Thirst for Change:

Safeguarding water security for sustainable data center growth

In partnership with

waterwise

Introduction

The global data center sector is on a steep growth trajectory. Already, it is projected to be worth around $527 billion[1], with forecasts suggesting the market could almost double by 2030. This expansion is being fueled by a powerful set of drivers: the rise of AI and machine learning, the rapid growth of cloud computing, ongoing digital transformation, the proliferation of the Internet of Things (IoT), the adoption of 5G networks, and an increasing emphasis on data sovereignty, security, regulation, and sustainable, energy-efficient technologies.

In recognition of their increasingly vital role in sustaining digital life, supporting economic growth and powering essential services such as healthcare, financial systems, and communications, some governments now classify data centers as critical infrastructure[2]. However, unlike traditional infrastructure, much of the sector remains privately owned. Even where infrastructure is privatized, it tends to still be subject to significant regulatory oversight. This dynamic places a particular importance on public and private sector collaboration to ensure that development and regulation can keep pace with innovation while also safeguarding reliability, resilience, and societal needs.

One area where the necessity of collaboration is especially pronounced is sustainability, given the pressure this rapid data center expansion is placing on our natural resources, and the energy and land required. Among the most pressing sustainability issues for data centers is water efficiency. As we will see, data centers are incredibly thirsty, and their rapid expansion is coming at a time when water scarcity is of significant global concern.

This paper explores global data center capacity and ambitions, comparing these to water security levels and the sustainability policies and legislation in place to address this. Nearly two-thirds (63%)[3] of business leaders agree that businesses should acknowledge water usage and efficient water management as key environmental challenges associated with AI. Building a sector that is both fit for purpose and environmentally responsible requires pooling expertise, mobilizing investment, and implementing regulatory frameworks that balance opportunity with environmental stewardship.

63% Business leaders who agree businesses should acknowledge water usage and efficient water management as key environmental challenges associated with AI

Data Center Facilities Mark of Trust

Data centers form the backbone of the digital economy, enabling everything from critical public services to global business operations, and data center infrastructure is fast expanding in many countries around the world. While this infrastructure is largely privately owned, its reliability, efficiency, and environmental performance is of growing importance and requires close collaboration between the private and public sectors.

Despite the significant role data centers can play in local and regional water demand, and the number of countries experiencing high levels of water stress, there is a notable absence of specific regulatory frameworks governing how these facilities manage and report their water consumption. This regulatory gap presents both a challenge and an opportunity: a challenge around ensuring accountability and sustainability, but also the potential to adopt consistent, high-quality practices that ensure efficient water management and build trust with stakeholders.

In this context, internationally recognized standards of best practice and independently assessed assurance schemes can play a crucial role. They can provide guidance to data center owners and operators, help drive continual improvement, and deliver the transparency needed to demonstrate responsible water stewardship across the sector.

The Data Center Facilities Mark of Trust (DCFMoT) is a scheme aimed at ensuring the increasing demand for data centers can be met with trusted facilities that satisfactorily address key stakeholder concerns and can be readily demonstrated as compliant with emerging regulations around the world.

Learn more about the Data Center Facilities Mark of Trust

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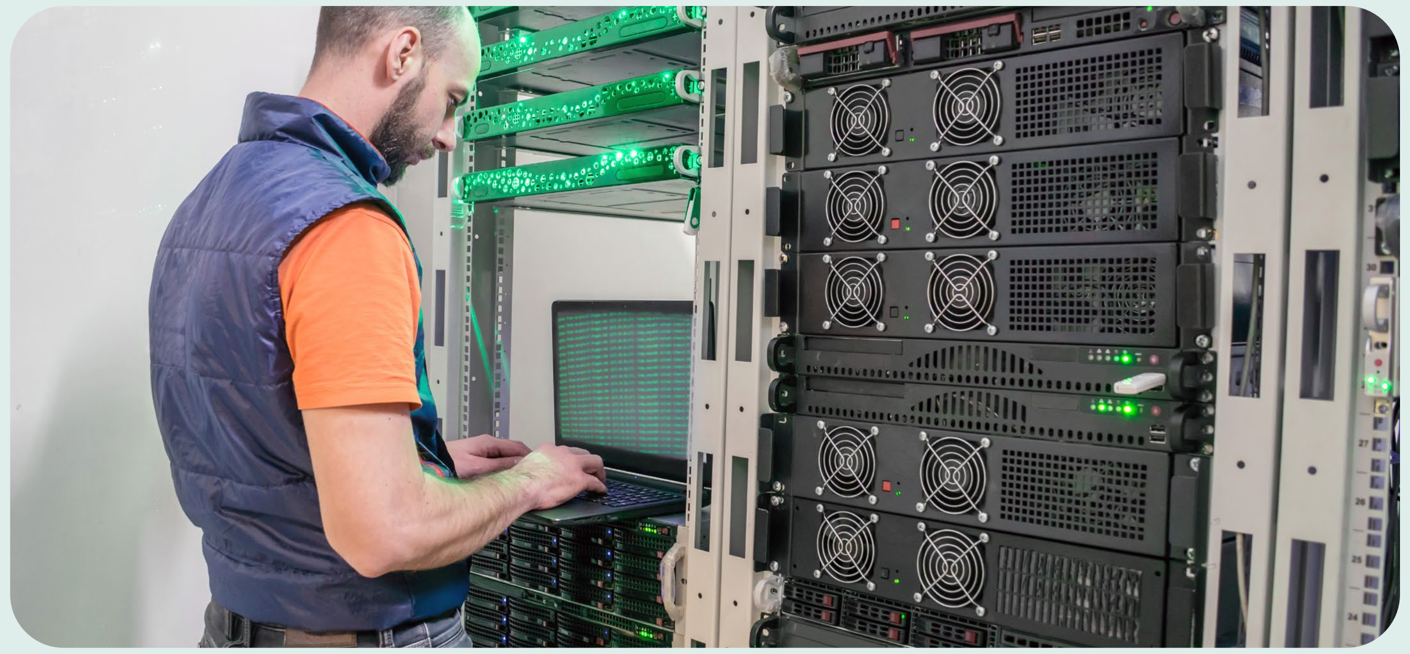
The DCFMoT does this through a modular assessment approach whereby each module is aligned to international standards of best practice and addresses a key data center sector challenge. The five modules are:

Availability and protection

Aligned to Information technology – data center facilities and infrastructures, part 1 general concepts (ISO/IEC 22237-1) this module provides assurance that key facilities such as power, HVAC and communications are available for the data center to meet the needs of the services which will operate within them.

It also ensures that protection against unauthorized access, intrusion, and internal/external environmental events will be implemented using the appropriate requirements and recommendations from Information technology – data center facilities and infrastructure, part 6 – security systems (ISO/IEC 22237-6).



Business continuity

To further build trust in the ability of a data center facility to support data center services with minimum disruption, this module utilizes Business Continuity Management (ISO 22301) to demonstrate that a data center facility has an appropriate business continuity management system in line with international best practice.

Energy management

This module aligns with Energy Management (ISO 5001) to demonstrate the data center is managing its use of energy in an appropriately responsible, efficient and effective manner with specific data center requirements and guidance on energy efficiency enablement and Power Usage Effectiveness (PUE).

Carbon management

Through the use of the Carbon Neutrality standard (ISO 14068-1) and supported by the data center specific definition of Carbon Usage Effectiveness (CUE) as defined in BS EN 50600-4-8, this module provides assurance that the data center is committed to achieving carbon neutrality and has a clear path for improvement over time.

Water management

In line with Water Management (ISO 46001) and supported by the data center specific definition of Water Usage Effectiveness (WUE) as defined in BS EN 50600-4-9, this module demonstrates that a data center facility is managing its use of water in an appropriately responsible, efficient and effective manner.

Water Security - A Global Picture

The United Nations has warned that, already, half the world's population lives in water-stressed regions[4]. Findings from our 2024 Thirst for Change partnership with Waterwise reinforced the urgency of the global water security challenge, revealing that nearly a third (29%) of the 42 countries analyzed face high to very high levels of water insecurity. This issue is only growing due to a combination of population growth, climate change and economic development, all of which is driving increasing demand. This is more pronounced in some countries, regions or indeed in different sectors, but it is an issue that is relevant to us all.

Data centers and water

Against this backdrop, ensuring the water efficiency of data centers becomes a global environmental priority. Data centers are among the top ten water-consuming commercial industries worldwide[5].

The majority of water consumption in the sector is indirect[6], tied to electricity production and supply. However, a significant proportion of direct water consumption is due to data center cooling - which is currently a fundamental process to the successful operation of the centers[7]. Thousands of servers running around the clock generate vast amounts of heat. Without effective cooling, systems could overheat and fail within minutes, causing both operational disruption and costly hardware damage.

To manage this, data centers rely on either air-cooling or water-cooling systems. The former approach uses fans and air conditioning and is less effective for high-density computing environments. By contrast, water-based cooling is far more efficient at removing heat[8], which explains why hyperscale operators increasingly favor this method despite its significant water requirements. The scale of consumption is stark, with analysis suggesting that a single one-megawatt data center using traditional methods such as direct evaporative cooling can consume more than 25 million liters of water annually[9].

Addressing these challenges requires proactive collaboration across public and private sectors, from regulation and policy, measurement and reporting and the implementation of water efficiency measures. Data centers are relatively 'new' compared to more traditional infrastructure such as energy, transport and water systems. This means that they post new considerations but also that we have the opportunity to integrate sustainability and water efficiency measures into their design and operations almost from the outset, rather than facing the challenges of retroactively addressing these critical environmental issues later on. With expert guidance, standards and frameworks of best practice, and assurance tools, developers and operators can take tangible steps today to improve the sustainability, and specifically the water efficiency, of their facilities, thereby safeguarding both current operations and future growth.

As nations compete to harness the economic potential of the data center sector, the balance between ambition and responsibility will be critical. Ensuring water efficiency is not only vital for the resilience of the sector, but also, as the AI transformation gathers pace and more data centers are needed, for securing the water availability of nations and contributing to a water secure world for all.

How do data centers compare?

Assessing water use across societal infrastructure

Agriculture and irrigation	Globally, agriculture uses about 70% of all freshwater withdrawals[10], translating to more than 7,570.82 trillion liters of water annually—over 20 trillion liters per day.[11]
Hospitals	Water consumption per hospital bed can vary, but research suggests it typically ranges from 109,000 to 657,000 liters annually, depending on country and hospital type. European hospitals show annual consumption between 182,500 and 365,000 liters per bed.[12]
Power generation	According to the World Meteorological Organisation (WMO)[13], in 2020, 87% of global electricity generated from thermal, nuclear and hydroelectric systems directly depended on water availability. Europe is reported to use 72.3 trillion liters for energy production annually[14], whilst the US used 179.8 trillion liters of water for power generation in 2020[15], and Australia used around 60 trillion liters of water for electricity, gas, water and waste services throughout 2021.[16]
Golf courses	The average 18-hole golf course can use up to approximately 757.1 million liters of water annually[17]. However, this can vary greatly depending on the location of the course, with arid regions (like the southwestern US or southern Spain) requiring significantly more irrigation.
Public swimming pools	While a total annual figure is unavailable, public swimming pools are reported to use an average of 96.1 liters of water per person, per day.[18]
Data centers	A hyperscale data center can use up to 757.1 million liters of water annually to cool its hardware[19]. A medium-sized 15-megawatt data center uses as much water annually as three average-sized hospitals or more than two 18-hole golf courses.[20]

Water use for AI

Meanwhile the AI model GPT-3, an AI model, is estimated to consume 500ml of water per 10-50 responses. By 2027, global AI demand is expected to account for 4.16-6.44 trillion liters of water withdrawal[20].

Country overviews: Data centres and water security[21]

India

As a country leading the charge to embrace AI, it follows that India's data center sector was granted 'infrastructure status'[26] to streamline access to long-term capital. In 2020 the government published the Draft National Data Centre Policy[27]. Although not initially implemented, the government reopened plans in 2025[28]. The plan aims to make India a 'global data center hub' through policy mechanisms such as simplifying policy to a single-window clearance system, establishing Data Center Economic Zones, recognizing data centers as 'essential services', and growing domestic manufacturing for data center components.

Despite this pursuit of growth, there appears to be a dearth of national policies addressing the sustainability of these facilities[29], although some in the industry are taking steps themselves (for example, companies including Equinix, Web Werks and CtrlS are prioritizing use of air-cooled chillers over water-cooled chillers for their Indian data centers).

The draft National Data Centre Policy 2020 does encourage the use of renewable energy sources but does not mandate them, and it doesn't address the issue of water consumption. This is despite warnings of water shortages being a high-risk factor for data centers in cities including Chennai, Bengaluru, Hyderabad, and Delhi, and moderate-to-high risk for Mumbai.

Water security and solutions score*	52/85 High – high water insecurity and slow progress towards solutions
Data center capacity	Estimates range from 153[22] – 270[23]
Value of sector	An estimated $10billion[24]
Future projections	Capacity projected to reach 3,400 MW by 2030[25]
Policy focus on water efficiency and data centers	No

* Thirst for Change 2024, Water Security & Solutions Indicator provides country-level assessments and comparisons of the water security challenge and progress being made towards solutions. It draws on publicly available data and a public attitude survey undertaken by BSI. A 'very low' score indicates low levels of water insecurity and greatest progress towards solutions.

Water security and solutions score*	50/85 High - high water insecurity and slow progress towards solutions
Data center capacity	449[30] data centers reported, making it the fourth highest country globally for total data centers[31] and the leading nation in Asia-Pacific.
Value of sector	$47.23 Billion in 2024[32]
Future projections	Expected to grow to $97.30 billion by 2030[32]
Policy focus on water efficiency and data centers	Some localized requirements

China

China appears to be experiencing significant growth in its data center capacity, driven by factors including increasing digital services and data storage needs, as well as the roll out of 5G networks and regulation[33].

The Eastern Data and Western Computing project was launched in 2022 with the aim of supporting continued growth of the data center sector through a rebalance of supply and demand across Eastern and Western China[34]. Eastern and Southeastern regions of China are highly populated and host the majority of industry and business, resulting in a high demand for network processing capacity and storage.

Conversely, remote Western regions have lower population density and smaller industrial and business presence, yet have ample land and access to resources, in particular, renewable energy from wind, solar, and hydroelectric power, which can be used for cooling. By developing computing hubs and data center clusters in those areas, the intention is that there will be enough data to supply China’s populous and economically active eastern regions.

The Chinese government does appear to have set sustainability targets for data centers, including around energy efficiency and renewable energy targets[35] as well as water efficiency measures[36]. For example, in Beijing, Ningxia and Gansu water efficiency standards for data center projects are increasing with requirements to utilize advanced cooling methods that reduce water consumption and the phasing out of water and energy inefficient data centers.

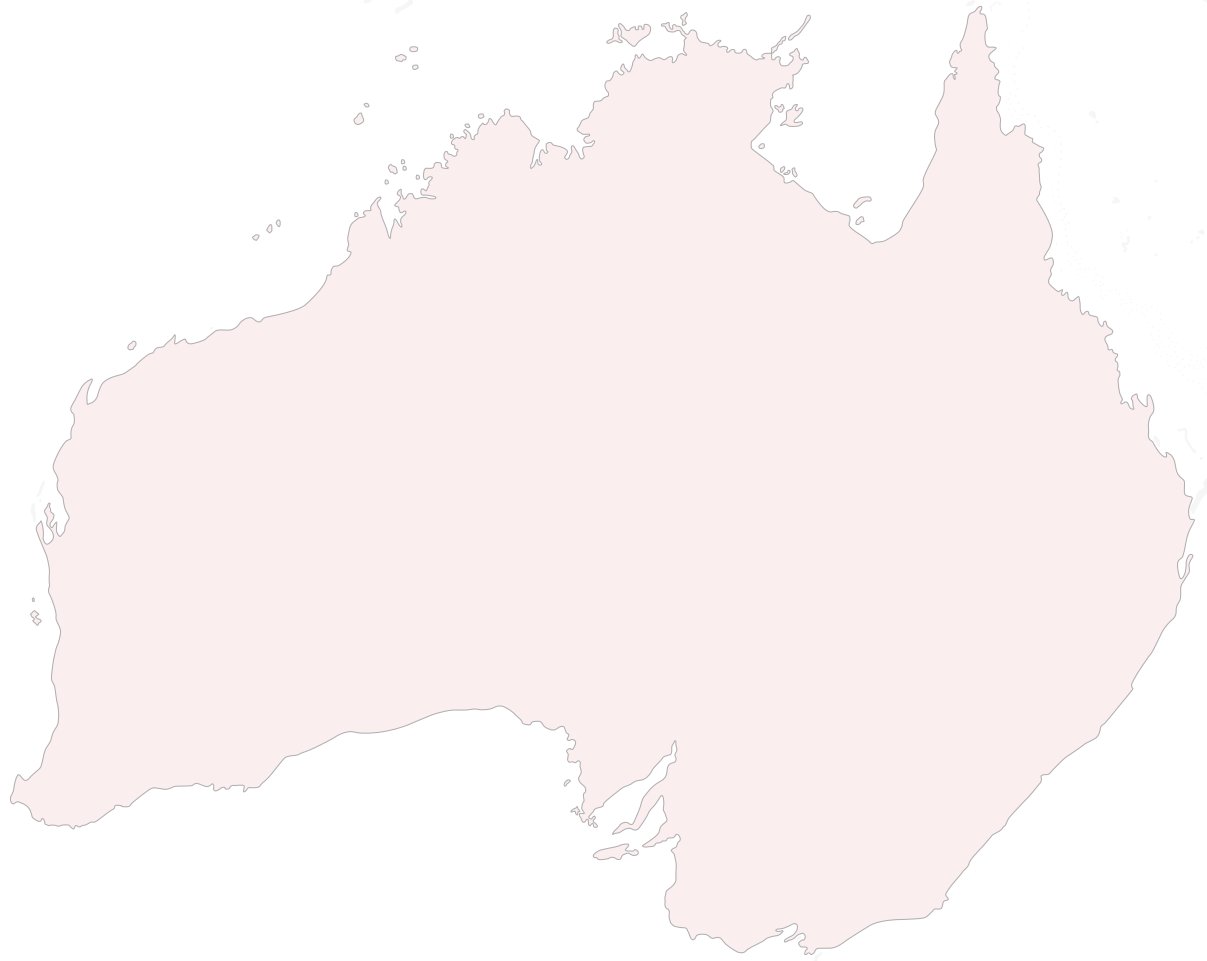
Australia

In their Data and Digital Government Strategy[39], the Australian government set out a vision 'to implement world class data and digital capabilities to deliver outstanding outcomes for all'. The document made no mention of data center capacity, but there is a wider aim of positioning Australia as a regional APAC hub for data centers[40] by providing clear regulatory frameworks, and investment incentives.

Sustainability is already forming part of data center policy and regulation, such as the requirement from July 2025 for all data centers hosting federal government workloads to meet a minimum 5-star energy efficiency rating under the National Australian Built Environment Rating System[41]. The government has also taken steps to introduce conditions that all data center providers for the government comply with greenhouse gas emission thresholds, utilize accredited renewable energy and aim for a Power Usage Effectiveness of less than 1.4[42].

With regards to water efficiency, all data center projects must obtain consent to connect to the relevant water authority's existing infrastructure and comply with state or municipality general water policies and planning regulations[43]. Given that, as we have seen, data centers tend to be high-water demand projects, they may face further requirements where existing infrastructure does not have the capacity to cater for the development.

Water security and solutions score*	39/85 Medium – average levels of water insecurity and moderate progress towards solutions
Data center capacity	314[37]
Value of sector	$1.72 billion as of 2024[38]
Future projections	Expected to reach $4.98 billion by 2030[38]
Policy focus on water efficiency and data centers	Some general water policies related to planning regulations that vary depending on local jurisdiction



Water security and solutions score*	53/85 High - high water insecurity and slow progress towards solutions
Data center capacity	Reported to be over 5,400[44]
Value of sector	Valued at approximately $208 billion in 2024[45]
Future projections	Expected to reach $308 billion by 2030[45]
Policy focus on water efficiency and data centers	No, however some states are considering the introduction of water efficiency incentives

US

"Without question," President Trump told an industry audience, "America is the country that started the AI race."[46] Data centers are a critical component of that, and we are seeing policy and legislation aimed at accelerating growth in the sector, with an executive order facilitating permits[47] and ensuring infrastructure availability[48].

At a national level, US data centers comply with general federal laws[49] including those relating to greenhouse gas emissions, waste management, water use and hazardous materials. However, the America's AI Action Plan, which includes over 90 initiatives targeting the rapid expansion of high-capacity data centers, makes several recommendations for environmental regulation reform[50], with the proposals falling on the side of development rather than resource protection.

These include creating new categorical exclusions for routine data center related construction, creation of a nationwide permit to remove pre-construction delays, streamlining or reducing regulations for environmental related permits, and directing agencies with significant federal lands available to identify sites suited for large-scale construction of data centers. While the plan did not provide steps to achieve these recommendations, an Executive Order[51] was issued directing agencies to fast-track environmental permitting under laws such as the Clean Water Act, Clean Air Act, and National Environmental Policy Act.

While progress on environmental considerations appears limited at the federal levels, some states with a higher number of data centers have introduced or are considering regulations on water efficiency to address drought and scarcity risks. Examples include California proposing tax incentives for data centers adopting water-efficient cooling systems (although the strength of these plans appears to be in question)[52], or plans in Texas to allocate billions towards water infrastructure[53] in response to reports that, by 2030, data centers will account for approximately 6.6% of the state's total water use[54].

Japan

In terms of the sector's value, Japan appears to be Asia's second-largest data center market and the third globally behind the US and China[57]. This relates to businesses adopting digital technologies such as cloud computing, AI, the Internet of Things (IoT), and 5G, as well as the country's robust and stable infrastructure foundation, strategic location, reliable power supply, favorable regulatory environment and government support for the sector, including tax incentives.

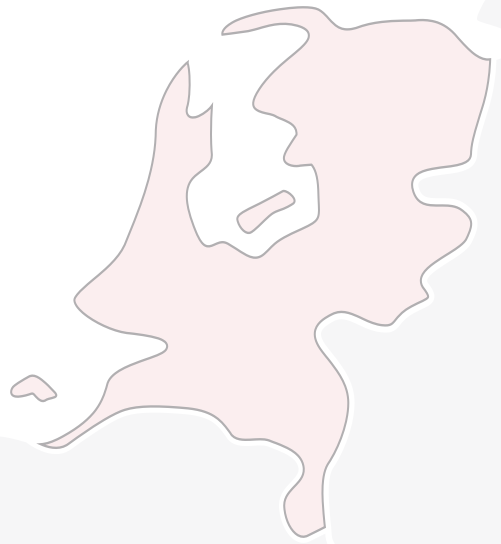
The Japanese government positioned data centers as a strategic sector in their so-called "Grand Design and Execution Plan for a New Form of Capitalism—2024 Revision" highlighting the sector as a priority for economic growth[58]. The government aims to develop a digital infrastructure to support an "AI society" by the 2030s, with four pillars[59]: decentralizing data centers outside urban cores, fostering R&D and implementation of new technologies, expanding global network connectivity (such as submarine cable landing stations), and coordinating with decarbonization policies.

Japan's data center operators are required to report annually on their Power Usage Effectiveness (PUE)[60] and are expected to achieve a target PUE value of 1.4. This is paired with the government's Green Growth Strategy[61] which requires data centers to achieve a 30% reduction in energy use by 2030 and reach carbon neutrality by 2040. Other initiatives include the 'Watt-Bit Collaboration' strategy which encourages the co-location of data centers and gigawatt-scale renewable or low-carbon energy sources.

Despite these positive moves, there are currently no national laws or guidelines regarding water consumption of data centers. The Sustainability Standards Board of Japan issued inaugural sustainability disclosure standards in March 2025[62], requiring large, listed companies, often including data center operators, to report on their climate strategy, energy use, and other ESG measures including requirements that relate to water use from March 2027.

Water security and solutions score*	48/85 High - high water insecurity and slow progress towards solutions
Data center capacity	222[55]
Value of sector	Valued at approximately $20.5 billion[56]
Future projections	Expected to grow to over $40 billion by 2033[56]
Policy focus on water efficiency and data centers	Phased approach of legal requirement for ESG reporting including water use. Starting with largest listed companies in March 2027

Water security and solutions score*	40/85 Medium - average levels of water insecurity and moderate progress towards solutions
Data center capacity	298[63]
Value of sector	Valued at approximately $1.22 billion[64]
Future projections	Significant growth projections estimating a value of $3.39 billion by 2030[64]
Policy focus on water efficiency and data centers	Combination of national and EU policies



The Netherlands

Data center capacity in the Netherlands is estimated to represent a 2.8% share of the European market. This is helped by the country's strong digital infrastructure, which is recognized as a priority by the government, who are encouraging coordinated development.

Sustainable growth of the Dutch data center sector is a key priority, with The Netherlands enforcing a combination of national and EU policies[65], including legislation and regulation such as the EU Energy Efficiency Directive, the Corporate Sustainability Reporting Directive, the EU Taxonomy Regulation and the Omgevingswet (Environmental Act). EU member states can also follow the voluntary initiative EU Code of Conduct on Data Centre Energy Efficiency[66], which alongside energy contains water, heat, and resource reuse considerations for operators.

All of these include requirements relating to both energy and water use, as well the Erkende Maatregelenlijst (Recognized list of matters), which mandates the implementation of government-approved energy-saving actions including the upgrading of cooling systems which can impact the water efficiency of the data center. The Netherlands also enforces the Verdringingsreeks (Displacement series), an additional measure to support water security, whereby in periods of water scarcity, local water authorities follow a hierarchy to prioritize water allocation, with drinking water needs always taking precedence over data center or industrial cooling use[67].

France

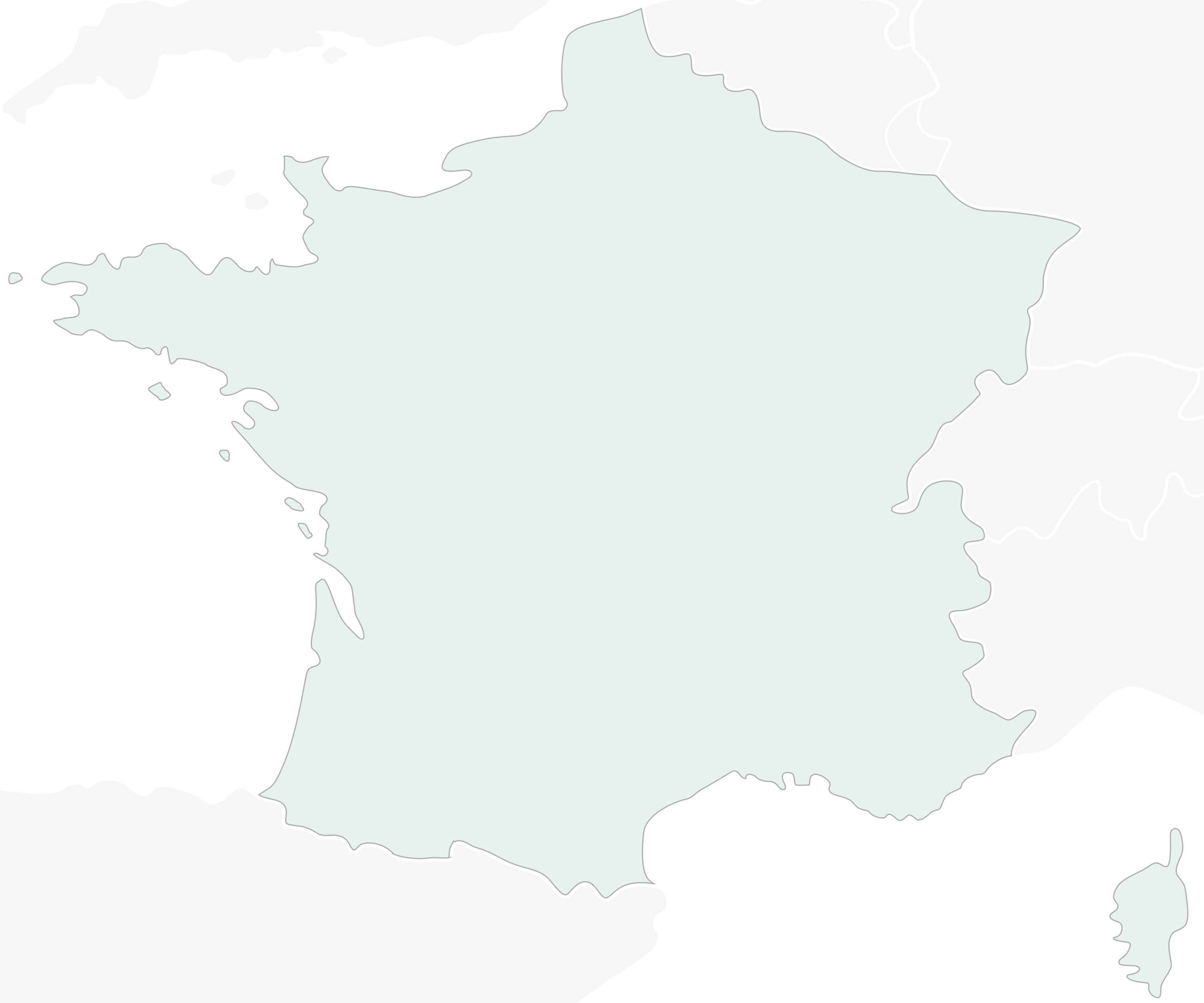
The Paris metropolitan area accounts for over 80% of France's data center supply[70]. Overall, the country has ambitious data center targets, and the presidency and government have publicly framed a push to make France an AI and cloud compute hub. This includes ambitions to scale data center capacity substantially through the coming decade, with President Macron announcing a $109 billion investment in AI[71] when the country hosted a global AI summit. France's national industrial strategy explicitly prioritizes core digital infrastructure and compute capacity as part of wider tech sovereignty and AI goals[72].

Data centers are regulated under France's ICPE regime for environmental protection (Installations Classées pour la Protection de l'Environnement)[73], with obligations for declarations and authorizations related to energy and cooling systems. The regime includes reviews of water abstraction, discharges, biodiversity and other environmental impacts. Operators also face penalties including fines and public "name and shame" measures for non-compliance.

The French government has also offered partial or total energy tax exemptions for data centers that meet specified energy-efficiency criteria[74], with levers to lower operating costs. In addition, France has now transposed the European Energy Efficiency Directive (EED) into French law setting out a regulatory framework for assessing the energy performance of data centers.

Water abstraction and discharge for data centers in France is regulated under the national Water Code[75]. Projects that withdraw water above statutory thresholds must either declare or obtain authorization, which would likely apply to data centers requiring water for cooling. France also enforces key EU regulations including the Corporate Sustainability Reporting Directive (CSRD) and the EU Taxonomy, regulatory frameworks that are actively shaping water use and broader environmental measures for data centers. EU member states can also follow the voluntary initiative EU Code of Conduct on Data Centre Energy Efficiency[76], which alongside energy contains water, heat, and resource reuse considerations for operators.

Water security and solutions score*	37/85 Low – low levels of water insecurity and good progress towards solutions
Data center capacity	322, with 17 - 21 more in planning[68]
Value of sector	Generated an estimated $8,819.1 million in 2025[69]
Future projections	$14.02 million in 2030[69]
Policy focus on water efficiency and data centers	Combination of national and EU policies



Water security and solutions score*	41/85 Medium - average levels of water insecurity and moderate progress towards solutions
Data center capacity	Approximately 529 data centers[77]
Value of sector	The market is expected to generate $23.13 billion in 2025[78]
Future projections	Expected to grow to $32.30bn by 2030[78]
Policy focus on water efficiency and data centers	Combination of national and EU policies

Germany

Germany appears to be the largest data center market in Europe by number of facilities, with many new large-scale data center projects underway. The federal government describes data centers as core to Germany's digital infrastructure and innovation strategy[79] and is developing a national approach to strengthen Germany as a data-center location while protecting energy and climate goals. Germany is also looking to the EU for backing for large AI data-processing facilities and to align national policy with EU initiatives (e.g., funding to build AI "gigafactories" and strengthen European AI infrastructure)[80].

In addressing the sustainability of data centers, the German Energy Efficiency Act (Energieeffizienzgesetz) imposes binding energy-efficiency obligations that explicitly cover data centers[81]. This includes regulations covering the avoidance and use of waste heat, power usage effectiveness, power supply from renewable energies and the implementation of energy and environmental management systems.

The Federal Water Act (WHG) is Germany's main national water law[82]. It implements, among other things, the EU Water Framework Directive, as well as regulating abstraction and discharge to water bodies. Permits or other authorizations are required when thresholds are crossed.

Under the EU Energy Efficiency Directive (EED), data center operators in Germany have reporting obligations which include water usage[83]. Germany also enforces the EU's CSRD and other key regulations, which play a central role in water management. EU member states can also follow the voluntary initiative EU Code of Conduct on Data Centre Energy Efficiency[84], which alongside energy contains water, heat, and resource reuse considerations for operators.

UK

The UK government is supporting data center growth through plans including the AI Opportunities Action Plan and the UK Compute Roadmap[87]. These feature substantial commitments, including up to £2 billion investment by 2030 to develop a modern compute ecosystem and AI-ready centers. In 2024, the government formally designated UK data centers as Critical National Infrastructure[88], giving them priority status alongside [89]energy, water and transport as well as stronger protection and support against cyber-attacks, environmental disasters and outages.

Under the Environment Act 2021, new UK data center developments must deliver at least a 10% net biodiversity gain to achieve planning permission. In terms of reporting, data centers are required to comply with CSRD and, where relevant, the EU Taxonomy, both of which include reporting on energy, emissions and water metrics. In addition, although not compulsory since leaving the EU, many UK data centers that interact with the EU or host EU customers may choose to comply with EU Energy Efficiency Directive (EED)[90] to monitor, disclose, and report on energy and water usage, PUE, share of renewables, waste heat reuse, cooling efficiency, and water management.

In 2025 the UK government published a strategic document[91] focused on ensuring sustainable, resilient, and secure water supplies in England amid increasing pressures from population growth, climate change, and economic development. This has significant implications for data centers around sustainable water use, planning and reporting.
The framework calls for mandatory, location-specific reporting of water use for data centers above 1MW, and inclusion of AI and data center water demand in national and regional water resource management plans[92]. It states that coordination between government departments, regulators, and data center operators is essential to model water needs and mitigate risks and encourages the use of water-saving technologies like immersion cooling, closed-loop systems and use of non-potable water sources.
It also recommends restricting data centers in 'seriously water stressed regions' and subjecting new projects to site-specific water assessments and approvals from local water authorities, and encourages data centers to adopt recognized standards[93] (such as BS EN 50600) for resource efficient, climate resilient design and operation.

Water security and solutions score*	42/85 Medium - average levels of water insecurity and moderate progress towards solutions
Data center capacity	450 data centers[85]
Value of sector	A sector valuation of approximately $21.26 billion in 2025[86]
Future projections	Expected to reach $29.78 billion by 2030[86]
Policy focus on water efficiency and data centers	Some EU policies are applicable and recommendations have been made by government agencies, but are not currently legal obligations

Key takeaways

Data center construction is gathering pace globally, as countries and their governments seek to gain an advantage in the global AI race, and build up capacity for areas like cloud computing, digital services and data storage.

Thus far, sustainability regulation and policy around data center construction and management seems limited, with much of it drawing on existing or broader requirements, such as the EU EED directive, CSRD and EU taxonomy. What is in existence seems to focus predominantly on energy demand.

European countries such as The Netherlands, France, Germany and UK do have more water specific policies in place or under development, but in other countries this is not yet gaining status as a priority.

Despite a lack of consistent global water efficiency policy and regulation regarding data centers, the challenge is still of great importance and is being recognized, with 63% of business leaders recognizing the water challenge[3], and increasing media coverage[94] of the issue.

While regulation and policymaking can be slow, there is a clear opportunity for data center developers and providers to take proactive action on water efficiency now and ensure that they are building towards a sustainable future.

63%

63% of business leaders recognize the water challenge of AI[3], and media coverage of data center water use is increasing[94].

Nicci Russell

Waterwise CEO

Nothing happens without water - it is a phrase we repeat frequently at Waterwise, keeping front of mind the importance of water in everything we do. This timely BSI paper highlights the importance of water to enable the continued and rapid global expansion of the data center sector. Driven by advancements in AI, cloud computing, and IoT, this expansion presents a significant and growing challenge to global water security. While governments increasingly recognise data centers as critical infrastructure, the predominantly private ownership of this sector underscores the urgent need for enhanced public-private collaboration to ensure sustainable development.

Working together with BSI on “Thirst for Change” we highlighted that nearly a third of 42 analysed countries face high to very high water insecurity, a situation exacerbated by population growth, climate change, and economic development. Against this backdrop, the substantial water consumption of data centers highlighted by this paper, particularly for cooling purposes, becomes a critical environmental priority.

The paper highlights how a single one-megawatt facility using traditional evaporative cooling can use over 25 million liters of water annually. Given the experiences of climate change and increasing heatwave periods it is likely the highest water use for cooling these facilities will be needed just at the critical point when critical demand for water across the network itself is at its highest. It is vital that all countries, but particularly those showing high water insecurity, are factoring this into their data center expansion plans. Yet this doesn’t seem to be the case currently, looking at the projected growth patterns and policy action reported here.

The analysis of the nine countries points to a concerning picture that, currently, sustainability policies and regulations for data centers are limited. Where they do exist they tend to draw on broader environmental requirements, with a primary focus on energy demand. While European nations like the Netherlands, France, Germany, and the UK are developing more specific water-related policies, many other countries have yet to prioritize this issue. For instance, India’s draft National Data Centre Policy 2020 encourages renewable energy but overlooks water consumption, despite high water shortage risks in major cities. Similarly, the US, while accelerating data center growth, has seen limited federal progress on environmental considerations, though some states are exploring water efficiency incentives.

While these inconsistencies in global water efficiency policy are concerning, the growing recognition of the water challenge by business leaders (63%) and increasing media attention signal a shift which brings hope. This presents a clear opportunity for data center developers and providers to proactively implement water efficiency measures. The UK's National Framework for Water Resources (2025), for example, calls for mandatory, location-specific reporting of water use for data centers above 1MW, and encourages water-saving technologies and restrictions in water-stressed regions.

Ultimately, building a water-secure future requires a concerted effort. Data center operators must adopt recognized standards for resource-efficient design and operation, embrace innovative cooling solutions, and prioritise the use of non-potable water sources. It is important that to support this new sector in their efforts that there be independent schemes and guidance in place that can ensure consistent reporting and benchmarking to bridge the gap between public and private sector. Collaboration between government departments, regulators, and industry stakeholders is essential to model water needs, mitigate risks, and ensure that the vital growth of the data center sector aligns with global water security goals. This proactive approach will not only safeguard current operations and future growth but also contribute to a water-secure world for all - to reiterate again, nothing happens without water.

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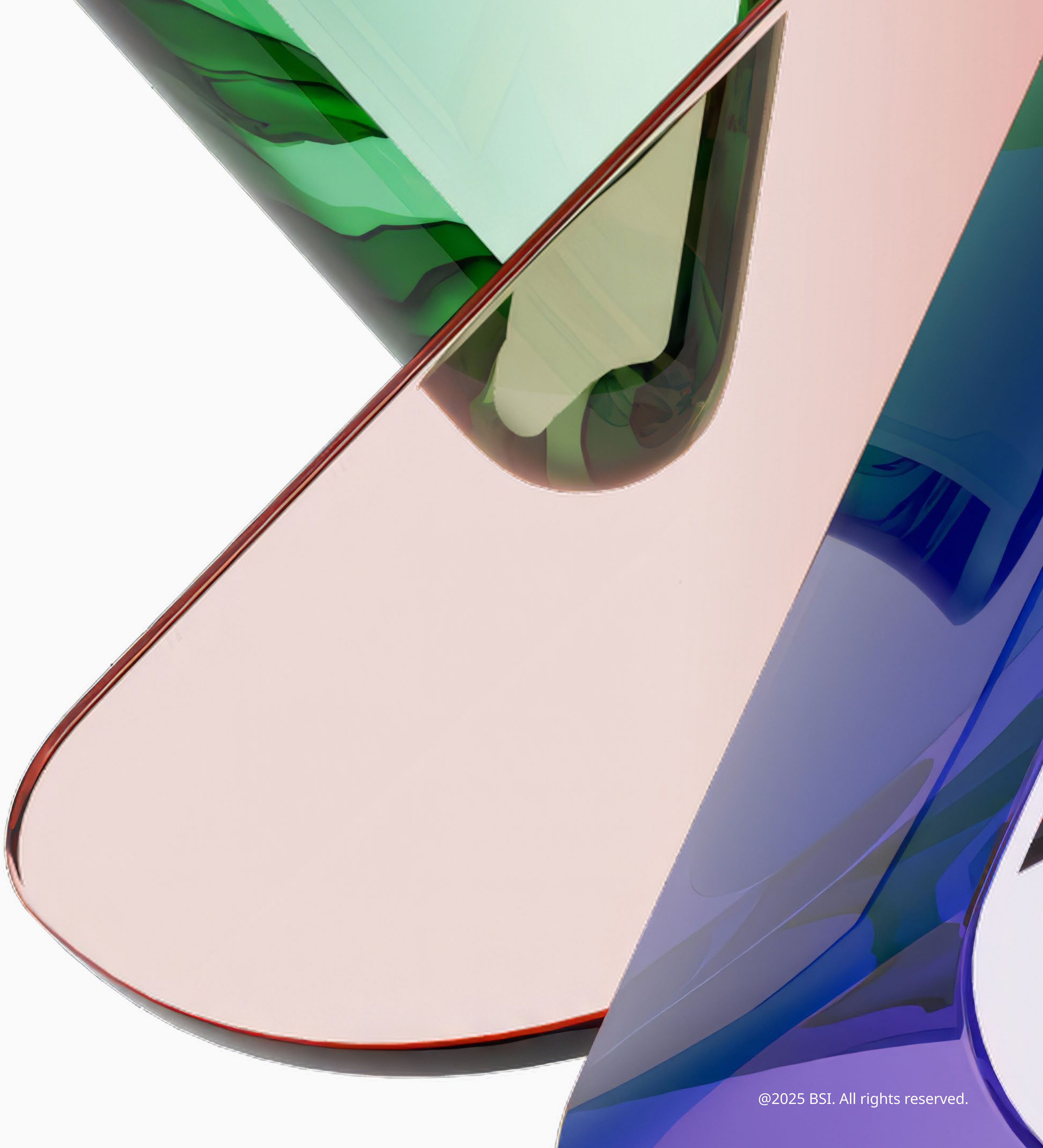

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