



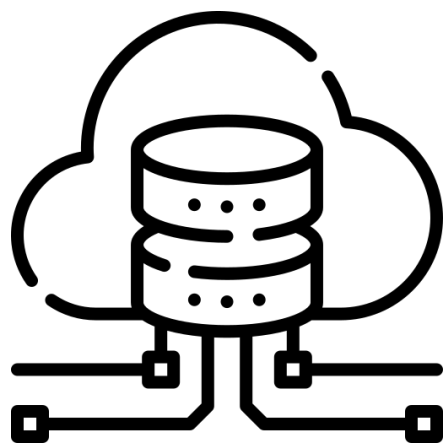
An EU energy label for data centres?

EDNA workshop
14/05/2023, Copenhagen

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European Commission, DG ENER.B2

Delegated Act on data centres

- “...the first phase of the establishment of a common Union rating scheme for data centres”
- Operators of data centres on EU territory with an installed IT power demand of at least 500kW to communicate to the European database annually:



Information in Annex I



Key performance indicator in Annex II

The Commission will:

- Calculate the data centre sustainability indicators of Annex III
- Make public only the data described in Annex IV

Next steps

- The Commission is preparing a report to the European Parliament and Council and, if applicable, will propose ways forward:
 - Rating / labelling scheme
 - A proposal for minimum performance standards?
 - A definition of “carbon-neutral data centres”?

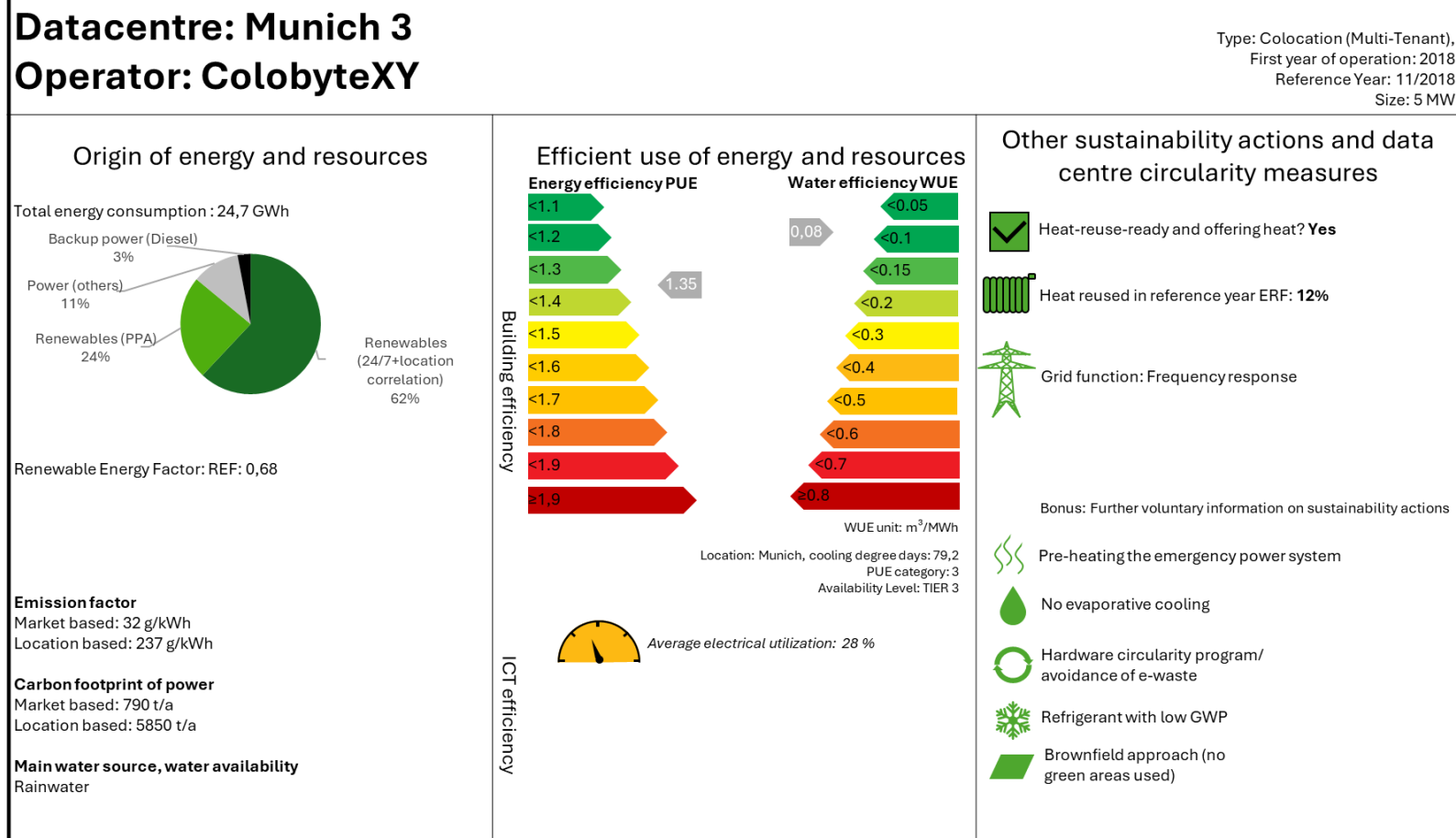
A rating scheme for data centres

- Such a scheme would act as a “push” for greener digital operations and services, where these are offered to the market or are publicly owned
- The rating scheme will take the form of a second Delegated Regulation
- Expected timeline for adoption is Q4 2025

Minimum performance standards for data centres

- Minimum performance standards at a European level could help in the sustainable development of the digital sector, while promoting the deeper integration of data centres and the energy system.
- Design of such standards would need to result from a wide consultation on what could “make the difference” without disrupting the growth of digital infrastructure.
- Looking at what is implemented in EU and globally, ideas include indicators like PUE and WUE, the waste heat reuse, REF or the carbon footprint, services to the grid, etc.
- Minimum performance standards would take the form of a Regulation
- Expected timeline for adoption could be Q4 2025 – Q2 2026

A rating scheme for data centres



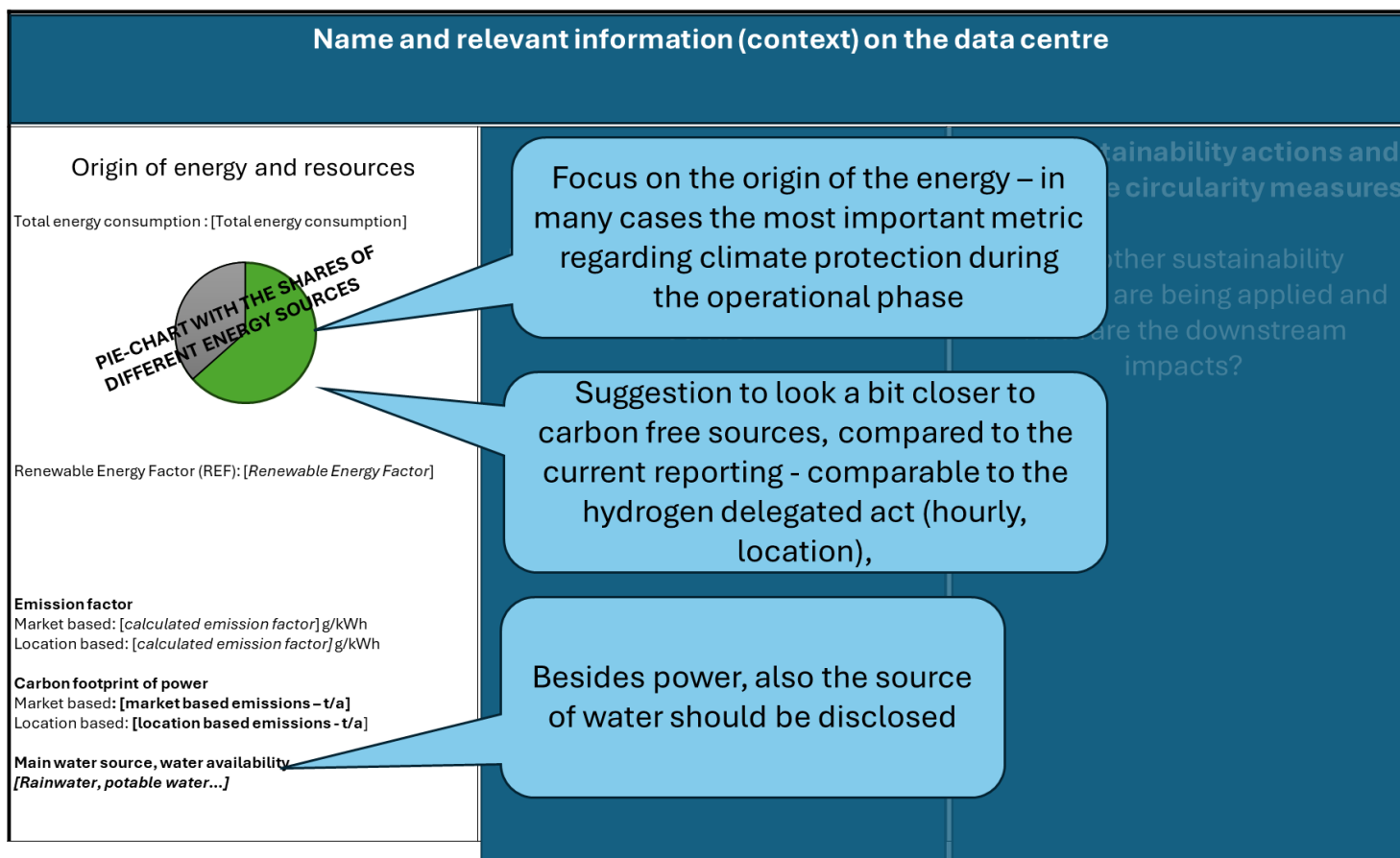
A rating scheme for data centres

Name and relevant information (context) on the data centre		
Origin of energy and resources Upstream sustainability impacts of data centre operations	Efficient use of energy and resources How efficient are the energy and resources used in the data centre?	Other sustainability actions and data centre circularity measures What other sustainability measures are being applied and what are the downstream impacts?

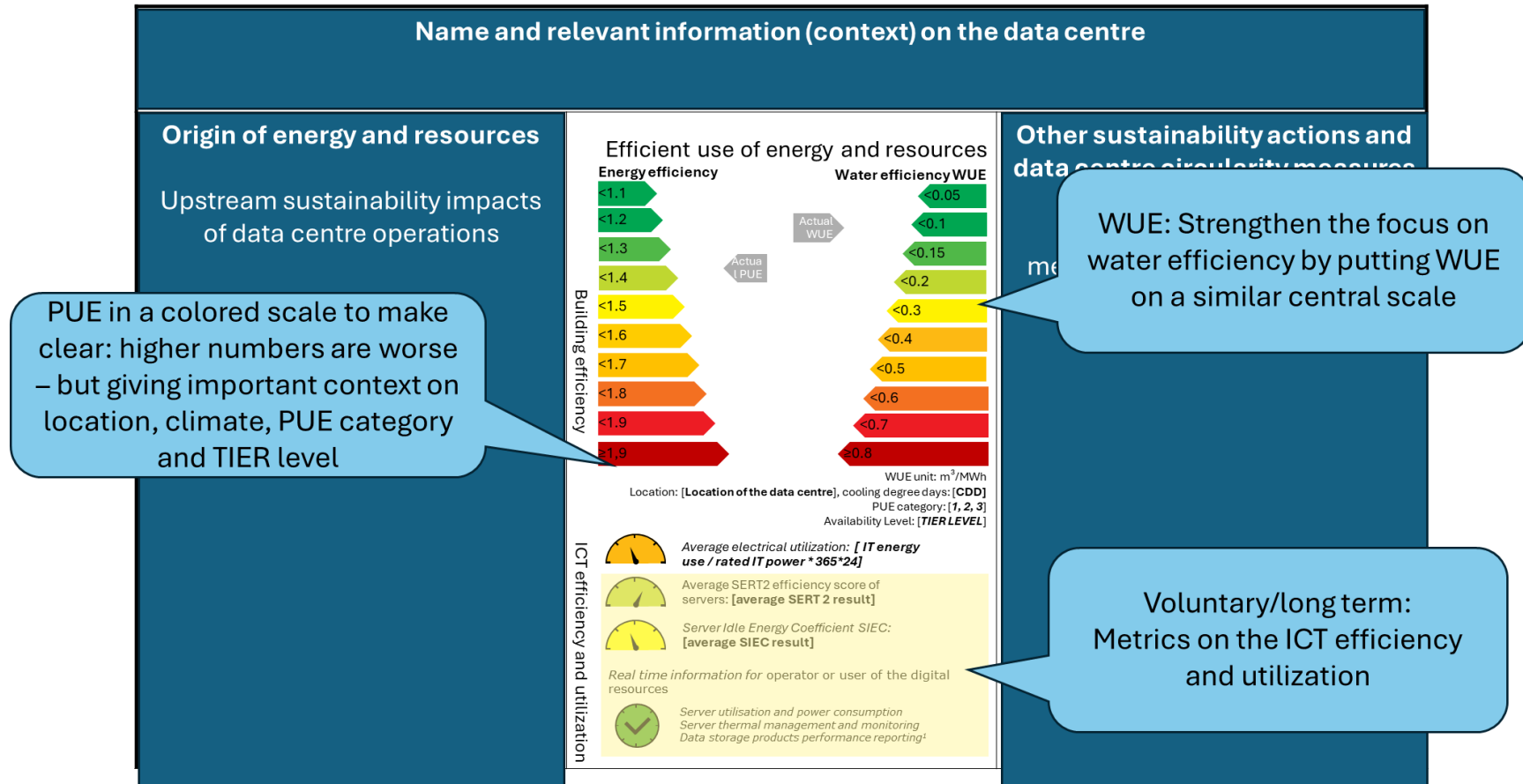
A rating scheme for data centres

Datacentre: <i>[Data centre name]</i>		Type: <i>[Type of data centre]</i>
Operator: <i>[Owner and operator of the data centre]</i>		Start of operation: <i>[Year and month of entry into operation]</i>
		Reference Year: <i>[Year, on which the data below refers to]</i>
		Size: <i>[MW]</i>
Origin of energy and resources	Efficient use of energy and resources	Other sustainability actions and data centre circular measures
<div>Basic information to identify the data centre, without critical information such as detailed location information</div> <div>Further details and important context for categorising the sustainability-related disclosures</div>		
Total energy consumption: <i>[Total energy consumption]</i>		
Renewable Energy Factor (REF): <i>[Renewable Energy Factor]</i>		
Emission factor Market based: <i>[calculated emission factor] g/kWh</i> Location based: <i>[calculated emission factor] g/kWh</i>	ICT efficiency and utilization	
Carbon footprint of power Market based: <i>[market based emissions - t/a]</i> Location based: <i>[location based emissions - t/a]</i>		
Main water source, water availability <i>[Rainwater, potable water...]</i>		

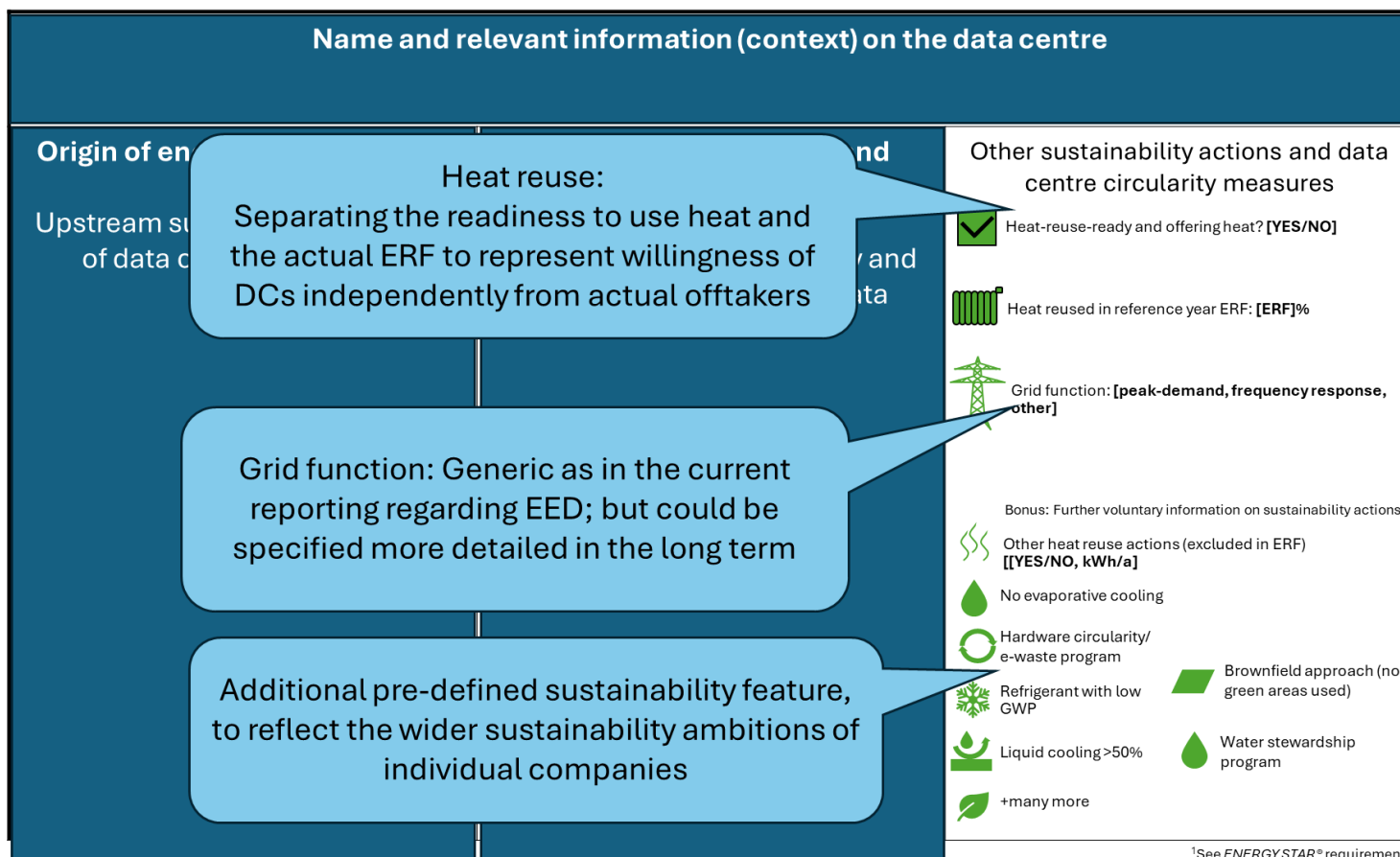
A rating scheme for data centres



A rating scheme for data centres

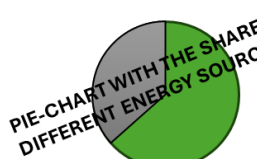
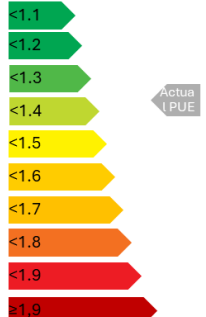
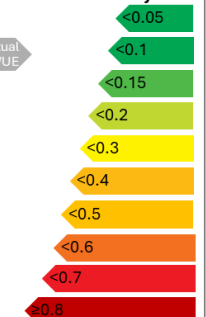
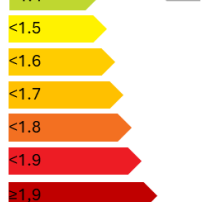
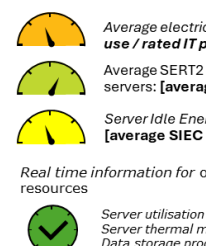












A rating scheme for data centres



















¹See ENERGY STAR® requirements

A rating scheme for data centres

Datacentre: [Data centre name] Operator: [Owner and operator of the data centre]		Type: [Type of data centre] Start of operation: [Year and month of entry into operation] Reference Year: [Year, on which the data below refers to] Size: [MW]
Origin of energy and resources Total energy consumption: [Total energy consumption]  Renewable Energy Factor (REF): [Renewable Energy Factor]	Efficient use of energy and resources <div> Energy efficiency  </div> <div> Water efficiency WUE  </div> <div> Building efficiency  </div> <div> ICT efficiency and utilization  </div>	Other sustainability actions and data centre circularity measures <div>  Heat-reuse-ready and offering heat? [YES/NO] </div> <div>  Heat reused in reference year ERF: [ERF]% </div> <div>  Grid function: [peak-demand, frequency response, other] </div> <div> Bonus: Further voluntary information on sustainability actions </div> <div>  Other heat reuse actions (excluded in ERF) [YES/NO, kWh/a] </div> <div>  No evaporative cooling </div> <div>  Hardware circularity/ e-waste program </div> <div>  Refrigerant with low GWP </div> <div>  Liquid cooling >50% </div> <div>  Water stewardship program </div> <div>  +many more </div>

¹See ENERGY STAR® requirements

A rating scheme for data centres

Datacentre: [Data centre name]		Type: [Type of data centre]
Operator: [Owner and operator of the data centre]		Start of operation: [Year and month of entry into operation]
		Reference Year: [Year, on which the data below refers to]
		Size: [MW]
Origin of energy and resources Total energy consumption : [Total energy consumption]  Renewable Energy Factor (REF): [Renewable Energy Factor] Emission factor Market based: [calculated emission factor] g/kWh Location based: [calculated emission factor] g/kWh Carbon footprint of power Market based: [market based emissions - t/a] Location based: [location based emissions - t/a] Main water source, water availability [Rainwater, potable water...]	Efficient use of energy and resources Energy efficiency [Bar chart with values from <1.1 to ≥1.9] Water efficiency WUE [Bar chart with values from <0.05 to ≥0.8] WUE unit: m ³ /MWh Location: [Location of the data centre], cooling degree days: [CDD] PUE category: [1, 2, 3] Availability Level: [TIER LEVEL] ICT efficiency and utilization  Average electrical utilization: [IT energy use / rated IT power * 365*24]  Average SERT2 efficiency score of servers: [average SERT 2 result]  Server Idle Energy Coefficient SIEC: [average SIEC result] Real time information for operator or user of the digital resources  Server utilisation and power consumption Server thermal management and monitoring Data storage products performance reporting	Other sustainability actions and data centre circularity measures  Heat-reuse-ready and offering heat? [YES/NO]  Heat reused in reference year ERF: [ERF]%  Grid function: [peak-demand, frequency response, other] Bonus: Further voluntary information on sustainability actions  Other heat reuse actions (excluded in ERF) [YES/NO, kWh/a]  No evaporative cooling  Hardware circularity/ e-waste program  Refrigerant with low GWP  Liquid cooling >50%  +many more  Brownfield approach (no green areas used)  Water stewardship program

This information can be taken from the current reporting requirements

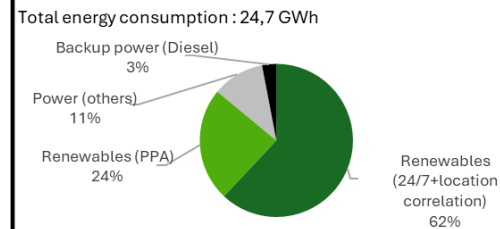
This is voluntary information in the first phase and can be used to show the individual ambition

A rating scheme for data centres

Datacentre: Munich 3 Operator: ColobyteXY

Type: Colocation (Multi-Tenant),
First year of operation: 2018
Reference Year: 11/2018
Size: 5 MW

Origin of energy and resources



Renewable Energy Factor: REF: 0,68

Emission factor

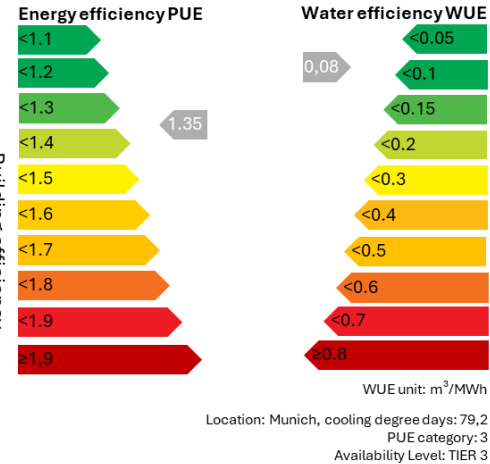
Market based: 32 g/kWh
Location based: 237 g/kWh

Carbon footprint of power

Market based: 790 t/a
Location based: 5850 t/a

Main water source, water availability
Rainwater

Efficient use of energy and resources



Building efficiency



Average electrical utilization: 28 %

ICT efficiency

Other sustainability actions and data centre circularity measures

- Heat-reuse-ready and offering heat? **Yes**
- Heat reused in reference year ERF: **12%**
- Grid function: Frequency response

Bonus: Further voluntary information on sustainability actions

- Pre-heating the emergency power system
- No evaporative cooling
- Hardware circularity program/avoidance of e-waste
- Refrigerant with low GWP
- Brownfield approach (no green areas used)

A rating scheme for data centres

- How would the rating scheme run?
 - Automatically, based on the reported data (no burden after the reporting)
- What could be the averaging period?
 - 2-3 years
- What should be the update frequency?
 - Every 5 years
- What could be the starting date?
 - The soonest could be 2026 (based on 2025 and 2024 data)
- Strength of the rating scheme
 - Rating (score) <-> Label + MPS
- Further use of the rating scheme?
 - MPS, Taxonomy, ...
- Effect on the reporting scheme
 - Update of the indicators? Stricter standardization of the reporting?
- Two big questions: consistency and accuracy of the reported data
 - Stronger market surveillance? Certification?



Thank you

[Website of the Energy Efficiency Directive \(data centres\)](#)