Growth of Large Loads

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Large step loads are growing

- Data centers
- Onshoring manufacturing
- Hydrogen
- EV fleets
- Industrial electrification

ERCOT enters 'new era' as it stares down unprecedented demand growth by 2030

New estimates show the statewide grid could have 152 gigawatts of demand by 2030, more than double 2020 levels

U.S. Power Grid Struggles to Keep Up with Data Center Growth

The Washington Post
Democracy Dies in Darkness

BUSINESS

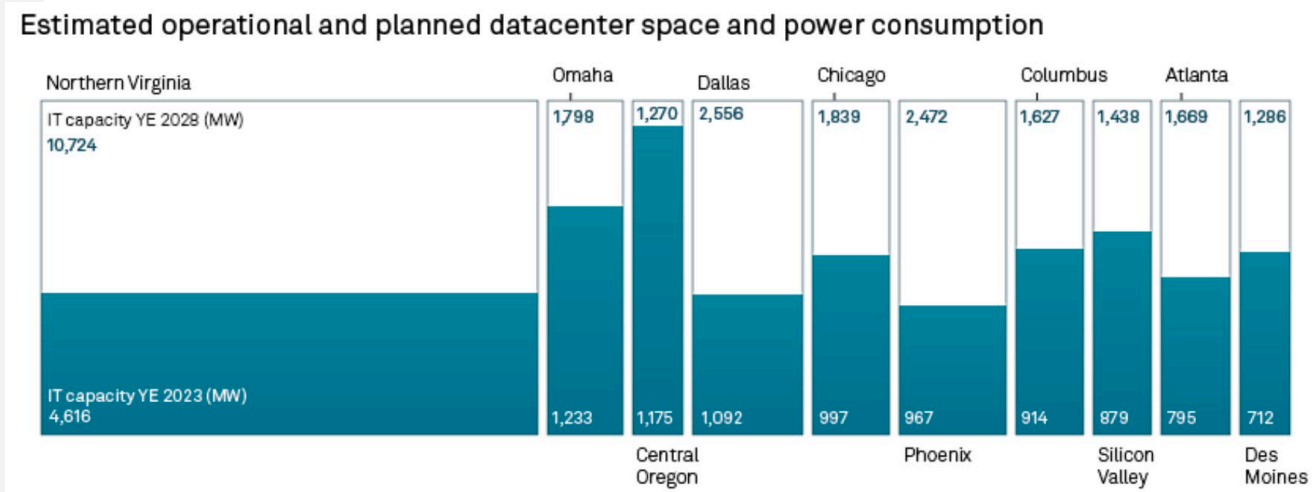
Amid explosive demand, America is running out of power

Long-term Load Forecasting Task Force subgroup on large loads is examining these issues.

A new Large Load Task Force is anticipated to kick off in the fall and address multiple impacts of these loads in planning and operations.

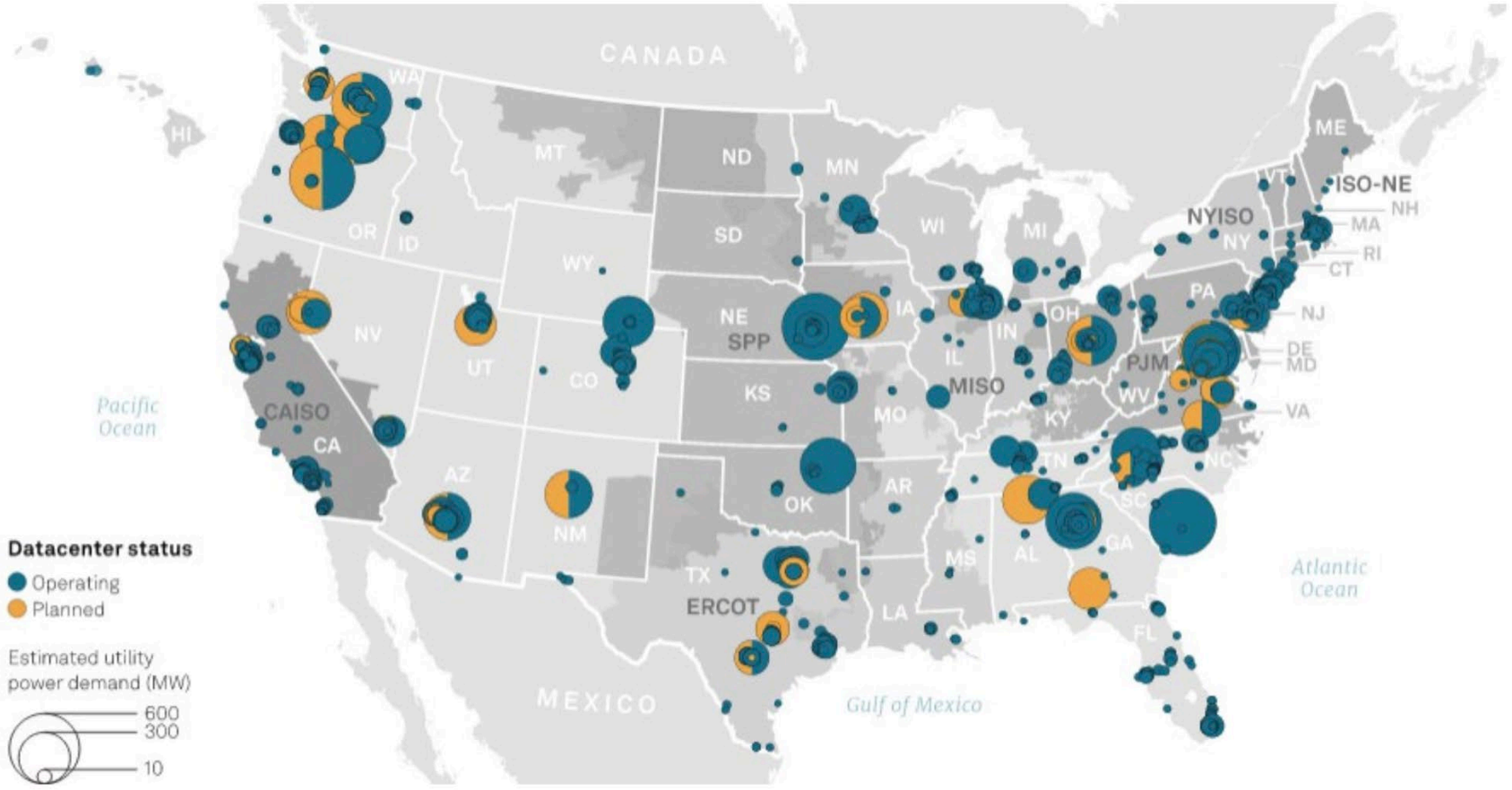
Data centers are the latest ‘crisis’ in the industry

- Dominion Energy has connected over 4 GW of data centers in Northern Virginia since 2019. 933 MW in 2023. ¼ of their electricity sales are to serve data centers.
- ERCOT has a 800 MW data center in West Texas. Utilities now get requests for 1GW+ single facilities. Data centers are built in stages and they are ramping to full load much faster than previously.
- There are different applications of data centers. Cloud services require fiber for latency requirements but AI services don’t have stringent latency requirements and are now being sited in rural areas away from fiber.
- In PJM, PSEG getting requests for behind-the-meter data centers that would be sited at nuclear facilities. These are for data centers that have carbon-free energy needs.



S&P Global, 2024, https://pages.marketintelligence.spglobal.com/rs/565-BDO-100/images/US-datacenter-and-energy-outlook-report.pdf

Data centers may make up 7-8 % of US load in 2030

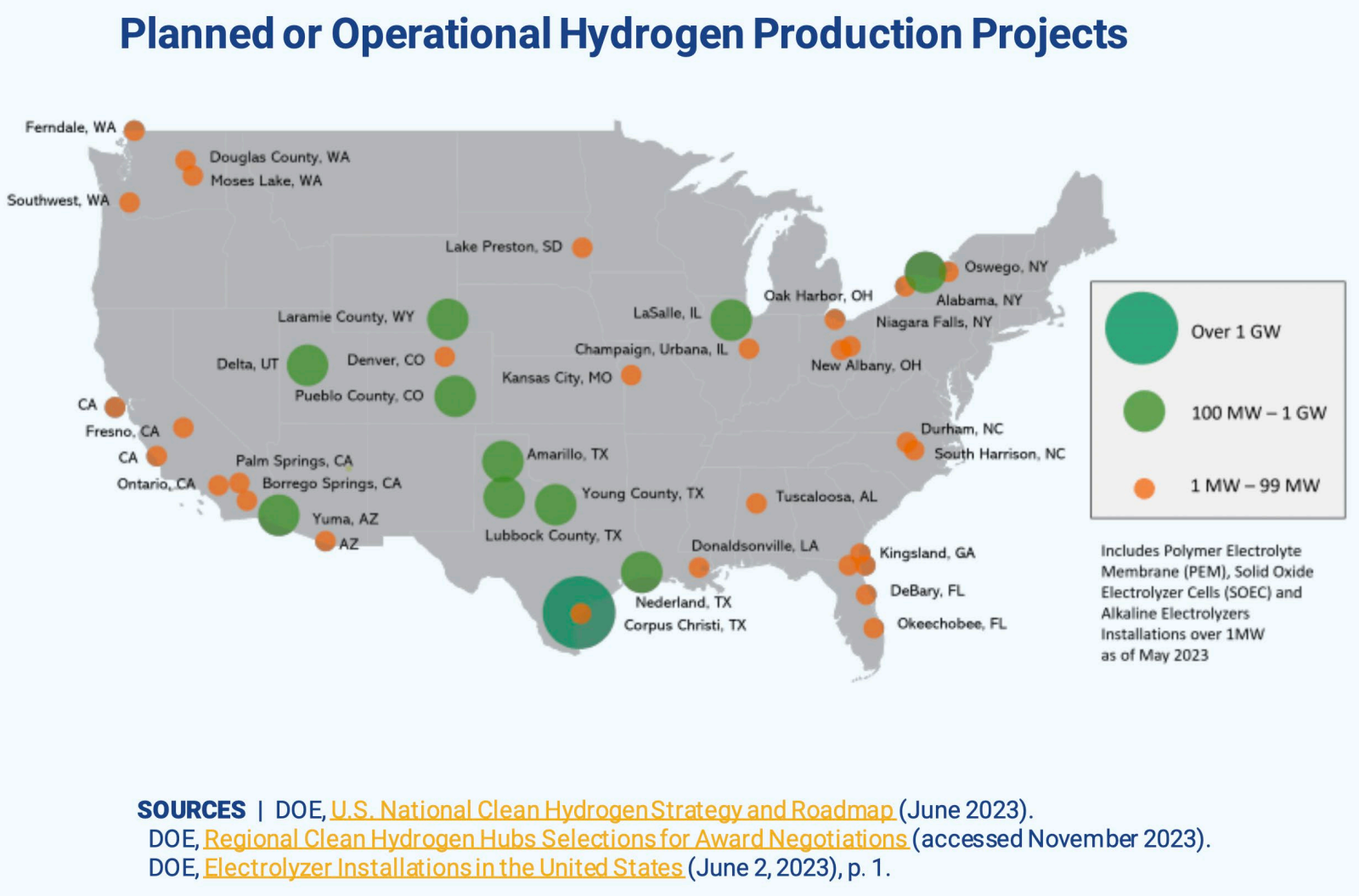


This figure illustrates the estimated growth in data center capacity across various regions, highlighting the need for corresponding infrastructure development to meet growing load demand. Source: S&P Global, POWER OF AI: Wild predictions of power demand from AI put industry on edge, October 2023, https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/electric-power/101623-power-of-ai-wild-predictions-of-power-demand-from-ai-put-industry-on-edge.

Onshoring of manufacturing

Data: DOE Building America's Clean Energy Future; graphic: Grid Strategies, *The Era of Flat Power Demand is Over* 2023

Significant hydrogen growth is forecast



Graphic: Grid Strategies, *The Era of Flat Power Demand is Over* 2023

Speakers

- Forecasting Growth of Large Loads
  - Victor Ni, Senior Market Strategy Advisor, MISO
- Data Center Driven Load Growth
  - James Jones, Senior Operations Research Analyst, Northern Virginia Electric Cooperative
- New Manufacturing Driven Load Growth
  - Joseph Church, Senior Forecast and Load Analyst, Salt River Project
- Industrial Thermal Batteries
  - Michael Hagerty, Principal, The Brattle Group