All references are to the EUDCA workshop#4 charts presented on June 18, 2025.

Label/rating system improvements

The Commission made improvements to the label. The addition of definitions for the various label items is helpful, although some of the definitions could be more concise.

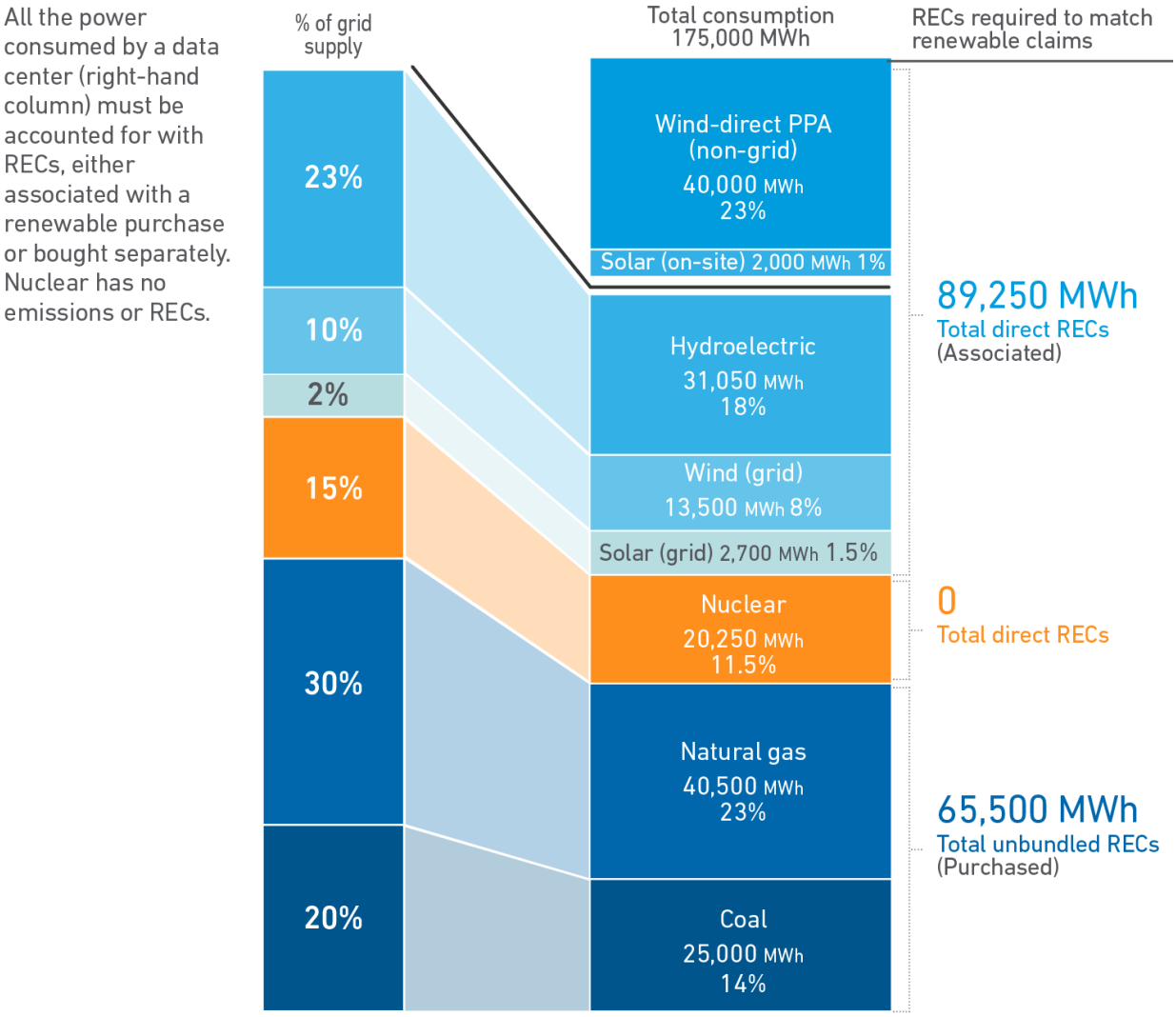
Improvements

Location. The use of the local administrative until (LAU) level for location reporting should alleviate some of the concerns regarding location confidentiality. In the internet age, the reality is that a focused search can identify the address of most data center facilities.
Impact on regional water situation. Clarifying this section of the label to address water availability for the location – water-rich, water-stressed, or water-scarce, and whether potable or non-potable water is used, clearly depicts the type of water used for cooling and the water availability zone of the data center.
Either this section or the notes under the WUE graphic should include two entries for the type of cooling system used for heat transfer to the environment. The first entry should indicate whether an economizer is in use to capture free cooling. The second entry should identify the cooling system type, such as direct expansion, pumped refrigerant, open evaporative cooling tower, closed evaporative cooling tower, adiabatic spray or media, dry cooler with adiabatic trim, etc. This will enable the Commission to analyze water use by cooling system type.
Note for information and KPI reporting. It would be advisable to include the presence of an economizer and the external cooling system type values in the EED reporting.
Data center performance. Changing this section to report the work capacities for standard compute, GPU/accelerator servers, as well as the storage capacity of dedicated storage products, provides a reasonable first step toward developing a meaningful metric to assess the efficiency of the IT infrastructure. The Commission needs to take several steps to bring a stronger focus on IT infrastructure efficiency over the next four years.
The Commission should make this section voluntary through the 2027 operating year and make full reporting of these values mandatory for the 2028 operating year. This will send a clear message to data center operators that they must implement systems to generate this

data as mandated by the EED delegated regulation.
The Commission needs to work with the data center industry to provide a methodology to calculate the three values. The Green Grid has published a method to calculate work capacity for standard CPU servers, and Uptime Institute has published a recommended methodology to calculate work capacity for GPU/accelerator-based servers and total storage capacity for dedicated storage products. In the absence of any other published methodologies, the Commission should adopt these methodologies for the next three years, working with industry to refine them.
The Commission needs to clearly define which storage equipment and devices should be included in the storage capacity reported to the label and the EU database. Uptime Intelligence believes that dedicated online storage products (as covered by EU 2019/424) and storage servers with ten or more storage devices should be considered. Some operators are reporting all storage devices installed in the data center, while one major colocation operator has directed their tenants to report the storage devices and capacities installed in application servers.
The Commission needs to determine how to address IT infrastructure installed in colocation data centers. Colocation operators are experiencing serious difficulties in obtaining server and storage capacities, with two operators reporting that they received capacities from less than 5% of their tenants, and they had no means to quality-check the data.
Much of the confusion and lack of information is caused by the lack of guidance on how to calculate capacity values. However, the Commission should assign the reporting of IT infrastructure capacity reporting to the IT operators who own the equipment. If assigned to IT operators, the Commission will need to make changes to the EU database to enable IT operators to report on their IT infrastructure and associate it with specific colocation facilities.
Uptime Intelligence encourages the Commission to include voluntary reporting of the percentage of installed servers with power management deployed and with an average utilization of less than 10%. It is recommended that the reporting of these two values become mandatory reporting for the 2028 operating year. Encouraging operators to address servers with low utilization and deploy power management, where compatible with applications and workloads, can drive significant improvements in data center energy efficiency. Providing three years before making the reporting mandatory gives IT operators time to put in place the data management systems and performance metrics needed to improve the utilization and power management of their server infrastructure before having to report them publicly.
Other sustainability actions and data center circularity measures. As stated in its previous set of comments, Uptime Intelligence believes that the voluntary sustainability measures should be removed from the label, as they are outside the scope of the EED mandates to improve data center operational efficiency and reduce carbon emissions. If the measures are retained, the provision of definitions was a positive step to clarify and improve the reporting process.
Label areas requiring further improvement
Total energy consumption. The Commission has not addressed the confidentiality concern associated with reporting the total energy use of data centers. This issue needs to be resolved for both the label and EED reporting.
Generation source pie chart. The pie chart's terminology and presentation, focusing on ‘green’ energy, which is not defined, and delivery and contracting types with different shades of green, do not provide any easily understood or meaningful information.
If the Commission chooses to retain the pie chart, it should depict the percentage of each generation type – hydropower, wind, solar, nuclear, natural gas, coal, geothermal, and other - present in the annual average generation mix consumed by the data center (**Figure 1**). If

guarantees of origin (GOs) are applied, the pie chart could include notes indicating which generation types (MWh) are offset by GOs, or a specific pie format could be used to indicate that fossil fuels or nuclear generation have been offset by GOs. Formatting the pie chart in this way clearly illustrates the sources of energy that supply the data center.

Figure 1 Recommended approach for reporting electricity generation sources



Above is an example of the breakout of generation sources that Uptime Intelligence would propose be used for the data center label. The column on the right shows the quantity and percentage of consumed energy by generation type. In the example, 42,000 MWh of consumed energy comes from a power purchase agreement with a wind farm and 2,000 MWh is generated on-site from a solar array. Those power purchases come with guarantees of origin (GOs) attached.

The remainder of the consumption comes from a purchase of grid electricity. The percentage of each generation type (annualized) for the grid supply is depicted in the column on the left. These percentages are used to translate the overall 133,000 MWh of grid purchase into the MWh of electricity consumed by generation type. Given that these are grid purchases, the operator may not have access to the GOs for the grid delivered hydro, wind, and solar power. It is illogical that operators should be required to buy additional GOs to 'prove' that these purchases were renewable. Instead, accommodations should be made to enable grid supplied renewable energy to be accounted for as such.

The Commission should clarify that nuclear energy, which is carbon-free, should not require GO offsets to be claimed as zero emissions under the REF calculation. Some operators are

applying GOs to nuclear power consumption to claim 100% renewable in their REF calculation. This misallocates resources and waste GOs, which are in high demand to meet carbon-neutral commitments, and double counts carbon-free emission generation.

Carbon emissions. 'Energy' should replace 'power' in the description of the average and total carbon emissions values. Emissions are associated with energy use.

The average emissions factor does not need to be reported. The reporting of total carbon footprint of the power consumption, as described below, provides adequate information regarding the carbon footprint of the data center operation. The value can also be used to calculate the total energy consumption. If the value is required to be reported, it should be reported as the location-based value.

Scope 1 and location-based Scope 2 emissions should be reported separately on the label. Reporting location-based Scope 2 emissions is essential to clearly enumerate the quantity of CO2 emissions associated with the actual energy consumption of the data center. If the Commission deems it appropriate to report market-based Scope 2 emissions, it should be done in addition to the reporting of location-based emissions.

The 'Energy efficiency' graphic/rating should be relabelled as the power usage effectiveness (PUE) graphic. According to the definitions provided in the ISO 50001 standard, energy efficiency is measured as the quantity of work delivered per unit of energy consumed.

WUE. The definition of Category 1 and 2 WUE calculations in the fourth consultation presentation do not align with the ISO/IEC 30134-9 ana EN50900-4-9 standard's definitions. It would be easier for the definition for the reporting to be set as the quantity of water consumed for evaporative cooling, not including domestic and maintenance water use. The alternative would be to use the category 1 definition, with the water input being the total water input to the data center regardless of source.

Year-to-year comparison of results. The Commission should require operators to publish two years of data for the REF, carbon emissions, PUE, WUE and ICT indicator values. This will indicate any year-to-year changes in the values, hopefully to highlight improvements.

Minimum performance standards

PUE and WUE

Uptime Intelligence reiterates its earlier comment from the review of the third consultation proposal that the current data set is inadequate for setting MPS values for PUE and WUE that will take effect in 2030 for data centers in operation before 2027.

The current analysis appears to represent only 20 to 30 % of the data center operating space. This figure was estimated by combining E&Y's analysis of the EU database and Uptime's analysis of the percentage of data center space reporting for the 2023 operating year in the Netherlands (see Uptime Intelligence comments dated May 28, 2025).

Of the reported space, approximately 75% is in France, Germany and the Netherlands. For the other 24 EU countries, an average of 16% of the facilities in each country reported. Less developed data center markets and warmer climates are underrepresented in the data set used for the analysis.

Extrapolating the average PUE performance analysis, it is likely that 40% or more of currently operating data center space (over 600 facilities) will have to be retrofitted or replaced by 2030 to meet a PUE MPS value of 1.5. The Commission has not considered the economic or operational impacts of this level of space conversion and build-out on an extremely tight four-year timeline.

For the WUE values, Uptime Intelligence supports the application of WUE limits only for locations where water depletion is >25%. This enables evaporative cooling systems to be used in locations where water is available and plentiful. The Commission should collect information on the external heat transfer cooling technology deployed at each data center to correlate the different cooling system technologies with WUE values, enabling a better assessment of potential future changes to the WUE MPS.

Uptime Intelligence agrees with the proposed PUE and WUE MPS design values for data centers entering operation on or after January 1, 2027.

Renewable energy factor

The Commission needs to consider how to address the fuel use associated with on-site backup generation, which is typically diesel fueled, against the 100% REF MPS. Operators cannot offset MWh generated from backup generators with GOs, and most biofuel options have residual emissions. The only alternative available would be to offset the carbon emissions from the backup generators with carbon offsets or biofuel energy attribute credits, but it is not clear that their use is allowed under the EN 50600-4-3 REF standard.

ABOUT THE AUTHORS

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Jay is the Research Director of Sustainability at Uptime Institute. Dietrich looks beyond the hype to analyze the transformations required in energy and IT systems, data centers and software management systems, and intra-organizational collaboration, both within and between companies, to deliver sustainable data center operations.

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About Uptime Institute

Uptime Institute is the Global Digital Infrastructure Authority. Its Tier Standard is the IT industry's most trusted and adopted global standard for the proper design, construction, and operation of data centers – the backbone of the digital economy. For over 25 years, the company has served as the standard for data center reliability, sustainability, and efficiency, providing customers assurance that their digital infrastructure can perform at a level that is consistent with their business needs across a wide array of operating conditions.

With its data center Tier Standard & Certifications, Management & Operations reviews, broad range of related risk and performance assessments, and accredited educational curriculum completed by over 10,000 data center professionals, Uptime Institute has helped thousands of companies, in over 100 countries to optimize critical IT assets while managing costs, resources, and efficiency.