

A hand in a light blue shirt sleeve is reaching towards a rack of server units in a data center. The server units are illuminated with a blue light, and some have small green and yellow indicator lights. The background is dark, emphasizing the server racks.

assetspire

How to Meet EU Energy Efficiency Targets - Data Centre Heating and Cooling

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CSRD?

What does it mean?



You've probably heard us talk before about reducing energy consumption to meet net-zero goals. But, until now, data centres haven't established transparent, accurate and standardised sustainability metrics and KPIs.

Which is why the EU's new Corporate Sustainability Reporting Directive (CSRD), based on the EU Code of Conduct for reporting and compliance purposes, has been introduced to set the standard for legislation-led reporting, ensuring businesses are held accountable and are obliged to regularly report on their societal and environmental impact.

In order to meet the requirements of the directive, data centres are obliged to collect reporting data from January 1st 2024, of which is dependent on an assessment of the company and its wider business activities and commitments.

And it's not just EU-based companies that are affected by the change in legislation. The CSRD applies to any organisation with at least one large or listed EU subsidiary.

If you've already had a look through the new directive, you'll see a lot of complex jargon on what is expected.

What does this mean for data centre heating and cooling? Can your cooling capacity and power usage be optimised? Will changes need to be made to your current processes?

We're here to translate that into what you actually need to do to become compliant and how Assetspire's DCIM (Data Centre Infrastructure Management) software can help.

As we've simplified some of the legislation, please read the EU Code of Conduct for precise wording:

EU Code of Conduct

<https://commission.europa.eu/about-european-commission/service-standards-and-principles/ethics-and-good-administration/>

CSRD documentation

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2464> commission-ers-and-ethics/code-conduct-members-european-commission_en



What CSRD Means For Heating and Cooling in Data Centres

Heating and Cooling EU Code of Conduct

The following points in the EU Code of Conduct are applicable to heating and cooling in data centres:

- 5.1.1** Design - Hot/cold aisle
- 5.1.2** Design - Contained hot or cold air
- 9.1.1** Incoming energy consumption metre
- 3.3.3** Lean provisioning of power and cooling for a maximum of 18 months of floor capacity
- 5.1.11** Equipment segregation
- 5.4.2.2** Cooling system operating temperatures
- 7.1.4** Energy & temperature reporting hardware
- 9.1.4** CRAC/CRAH unit level metering of supply or return air temperature

Let's explore what each point is about and what this actually means for your business:



5.1.1

Design - Hot/cold aisle

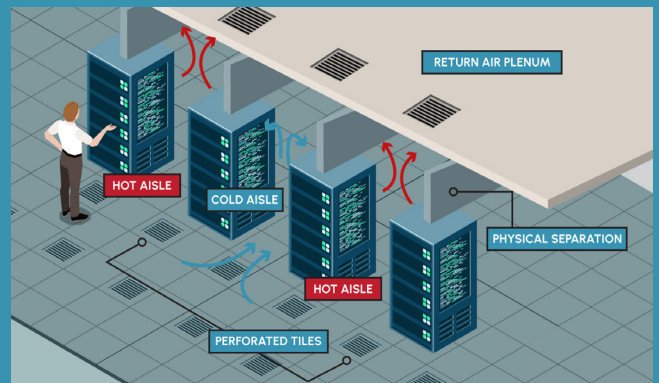
The hot/cold aisle concept aligns equipment air flow, creating aisles between cabinets that are fed cold air, from which all of the equipment draws intake air, in conjunction with hot aisles with no cold air feed to which all equipment exhausts warm air.

Expected From?

New IT equipment and new build or retrofit.

What This Actually Means For Data Centres?

Your business will need to adopt a hot and cold airflow management concept, if it hasn't already. Your hot/cold aisle design can be reinforced with empty but fully blanked cabinets (or solid doors) rather than leaving gaps in aisles.



What Evidence Must Be Provided?

- Approved data centre operation procedures document.
- Data from BMS, EMS and DCIM if in use.
- Physical inspection.
- Updated design documents.

How Can Assetspire Help?

Assetspire's DCIM software offers full visibility over the air flow and temperature within each aisle, even down to each server. Data centres can benefit from analysis and automated reporting on real-time data showing where improvements can be made.

5.1.2

Design - Contained hot or cold air

There are a number of design concepts that contain and separate the cold air from the heated return air on the data floor. Failure to contain air flow results in both a reduction in achievable cooling efficiency and an increase in risk. This practice supersedes above practice 5.1.1 when implemented.

Expected From?

New build or retrofit.

What This Actually Means For Data Centres?

Data centres will need to adapt their data centre design concepts to utilise the following examples:

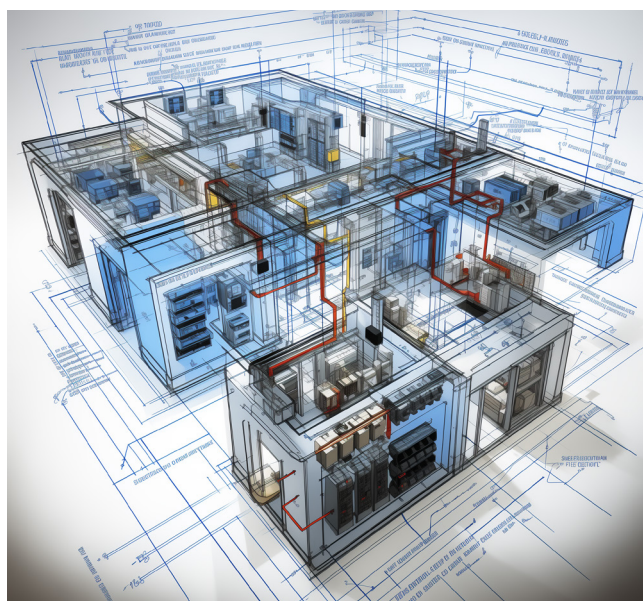
- Hot aisle containment.
- Cold aisle containment.
- Contained cabinet supply.
- Contained room return and room supply.
- Contained cabinet return and cabinet chimneys.
- Contained cabinet supply and cabinet return.
- Rear door cooling.

What Evidence Must Be Provided?

- Approved data centre operation procedures document.
- Data from BMS, EMS and DCIM if in use.
- Physical inspection.
- Updated design documents.

How Can Assetspire Help?

The air flow and heat output of IT devices can vary rapidly due to power management and workload allocation tools. This tends to result in rapid changes to data floor air flow pattern and IT equipment intake temperature, which, with Assetspire's DCIM software, can be predicted and even prevented.



9.1.1

Incoming energy consumption metre

Data centres are to install metering equipment capable of measuring the total energy use of the data centre including all power conditioning, distribution and cooling systems.

Expected From?

Entire data centre.

What This Actually Means For Data Centres?

Metering equipment capable of measuring the total energy use of the data centre must be installed, if not already, according to the EN 50600-4-2 or ISO/IEC 30134-2.

What Evidence Must Be Provided?

- Design Documents.
- Visual Inspection.
- DCIM/EMS/BMS Data.

How Can Assetspire Help?

All metering equipment can be monitored and managed via DCIM, so all your data is kept in one place and accessible by any who need it, or when needed for reporting requirements.





3.3.3

Lean provisioning of power and cooling for a maximum of 18 months of data floor capacity

Data centres need to be planned for modular expansion with capacity built out in a rolling program of deployment.. This also allows technology and supporting M&E infrastructure to be matched, improving both efficiency and the ability to respond to business requirements.

Expected From?

New build or retrofit.

What This Actually Means For Data Centres?

To be ready for change and to future-proof your data centre, consider and document the lean provisioning of power and cooling capacity for a maximum of 18 months of data floor capacity.

What Evidence Must Be Provided?

- Review of Design Drawings/Project Scope.

How Can Assetspire Help?

The provisioning of excess power and cooling capacity is wasteful and drives substantial fixed losses. Assetspire's DCIM gives a full overview of what power is being used and where, as well as exactly what your cooling capacity is, so you can prevent overcooling and wasted energy usage.

5.1.11

Equipment Segregation

Deploy groups of equipment with substantially different environmental requirements and/or equipment airflow direction in a separate area. Where equipment has different environmental requirements it is preferable to provide separate environmental controls.

Expected From?

New IT Equipment and New build or retrofit.

What This Actually Means For Data Centres?

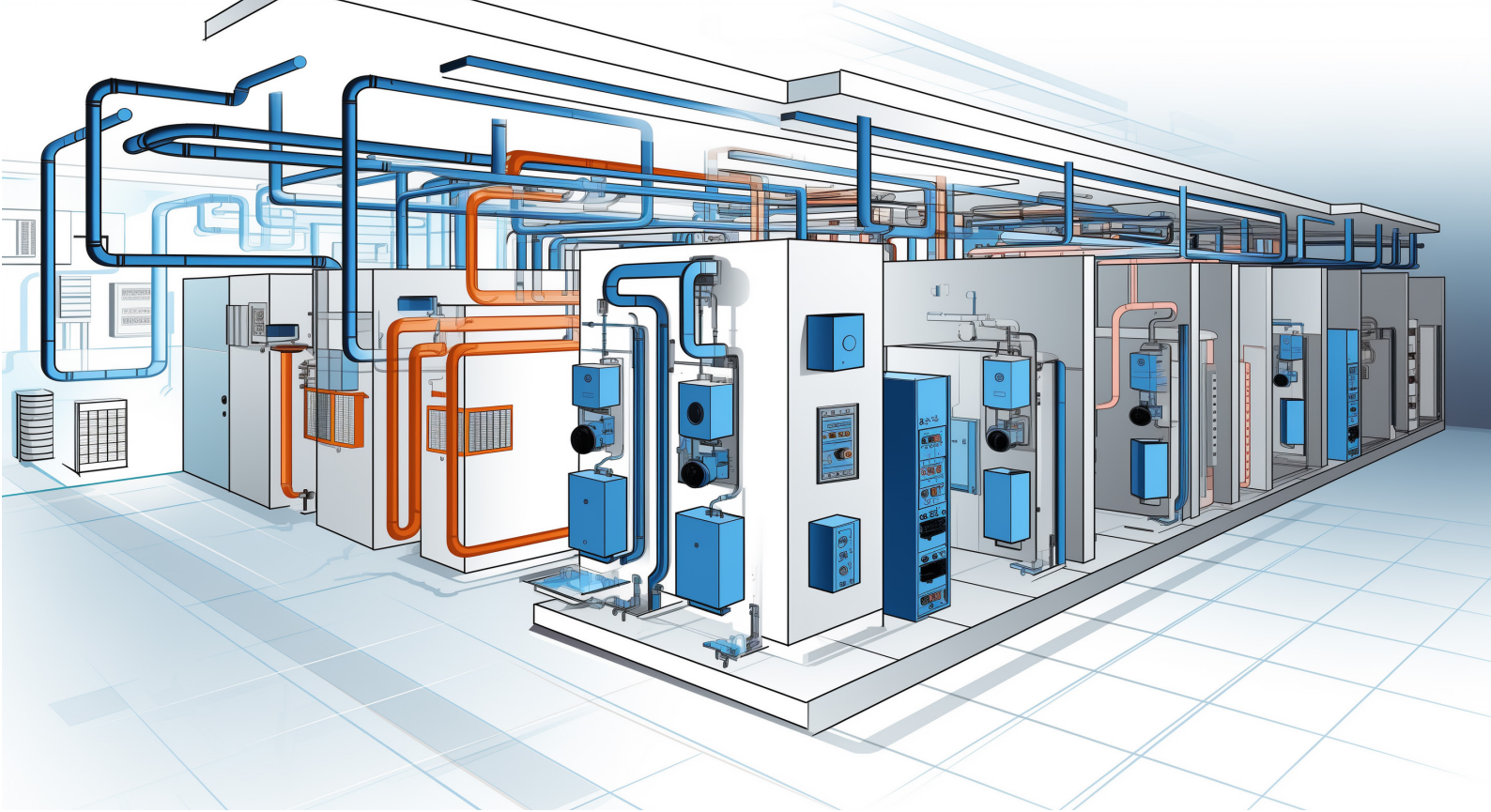
Consider deploying groups of equipment with substantially different environmental requirements and/or equipment airflow direction in a separate area.

What Evidence Must Be Provided?

- Approved data centre operation procedures document.
- Data from BMS, EMS and DCiM if in use.
- Physical inspection.
- Updated design documents.

How Can Assetspire Help?

The objective is to address the issue of the data centre cooling plant settings being constrained by the equipment with the most restrictive environmental range or poor air flow control as this compromises the efficiency of the entire data centre. Our smart DCIM can monitor and manage all your cooling and environmental data, giving you a complete overview of which equipment should be grouped together or separated.



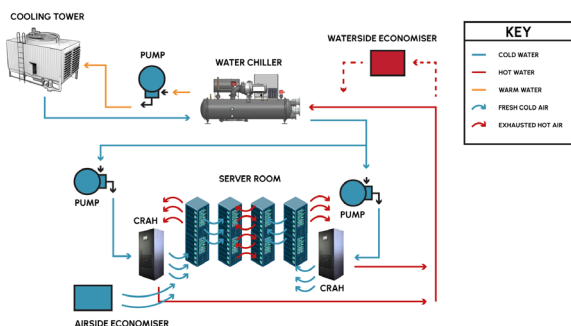
5.4.2.2

Cooling system operating temperatures

Evaluate the opportunity to decrease condensing temperature and increase evaporating temperature.

Expected From?

Entire data centre.



What This Actually Means For Data Centres?

Reducing the difference between these temperatures means less work is required in the cooling cycle hence improved efficiency. A method to monitor and manage this temperatures change is required.

What Evidence Must Be Provided?

- Design documents.
- DCIM/EMS/BMS Data.

How Can Assetspire Help?

These temperatures are dependent on required IT equipment intake air temperatures and the quality of air flow management, all of which can be managed via DCIM.

7.1.4

Energy & temperature reporting hardware

Select mechanical and electrical equipment with direct local metering of power usage and/or temperature reporting capabilities, preferably reporting energy used as a counter in addition to power as a gauge. The intent of this practice is to provide energy and environmental monitoring of the data centre throughout the entire infrastructure with increasing levels of granularity.



Expected From?

New build or retrofit.

What This Actually Means For Data Centres?

Energy monitoring capabilities should allow for reporting cumulative periodic energy consumption (kWh), in addition to instantaneous power usage (kW). Temperature reporting must offer visibility of temperature trends over a period of time as well as instantaneous temperature readings.

What Evidence Must Be Provided?

- Design documents.
- DCIM/EMS/BMS.
- Visual Inspection.

How Can Assetspire Help?

Aside from the standard energy monitoring capabilities that DCIM can offer, data centres can also track temperature trends, access live readings and integrate with existing equipment.

9.1.4

CRAC/CRAH unit level metering of supply or return air temperature

Collect data from CRAC/CRAH units on supply and return (dependent upon operating mode) air temperature.

Expected From?

Entire Data Centre.

What This Actually Means For Data Centres?

Collect data from CRAC / CRAH units on supply and return (dependent upon operating mode) air temperature, according to EN 50600-2-3 or ISO/IEC 22237-4.

What Evidence Must Be Provided?

- Design Documents.
- Operation and maintenance documents,
- Visual Inspection.
- DCIM/EMS/BMS Data.

How Can Assetspire Help?

Assetspire's DCIM is intuitively engineered to ensure data is captured and maintained quickly and accurately, in line with relevant legislation.





Assetspire is Key To Helping Data Centres Meet EU Energy Efficiency Targets

We know there is a lot to deliver, especially as the new CSRD rules came into effect from 1st January 2024.

Whether it's energy consumption monitoring you're concerned with or compliant reporting, we have the answer.

Budget Concious

One of the quickest, easiest and best value ways for data centres to realistically reduce energy consumption and meet EU energy efficiency targets is to increase energy efficiency.

Next-Gen DCIM

Our innovative DCIM software can seek out the source of wasted energy and offer smart alternatives.

With a dynamic dashboard for instant data review and planning, our DCIM allows data centres to set data standards, see at a glance their renewable energy sources, track sustainability goals and measure global impact.

Accurate, real-time data empowers data centres to make future-proofed decisions. Only then can data centres fully optimise and future-proof their energy usage. Our intelligent solutions give back full control over your data centre space, so you can work smarter and save energy, while remaining compliant.

And if you have any questions about new EU energy efficiency regulations, we're always here to help. Contact us for a free demo.

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