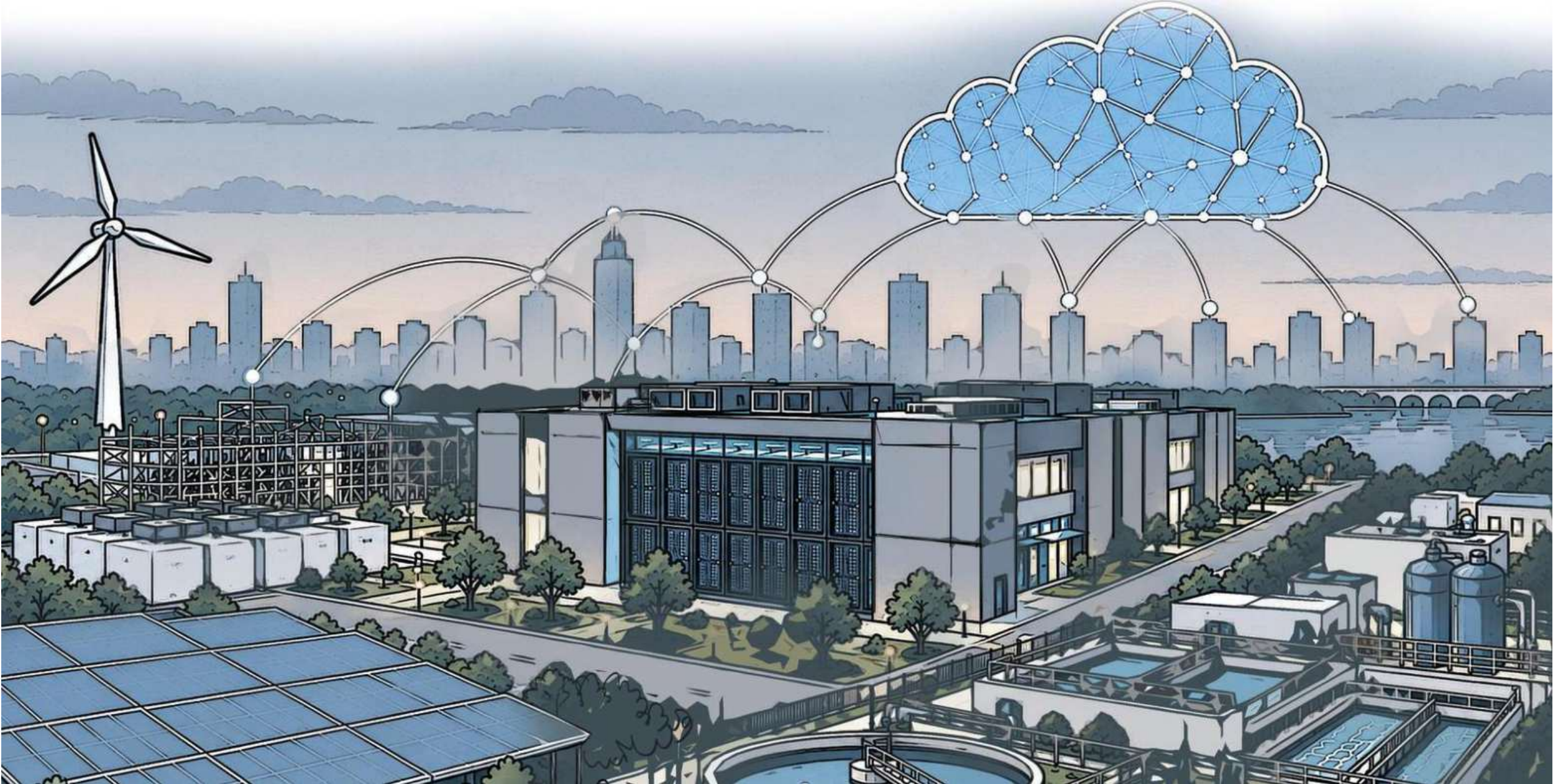


SPOTLIGHT



Ecosystem: According to government data, there are 32 data centres in Karnataka, most of them located in and around Bengaluru. Major clusters include Electronics City, Whitefield, and Devanahalli. Together, they power the State's AI dreams. ILLUSTRATION: SEBASTIAN FRANCIS

Karnataka’s drive to green data centres

The State’s new Sustainable Data Centre Policy 2026–2031 targets to attain a cumulative data centre capacity of 1 GW (1,000 MW) by 2031, and incentivises adoption of renewable energy and treated water.

Shilpa Elizabeth examines the details and implications...

For four-year-old Johan Arun, who lives in Electronics City, the most recognisable vehicle is a water tanker. Every day, as the vehicle pulls up, Johan alerts the family by announcing the arrival of “tank water”, says his mother.

The apartment, where Johan and his family live, is yet to receive Cauvery water connection, like many others in the area. Tankers running up and down the roads is a familiar sight in this part of the town.

Not far from here, Lakshmamma (name changed) runs a small tea shop. A native of Haveri, she migrated to Bengaluru 22 years ago. She has fond memories of the days when water was available 24/7. “Not the case anymore,” she says.

As she speaks, a large water tanker pulls up, parks along the kerb and starts pumping water into the enormous facility near the tea shop. A large compound wall with barbed wires on it stands between the imposing building and the pavement.

Lakshmamma explains who the tall neighbour that towers over her small shop is. “It is a data centre. Came up around six years ago. It seems to need a lot of water. Daily, around 20 such tankers arrive there,” she adds.

Five in Electronics City
At least five data centres are located in Electronics City currently, as per the government records, with a combined capacity of more than 23 MW. According to government data, there are 32 data centres in Karnataka, most of them located in and around Bengaluru. Major clusters include Electronics City, Whitefield, and Devanahalli. Together, they power Karnataka’s AI dreams.

Across the world, however, data centres have been in the eye of the storm, as locals protest against their environmental impact and governments rethink their policies.

In India, the Karnataka government recently introduced a Sustainable Data Centre Policy, with the aim of establishing a globally competitive, sustainable, and well-connected data centre ecosystem in the State.

Impact on environment
Specialised buildings that house servers, data centres earlier powered everyday online services such as websites, emails, instant messaging, and so on. Things started changing drastically as AI entered the picture. The specialised chips or GPUs used for training or running large AI models consume a lot more electricity.

“A traditional, smaller-scale data centre, used for web and standard IT applications, typically requires about 5 to 10 kW per rack. For an AI hyperscale data centre, the numbers can be 30 to 100 kW per rack,” explains Rishika Ranga, senior associate in the Energy & Power team at CSTEP.

More power generates more heat. Cooling systems that prevent computers from overheating can consume large quantities of water when they



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SHYLESH MURALIDHARAN
Sustainability expert

rely on water-based cooling. On top of this, electricity and water may be required for other functions such as lighting, power backup, security, cleaning and maintenance, and so on. Other impacts of data centres extend to potential noise pollution due to the whirring of machines, localised heat islands and so on.

State scenario
Of the 32 data centres, one is located in Mangaluru, one in Bidadi and the rest in Bengaluru. Official data pegs the combined capacity of 18 of these at 292.27 MW. There is no government data on the capacity of the remaining 14; Estimates, however, suggest the total installed capacity of all the data centres in the State at around 400 MW.

Water consumption of only 12 out of the 32 data centres in Bengaluru are currently available with BWSSB. The rest potentially rely on alternative sources of water like private tankers.

According to BWSSB records, majority of the 12 have adopted air-cooled and dry-cooling architecture, which helps to keep water demand lower than water cooling infrastructure. The 12 data centres combined are estimated to consume up to 1,964 KLD or 1.964 million litres per day of water at peak capacity. This is equivalent to the daily water demand of around 3,600 households of four people.

In March 2026, acknowledging the environmental costs of data centres, IT&BT Minister Priyank Kharge termed data centres a “necessary evil” and announced plans to develop a sustainable data centre policy. In September, the Cabinet approved the new Sustainable Data Centre Policy 2026–2031.

The new policy, which *The Hindu* has seen, targets to attain a cumulative Data Centre capacity of 1GW (1000 MW) in Karnataka by 2031, and incentivises adoption of renewable energy and treated water.

Data centre units utilising renewable energy exceeding 50% of their total energy consumption shall be eligible for an incentive of ₹0.50/unit, for a period of five years, irrespective of the source of power procurement, subject to an overall cap of ₹1.25 crore.

Charges incurred towards procurement and use of treated water will be reimbursed fully, subject to a maximum of ₹8 lakh per annum. The incentive is applicable for a period of five years from the date of commencement of commercial operations.



The policy also mandates plant-wise reporting of Power Usage Effectiveness (PUE) and Water Usage Effectiveness (WUE.)

PUE is the ratio of a data centre’s total energy consumption to the energy consumed by its IT equipment. WUE is the amount of water consumed by a data centre per kilowatt-hour of energy used by its IT equipment. For both metrics, a lower figure indicates greater efficiency.

While data centres achieving PUE of 1.00 to 1.20 will receive a one-time financial incentive of ₹20 crore, disbursed in the fourth year after demonstrating the prescribed PUE consistently for three consecutive years, those units maintaining a WUE of ≤0.7-1.3 L/kWh for at least three consecutive years will be reimbursed 100% of their water charges, up to ₹30 lakh a year, for two consecutive years.

According to the policy, the government will also undertake mapping of water and energy availability and usage across existing and proposed data centre locations in the State.

“The exercise is essentially to map where the power supply, etc. can be given comfortably. Water is not a major issue, so we are focusing mainly on power and land availability. Wherever we can mobilise power supply, that’ll be in the map. Then we can explore if land, suitable connectivity, and so on are there, and can work on that. It will be like a guide for investors who want to invest in data centres, and will be made public,” explains N. Manjula, Secretary, Department of Electronics, IT, Biotechnology and Science & Technology, and BWSSB chairperson.

Sustainability-aligned policies
Given that the current capacity in the State is around 400 MW and the policy targets 1GW by 2031, Manjula says that the government is being careful that it is not being over ambitious. “We will go step by step and we are being conscious as the focus is to not just add capacity, but also be sustainable. The intention is also to see if one good data centre project can be facilitated in the coastal area. Then it will be a hub for future growth also,” she explains.

Shylesh Muralidharan, sustainability expert and Senior Fellow at Portulans Institute, terms the policy one of the most sustainability-aligned policies he has come across in India. “It is the first I have seen to combine water-use efficiency, treated-water incentives, and resource heat-mapping with tax breaks,” he remarks. “What is refreshing is that sustainability is tied directly to financial incentives. Offering up to ₹20 crore to a data centre that maintains a PUE at or below 1.20, alongside covering the full cost of treated water for five years in a water-stressed metro, applies the right levers,” Muralidharan says.

According to him, the commitment to map water and power availability across the State to guide project siting is a strong point of the policy.

Srinivas Varadarajan, CEO at Mysuru-based Vigyanlabs whose services include micro data centres, too welcomes the policy and calls it the right approach.

Incentive-based
While the policy’s intent has been welcomed, some concerns remain about its reliance on incentives rather than mandating the use of clean energy or treated water.

Noting that efficiency per unit of compute differs from total water drawn, Muralidharan observes, “While Karnataka’s overall renewable base and State-level water metrics are strong, local realities differ – such as dry borewells around Bengaluru. Water stress is a basin- and neighbourhood-level issue, and I hope the resource heat-map incorporates this level of granularity.”

A research done by WELL Labs shows the importance of granular level data.

The team, including hydrologist Shashank Palur, calculated the water consumption of data centres in Bengaluru based on secondary literature. It was found to be only a small fraction of Bengaluru’s total water consumption.

However, the devil lies in the details. Because, in Bengaluru, Palur says, water consumption of data centres is not a macro problem, but a hyper local issue.

“If you look only at the numbers, it doesn’t come across as a big problem. But it is the location of the data centres that makes it problematic. Most data centres are located in areas which do not have piped water supply. They are basically extracting groundwater from borewells or buying from tankers. That puts them directly in conflict with the villages or smaller towns, which are reliant on borewells for drinking water,” he explains.

While treated water is an alternative, currently there is no publicly available data on how many data centres are using the same.

Transparent mechanisms
This underscores the need for a more transparent monitoring and reporting mechanism which would mandate data centre operators to publish their consumption numbers.

“It (the new data centre policy) rewards good behaviour handsomely once a project is running, but it does not yet require a project to disclose its water and power draw before approval. Incentivising good behaviour and mandating transparency prior to operations are different tools, and a policy of this scale would benefit from using both effectively,” notes Muralidharan.

Relying solely on metrics like PUE and WUE, which do not give a sense of the percentage of clean energy or treated water used by data centres, is another limitation.

“PUE, which they use as an efficiency metric, is just an industry-standard ratio... It doesn’t tell me how much power the data centre is consuming. It also ignores the carbon intensity of that power consumed,” Ranga explains. “We need clear efficiency standards, not just broad guidelines. We need something more concrete on what happens when data centres don’t meet these efficiency standards,” she adds.

Muralidharan suggests that data centre operators be required to do full disclosure, including projected water draw, power draw, and grid upgrade responsibilities, before approval. He also feels it may be the right time to come up with better metrics.

Alternative approaches
Varadarajan of Vigyanlabs notes that there is no need to build large data centres in every location. “The global assumption has been that data centres need to be large to be economically viable and efficient. But 80% of the countries in the Global South are smaller countries that mostly require smaller data centres. The industry says smaller ones are not efficient, but that is because of the way they have traditionally been designed,” he says.

According to him, Vigyanlabs redesigned the building and components, including using sustainable bricks, reducing cement use by 70%, and developing more efficient air-cooled chillers instead of water-cooled ones. “We also developed an indigenous, fully air-cooled FEMTO server for AI and high-computing workloads that uses less than half the energy of comparable systems.”

While not ruling out the need for hyperscale data centres, he calls for rethinking the design and size of data centres based on actual needs, with sustainability prioritised over greenwashing, regardless of scale.

“Overall, Karnataka should move forward with expanding its data centre infrastructure given the real demand and strong renewable base,” Muralidharan suggests.

“A policy that is this thoughtful about rewarding efficiency can be equally thoughtful about mandating transparency before construction begins. Projects that can withstand public disclosure will move faster with the community as a partner. Karnataka has made most of this choice well, and incorporating early transparency would complete the framework.”

Data at a glance

■ No. of data centres in State:

32

■ Total capacity (available only for 18 centres)
292.27 MW

■ No. of centres whose water consumption is known

12

■ Water use of 12 centres at peak capacity - 1.964 million litres per day

■ No. of centres whose power consumption is known

3

■ Cumulative total facility capacity of 3 data centres
115 MW

Source: Govt. records