Global Energy Monitor

BRIEFING: FEBRUARY 2025

Proposed gas-fired power plants in the United States rise due to AI energy demand speculation, but remain largely in early development stage

The U.S. now has the second-largest pipeline of gas-fired power plants in development globally, driven in part by speculation about future energy demand to fuel a burgeoning AI industry. But this glut of new projects, many of which currently languish in the earliest phases, could lead to billions in stranded assets, if the gas demand bubble pops, according to a new analysis from Global Energy Monitor.

According to new data in the Global Oil and Gas Plant Tracker, over the last year, the U.S. more than doubled its oil- and gas-fired capacity in development — those projects in the announced, pre-construction, and construction phase — totalling over 85 gigawatts (GW). This increase has propelled the country to second in the world, behind China, for oil- and gas-fired projects in development.

If all in development plants are built, the U.S.' existing fleet would grow by 15% at an estimated cost of over US$85 billion in capital costs.[1] If future AI power demand does not materialize, any new gas plants built risk becoming stranded assets and either being decommissioned before the end of their economic life or experiencing significant

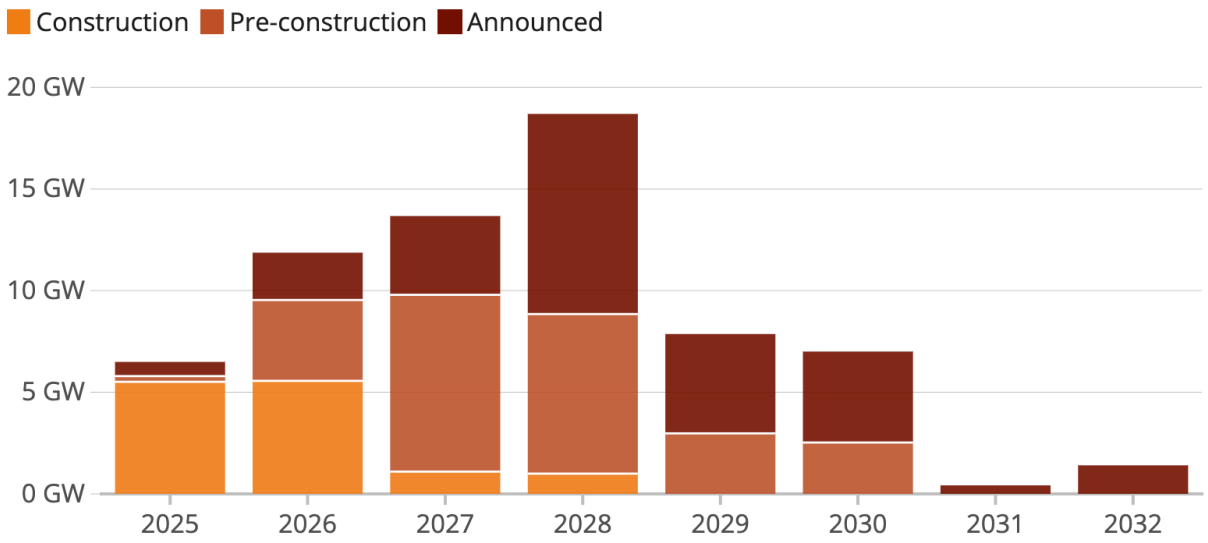
[1] Estimate is based on CCGT capital costs ($1000/kW) for the U.S. from IEA World Energy Model inputs.

underutilization. The U.S. now leads with over a quarter of the world's operating oil and gas power plants (556 GW).

The bulk of in-development gas-fired capacity is slated to come online between 2025 and 2030 (Figure 1). Less than one-fifth of these projects in development in the United States have progressed to construction. Nearly half are still announced, and slightly over one-third are in the pre-construction phase. Texas leads the planned gas buildout with over a quarter, or 22.6 GW, of the oil- and gas-fired power capacity in development in the U.S., but nearly 15 GW is still in the announced phase.

More than three-quarters of proposed oil- and gas-fired capacity in the United States is in the early development stage

United States oil- and gas-fired capacity additions by year (GW)



Source: Global Oil and Gas Plant Tracker, Global Energy Monitor
* An additional 12.4 GW announced, 3.2 GW pre-construction, and 0.3 GW construction-phase capacity could not be attributed to a specific year.

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Figure 1

Where are proposed hyperscale data centers and in development gas plants located?

According to data from Data Center Map, the top states for in-development hyperscale[2] data centers are Virginia, Ohio, Georgia, Texas, and Illinois, which make up nearly two-thirds of in-development hyperscale data centers in the United States. Northern Virginia, also known as "Data Center Alley," is the epicenter of these developments — hosting 70% of the world's data centers.

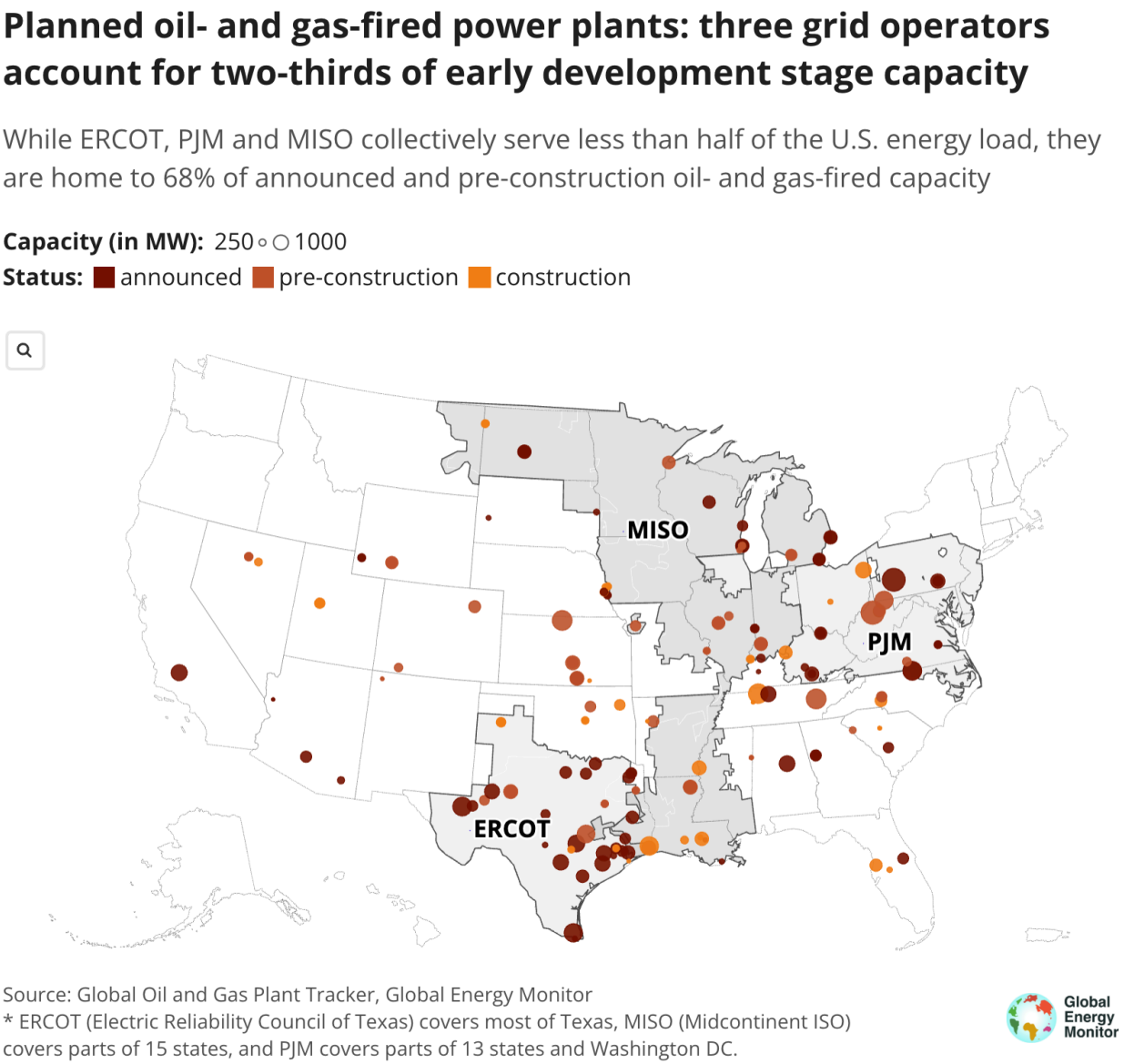

Figure 2

[2] Very large data center facilities with power capacity of 40 MW or greater.

This region falls under the purview of PJM Interconnection (PJM), the largest regional transmission organization in the United States, covering thirteen states[3] with half of its installed capacity coming from gas-fired generation. PJM's peak load forecast has soared in the last few years as unprecedented demand growth from data centers and industrial electrification, combined with upcoming thermal generation retirements, has resulted in reliability concerns and demand/supply constraints. Coal- and gas-fired power capacity accounts for 90% of the forecasted 40 GW of retirements in PJM in the 2022–2030 period.

According to GEM's latest data, PJM has 16 GW of in-development gas-fired capacity in the U.S. Of this in-development capacity in PJM, more than half is from projects that are conversions or replacements of coal-fired power plants. Correspondingly, about 27 GW, or nearly one-third of the in-development oil- and gas-fired capacity in the U.S., is from conversions or replacements of coal-fired power plants.

The Federal Energy Regulatory Commission (FERC) recently approved PJM's controversial proposal to fast-track interconnection review for "shovel-ready" projects, which could favor gas plant connections to the grid, ahead of wind and solar, in order to meet near-term grid reliability issues. Two other grid operators are considering similar proposals. In addition, a recently introduced congressional bill, the GRID Power Act, aims to fast-track dispatchable generation in interconnection queues after review by FERC.

The Electric Reliability Council of Texas (ERCOT), which manages approximately 90% of Texas' energy load, is predicting nearly a doubling of its energy demand in the next six years, partially due to data center and crypto currency mining demand.

[3] Including all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia.

Future AI power demand propelled the rise in proposed gas power in the last year, but actual energy need is uncertain

Projections vary widely about data center power demand, and corresponding load growth in the U.S., over the next five years. A recent Department of Energy-funded study shows that U.S. data center power demand could nearly triple in the next three years and consume as much as 12% of the country's electricity, potentially requiring 33–91 GW of new generation capacity to be built by 2028. A GridStrategies study found that the five-year load growth is up fivefold over the past two years, with a forecasted 16% increase in energy demand in the U.S. by 2029.

U.S. President Trump recently pledged to speed up the development of power plants that are co-located with AI data centers through his declared "national energy emergency," which opens the door for loosening or cancelling environmental regulations in favor of the fossil fuel industry. Additionally, President Trump announced an AI joint venture, Stargate, that includes a $500 billion investment from companies including OpenAI, Oracle, and SoftBank.

Days after Trump's announcement, a Chinese AI startup, DeepSeek, upended power forecasts and caused power and tech stocks to plummet, with its open-source model, which delivers performance at a fraction of the cost and energy of Big Tech's AI chatbots and counters the idea that large amounts of energy will be needed to power AI.

In addition, a flurry of announcements came from companies new to gas-fired power generation, including NextEra Energy partnering with GE Vernova, to develop gas-fired power plants to power AI data centers. Traditional Big Oil companies ExxonMobil and Chevron are also seeking to build gas plants that would directly supply data centers.

A recent Institute for Energy Economics and Financial Analysis (IEEFA) study, which examines rising forecasted load growth tied to data center growth for select Southeast utilities, warns that there is a risk of overbuilding gas infrastructure if the forecasted data center demand is not realized.

Rapidly deployable and scalable renewables are better suited to incrementally meet data center energy growth

Construction costs[4] and lead times for securing gas turbines are increasing. NextEra Energy, which operates the largest gas-fired fleet in the United States, showed in their most recent earnings call that not only is unplanned gas generation not available until 2030 or later, but renewables and storage are “ready now and fast to deploy” and cheaper than new build gas power. With the gas power plant buildout facing longer construction timelines, supply constraints, and rising costs, renewables combined with battery storage are better positioned to meet an immediate rise in power demand. The levelized cost of electricity (LCOE) for solar and onshore wind are cheaper than any other source, including gas, in the U.S., according to Lazard’s latest report.

[4] GE Vernova’s most recent earnings call states new combined-cycle builds costing $2,000 per kilowatt and rising, a drastic increase from a few years ago.

About the Global Oil & Gas Plant Tracker

The Global Oil and Gas Plant Tracker (GOGPT) is a worldwide dataset of oil- and gas-fired power plants. It includes units with capacities of 50 megawatts (MW) or more (20 MW or more in the European Union and the United Kingdom). For internal combustion units, or those units that have multiple identically-sized engines, the 50 MW capacity unit threshold applies to the total capacity of the set of engines. The GOGPT catalogs every oil- and gas power plant at this capacity threshold of any status, including operating, announced, pre-construction, construction, shelved, cancelled, mothballed, or retired. Units often consist of a boiler and gas or steam turbines, and several units may make up one power station.

Background on Global Energy Monitor

Global Energy Monitor (GEM) develops and shares information in support of the worldwide movement for clean energy. By studying the evolving international energy landscape and creating databases, reports, and interactive tools that enhance understanding, GEM seeks to build an open guide to the world's energy system. Follow us at www.globalenergymonitor.org and on Twitter/X @GlobalEnergyMon.

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