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Enhancing water resilience in the data centre industry

Executive summary

Water is an essential natural resource for life and environmental balance, as well as for economic development. Water scarcity and sustainable waste use pose significant challenges and opportunities, necessitating management practices that facilitate both the digital and green transitions.

Data centres utilise water for efficient cooling. The digital solutions they enable are essential for Europe's digital transformation and are also critical for optimising water management and conservation across all sectors. For this reason, we need a coordinated approach to address both opportunities and challenges in water management. In light of the publication of the European Water Resilience Strategy,[1] we put forward several policy recommendations:

- **Apply the simplification omnibus principle to water policy measure**: Align any new water-related measures with existing frameworks (e.g. EU Water Framework Directive,[2] Energy Efficiency Directive,[3] Corporate Sustainability Reporting Directive[4]) and industry-led initiatives (e.g. Climate Neutral Data Centre Pact[5]) to avoid overlapping obligations and promote efficiency.

- **Apply a holistic approach to data centre sustainability and consider the risks associated with the development of minimum performance standards (MPS):** Consider the varying factors influencing data centre performance metrics and assess overall data centre sustainability.

- **Harness the potential of data centres for water restoration projects**: Support policies that promote the needed EU infrastructure allowing data centres to use recycled, reclaimed and other non-potable water sources, crucial for long-term environmental balance.

- **Support water recycling and reuse programmes through incentives and public-private partnerships**: Promote local water restoration efforts and public-private partnerships to improve water infrastructure, benefiting both local communities and digital infrastructure.

[1] COM(2025) 280 final.
[2] Directive (EU) 2000/60.
[3] Directive (EU) 2023/955.
[4] Directive (EU) 2004/109.
[5] More information on the Climate Neutral Data Centre Pact is available at https://www.climateneutraldatacentre.net/.

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- **Consider technology advancement for sustainable water management**: Integrate AI, smart metering and digital technologies for optimised water management, enhancing monitoring and predictive capabilities, whilst keeping a technology-neutral approach related to cooling systems.

Table of contents

Introduction

Water is a paramount natural resource in maintaining biodiversity, regulating climate and balancing ecosystems. In the industrial context, water's value is further amplified, as it serves as a critical enabler of our digital infrastructure. In data centres, water is commonly used for cooling and water-based cooling systems are often substantially more energy efficient than cooling systems that do not use water.

Whilst data centres use water for cooling operations, digital solutions enable innovations that improve water management and conservation across sectors. We welcome the European Commission's European Water Resilience Strategy, acknowledging the need for a coordinated and inclusive approach to address the complex challenges surrounding data centre water management.

The data centre industry can play a crucial role in supporting this effort. Many operators of water-cooled data centres are already taking steps to minimise their water use by increasing water recovery and reuse. DIGITALEUROPE is committed to continuing this work and contributing to the development of a resilient water management system.

Policy considerations

Apply the simplification omnibus principle to water policy measures

When addressing water management in industrial settings, it is important to consider the existing regulatory context and voluntary efforts already underway.

DIGITALEUROPE appreciates Commissioner Jessika Roswall's intention to reduce the number of new delegated and implementing acts by one-third to prioritise those that deliver the most impactful results. In this context, caution is needed against introducing further requirements on data centre water use as the omnibus proposal moves forward.[6]

There are several overlapping requirements pertaining to data centre water use already in place or in development and simultaneously, the omnibus will likely make further changes. The Water Framework Directive sets out rules for managing water resources in a sustainable way, through water use permitting, wastewater treatment and discharge, water use monitoring and reporting.[7] The Energy Efficiency Directive requires data centre operators with an installed information technology power demand of at least 500 kW to report annually on a range of metrics, which include water input, potable water input and water usage efficiency,[8] additionally, the upcoming data centre sustainability rating scheme is expected to contain water provisions.[9]

Further quantitative and qualitative requirements are included under the Corporate Sustainability Reporting Directive, which is currently under review as part of the omnibus proposal. [10] Additionally, guidance on best

[6] COM (2025) 80 final.

[7] Directive (EU) 2000/60.

[8] Directive (EU) 2023/955

[9] As the second delegated act pursuant to the Energy Efficiency Directive,

[10] Directive (EU) 2004/109.

practices has been provided by the Data Centres Code of Conduct under the taxonomy.[11] Most recently, the AI Continent Action Plan includes specific reference to the Water Resilience Strategy and reiterates the need for data centres to reduce their water footprint and increase circularity.[12]

Alongside regulatory requirements, industry-led initiatives such as the Climate Neutral Data Centre Pact have set voluntary targets to enhance water efficiency. Signatories to this self-regulatory initiative commit to designing new data centres to achieve a water usage effectiveness of 0.4 litres per kilowatt-hour (l/kWh) in water-stressed areas by 2025. Existing data centres are expected to meet this standard by 2040.

Policy recommendations:

- **Integrate Water Resilience Strategy with existing frameworks**: The Water Resilience Strategy and potential new measures related to public procurement should be aligned with current reporting requirements and the rating scheme. This will prevent overlapping obligations and promote a more efficient regulatory environment.

- **Leverage industry-led initiatives**: Guidance should continue to be drawn from voluntary initiatives like the Climate Neutral Data Centre Pact, which has set ambitious targets for enhancing water efficiency in data centres. This collaborative approach can help drive innovation and best practices in water management.

Apply a holistic approach to data centre sustainability and consider the risks associated with the inclusion of minimum performance standards

Data centres across Europe operate across a variety of external backdrops and utilise technologies that are constantly evolving and innovating. To meaningfully assess the sustainability of a data centre, no single metric is appropriate, but rather a holistic view of the entire operation. Despite being announced in the strategy as means for water savings, minimum performance standards are not the most appropriate mechanism to drive data centre sustainability and, in some cases, may drive unintended consequences.

Water cannot be viewed in isolation. Mechanically air-cooled data centres are typically less energy efficient than water-cooled data centres, but they are more water efficient. In many cases, optimising for greater water efficiency means increased power consumption. Minimum performance standards, and in particular a standard for water consumption alone, fail to account for these interdependencies between water and energy and therefore may remove the ability for data centres to achieve the optimum efficiency for their conditions.

Water resource management is inherently local, some areas are water stressed and others are not. Data centre operators have developed tailored solutions for each region through strong local partnerships and in adherence to EU, national and local policies. Water usage can also vary significantly depending on factors like local climate including seasonal fluctuations, humidity, quality and temperatures. Flexibility in cooling technology and the associated water usage allows data centres to adapt to these changes and ensure

[11] Regulation (EU) 2019/2088. More information on Data Centres Code of Conduct is available at https://e3p.jrc.ec.europa.eu/en/groups/data-centres-code-conduct.

[12] COM (2025) 165 final.

continuous operation and maximum efficiency. Minimum performance standards do not account for such variations.

The data centre industry is constantly evolving, with new technologies and innovations emerging regularly. Data centre operators who select the appropriate cooling systems during the design phase, can adjust their strategies based on changing conditions and evolving technology. Rigid minimum performance standards or mandating cooling types may inhibit the ability to deploy these new solutions to enhance data centre sustainability and efficiency. Also, rigid cooling technology requirements may also limit the ability for data centres to use recycled or other non-potable water sources.

The implementation of minimum performance standards could potentially impact the goals outlined in the AI Continent Action Plan, and in the upcoming Cloud and AI Development Act, to expand data centres capacities. It is essential to consider the potential implications of stringent MPS on this objective, as minimum performance standards may be perceived as an obstacle to new developments.

Setting minimum performance standards for data centres water consumption will inevitably favour the construction of digital infrastructure in colder countries where there will be lower needs for water use, thereby increasing the gap in digital infrastructure between member states and distorting Europe's competitiveness.

Policy recommendations:

- **Refrain from imposing minimum performance standards**: Lean instead on a robust, multi-faceted sustainability rating that considers energy efficiency, local water availability and opportunities for non-potable water use, as well as the facility's overall environmental impact.
- **Assess any proposed measure through the lens of overall data centres sustainability** to ensure that water usage policies are aligned with the needs of the data centre and the environment.
- **Ensure all new measures take a technology-neutral approach**, allowing data centres to adopt new and more sustainable technologies and innovations without being constrained by rigid water usage policies, including the ability to use recycled or other non-potable water sources
- **Align with Climate Neutral Data Centre Pact methodology** to help ensure that data centres are operating in a way that balances the needs of both water and energy resources. Furthermore, the Pact's water working group will aim to agree on a metric for assessing water conservation. The metric will consider interacting factors, such as energy efficiency, availability of water and opportunities to use industrial water, reclaimed water or filtered water and options for cross-sectoral schemes that look beyond the data centre.
- **Apply non-retroactivity principle by** implementing any measures only to new data centres, in recognition of the pace of technological change and innovation in cooling technologies (and across data centre operations), the cost and carbon impact of retrofitting, as well as the risk of abandoned assets, so to avoid unnecessary and accelerated obsolescence.
- **Incentivise continued research and investment in cooling technologies**, accompanied by an appropriate economic and feasibility assessment.

Harness the potential of data centres for water restoration projects in the EU

As Europe continues to prioritise sustainability and environmental stewardship, it is essential to recognise the critical role that data centres can play in supporting water restoration efforts. Many data centre operators have ambitious sustainability goals, including goals to be water positive, where data centres support local water restoration projects that return more water to local environments than data centres consume. Europe can unlock the potential of data centres to contribute to local water challenges through water restoration projects by creating enabling conditions for skills and capacity building for conservation groups and for water restoration projects. The latter can restore local habitats, boost water supply and reliability, enhance water quality and provide safe drinking water.

For example, providing financial incentives to local conservation groups and facilitating partnerships between data centre operators and conservation groups, through co-funding mechanisms or matching corporate grants for water projects to EU funding (e.g. the LIFE Programme), can help identify and address specific water-related issues, ultimately supporting local watersheds and ecosystems. As many data centre operators are already making progress towards their water positive goals, the EU has a unique opportunity to amplify their impact by providing a supportive policy framework that encourages collaboration and innovation.

Policy recommendations:

- **Promote information/operational technology skills and capacity building frameworks**, through education and knowledge sharing programmes. Topics could include the implementation of innovative solutions to water challenges – enhancing security and enabling data-driven decision-making – and providing financial incentives for local conservation groups to support water restoration projects.

- **Facilitate partnerships with conservation groups** to identify and shortlist projects addressing local water challenges.

- **Prioritise programmes in areas of high-water stress**.

Unlock the potential of water recycling and reuse programmes through incentives and public-private partnerships

To enhance data centre water stewardship, data centres are often turning to water recycling and reuse programmes as a key strategy for long-term sustainability. The use of non-potable water sources can be implemented in various activities as part of data centre construction and operation. For example, data centres can use non-potable water for dust control and cement mixing during construction and landscape irrigation, if the technology specifications allow and in compliance with worker safety, within the cooling systems themselves.

Reuse and recycling options can vary depending on the type of water available and existing infrastructure, which data centre operators typically have less control over. As noted in the Antwerp Dialogue on Water

conclusion,[13] both public and private investments will be necessary to ensure the transition towards a smart water economy. The EU can play a crucial role in facilitating and incentivising public-private partnerships to modernise and upgrade Europe's water infrastructure.

Policy recommendations:

- **Promote AI and software adoption in existing facilities and the needed infrastructure allowing data centres to use recycled, reclaimed and other non-potable water sources** by providing specific incentives for industrial water reuse as already seen with agricultural waters.
- **Ensure any public water reporting metrics for data centres reflects the source and type of water** (i.e. potable freshwater, non-potable freshwater, reclaimed water and seawater) to ensure that water reuse can be accurately reported.[14]
- Consider fiscal incentives for data centres to **invest in water recycling technologies**, as well as enable fast-tracking permitting for those data centres that embed water recycling and reuse in the planning phase.
- **Support initiatives to use data centres' cooling water discharge for downstream reuse**.
- Facilitate investment by incentivising water materiality.
- Facilitate collaboration between data centre operators and local water utilities to implement and improve water management practices.

Consider technology advancement for sustainable water management

The integration of digital technologies is a crucial tool for water management optimisation in data centres and across sectors. By supporting the adoption of smart practices, we can significantly improve water quality and availability monitoring, as well as enhance early warning systems for leaks, contamination or flooding. Some examples include AI-powered monitoring and detection that can identify anomalies, strengthen pollution control and optimise resource allocation.

Additionally, AI-driven tools can raise environmental awareness and promote sustainable behaviours amongst individuals and industries alike. AI can also enable predictive analytics and modelling processes to ultimately support evidence-based decision-making in water policy and management. This not only benefits data centres but also local authorities, utilities, industries, communities and the environment, making it a critical step towards achieving sustainable water management practices.

As Europe looks to apply AI solutions to address environmental risks through the upcoming Apply AI Act, we encourage the inclusion of water-related issues in AI use cases.

[13] Available at https://cms.antwerp-declaration.eu/uploads/Antwerp-Dialogues-Conclusions_EU%20Water%20Resilience%20Strategy.pdf.

[14] Climate Neutral Data Centre Pact metrics are a good example of this.

At the same time, sophisticated cyber-attacks from malicious actors against water utilities across Europe represent a growing concern and represent a public health, economy and national security threat. A recent Moody's Cyber Heat Map reports that water is at the highest risk level, next to electric and gas utilities and hospitals.[15] The water sector relies heavily on operational systems to manage critical processes, such as chemical dosing and pressure regulation. The NIS2 Directive requires water utilities to implement risk management processes specifically for their operational systems, to ensure they are adequately protected against cyber threats.[16] Considering the sense of urgency, it is essential for Member States to fast-track their efforts to implement NIS2 as soon as possible.

Policy recommendations:

- **Support data centres as well as water utilities in their effort to optimise water management**, for instance through smart water grids, real-time monitoring systems and predictive analytics tools. Some of the examples include:
  - AI-powered monitoring and detection for identifying anomalies (e.g. leakages, water quality, energy/water consumption), strengthening early warning systems and improving pollution control;
  - Resource and process optimisation. Real-time data analysis, automation to reduce waste, cut costs and mitigate environmental risk and process simulation to test and manage different scenarios (e.g. water usage, quality, demand, energy, etc.);
  - Predictive analytics and modelling. AI for identifying patterns and accurately forecasting environmental phenomena; and
  - AI for awareness-raising and sustainable behaviours. AI-driven tools for raising environmental awareness and guiding more sustainable habits.
- **Take steps at national level to implement NIS2** to uphold cybersecurity in critical infrastructure, such as water, and promote collective action to protect this vital infrastructure.

[15] Moody's Investors Service report, *Cyber Heat Map*, November 2024.

[16] Directive (EU) 2022/2555.

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About DIGITALEUROPE

DIGITALEUROPE is the leading trade association representing digitally transforming industries in Europe. We stand for a regulatory environment that enables European businesses and citizens to prosper from digital technologies. We wish Europe to grow, attract and sustain the world's best digital talents and technology companies. Together with our members, we shape the industry policy positions on all relevant legislative matters and contribute to the development and implementation of relevant EU policies. Our membership represents over 45,000 businesses who operate and invest in Europe. It includes corporations which are global leaders in their field of activity, as well as national trade associations from across Europe.

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