S&P Global Commodity Insights Releases its 2025 Energy Outlook

High Degree of Uncertainty, Artificial Intelligence's Impact on Energy Markets
Resilient Fossil Fuels Markets Adapting to Changing Conditions

NEW YORK and LONDON and SINGAPORE, Dec. 11, 2024 /PRNewswire/ -- Analysts at S&P Global Commodity Insights, the leading independent provider of information, data, analysis, benchmark prices and workflow solutions for the commodities and energy transition markets, today released their 2025 energy outlook.

S&P Global
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As the calendar turns to 2025, there is more uncertainty in energy markets heading into a new year than any year since the pandemic. Conflicts in Ukraine and Gaza remain unresolved and have the potential to significantly alter energy markets. Polarization and geopolitical rivalry between China and the West are becoming more pronounced.China is leveraging its leading position in clean technology for greater global influence, while the US and Europe enhance tariffs to protect domestic industry. The election of Donald Trump to the US presidency adds further uncertainty to geopolitics and raises question about US participation in the already weakened Paris Agreement and the UN Conference of Parties (COP) process, as well as question about US foreign policy and energy objectives.

Dave Ernsberger, Co-President, S&P Global Commodity Insights, said: "There are emerging technological and fundamental trends that will clearly have an impact on markets over the coming year, although how significant their impact will be is uncertain."

Rapid growth of artificial intelligence is accelerating power demand for data centers, although the timing, tenor, and location of the resulting incremental demand is somewhat difficult to predict. The potential boom in electricity demand has already revived interest in nuclear power, but despite the backing from big technology firms, it is uncertain whether a nuclear renaissance will occur.

Mark Eramo, Co-President, S&P Global Commodity Insights, said:"Fossil fuel prices in 2025 will be shaped by how markets adjust to growing supply and generally soft demand growth."

For oil, OPEC+ has stated ambitions to bring supply back to the market, although after delaying its plan to unwind production cuts three times, it is uncertain if it will be able to bring any supply back in 2025 without pushing crude prices below $70 per barrel (/b). Similarly, another wave of North American liquefied natural gas (LNG) supply will begin to hit the market in earnest in 2025, weakening global LNG prices, but boosting US gas prices, although the timing of project completion and the degree of producer foresight to ramp up supply ahead of the surge will ultimately determine the relative impact. Some important energy commodities are at or approaching global demand peaks resulting in difficult choices for certain industries, like refining, as they adjust to changing market dynamics.

TOP TEN KEY THEMES TO THE 2025 ENERGY OUTLOOK - S&P GLOBAL COMMODITY INSIGHTS:

1. **Back to the Future: Trump's Second Term to Have Large Impacts on Policy & Markets:**With the election of Donald Trump to a second presidency ofthe United States, expect a scene shift to a very different path for energy and climate policy than the four-year Biden presidency. Based on actions from the prior Trump administration, statements made during the election campaign trail, and recommendations of the Project 2025 report, the second Trump administration will likely look to pull the US out of the Paris Agreement, rescind and redraft existing vehicle emission regulations, weaken methane regulations, and reduce support for electric vehicle (EV) adoption. Furthermore, we expect the Trump administration to grant export approvals to all pending LNG export projects which could support final investment decisions (FIDs) in the second half of 2025. While a complete repeal of the Biden administration's signature Inflation Reduction Act (IRA) is unlikely given Senate filibuster rules, the Republican Congressional majority can and likely will leverage the budget reconciliation process to at least repeal parts of the IRA.

The change in US administration also raises questions regarding US foreign policy that may impact energy markets, specifically the ongoing conflicts in Russia/Ukraine and the Middle East, as well as the implementation of sanctions on Iranian oil exports. Also, President-elect Trump has pledged to implement and raise tariffs on imports from several countries, but China in particular, which, if implemented, would have outsized influence on the US, Chinese, and global economy. The first Trump administration proved to be unpredictable, and market players will need to be nimble when the second Trump administration begins in January.

2. **Total Energy Demand Growth to Outstrip Clean Energy Supply Growth, Pushing Emissions Higher:** One of the primary challenges to the energy transition is developing enough clean energy supply to not only meet overall energy demand growth, but enough to displace existing fossil fuel demand and reverse growth in energy-related carbon emissions. Aside from the pandemic and other significant economic recessions, there has never been a year in which clean energy supply (wind, solar, hydro, other renewables and nuclear) growth exceeded total demand growth, resulting in a reduction in fossil fuel use. Making matters even more challenging is that total primary energy demand has been growing above trend since the pandemic and growth will remain robust in 2025. Between 2000-2019, primary energy demand increased on average by 5.4 million barrels of oil equivalent per day (boe/d). S&P Global Commodity Insights projects that primary energy demand will increase by approximately nine million boe/d in 2024 and will grow by more than eight million boe/d in 2025. While the supply of clean energy is growing faster than it ever has in history (over five million boe/d), it is not yet fast enough to curtail the growth in fossil fuel demand, let alone displace existing fossil fuel consumption. As a result, demand for fossil fuels is expected to increase by more than three million boe/d in 2025, and CO_2 emissions associated with fossil fuel combustion will reach a new record high, although it will be the smallest increase since the pandemic.

3. **Artificial Intelligence and Datacenters to Spark a New Era for Electricity Consumption:** While a widening adoption of AI and an expanding fleet of datacenters are not new, an expected acceleration of both will fundamentally alter the trajectory of global power demand. S&P Global Commodity Insights expects that power demand for data centers will grow between 10-15% per year between now and 2030, and that datacenters could account for up to 5% of total global power demand by 2030. In the developed economies of North America, Europe, and Asia, where power demand has been flat or has even fallen in recent years, datacenters represent a shift to 2%-3% growth. In developing economies, incremental datacenter demand will add to already robust electricity demand growth. In both cases, this enhanced level of growth offers challenges to electricity grids as new datacenter projects take, on average, two to three years from inception to commercial launch, while new power supply can take four to five years or more and transmission projects even longer. While large technology companies have led the way in terms of clean energy procurement to feed their datacenters, oftentimes this syphons clean power away from the grid at large. This may require additional gas-fired generation capacity to be built, or to keep aging coal-fired generation capacity online longer than originally planned.

4. **Nuclear Energy Making a Comeback?** Nuclear energy has been showing signs of gaining traction in energy markets, especially in North America. The technology has a proven track-record as being a reliable, stable, and carbon free source of electricity for decades and is increasingly being looked at as an option for growing electricity demand as companies try to decarbonize their portfolio. Microsoft, Google, and Amazon all signed power purchase agreements in 2024 totaling more than three gigawatts (GW) tied to nuclear capacity to help feed growing demand from datacenters. Restarting previously-retired large-scale reactors has gained traction with Holtec International aiming to restart the Palisades nuclear plant (Michigan, USA) sometime in 2025, and Constellation working to restart their Three Mile Island plant (Pennsylvania, USA) to help meet growing demand, with the latter supported by Microsoft in the PPA. 2024 also marked the first new large-scale nuclear plant commissioned in North America since the mid-1990s with the startup of the Vogtle plant in Georgia. However, although the new plant marks a milestone in nuclear capacity additions, many point to the cost of more than $36 billion for the two new units (more than double the projected cost) as an indication that nuclear power remains an outsider for significant consideration in terms of new capacity additions to support the energy transition in North America, although China continues to grow nuclear capacity significantly.

   Some interest from big technology companies in securing nuclear energy has been geared toward the development of small modular reactors (SMRs). While this technology is still fairly nascent and will not impact energy balances over the next year, the level of interest and development of SMRs in 2025 will be a key indicator of the likelihood and potential magnitude of a nuclear renaissance. Key projects to monitor in 2025 are the Linglong-1 power plant in Hainan China, which would be the first commercial onshore SMR to go online (schedule for 2026) and the X-energy SMR project at Dow Chemical's Seadrift petrochemical manufacturing site, which would provide both power and heat for the facility. Success at this facility which would represent a significant milestone in the efforts to decarbonize downstream chemical operations.

5. **The Clean Technology Race - China Accelerates While the West Taps the Brakes:** China's position as the preeminent superpower in the clean technology space is not new, as it already is the largest producer and consumer of electric vehicles, batteries, solar panels, wind turbines, and green hydrogen electrolyzers. However, while deployment of clean energy technology continues to accelerate in China, the deployment of clean technologies is facing considerable headwinds in the West, not least due to pledges from US President-elect Trump to roll back subsidy provisions in the IRA, and already-reduced subsidies in parts of Europe. The bankruptcy of Northvolt in November 2024 is the latest example of a Western cleantech company unable to compete with low-cost Chinese equipment. In both the US and Europe,

policymakers are utilizing tariffs on Chinese clean technologies, particularly electric vehicles, to protect their domestic industries. Limiting access to price-competitive Chinese-made clean technology equipment increases the risks that the US and Europe will fall even farther behind China and slow emissions reduction progress.

Meanwhile, China is leveraging its cleantech industry to reduce its fossil fuel demand (particularly of imported fossil fuels). As China's EV sales penetration is pushing above 50% of all light duty vehicles sold, S&P Global Commodity Insights projects that China's oil demand for passenger vehicles will begin to decline in 2025. At the same time, China's EV exports are helping countries electrify transport, particularly countries that are net oil importers, have no sizeable domestic vehicle brands, and have a general favorable public opinion of China. Outside of Southeast Asia, Brazil has already become one of the top importers of Chinese EVs, and two major Chinese EV producers BYD and Great Wall have made very public significant investments in EV manufacturing in Brazil. Additionally, China's rapid growth of renewables generation is limiting growth of domestic coal and natural gas demand, and its 200+ GW per year of solar panel exports is having a similar deflationary impact on fossil fuel demand elsewhere and is an influence in the rest of the world. 2025 likely will be highlighted by an even greater degree of polarization of clean technology between China and the West.

6. **Peak Gasoline Comes Head-to-Head with New Refining Capacity:** Global gasoline demand is expected to peak in 2025 as EV adoption and gasoline vehicle efficiency gains finally catch up to economic and population-driven demand growth, notably in developing nations. At odds with this demand peak is notable refining capacity additions, including the high gasoline yielding Dangote refinery in Nigeria that is projected to fully stream in 2025. The Dangote refinery, the largest in Africa, is expected to shift gasoline trade flows as it adds to capacity additions in Mexico and the Middle East. The imbalance is expected to pressure margins and result in accelerated rationalization of refining capacity, especially in the Eastern US and Europe but also in China and other markets. These dynamics could impact crude markets and the crude slate of the shuttered refineries, which could well be heavier than the expected crude intake at Dangote. So far, Dangote's crude has come from the US and Nigeria, but the plant is only at about half capacity rates. Refining margins are expected to enter a down cycle period and a return to mid-cycle margins will depend predominantly on the rate of refinery closures – as opposed to the rate of demand growth, which could have been expected in past recovery cycles.

7. **OPEC+ Caught Between a Rock and a Hard Place** OPEC+ has been in a difficult position for several years to achieve its objectives of moderately high prices and increased production volumes. Due to strong oil production growth in the Americas (primarily the US, but also Canada, Guyana, and Brazil) and decelerating oil demand growth, OPEC+ (or a subset of its membership) has cut oil supply four times since 2022, only to see prices continue to generally weaken. In early June, OPEC+ decided to begin a year-long process of gradually raising production that would start in October 2024, attempting to bring back supply without overly deflating prices – a theme we call "thread the needle". However, the group has consistently stated that these plans are subject to change, particularly if market conditions are not supportive of such a move. In September, OPEC's Joint Ministerial Monitoring Committee adjusted the timeline, delaying the increase to December. In early November, OPEC+ decided to again postpone the increase in production to January 2025. On December 5, OPEC+ once again delayed the unwinding of production cuts, this time by an additional three months. In our view, OPEC+ will find it difficult to increase supply at all in 2025 without notably weighing on prices since non-OPEC production growth is expected to be greater than total global oil demand growth.

8. **The next wave of LNG exports could rock the US domestic gas market boat:** The global LNG market is poised for significant change in 2025 after two years of relatively limited growth, as total trade grew only 10 million metric tons (3%) relative to 2022 levels by 2024. The next major wave of supply starts in 2025 and will be kicked off from new liquefaction capacity coming online in North America. Of the 27 million metric tons of new supply expected in 2025, nearly 90% is expected from North America. According to public statements, facilities such as Corpus Christi Stage 3, Plaquemines LNG, LNG Canada, and Costa Azul LNG are all expected to ramp up throughout 2025. The uptick in exports will put significant strain on the domestic US natural gas market as feedgas demand picks up faster than production can respond. This is likely to pull inventories back into a relative deficit compared to five-year average levels throughout most of the year and put upward pressure on cash prices across the country, although higher prices are expected especially in the Gulf Coast of the US. Feedgas demand is expected to grow by 5.2 billion cubic feet per day (Bcf/d) -- nearly 39% -- from October 2024 to December 2025, putting particular strain on the domestic US market heading into the winter 2025-2026. Henry Hub is expected to average more than $4.00 per million metric British Thermal units (MMBtu) in 2025 after two years averaging below $3.00/MMBtu. However, the impact of the LNG surge is not expected to put downward pressure on global gas prices until 2026.

9. **Will coal consumption finally start to decline in 2025? Maybe, but probably not:** Despite renewables installations consistently hitting new record levels, global coal demand has continued to grow, hitting new records in both 2023 and 2024. Even in China, where wind and solar installations have been ~300 GW in both 2023 and 2024, coal-fired generation has hit new record highs in both years. Strong electricity load growth, aided by rapidly expanding power demand for datacenters and EV charging have surpassed the tremendous growth in renewables, increasing the call on fossil fuels. In 2025, S&P Global Commodity Insights expects that Chinese renewable installations will slow slightly, but remain well above 250 GW, and coal-fired generation in China will once again be higher year on year and hit a new record. In several other developing economies, coal demand will continue to move higher in 2025, but most notably in India, where the growth in renewables supply is dwarfed by growth in electricity demand. Despite over a decade of consistent declines,

coal demand in the US is expected to rebound significantly in 2025. Heightened US LNG exports will pull on domestic natural gas supply, and push prices higher, which should spur some gas-to-coal switching. As China represents nearly 60% of global coal consumption, if coal demand in China indeed grows again, demand in developing nations remains on its upward trajectory, and demand in the US temporarily rebounds, it is highly likely that global coal demand will once again paint a new record higher, even if demand in Europe and other developed economies contracts in 2025.

10. **COP returns to Brazil, but can the UNFCCC regain momentum?**
In November 2025, the Conference of Parties (COP) climate change negotiations will return to Brazil for the first time since the UN Framework Convention on Climate Change (UNFCCC) was established at the Rio Earth Summit in 1992. Over the 29 subsequent annual COPs, the UNFCCC has produced the Kyoto Protocol (1997) and the much more broadly adopted Paris Agreement (2015). But the process has stuttered at times, notably at the 2009 COP21 round of negotiations in Copenhagen and most recently at COP29 in Baku in November 2024, the outcome of which questions the ongoing viability of the entire COP process. Against this difficult background, negotiators at COP30 will be tasked with strengthening emissions pledges known as "Nationally Determined Contributions" or NDCs. However, most developed economies, including the United States, will miss their current NDCs for 2030. Furthermore, President-elect Trump, based on past positioning, is expected to again remove the United States from the Paris Agreement and key OECD nations also appear distracted by domestic matters.

    Target-setting for COP30 should not be interpreted primarily as a guide to the future trajectory of global greenhouse gas (GHG) emissions, but as a barometer for the viability of the UNFCCC, and an indicator for the relevance of climate change within the wider evolving context of global geopolitics. China's GHG emissions are expected to peak around 2025, so a new and challenging NDC – cutting emissions in absolute terms – could position the country as a climate leader not only for emerging economies, but for the whole world, filling a void left by a retreating US and an EU that are struggling to meet even its own ambitions. Conversely, a lack of ambition on new targets will redouble questions over the viability of the COP process and once again, as after the 2009 Copenhagen negotiations, push climate down the list of countries' strategic priorities.

Dan Klein, Head of Future Energy Pathways, S&P Global Commodity Insights, said:"How governments, companies, and consumers react to uncertainty and emerging trends will be crucial for 2025 outcomes and will also serve as a key signpost for the success of the energy transition and meeting decarbonization goals."

Watch for additional outlook 2025 highlights from S&P Global Commodity Insights analysts in coming weeks, including Top Clean Energy Technology Trends of 2025, which will be released in early January 2025.

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