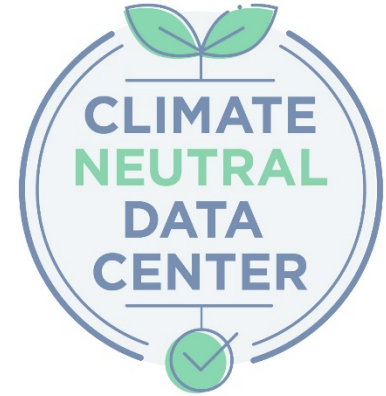# Climate Neutral Data Centre Pact

Self-Regulatory Initiative Policy Proposal

The Climate Neutral Data Centre Pact (CNDCP) includes 54 individual data centre operators and 22 data centre and cloud industry trade associations. Data centres are the tangible assets where cloud and internet technologies live and interact, and where users connect to and access digital services. Data centres have become the transactional foundation of our modern society and the global economy. As data centre operators, we place a high level of importance on sustainability, energy efficiency, clean energy, reliability, and security, and use tools, technologies and systems to ensure we deliver. The focus and span of control of the Pact is on achieving sustainable data centre facilities.

We have all committed to meet commonly accepted goals for energy efficiency, carbon-free or renewable energy, water conservation, circular economy, and heat recovery and reuse. Through the Climate Neutral Data Centre Self-Regulatory Initiative, we have set ambitious targets that put our industry on a path to meet the European Commission's goal for climate neutral data centres by 2030, and supporting the wider goal of the European Green Deal to make Europe the first climate neutral continent by 2050. This is an historic and unprecedented commitment by an industry to proactively lead the transition to a climate neutral economy.

We see a breadth of opportunities for data centres to support decarbonisation through digitalisation, and ensure the global economy has access to advanced technologies to innovate and grow sustainably. Data centres can also play a key role in decarbonising Europe's energy system by enabling the development of new renewable energy on the electric grid, providing carbon-free system services to the grid, and supporting heat recovery and reuse where possible and practical. Moreover, by operating in a manner that uses resources in the most efficient and sustainable manner, we are confident that we can support a shared digital and climate-neutral future.

During the development of the Self-Regulatory Initiative, the European Commission asked the data centre industry to create a document that outlined our policy requests to ease our pathway towards climate neutrality. This paper responds to that request and outlines a list of policy recommendations that we are asking the European Union to address. We appreciate the opportunity to offer these recommendations and view this as the starting point of a conversation between the data centre industry and the European Union. Our proposals are set forth in the following pages. We look forward to the start of this important dialogue.

Accelerating Climate Neutral Data Centres

The European Commission has recognised that market incentives can drive change across businesses and that public procurement criteria and sustainable finance rules can steer investments towards low-carbon businesses. To encourage more data centre operators to become climate neutral, the European Commission can become a partner towards increasing adoption of the Climate Neutral Data Centre Self-Regulatory Initiative by embedding this into procurement criteria for data centres and cloud computing amongst public sector entities within the European Union and across Member States.

Commission can also help to prevent a fragmented approach to green cloud procurement by individual Member States, by supporting the establishment of the Climate Neutral Data Centre Pact as a common EU standard. This can help reduce confusion in the market and reduce the proliferation of different sustainability standards, which leads to inefficient outcomes and adds costs for data centre operators.

Call to Action

1. **Ensure that Green Public Procurement guidelines and the Sustainable Taxonomy recognise the Climate Neutral Data Centre Self-Regulatory Initiative as a qualifying sustainability standard for data centres.**
By using public procurement frameworks and emerging taxonomy to encourage climate neutrality in line with the Self-Regulatory Initiative, the European Commission can ensure broader adoption of the industry self-regulatory requirements. This will speed up the transformation of the data centre and cloud infrastructure industry and accelerate the path towards climate neutrality across Europe.

2. **Encourage Member States to include the Self-Regulatory Initiative for Climate Neutral Data Centres within their national procurement frameworks and prevent fragmented national approaches on data centre sustainability.**
Member States are customers of cloud service providers and data centre operators. According to a recent report from the European Commission, Member States have been slow to adopt green public procurement mechanisms into their cloud procurement frameworks. Having Member States include the Self-Regulatory Initiative as a procurement criterion is simple, efficient and allows Member States to set a high bar that ensures they are purchasing from climate neutral data centres.

3. **Require Member States to ensure that the development of new public sector data centres or the retrofitting of existing public data centres must meet the requirements set by the Self-Regulatory Initiative.**
Despite the benefits offered by multiple tenant data centres and cloud service providers, public sector agencies have continued to construct enterprise data centres to support their agencies. This practice is inefficient and these data centres often struggle to operate sustainably. The European Commission should ensure that public sector data centres meet the requirements of the Self-Regulatory Initiative to ensure that wasteful public sector facilities are phased out.

Energy Efficiency

Despite growth in demand for digital services in the past decade, data centres and the Information and Communications Technology (ICT) sector have limited electricity demand through consolidation of server equipment in energy efficient data centres. According to the IEA, "'rapid improvements in energy efficiency have helped to limit energy demand growth from data centres and data transmission networks, which each accounted for around 1% of global electricity use in 2019."[1] As energy and infrastructure costs are a significant proportion of operational cost, the industry has a strong incentive to reduce energy use.

Demand for digital services is expected to continue to grow rapidly, but how this growth affects energy use will be determined largely by the pace of energy efficiency gains. Signatories of the Self-Regulatory Initiative have committed to meet a high standard for energy efficiency. Alongside industry actions, government policies supporting the Self-Regulatory Initiative can further efficiency improvements for the online world. Such policies can reduce administrative obstacles and facilitate collaboration toward more efficient ICT systems.

Call to Action

4. **Provide financial support for energy efficiency measures to small and medium enterprise (SME) data centre operators that are signatories to the Self-Regulatory Initiative to help them meet their goals and targets.**

Pact Operators range in size from large operators with numerous data centres across Europe to small operators with single facilities. SMEs may need additional assistance to deliver the energy efficiency upgrades needed to achieve climate neutrality. Through existing incentive programmes, the European Commission can facilitate funding to SMEs that are signatories to the Self-Regulatory Initiative to help them make improvements to existing facilities to ensure they can meet their goals and targets. Through existing incentive programmes, The European Union can provide sustainability loans to help SMEs make the capital investments necessary to retrofit existing facilities to meet efficiency targets. Tax policies that allow for accelerated depreciation can allow SMEs to retire older and less efficient equipment. Direct grants for qualifying SMEs that are tied to specific sustainability goals can also help SMEs accelerate the path towards climate neutrality.

5. **Drive research and investment into new efficiency technologies that can be used by the ICT sector.**

Energy efficiency can be further improved by using new technologies that not only focus on optimising the supporting infrastructure of the data centre in an isolated manner, but also tap into previously untapped potential of the energy used in a data centre as a whole (e.g. AI-driven Data Centre Infrastructure Management systems (DCIM), direct liquid cooling, and waste heat recovery and reuse). All of these emerging technologies and those that have not been discovered can benefit from government led research and investment. The European Commission should consider introducing a dedicated 'Digital Efficiency' topic under the Horizon Europe programme to support this work. By increasing research in these areas and

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[1] IEA - Tracking Clean Energy Progress 2020 https://www.iea.org/reports/data-centres-and-data-transmission-networks

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coordinating with industry, we believe that new technologies can reach the market faster and become cost competitive.

Further research can also help identify how to drive efficient IT by optimising the design of the whole cloud or colocation infrastructure value chain. Research can inform how to best integrate the different corners of the sector: data centre providers, facility vendors, data centre users, hardware, and software providers to maximise energy efficiency and change practices, products or behaviours to benefit efficiency.

Clean Energy

Data centre companies and cloud providers are already leaders in renewable energy sourcing and have been increasing their commitments to source clean energy for their data centres. Signatories of the Pact have committed to match their electricity supply through the purchase of clean energy. Under the Self-Regulatory Initiative, data centre electricity demand will be matched by 75% renewable energy or hourly carbon-free energy by December 31, 2025 and 100% by December 31, 2030.

The success of signatories in achieving this goal relies in part on ease of access to renewable energy purchasing. Article 15.8 of the recast Renewable Energy Directive aimed to remove regulatory and administrative barriers to corporate procurement of renewable energy, yet many barriers remain.

Call to Action

6. **Member States should ensure that corporate clean energy procurement and public tendering schemes for renewables can co-exist without disadvantaging corporate buyers.**
There is a natural competition between private sector buyers and national procurement schemes, which can in some cases create artificially high prices for renewable energy or crowd private sector buyers out of the market. Creating a balance between public and private procurement should be a top priority. Member States should evaluate how their support schemes could be distorting the market and introduce enabling policy frameworks to drive corporate clean energy procurement.

7. **Member States should use their renewable energy surcharges as a mechanism to encourage renewable energy purchasing by voluntary buyers from all industries.**
Renewable energy surcharges that private sector buyers must pay in addition to the costs of procuring renewable energy can discourage renewable energy buyers from enabling new projects and instead incentivise the purchasing of credits from existing projects. There is enormous potential for Member States to use their renewable energy surcharges as an instrument to incentivise voluntary renewable energy purchasers to contribute to the development of new renewable capacity, whilst also protecting the competitiveness of industry. By reducing the level of a renewable surcharge to factor in the amount of renewable energy the buyer procures, Member States can incentivise industry to support new renewable energy projects. The Commission can help to empower Member States by providing them with clarification via the State Aid Guidelines on Energy and Environment that such mechanisms would be consistent with State Aid rules

8. **Strengthen provisions in Articles 15.8 and 19 of the Renewable Energy Directive to ensure the roll-out of ambitious frameworks to enable corporate clean energy procurement.**

Administrative barriers around the retention and retirement of Guarantees of Origin (GOs) create unnecessary hurdles and costs for renewable energy purchasing. Member States need to harmonise systems for GOs and reduce unnecessary administrative hurdles, such as limiting retirement of GOs to registered suppliers, or requiring monthly retirement. The Commission can amend Article 19 of the Renewable Energy Directive to require a harmonised approach to GO issuance and retirement for all sources of electricity generation, and to require additional information on the technology and time of generation (i.e. time-stamping on at least an hourly basis) to support buyers to improve their clean energy tracking and reporting.

The European Commission can also encourage Member States to create products and programmes to support and encourage SMEs to procure renewable energy through new and innovative methods. This could include facilitating pooled investment tools for SMEs to gain access to products, such as power purchase agreements, that have traditionally been utilised by larger companies.

9. **Require Member States to set out target dates, pathways, and measures for the decarbonisation of their electricity supplies as part of their National Energy and Climate Plans.**

Creating an inherently carbon-free grid for all consumers within Member States is one of the ultimate goals of the European Green Deal. To support this, the EU should require Member States to set target dates, pathways and measures for the decarbonisation of their electricity supplies as part of their National Energy and Climate Plans. Member States should prioritise infrastructure projects that support the connection of new renewable energy projects and take steps to remove other barriers to accelerate renewable energy deployment.

10. **Member States should adequately value flexible zero- and low-carbon resources to allow them to enter the system services market and serve as a resource for the power system.**

Member States should value flexible resources like green hydrogen and energy storage systems and help them to come to market by enabling our industry to put them to use and integrate into the electricity system via flexibility markets and other system services. This should apply to all sources of carbon-free energy. Member States should recognise the value of demand response as being equal to electricity generation, inclusive of all fees and levies.

11. **Support the creation of an interoperable, open, smart grid data space for the industry to map to Data Centre Infrastructure Management (DCIM) applications.**

Data centres have the potential to play a role in energy system integration. Access to energy data can unlock many of these pathways. The European Commission can support the creation of a smart grid data space, a resource that would ensure that parties can use AI and data analytics to optimise their operations for a grid with very high penetrations of renewable energy. The European Commission should require TSOs and other custodians of energy system data to make data available and develop common standards and APIs. We stand ready to work with stakeholders to establish standards and APIs for the sharing of data between the various parts of the energy grid to improve data collection and increase transparency.

Water Conservation

As part of the Self-Regulatory Initiative for Climate Neutral Data Centres, we commit to prioritise water conservation and set water conservation and efficiency targets for data centres. We are aware that water is a scarce resource. Many operators of water-cooled data centres are taking steps to minimise their water use, harnessing new technologies, and increasing water recovery and reuse without adversely impacting the environment while operating energy efficient data centres.

Later this year, we will agree on a metric for assessing water conservation. We will develop this metric with careful consideration of interacting factors, such as energy efficiency, availability of water and opportunities to use industrial water, reclaimed water, or filtered water, and opportunities for cross-sectoral schemes that look beyond the data centre.

While different data centre designs rely on different cooling techniques that must consider the region, climate, resources, and most sustainable cooling method, data centres that use water can prioritize the use of industrial water where suitable, and reduce the use of potable water for cooling, employing sustainable onsite treatment technologies to reuse water and develop partnerships with local water utilities to reuse industrial water.

Call to Action

12. **Streamline and facilitate the reuse of industrial water and other non-potable water sources by developing guidance for Member States.**
There are opportunities to recover and reuse water from data centres and use industrial or recovered water in data centres. However, a lack of consistent guidance and suitable infrastructure for handling and transporting discharged industrial and data centre effluent, acts as a barrier to the reuse of such resources. Local authorities, water utilities, and water regulators need clear guidance from the EU to facilitate data centre water conservation and reuse projects and to set relevant water consumption criteria in their procurement frameworks.

The Commission can reduce barriers to the reuse of industrial water and other non-potable water sources for cooling by developing guidance for Member States. Guidance can harmonize how Member States consider water discharge requirements, taking into account the chemistry of the water intake, and ensure alignment with the Water Framework Directive guidelines and ambitions. Such guidance shall set environmental and health criteria for water reuse projects so that authorities across the EU have the technical information to consider and enable water reuse projects that can support water conservation efforts.

13. **Conduct standardized, consistent, and high-quality watershed risk assessments across Europe.**
EU Member States can ensure that robust watershed risk assessments are conducted on a regular basis. Such assessments should include multiple scenarios, including projections based on climatic changes and respective watersheds, water availability across all types of water and levels of quality. The European Commission should develop guidance for regional, national, and municipal water utilities and local authorities to regularly assess

watershed health. Such data and standards will be valuable for data centre operators when considering water conservation practices.

Circular Economy

Data centre operators participate in the circular economy thorough recycling programmes. As part of self-regulation, Signatories of the Pact aim to establish, normalise, and drive further innovation in circular economy business models and practices. We will focus on repairing and reusing equipment to reduce the consumption of natural capital. The EU can support data centre operators in striving for a circular economy by proposing policy frameworks that focus on and encourage circular methods that are rooted in a systems approach.

Call to Action

14. **Avoid policies that inhibit circular economy material flows, including waste shipments. Supply and production chains of the electronics industry are global, as are repair and remanufacturing.**
EU circular economy policies must accommodate complex international supply chains that facilitate the efficient reuse and repair of equipment. Reusing and repairing equipment may happen onsite at a data centre or may require cross border shipment of used equipment for repair. Policies that inadvertently complicate such movements should be avoided because they compromise repair and reuse opportunities for data centre operators.

15. **Engage data centre operators and original equipment manufacturers (OEMs) in policy developments to ensure a systems approach and accommodate existing best practice such as closed loop manufacturing.**
Data centre servers do not operate in isolation but within a complex and highly controlled environment, so a systems approach is needed. Similarly, energy efficiency gains from rapid technology development must be carefully balanced against wider sustainability impacts in areas like server refresh.

16. **Support circular economy principles by developing policies and targets that accommodate reuse and refurbishment of electronic waste**.
Data centre operators conduct business within the Waste Electrical and Electronic Equipment (WEEE) framework across Europe. Increasing the repair and reuse of server equipment may require a reassessment of some policies that guide the circular economy, such as weight-based recycling targets.

Circular Energy Systems

As part of the Self-Regulatory Initiative for Climate Neutral Data Centres, we agreed to explore the recovery and reuse of heat from new data centres. Heat recovery creates a circular energy system that leverages heat from a facility as a sustainable source of heat for homes and buildings. Heat recovery can reduce emissions by displacing other energy sources used for heating and can play a role in making Europe climate neutral by 2050. Optimising heat recovery from any industrial source, requires the right

policy framework that values the environmental benefits of recovered heat and reduces regulatory barriers for developing these projects.

Successful heat recovery and reuse projects are increasing across Europe. Each of these projects have developed through close coordination between facility operators and the offtaker that is reusing the heat and other stakeholders. The nature of these projects is that they are custom, site-specific, and dependent on having an offtaker, since ultimately it is the end-user demand that will determine the suitability of the project. The technologies and processes also vary and will evolve further as innovation continues to advance.

Call to Action

17. **Recognise recovered and reused heat as an energy source that reduces emissions for real-estate developers, building owners and other stakeholders.**

Heat reuse schemes require customization. Installing the equipment in a data centre that enables heat recovery is costly and, if not used, can actually increase the energy use of the data centre and negatively affect the PUE. Policies that aim to increase the number of offtakers for heat reuse and recovery projects will expand these projects further and faster and foster more heat recovery partnerships to evolve across Europe. Creating an incentive structure that values recovered and reused heat as a measurable source of emission reduction can create a value proposition for potential offtakers.

18. **Enact a policy framework that facilitates and encourages any energy intensive industry to pursue heat recovery and reuse projects in partnership with communities or businesses.**

Given the site-specific considerations when assessing the suitability of a heat recovery projects, we recommend that the European Commission enact a policy framework that supports all energy intensive industries to pursue heat recovery opportunities where feasible, as opposed to a prescriptive policy framework which would add cost and complexity for unsuitable sites. This can include establishing a regulatory framework that identifies and lifts barriers or administrative burdens for the business wishing to make their heat available and support Member State investment in district heating infrastructure. For instance, heat producers need a framework that does not penalize them when heat is temporarily unavailable because of maintenance, seasonality, or other downtime events.

We have also seen how incentive structures can encourage heat reuse agreements. For example, Denmark has introduced tax incentives for waste heat recovery. These types of programmes, at the national or local level, can make the recovery of low temperature heat more financially viable and help to encourage investment.

19. **Ensure that policies recognise other circular approaches, such as closed loop heat recovery, and do not limit opportunities for alternative heat recovery technologies.**

Heat recovery and reuse can occur within a facility, which may limit opportunities for export to external systems or district heating systems. Recognising and encouraging this practice, along with emerging technologies, is important for a truly circular energy system.
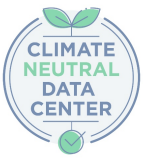
Conclusion

The Climate Neutral Data Centre Pact appreciates the opportunity to offer these policy recommendations to the European Union. We have committed to meeting ambitious goals to facilitate Europe's essential transition to a greener economy. Signatories of the Self-Regulatory Initiative for Climate Neutral Data Centres have agreed to prove energy efficiency with measurable targets, purchase 100% carbon-free energy, prioritise water conservation, reuse and repair servers, and look for ways to recycle heat.

The European Commission requested that we bring forth these requests to outline the important policy changes that would ease our pathway towards operating climate neutral data centres. We are proud to have taken proactive steps towards the transition to a climate neutral economy. We now look forward to the start of a dialogue with the European Union about the policy recommendations set forth in this paper.

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