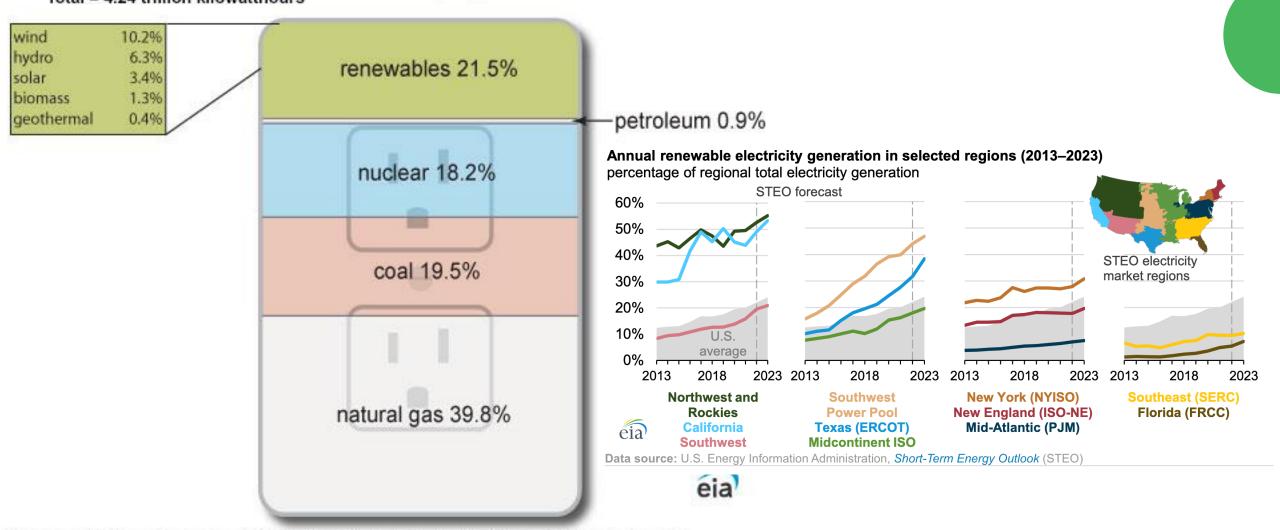


Sources of U.S. electricity generation, 2022 Total = 4.24 trillion kilowatthours



Data source: U.S. Energy Information Administration, *Electric Power Monthly*, February 2023, preliminary data Note: Includes generation from power plants with at least 1,000 kilowatts of electric generation capacity (utility-scale). Hydro is conventional hydroelectric. Petroleum includes petroleum liquids, petroleum coke, other gases, hydroelectric pumped storage, and other sources.

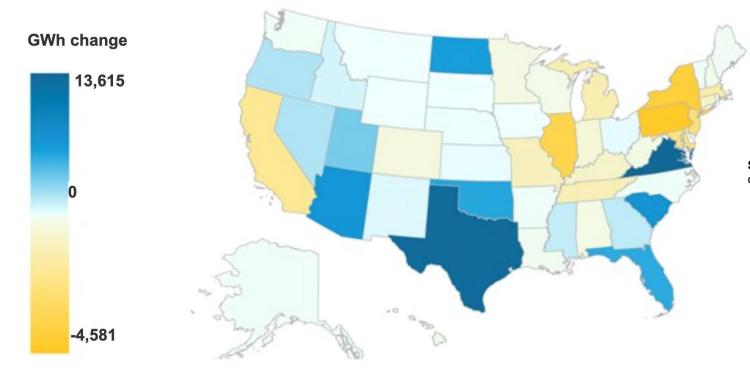


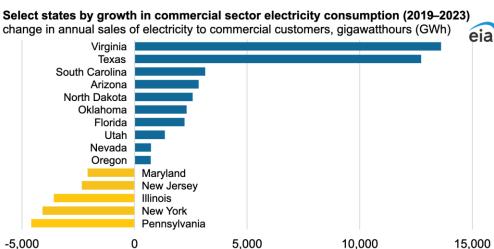
JUNE 28, 2024

Commercial electricity demand grew fastest in states with rapid computing facility growth

U.S. states change in commercial sector electricity consumption (2019–2023) change in annual sales of electricity to commercial customers, gigawatthours (GWh)







Data source: U.S. Energy Information Administration, Electricity Data Browser

Microsoft will be carbon negative by 2030

Jan 16, 2020 | Brad Smith - President & Vice Chair

Source: DOE, https://www.energy.gov/policy/articles/clean-energy-resources-meet-data-center-electricity-demand

500+

companies have joined Amazon in signing The Climate Pledge, committing to reach net-zero carbon emissions by 2040

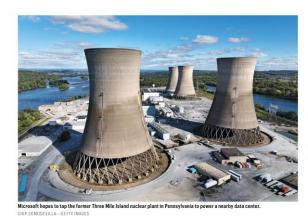
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MAGAZINE: TECH

Big Tech is the nuclear industry's new best friend: Amazon, Microsoft and Google rush to sign deals







Example enablers

Example

technology

solutions

exhaustive)

(not

(not exhaustive)

Figure 2: Examples of Tools to Address Growing Electricity Demand from Data Centers

Maximizing Data Center Grid Scale Grid Infrastructure Energy Efficiency Clean Energy **Enhancement and** and Demand Side Efficiency and Deployment Operational Expansion Flexibility Flexibility Expand existing supply Enhance existing Improve energy Improve data center (including repurposing transmission and efficiency efficiency existing infrastructure) distribution Hardware efficiency Building efficiency Solar Al algorithm efficiency Advanced reconductoring Geothermal heating and Onshore wind Building automation Grid-enhancing technologies cooling Storage (batteries) Distribution automation Building efficiency Hydropower Geothermal heating and Point-to-point HVDC Conventional geothermal Advanced flexible transformers (hydrothermal) Nuclear (including uprates and relicensing) Offshore wind Manage and flex Scale emerging **Expand transmission Enhance operational** and distribution flexibility and efficiency solutions demand · Virtual power plants Advanced nuclear Advanced conductors Flexible operational Distributed energy resources Next-gen geothermal Interregional and regional high processes Microarids Long duration energy voltage DC / AC transmission On-site power generation Fuel cells storage (LDES) Distribution system and facility design Carbon capture storage optimization (CCS) on power plants Clean hydrogen Concentrated solar power

Advance key enablers

- Proactive planning
- Evolving regulatory decision-making and processes
- Grid market frameworks that fully value energy solutions
 - Modernizing interconnection processes
 - Permitting enhancements
 - Innovative tariff structures
- New financing structures (such as advanced market commitments)
 - Supply chain and workforce development