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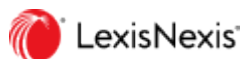
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news

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1. Studies in the Area of Data Centers Reported from University of Texas Austin (System-scale design and analysis of desalination systems for meeting water needs of data centers)



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Information Technology Daily

September 25, 2026 Friday

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Section: INFORMATION TECHNOLOGY - DATA CENTERS

Length: 566 words

Body

2026 SEP 25 (NewsRx) -- By a News Reporter-Staff News Editor at Information Technology Daily -- Current study results on Information Technology - Data Centers have been published. According to news reporting originating in Austin, Texas, by NewsRx journalists, research stated, "Buildout of data centers for high-performance computing and AI has intensified energy demands, which commensurately increases freshwater requirements for thermal management. This study presents technical and techno-economic analyses of desalination systems to produce freshwater (Total dissolved solids <500 ppm) for data centers."

The news reporters obtained a quote from the research from the University of Texas Austin, "Two-stage reverse osmosis (RO), Mechanical Vapor Compression (MVC), and hybrid configurations are evaluated for treatment of brackish (5000 ppm), seawater (35,000 ppm), and produced water (50,000 ppm) feeds. Brine management is via conventional disposal or minimum to zero liquid discharge (MLD, ZLD). Freshwater recovery (FR), energy consumption (W_{inp}), and water cost (WC) are quantified for various technologies. Results show that transitioning from conventional disposal to MLD and ZLD increased FR by 4-220% across feed salinities, while W_{inp} and WC rise >12% and >15%, respectively. Results show FR = 736 L/1000 kg-feed, W_{inp} = 9.4 kWh/m³-permeate and WC = 3.2 \$/m³-permeate for seawater hybrid RO-MVC-based treatment with MLD disposal. For MVC-based treatment (with MLD) of 50,000 ppm PW, we obtain FR = 753 L/1000 kg-feed, W_{inp} = 36 kWh/m³-permeate and WC = 10.4 \$/m³-permeate. A novel performance metric, Saline Water Utilization Intensity (SWUI) is introduced, which quantifies data center desalination impact on local water stress. Across representative conditions, SWUI increased from 2023-2030, spanning mild to substantial stress impacts. Higher recovery through MLD reduces SWUI by 40% in water-stressed settings, enabling effective water-resource utilization despite energy and cost tradeoffs."

According to the news reporters, the research concluded: "Overall, this study establishes a detailed modeling framework for sustainability-driven assessment of desalination-integrated data center infrastructure."

This research has been peer-reviewed.

For more information on this research see: System-scale design and analysis of desalination systems for meeting water needs of data centers. Water Research, 2026;308:126748. Water Research can be contacted at: Pergamon-

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elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England. (Elsevier - www.elsevier.com; Water Research - www.journals.elsevier.com/water-research/)

Our news correspondents report that additional information may be obtained by contacting Mariam Arzumanyan, **Bureau of Economic Geology**, University of Texas Austin, Austin, TX, 78712, United States. Additional authors for this research include Vishnu Sree Shanthanu Katakam, Ning Lin and Vaibhav Bahadur.

The publisher of the journal Water Research can be contacted at: Pergamon-elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England.

Keywords for this news article include: Austin, Texas, United States, North and Central America, Data Centers, Information Technology.

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