



# Climate Neutral Data Center Pact

## Initiative for Climate Neutral Data Centers in Europe

The **Climate Neutral Data Center Pact** (the “Pact”) is committed to the European Green Deal, achieving the ambitious reductions in greenhouse gas emissions and leveraging technology and digitalization to achieve the goal of making Europe climate neutral by 2050. To ensure data centers are an integral part of the sustainable future of Europe, we believe that data centers in Europe can meet the following thresholds:



**Energy Efficiency:** Data centers and server rooms in Europe meet a high standard for energy efficiency, which are demonstrated through aggressive Power Use Effectiveness (“PUE”) targets.

- By January 1, 2025 new data centers operating at full capacity in cool climates will meet an annual PUE target of 1.3, and 1.4 for new data centers operating at full capacity in warm climates.
- Existing data centers will achieve these same targets by January 1, 2030.
- These targets apply to all data centers larger than 50KW of maximum IT power demand.
- In recognition of the European Commission’s interest in creating a new efficiency metric, the Climate Neutral Data Center Pact supports the creation of a new efficiency metric and is committed to working with the EU institutions to create this metric.

**Clean Energy:** Data centers will match their electricity supply through the purchase of clean energy.

- Data center electricity demand must be matched by 75% renewable energy or hourly carbon- free energy by December 31, 2025 and 100% by December 31, 2030.

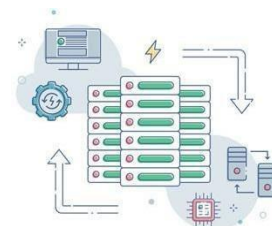


**Water:** Data centres at full capacity must attain a high standard for water conservation, and this can be evidenced through the application of a location and source sensitive Water Usage Effectiveness (“WUE”) targets.

- By January 1, 2025 new data centers at full capacity in cool climates that use potable water will be designed to meet a maximum WUE of 0.4 L/kWh in areas with water stress.
- The limit for WUE can be modified based on climate, stress and water type to encourage the use of sustainable water sources for cooling.
- By December 31, 2040, existing data centers that replace a cooling system must meet the WUE target applied to new data centers.

**Circular Economy:** The reuse, repair and recycling of servers, electrical equipment and other related electrical components is a priority for data center operators.

- Data centers must set a high bar for circular economy practices and will assess for reuse, repair, or recycling 100% of their used server equipment.
- Data centers operators will increase the quantity of server materials repaired or reused and will create a target percentage for repair and reuse.



**Circular Energy System:** In specific circumstances, the reuse of waste data center heat presents a great opportunity for energy. Data center operators will explore possibilities to interconnect with district heating systems and other users of heat to determine if opportunities to feed captured heat from new data centers into nearby systems are practical, environmentally sound and cost effective.

## Appendix: Definitions, Metrics and Key Terms

### Energy Efficiency


- Power Usage Effectiveness (PUE) is measured annually using [ISO/IEC 30134-2:2016](#) or [EN50600-4-2](#)
- For data centres and server rooms with a planned IT capacity at or below 2MW, energy consumed for office space, ancillary building space, and general usage may be excluded from PUE calculations.
- Cool climates are those that are at or below a cooling degree day measurement of 49.99 based on annual data in 2019 for the [NUTS 2 Region compiled by Eurostat](#).
- Warm climates are those that are at or above a cooling degree day measurement of 50.00 based on annual data in 2019 for the [NUTS 2 Region compiled by Eurostat](#).
- Full Capacity – A data centre is at full capacity 24 months after it becomes operational. A data centre operator may exempt up to 10 percent of their data centres that have been operational for 24 months from being considered at full capacity if such data centres are using less than a minimum of 75% of the power capacity, based on the power measured at the power meter(s) representing the critical load over a rolling 90-day period, when compared to the planned data centre design critical load capacity.
- New data centres will refer to data centres that have commenced construction after January 1, 2025

### Clean Energy

- Renewable is defined as technologies identified as renewable under [Directive 2009/28/EC](#) and carbon-free energy means any type of electricity generation from wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, biogases, nuclear power, and carbon capture and storage.
- Renewable energy is measured based on the Renewable Energy Factor defined by [CSN EN 50600-4-3](#); or a company may also measure renewable energy or carbon-free energy based on a publicly available methodology; or a company may measure renewable energy or carbon-free energy based on a published third party methodology, such as Green-e, RE100 or the Greenhouse Gas Protocol.
- Renewable energy can be measured at the facility, country, or company portfolio level within the Member States of the European Union.

### Water

- New data centres will refer to data centres that have commenced construction after January 1, 2025
- WUE will be measured using the category 1 site value, per ISO/IEC 30134-9:2022 standard
- The WUE limit may be modified based on the formula:  $0.4 \text{ L/kWh} \times \text{Climate} \times \text{Stress} \times \text{Water Type} = \text{WUE limit}$
- Climate factor is 1.0 for cold climates and 1.1 for hot climates.
  - o Cool climates are those that are at or below a cooling degree day measurement of 49.99 based on annual data in 2019 for the NUTS 2 Region compiled by Eurostat.
  - o Warm climates are those that are at or above a cooling degree day measurement of 50.00 based on annual data in 2019 for the NUTS 2 Region compiled by Eurostat.
- Stress factor multiples are 5 for Low; 4 for Low Medium; 2.5 for Medium High; and 1 for High Stress areas.
  - o Water stress is defined by the European Environment Agency Water Exploitation Index for river basin districts (1990-2015); based on the listed water exploitation index for a given location. Low is 10 or lower; Low Medium is 11-20; Medium High is 21-40; High is 40 or greater
- Water type factor multiples are 1 for Potable and Fresh water; 3 for Grey Water; 6 for Black, Brackish, or Sea water.
  - o Potable water is free from contamination that is safe to drink or to use for food and beverage preparation and personal hygiene, in adherence to ISO/IEC 30134-9:2022
  - o Freshwater is water having a low concentration of dissolved solids, in adherence to ISO 14046:2016
  - o Greywater is wastewater with a low pollution level, no fecal matter, and reuse potential, in adherence to ISO 12056-1:2000
  - o Blackwater is wastewater with significant pollution level without reuse potential, or recycled blackwater that has gone through tertiary treatment, in adherence to ISO 12056-1:2000
  - o Seawater or brackish is water with significant salinity, in adherence to ISO 14046:2016

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- A data center is at full capacity 24 months after it becomes operational. A data center operator may exempt up to 10 percent of their data centers that have been operational for 24 months from being considered at full capacity if such data centers are using less than a minimum of 75% of the power capacity, based on the power measured at the power meter(s) representing the critical load over a rolling 90-day period, when compared to the planned data center design critical load capacity.
  - An operator that cannot replace the cooling system of a data center with a less water intensive design because of space constraints, permitting constraints, or other reasonable constraints may replace a cooling system with similar technologies while seeking to make modifications that conserve water to the greatest extent possible.

#### **Application**

- Data center operators will outline their own data center footprint and how each facility within that footprint meets the targets set for by the Initiative. The data center operator is the entity that manages or owns the facility for the purposes of measuring performance against the targets set by the Pact for energy efficiency, water, and circular energy systems. Responsibility for clean energy must be met by the entity that pays for the electric energy supply, unless a customer of that facility accounts for all or a portion of that electricity as part of their own publicly declared clean energy goal. Responsibility for the circular economy must be met by the owner of the eligible equipment.
- To avoid failure to count or double counting, where wholesale data center operators provide whole phase or building solutions to customers, both supplier and customer shall clearly document who is the “operator” for energy efficiency, water, and circular energy systems.
- Nothing included in this initiative will apply to data centers located in European overseas countries and territories.