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COMMISSION DELEGATED REGULATION (EU) 2024/1364

of 14 March 2024

on the first phase of the establishment of a common Union rating scheme for data centres

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 ([1]), in particular Article 33(3) thereof,

Whereas:

(1) Directive (EU) 2023/1791 addresses energy efficiency by setting energy efficiency targets at Union level and establishing a common framework of measures to promote energy efficiency within the Union. Moreover Directive (EU) 2023/1791 aims to contribute towards achieving a modern, resource-efficient and competitive economy in the Union, including by the establishment of a common Union scheme for rating the sustainability of data centres.

(2) The Information and Communication Technology (ICT) sector is increasingly important in terms of energy consumption. The electricity demand of data centres is expected to be at 3,2 % of the EU total by 2030, a 28 % increase since 2018 ([2]). The Union's Digital Strategy ([3]) highlighted the need for highly energy-efficient and sustainable data centres and called for transparency measures for telecommunication operators on their environmental footprint.

(3) Pursuant to Article 12 of Directive (EU) 2023/1791, Member States are to require owners and operators of data centres to make publicly available the information regarding their data centres set out in Annex VII to that Directive.

(4) The common Union scheme should set out the key performance indicators and the methodology to measure them and should establish data centre sustainability indicators on the basis of these information and key performance indicators.

(5) Existing legislation, initiatives and standards in the data centres sector should be taken into account when establishing the key performance indicators and the sustainability indicators.

(6) This Regulation defines that the data centre operators are the reporting entities. A data centre operator should make public and communicate to the European database the required information and key performance indicators for a data centre regardless of whether this data centre consists of one structure or a group of structures. A data centre operator should make public and communicate to the European database a separate set of information and key performance indicators for every data centre that has a different physical location even if these data centres are located in the territory of the same Member State.

([1]) OJ L 231, 20.9.2023, p. 1, ELI: http://data.europa.eu/eli/dir/2023/1791/oj.
([2]) Communication of 9 March 2021 entitled '2030 Digital Compass: the European way for the Digital Decade' (COM(2021) 118 final).
([3]) Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme 2030 (OJ L 323, 19.12.2022, p. 4, ELI: http://data.europa.eu/eli/dec/2022/2481/oj).

(7) A data centre park or campus is understood as a facility that houses more than one data centre. In this case, the operator of each data centre should make public and communicate to the European database a separate set of information and key performance indicators for every data centre in the facility.

(8) In order to establish the Union scheme for rating the sustainability of data centres, it is necessary to collect data on their sustainability. Therefore, a reporting mechanism for data centres should be established specifying what information and key performance indicators should be reported as well as the methodologies for monitoring and measuring that information and those indicators.

(9) Pursuant to Annex VII, point (c), to Directive (EU) 2023/1791, the key performance indicators are to measure the energy consumption, power utilisation, temperature set points, waste heat utilisation, water usage and use of renewable energy of data centres.

(10) To ensure uniform reporting, and the availability of the reported data to the public in an aggregated form, and to properly inform the subsequent analysis of the data, the Commission is to establish, a European database on data centres, in accordance with Article 12(3) of Directive (EU) 2023/1791. For data centres to communicate the information and key performance indicators to the European database, the latter should provide for a common user interface as well as a common application programming interface.

(11) Reporting data centres should ensure that the information and key performance indicators set out in the annexes to this delegated regulation are inserted in the European database on data centres. The information and key performance indicators should be used to provide a basis for transparent and evidence-based planning and decision making by Member States and the Commission, and to assess certain key elements of a sustainable data centre, including how efficiently it uses energy, how much of that energy comes from renewable energy sources, the reuse of any waste heat that it produces, the effectiveness of cooling and the use of water. To this end, a first set of data centre sustainability indicators should set out, based on the reported information and key performance indicators.

(12) Pursuant to Article 12(1) of Directive (EU) 2023/1791, the information of data centres subject to Union and national law protecting trade and business secrets and confidentiality must not be made publicly available. Article 12(3) also requires that the European database be publicly available on an aggregated level. Thus, it is necessary to ensure that the key performance indicators and other information reported to the European database are kept confidential.

(13) The Commission carried out a study, particularly on the necessity of a reporting scheme on the energy performance and sustainability of data centres, in order to establish the common Union rating system, which identified the main elements that should define the scope of reporting on the energy performance and sustainability of data centres.

(14) The Commission has consulted relevant stakeholders and Member States representatives and gathered evidence, remarks and good practices on the scope, elements, information and key performance indicators that should be included in the common Union rating scheme.

(15) The Commission has consulted the experts designated by each Member State in accordance with Article 34 of Directive (EU) 2023/1791, and gathered observations on the scope, elements, information and key performance indicators that should be included in the common Union rating scheme,

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter and scope

This Regulation sets out the information and key performance indicators to be communicated to the European database by the operators of data centres with an installed information technology power demand of at least 500 kW and are necessary for the establishment of a common Union scheme for rating the sustainability of data centres in the Union, as well as a common measurement and calculation methodology. It also defines the first data centre sustainability indicators that will be calculated based on the information and key performance indicators communicated to the European database on data centres.

Article 2

Definitions

For the purposes of this Regulation, the following definitions apply:

(1) 'enterprise data centre' means a data centre that is operated by an enterprise, and of which the sole purpose is to deliver and manage the information technology needs of the enterprise;

(2) 'colocation data centre' means a data centre in which one or more customers install and manage their own network or networks, servers and storage equipment and services;

(3) 'co-hosting data centre' means a data centre in which one or more customers are provided with access to network or networks, servers, and storage equipment on which they operate their own services and applications and where both the information technology equipment and the support infrastructure of the building are provided as a service by the data centre operator;

(4) 'enterprise data centre operator' means a physical or legal person who manages the entire enterprise data centre, including the building and the use of the information technology services delivered;

(5) 'colocation data centre operator' means a physical or legal person who manages and sells space, security, network access, power and cooling capacity in the entire colocation data centre to one or more customers who install and manage their own network or networks, servers and storage equipment and services;

(6) 'co-hosting data centre operator' means a physical or legal person who manages the co-hosting data centre space, security, network access, power, cooling, network or networks, servers, and storage equipment, and part of the necessary software to deliver information technology services to one or more customers, including information technology outsourcing;

(7) 'data centre operator' means enterprise data centre operator, colocation data centre operator or co-hosting data centre operator;

(8) 'colocation customer' means a physical or legal person who owns and manages one or more networks, servers and storage equipment located in a colocation data centre in which they purchase managed space, power, and cooling capacity;

(9) 'co-hosting customer' means a physical or legal person who obtains access to a network or networks, servers, and storage equipment in a co-hosting data centre on which they operate their own services and applications;

(10) 'information technology outsourcing' is the use of external service providers to deliver information technology-enabled business processes, application services and infrastructure solutions for business outcomes;

(11) ‘data centre total floor area’ means the total floor area of all floors of the structure or group of structures that constitute the data centre;

(12) ‘data centre computer room floor area’ means the total floor area within the data centre that accommodates the data processing, data storage and telecommunication equipment that provide the information technology services of the data centre;

(13) ‘data centre redundancy’ means the duplication of certain sets of components or functions of a data centre in such a way that if one set fails or needs to be taken down for maintenance, the other set or sets can take over;

(14) ‘installed information technology power demand’ means the sum of the nominal power demand, in kW, of the network or networks, servers and storage equipment installed in the data centre computer room floor area;

(15) ‘rated information technology load’ means the maximum load of the network or networks, servers, and storage equipment, installed in the data centre computer room floor area, that the data centre infrastructure for power distribution and environmental control is capable of handling while providing the desired service availability.

Article 3

Reporting mechanism for the sustainability of data centres

1. By 15 September 2024, then by 15 May 2025, and every year thereafter, reporting data centre operators shall communicate to the European database the information and key performance indicators set out in Annex I and Annex II regarding the data centre they operate. The communication to the European database of this information and key performance indicators shall take place via a national reporting scheme if the Member State where the reporting data centre is located has established such a scheme. Otherwise, the datacentre operators shall communicate this information and key performance indicators directly to the European database.

The information and key performance indicators shall cover the calendar year immediately preceding the reporting year. Where a reporting data centre has been in operation for less than a year, the data centre operator shall report only for the period the data centre has been in operation, indicating as well that period.

2. For the first reporting period, if a data centre operator cannot monitor and gather one or more of the key performance indicators set out in Annex II, points 1(d), 1(e), 1(h)-(l), and 1(o)-(r), for technical reasons, the data centre operator may omit this information explaining the reasons for this omission.

3. For the first two reporting periods, if a colocation data centre operator cannot monitor and gather the necessary data to sufficiently calculate the key performance indicators referred to in points 2(a) and 2(b) of Annex II, it shall estimate and indicate the percentage of the data centre computer room floor area that the information communicated to the European database covers.

Colocation data centre operators may gather the key performance indicators set out in Annex II, from their colocation customers, if necessary, by setting up an anonymous internal reporting mechanism.

4. If a reporting data centre includes both co-hosting and colocation customers, paragraphs 2 and 3 of this Article apply accordingly.

Article 4

Data centre sustainability indicators

The data centre sustainability indicators and the methodology to calculate them are set out in Annex III.

Article 5

European database on data centres

1. The European database shall apply a common user interface as well as a common application programming interface ensuring that all reporting data centres are able to communicate, in the same way, the information and key performance indicators referred to in Annexes I and II.

2. The information, and key performance indicators, communicated to the European database, and the data centre sustainability indicators, in accordance with Annex III, shall be made public in an aggregated manner, at Member State and Union level, in accordance with Annex IV.

3. Member States shall have access to all information and key performance indicators communicated to the European database by data centres in their territory pursuant to Article 3.

4. The Commission shall have access to all information and key performance indicators communicated to the European database pursuant to Article 3.

5. The Commission and Member States concerned shall keep confidential all information and key performance indicators for individual data centres that are communicated to the database pursuant to Article 3. Such information shall be considered confidential information affecting the commercial interests of operators and owners of data centres in accordance with Article 4(2) of Regulation (EC) No 1049/2001 of the European Parliament and of the Council ([4]) regarding public access to European Parliament, Council and Commission documents and Article 4(2)(d) of Directive 2003/4/EC of the European Parliament and of the Council ([5]) on public access to environmental information.

6. The aggregated data collected under this Regulation can be reused for European statistics in line with the principles defined in Regulation (EC) No 223/2009 of the European Parliament and of the Council ([6]).

([4]) Regulation (EC) No 1049/2001 of the European Parliament and of the Council of 30 May 2001 regarding public access to European Parliament, Council and Commission documents (OJ L 145, 31.5.2001, p. 43, ELI: http://data.europa.eu/eli/reg/2001/1049/oj).

([5]) Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC (OJ L 41, 14.2.2003, p. 26, ELI: http://data.europa.eu/eli/dir/2003/4/oj).

([6]) Regulation (EC) No 223/2009 of the European Parliament and of the Council of 11 March 2009 on European statistics and repealing Regulation (EC, Euratom) No 1101/2008 of the European Parliament and of the Council on the transmission of data subject to statistical confidentiality to the Statistical Office of the European Communities, Council Regulation (EC) No 322/97 on Community Statistics, and Council Decision 89/382/EEC, Euratom establishing a Committee on the Statistical Programmes of the European Communities (OJ L 87, 31.3.2009, p. 164, ELI: http://data.europa.eu/eli/reg/2009/223/oj).

Article 6

Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 14 March 2024.

For the Commission
The President
Ursula VON DER LEYEN

ANNEX I

INFORMATION TO BE COMMUNICATED TO THE EUROPEAN DATABASE ON DATA CENTRES

The following information shall be communicated to the European database on data centres.

1. **Information on the reporting data centre**

(a) *Data centre name* is the name used to identify and describe the reporting data centre.

(b) *Owner and operator of the data centre* including the name and contact details of the owner and of the operator of the reporting data centre.

(c) *Location of the data centre* is the Local Administrative Unit Code (LAU code) of the location of the reporting data centre (building or site) expressed in accordance with the most recent LAU tables published by Eurostat.

(d) *Type of data centre* is the type of the reporting data centre that matches the main operation of the reporting data centre, in accordance with the definition of data centre and the definitions of every type of data centres set out by this Regulation.

The type of reporting data centre can take one of the values 'enterprise data centre', 'colocation data centre' or 'co-hosting data centre', combined with one of the values 'structure' or 'group of structures'.

If a colocation data centre also offers co-hosting services or if a co-hosting data centre also offers colocation services, this shall be indicated.

(e) *Year and month of entry into operation* is the calendar year and month during which the reporting data centre started providing information technology services.

2. **Information on the operation of the reporting data centre**

The data centre operator of each reporting data centre shall provide the following information:

(a) electrical infrastructure redundancy level at high voltage level / at low voltage level (line-up) /at rack level;

(b) cooling infrastructure redundancy level at room level / at rack level.

For the redundancy levels, if 'N' represents the baseline number of components or functions to satisfy the normal conditions, redundancy shall be expressed compared to that baseline 'N', for example as 'N+1,' 'N+2,' '2N', etc. Facility redundancy can apply to an entire site (back-up site), systems or components. Information technology redundancy can apply to hardware and software.

ANNEX II

KEY PERFORMANCE INDICATORS TO BE MONITORED, GATHERED AND COMMUNICATED TO THE EUROPEAN DATABASE ON DATA CENTRES AND THE MEASUREMENT METHODOLOGIES

For all monitoring, data centre operators shall keep a record of the measurement points and measurement devices used, for a period of at least 10 years.

The following key performance indicators shall be monitored, gathered and communicated to the European database on data centres.

1. **Energy and sustainability indicators**

(a) *Installed information technology power demand* ('PD_{IT}', in kW), as defined in Article 2. Where the installed information technology power demand has changed during the reporting period, a weighted average shall be used.

Where the installed information technology power demand cannot be determined, the data centre rated information technology power demand (in kW), as defined in Article 2, can be used. Where the data centre rated information technology power demand has changed during the reporting period, a weighted average shall be used.

The reporting data centre shall indicate which metric it uses for its reporting;

(b) *Data centre total floor area* ('S_{DC}', in square metres).

If the structure that houses the data centre has a different primary function (for example, office building), the value of S_{DC} must be limited to the sum of the floor area occupied by the data centre's computer room or rooms and the floor area occupied by the equipment necessary for the proper operation of the data centre.

If this equipment also serves the other functions of the structure (for example, common cooling system for the whole structure), a percentage of the floor area occupied by such equipment that reflects the rated power demand of the data centre computer room or rooms shall be used for the calculation of the previous subparagraph.

If the data centre occupies one structure, the value of S_{DC} shall be the floor area of this structure.

If the data centre occupies a group of structures, the value of S_{DC} shall be the sum of the floor areas of all structures;

(c) *Data centre computer room floor area* ('S_{CR}', in square metres).

If the data centre occupies a group of structures, the value of S_{CR} shall be the sum of the computer room floor area of all structures;

(d) *Total energy consumption* ('E_{DC}', in kWh) of the reporting data centre shall be measured as defined by, and by using the methodology in the CEN/CENELEC EN 50600-4-2 standard or equivalent.

Total energy consumption includes the use of electricity, fuels and other energy sources used for cooling.

The amount of E_{DC} coming from back-up generators ($E_{DC\text{-}BG}$, in kWh) shall be measured separately.

Total energy consumption shall be measured at the input of the data centre system before the supply transfer switchgear. The measurement points shall be set at the primary and secondary supply of energy and at every additional supply, for example, back-up generation.

In the case of a cogeneration or an absorption chiller, if internal to the system, the measurement point shall be at the input of the cogeneration or absorption chiller, measuring the fuel consumed. If external, in the case of cogeneration, the measurement points shall be at the electricity and heat outputs, and in the case of the absorption chiller, the measurement point shall be at the cooling output;

(e) *Total energy consumption of information technology equipment* ('E_{IT}', in kWh) shall be measured in accordance with the category 1 methodology for the calculation of the PUE set out in the CEN/CENELEC EN 50600-4-2 standard or equivalent. Data centres shall measure the combined annual energy consumption at every uninterruptible power system (UPS) connected to data centre information technology equipment.

For data centres that do not have a UPS, for example, direct current data centres, E_{IT} can be measured at the power distribution unit (PDU) connected to data centre information technology equipment, or in accordance with the category 2 methodology for the calculation of the PUE set out in the CEN/CENELEC EN 50600-4-2 standard, or at a measurement point that data centres will specify.

Figure 1 illustrates a general schema of monitoring and measurement points in a data centre, where measurement locations for the total energy consumption and the total consumption of information technology equipment are indicated;

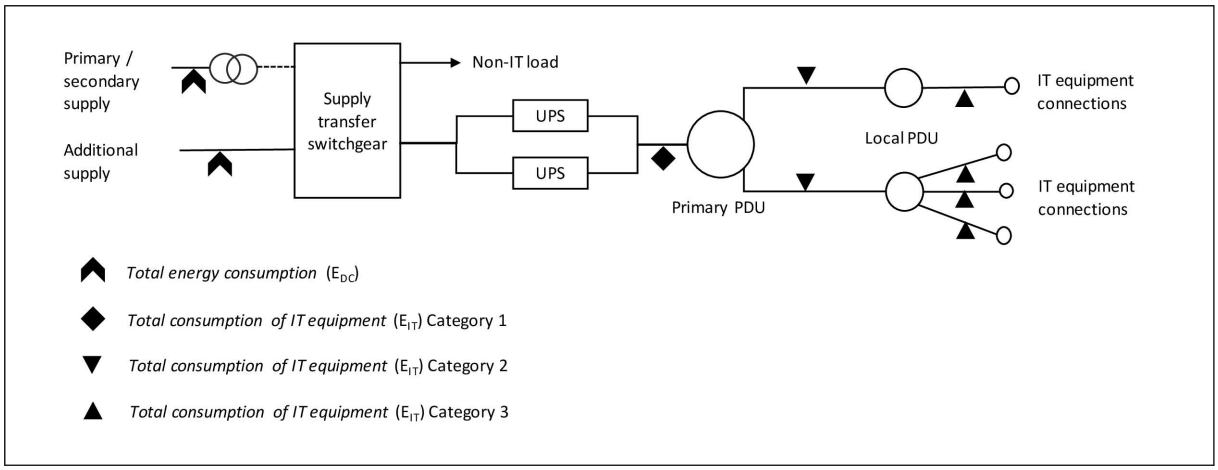

Figure 1

Measurement of energy consumption

(f) *Electrical grid functions* is the information on whether any functions that support the stability, reliability, and resilience of the electrical grid are provided by the data centre, such as peak demand shifting or firm frequency response (FFR);

(g) *Average battery capacity* ('C_{BtG}', in kW) is the average capacity of the data centre batteries that were offered to the grid via a relevant market or contracts for electrical grid functions;

(h) *Total water input* ('W_{IN}', in cubic metres) shall be measured as defined by, and by using the methodology set out in the CEN/CENELEC EN 50600-4-9 standard WUE Category 2, or if not possible, the methodology set out in Category 1, or equivalent standard. Data centres shall measure all water volumes that enter the data centre boundary and are used in relation to the data centre functions including environmental, power, security, and information technology.

The reporting data centre shall indicate which WUE Category it uses for its reporting.

Figure 2 illustrates a general schema of monitoring and measurement points in a data centre, including measurement locations for E_{RES-OS}, W_{IN}, and E_{REUSE};

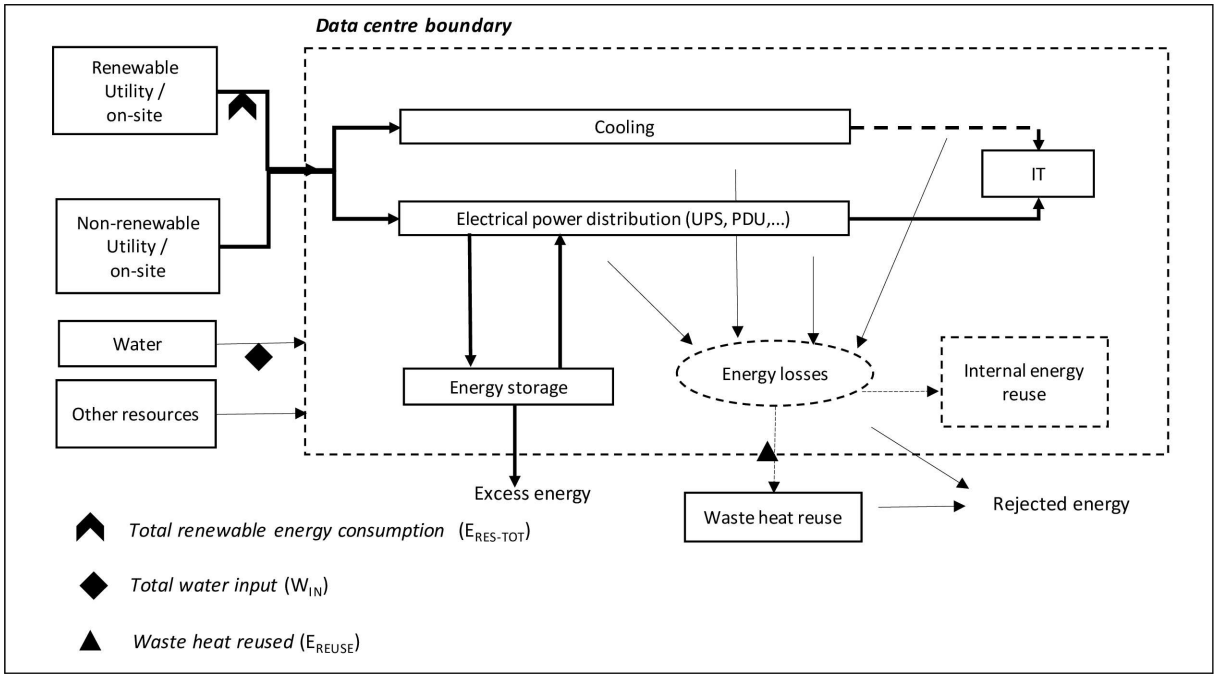

Figure 2

Measurement of water input and waste heat reused.

(i) *Total potable water input* ('W_{IN-POT}', in cubic metres) shall be measured as defined by, and by using the methodology set out in, the CEN/CENELEC EN 50600-4-9 standard WUE Category 1 or equivalent. Data centres shall measure all potable water sources that enter the data centre boundary and are used for data centre functions including environmental, power, security, and information technology;

If the structure that houses the data centre has a different primary function, the values of W_{IN} and W_{IN-POT} must be limited to the water used (or estimated as used) by the equipment in the data centre's computer room or rooms and the equipment necessary for the operation of the data centre.

(j) *Waste heat reused* ('E_{REUSE}', in kWh) shall be measured as defined by, and by using the methodology set out in, the CEN/CENELEC EN 50600-4-6 standard or equivalent. Data centres shall measure the heat that is used or reused outside of the data centre boundary, and which substitutes partly or totally energy needed outside the data centre boundary.

Defining the boundaries of the data centre is a key aspect to successfully measure this indicator, since only energy being reused outside the boundaries of the data centre is counted. Figure 2 provides a scheme to set the data centre boundaries, which are described by the perimeter, spaces and equipment contained therein.

Reused energy shall be measured at the boundary of the data centre at the point where the energy provided is handed off to be used by the other party.

If part of the waste heat is reused for cooling the data centre, that part must be subtracted from the reused waste heat, that is to say, subtracting the share of flow rate of cooling fluid used in the data centre;

(k) *Average waste heat temperature* ('T_{WH}', in degree Celsius) shall be measured as the temperature of the fluid used to cool the information and communication technology equipment in the data centre computer room, averaged over the year, and across every measurement point.

The waste heat temperature is measured at the point where the heated fluid enters the heat exchanger(s) at the data centre computer room boundary (Figure 3). For data centres with heat recovery, that is at the heat recovery exchanger. If there is no heat recovery, the measurement is taken at every heat exchanger at the data centre computer room boundary carrying heat from the information technology equipment;

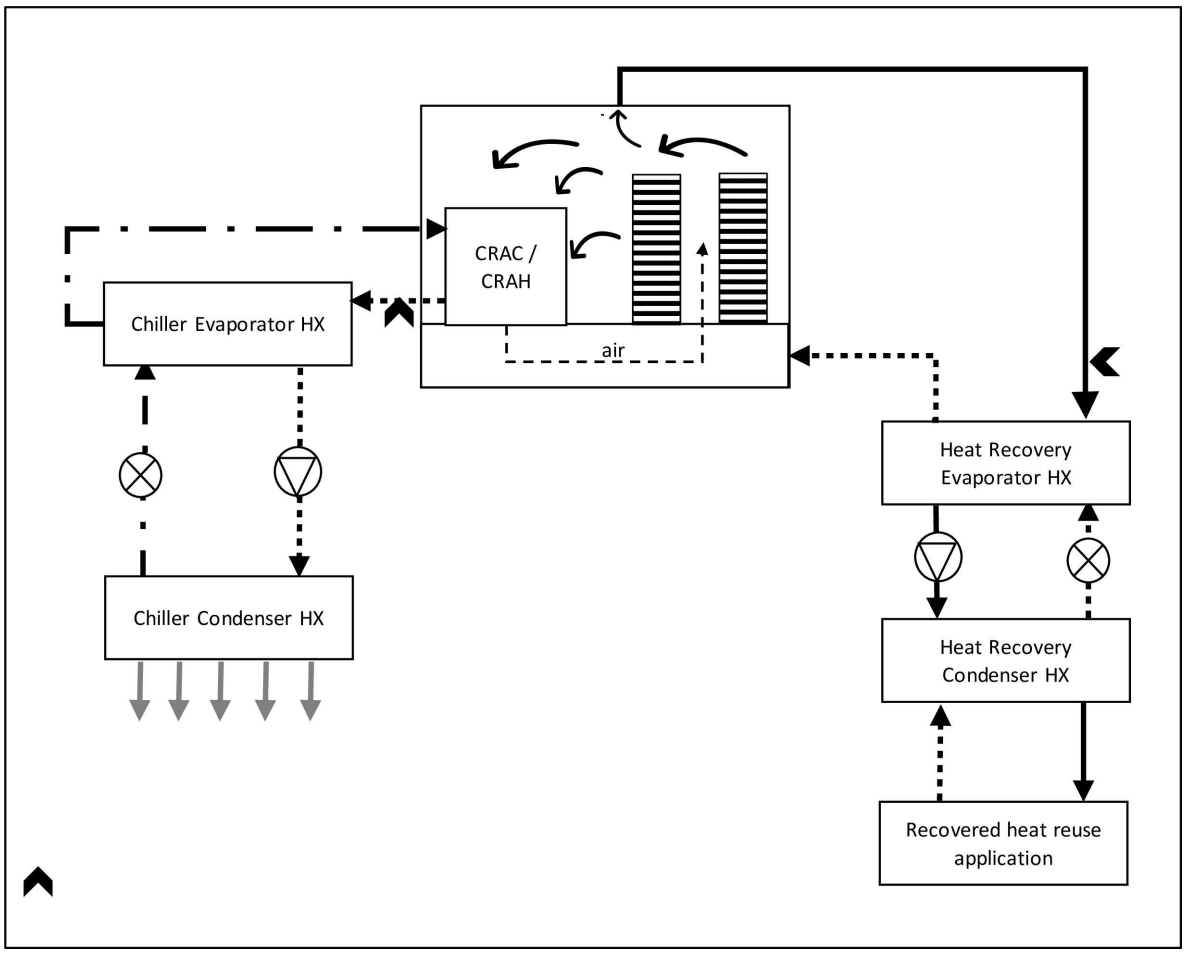

Figure 3

Measurement of waste heat temperature

(l) *Average setpoint information technology equipment intake air temperature* ('T_{IN}', in degree Celsius) shall be measured as the average setpoint temperature in all data centre computer rooms, set as a setpoint command to the cooling system used for the information and communication technology equipment in the data centre computer rooms averaged over the year.

(m) *Types of refrigerants* used in the cooling and air conditioning equipment of the data centre computer room floor area, where each type of refrigerant is the common name or industrial designation of the refrigerant in accordance with the Annexes to the Regulation (EU) No 517/2014 of the European Parliament and of the Council ([1]);

(n) *Cooling degree days* ('CDD', in degree-days) shall be determined as the number of cooling degree days for the location of the reporting data centre during the last calendar year, by using the methodology used by Eurostat and the Joint Research Centre ([2]) or equivalent ([3]), and with a base temperature of 21 degrees Celsius. Open access sources shall be used to determine the cooling degree days;

(o) *Total renewable energy consumption* ('$E_{RES\text{-}TOT}$', in kWh) shall be determined as defined by, and by using the methodology set out in the CEN/CENELEC EN 50600-4-3 standard or equivalent. $E_{RES\text{-}TOT}$ is the sum of $E_{RES\text{-}GOO}$, $E_{RES\text{-}PPA}$ and $E_{RES\text{-}OS}$, as defined below;

(p) *Total renewable energy consumption from Guarantees of Origin* ('$E_{RES\text{-}GOO}$', in kWh) shall be determined as the sum of the Guarantees of Origin purchased and retired by the reporting data centre. The data centre shall measure the $E_{RES\text{-}PPA}$ that enters the data centre boundary, and which cannot be counted for more than one data centre or be created from power purchasing agreements or on-site renewables;

(q) *Total renewable energy consumption from Power Purchasing Agreements* ('$E_{RES\text{-}PPA}$', in kWh) shall be determined as the amount of energy from Power Purchasing Agreements made by the reporting data centre. The data centre shall measure the $E_{RES\text{-}PPA}$ that enters the data centre boundary, and which cannot be counted for more than one data centre.

Any Guarantees of Origin created as a result of such Power Purchasing Agreements must be owned and retired by the reporting data centre so that they are included in $E_{RES\text{-}PPA}$. Otherwise, the concerned amount of energy shall be subtracted from the measured $E_{RES\text{-}PPA}$;

(r) *Total renewable energy consumption from on-site renewables* ('$E_{RES\text{-}OS}$', in kWh) shall be measured as the energy generated from on-site renewable energy sources within the data centre boundary. See Figure 2.

Any Guarantees of Origin created as a result of these on-site renewable energy sources must be owned and retired by the reporting data centre so that they are included in $E_{RES\text{-}OS}$. Otherwise, the amount of energy in question shall be subtracted from the measured $E_{RES\text{-}OS}$.

([1]) Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006 (OJ L 150, 20.5.2014, p. 195, ELI: http://data.europa.eu/eli/reg/2014/517/oj).

([2]) https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Heating_and_cooling_degree_days_-_statistics.

([3]) For example, the Copernicus Climate Data Store: https://cds.climate.copernicus.eu/cdsapp#!/software/app-heating-cooling-degree-days?tab=app.

2. **ICT capacity indicators**

ICT capacity is measured for servers and data storage products as servers and data storage products are defined in the Commission Regulation (EU) 2019/424 ([4]). ICT capacity indicators shall be reported for the respective equipment in place as of 31 December of the reporting year.

(a) *ICT capacity for servers* ('C_{SERV}') shall be the sum of the SERT active state performance or equivalent for all servers. Server ICT capacity is the active state performance rating as declared in the manufacturer information in accordance with Commission Regulation (EU) 2019/424. The active state performance value for the configured server or group of servers in a data centre computer room shall be either interpolated from the declared active state performance value for a configuration declared under the Regulation (EU) 2019/424, or provided by a server manufacturer, or provided by a table of values for CPU part numbers created from a large SERT dataset, or estimated from a large dataset of measured values where a recognised calculation method exists.. Where there is no recognised calculation methodology, the performance of the declared configuration most closely matching the configured server shall be used. When a server is upgraded, its new capacity shall be recalculated if a recognised methodology for estimating the SERT active state performance exists.

ICT capacity for servers shall be reported, as a minimum, for all new servers installed in the reporting data centre after the date of the entry into force of this Delegated Regulation. Data centre operators shall estimate and indicate the percentage of the data centre computer room floor area that the reported indicator covers.

Colocation data centre operators may calculate C_{SERV} by extrapolating the value that corresponds to at least 90 % of the installed information technology power demand of all new servers installed in the reporting data centre, as referred to in the previous subparagraph.

(b) *ICT capacity for storage equipment* ('C_{STOR}', in petabytes) shall be the *storage capacity*, namely the sum of the raw (addressable) capacity of all SSD and HDD storage devices installed in all the storage equipment as declared by the storage device manufacturer.

ICT capacity for storage equipment shall be reported, as a minimum, for all new devices installed in the reporting data centre after the date of the entry into force of this Delegated Regulation. Data centre operators shall estimate and indicate the percentage of the data centre computer room floor area that the reported indicator covers.

Colocation data centre operators may calculate C_{STOR} by extrapolating the value that corresponds to at least 90 % of the installed information technology power demand of all new storage equipment installed in the reporting data centre, as referred to in the previous subparagraph.

3. **Data traffic indicators**

Data centre operators may base the monitoring and measurement of these indicators on any adequately reliable sources or combination of sources of data available, including data measured directly by the operator, data reported by data centre customers, or data provided by telecommunication operators and service providers.

(a) *Incoming traffic bandwidth* ('B_{IN}', in gigabytes per second) shall be measured as the total provisioned bandwidth for incoming traffic to the data centre computer room, aggregated for all the connectivity capacity, and averaged over the year;

([4]) Commission Regulation (EU) 2019/424 of 15 March 2019 laying down ecodesign requirements for servers and data storage products pursuant to Directive 2009/125/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No 617/2013 (OJ L 74, 18.3.2019, p. 46, ELI: http://data.europa.eu/eli/reg/2019/424/oj).

(b) *Outgoing traffic bandwidth* ('B_{OUT}', in gigabytes per second) shall be measured as the total provisioned bandwidth for outgoing traffic from the data centre computer room, aggregated for all the connectivity capacity, and averaged over the year;

(c) *Incoming data traffic* ('T_{IN}', in exabytes) shall be measured as the total incoming data to the data centre computer room, aggregated over the course of the reporting year, irrespective of the number of the data centre's connections;

(d) *Outgoing data traffic* ('T_{OUT}', in exabytes) shall be measured as the total outgoing data from the data centre computer room, aggregated over the course of the reporting year, irrespective of the number of the data centre's connections.

ANNEX III

DATA CENTRE SUSTAINABILITY INDICATORS AND CALCULATION METHODOLOGIES

The following data centre sustainability indicators shall be calculated based on the information and key performance indicators communicated to the European database on data centres in accordance with Annexes I and II:

(a) Power Usage Effectiveness (PUE)

E_{DC} and E_{IT}, as both defined in Annex II, shall be used to calculate the PUE of a data centre:

$PUE = E_{DC}/E_{IT}$;

(b) Water Usage Effectiveness (WUE)

W_{IN}, as defined in Annex III and E_{IT}, as defined in Annex II but expressed in MWh, shall be used to calculate the WUE of a data centre:

$WUE = W_{IN}/E_{IT}$;

(c) Energy Reuse Factor (ERF)

E_{REUSE} and E_{DC}, as both defined in Annex II, shall be used to calculate the ERF of a data centre:

$ERF = E_{REUSE}/E_{DC}$;

(d) Renewable Energy Factor (REF)

$E_{RES\text{-}TOT}$ and E_{DC}, as both defined in Annex II, shall be used to calculate the REF of a data centre:

$REF = E_{RES\text{-}TOT}/E_{DC}$.

ANNEX IV

PUBLICLY AVAILABLE INFORMATION IN THE EUROPEAN DATABASE ON DATA CENTRES

Pursuant to Article 12 of Directive (EU) 2023/1791, the European database shall be publicly available on an aggregated level.

Data shall be available at two levels of aggregation, namely, at Member State level and Union level.

Size categories of data centres shall be based on the data centre's information technology installed power as follows:

(a) very small data centre: 100–500 kW;

(b) small data centre: 500–1 000 kW;

(c) medium size data centre: 1–2 MW;

(d) large data centre: 2–10 MW;

(e) very large data centre: > 10 MW.

The following information shall be publicly available:

(a) at Member State level:

  (i) number of reporting data centres;

  (ii) distribution of reporting data centres by size categories;

  (iii) total installed information technology power demand (PD_{IT}) of all reporting data centres;

  (iv) total energy consumption (E_{DC}) of all reporting data centres;

  (v) total water consumption (W_{IN}) of all reporting data centres;

  (vi) average PUE for all reporting data centres in the MS territory, average PUE per type of data centre, and average PUE per size category;

  (vii) average WUE for all reporting data centres in the MS territory, average WUE per type of data centre, and average WUE per size category;

  (viii) average ERF for all reporting data centres in the MS territory, average ERF per type of data centre, and average ERF per size category;

  (ix) average REF for all reporting data centres in the MS territory, average REF per type of data centre, and average REF per size category.

  For points (vi)–(ix), the aggregation of the sustainability indicators shall be performed with a weighted metric aggregation, using the total energy consumption as the weighting factor.

  For points (vi)–(ix), presentation of aggregated data per type of data centre and per size category will be possible only if the respective category contains data from at least three data centres;

(b) at Union level:

  (i) number of reporting data centres;

  (ii) distribution of reporting data centres by size categories;

  (iii) total installed information technology power demand (PD_{IT}) of all reporting data centres;

  (iv) total energy consumption (E_{DC}) of all reporting data centres;

  (v) total water consumption (W_{IN}) of all reporting data centres;

(vi) average PUE for all reporting data centres in the Union territory, average PUE per type of data centre, average PUE per size category;

(vii) average WUE for all reporting data centres in the Union territory, average WUE per type of data centre, average WUE per size category;

(viii) average ERF for all reporting data centres in the Union territory, average ERF per type of data centre, average ERF per size category;

(ix) average REF for all reporting data centres in the Union territory, average REF per type of data centre, average REF per size category.

For points (vi)–(ix), the aggregation of the sustainability indicators shall be performed with a weighted metric aggregation, using the total energy consumption as the weighting factor.