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IN-DEPTH ANALYSIS

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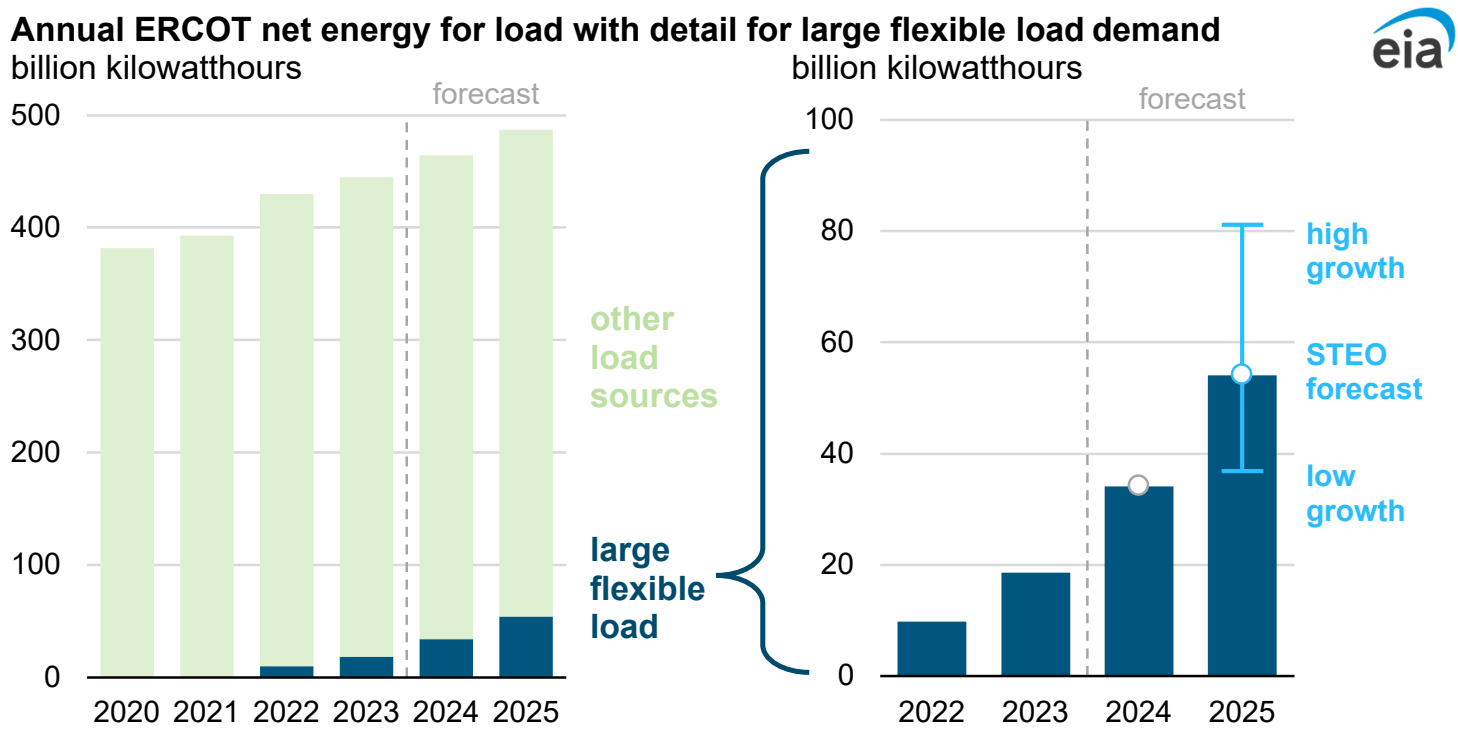
Data centers and cryptocurrency mining in Texas drive strong power demand growth



Data source: U.S. Energy Information Administration, *Short-Term Energy Outlook* (STEO), September 2024
Note: The Electric Reliability Council of Texas (ERCOT) defines *large flexible load* as any facility drawing power from the grid with an expected peak demand capacity of 75 megawatts or more.

In the United States, electricity consumption is growing fastest in Texas, where the Electric Reliability Council of Texas (ERCOT) manages 90% of the load on the state's power grid. One of the main sources of growing demand for power is large-scale computing facilities such as data centers and cryptocurrency mining operations, although their future demands are uncertain. In our latest *Short-Term Energy Outlook* (STEO), we expect electricity demand from customers identified by ERCOT as large flexible load (LFL) will total 54 billion kilowatthours (kWh) in 2025, up almost 60% from expected demand in 2024. This expected demand from LFL customers would represent about 10% of total forecast electricity consumption on the ERCOT grid next year.

These facilities consume large amounts of electricity, both to run their computing equipment and to keep them cool. Some of the larger facilities can consume as much electricity as a medium-sized power plant. In mid-2022, ERCOT developed a program for approving proposed LFL customers (those with an expected peak demand capacity of 75 megawatts [MW] or greater) to ensure grid reliability. The LFL Task Force publishes periodic status updates that indicate how much capacity has been approved and is expected in upcoming years.

Certain large-load facilities, primarily cryptocurrency mining facilities but also data centers and some industrial factories, have entered into voluntary curtailment agreements with ERCOT to temporarily reduce their power consumption during periods of particularly high system demand or low generator availability. As part of the program, LFL facilities can participate in ERCOT's energy and ancillary service markets. This flexibility in large-load operations can help mitigate some of the effects that strong growth in electricity demand is having on the ERCOT system.

We use the information from ERCOT about current and future LFL demand in developing our STEO forecasts of regional electric load. We assume that by the end of 2025 ERCOT will have approved operations of 9,500 MW of LFL demand capacity, which would be 73% more than is currently approved (5,479 MW of which 1,570 MW was approved over the past 12 months).

Historically, LFL customers have consumed about 65% of their total approved capacity. In the STEO, we assume that LFL demand is constant throughout the day at this percentage, so the expected 2025 capacity and its utilization translate to an assumed total LFL of 54 billion kWh next year. This new electricity consumption from large computing and industrial facilities contributes to our forecast that ERCOT's load across all customers will grow by 5% between 2024 and 2025.

Uncertainty about future levels of large-load demand