



Transition Economics Institute

TEI QUARTERLY OUTLOOK

Q4 2025

Plenty of molecules, too few megawatts

Oil and LNG enter 2026 with supply running ahead of demand. Power grids, capacity markets and mineral supply chains are where the strain now sits.

Key judgements

KEY JUDGEMENTS

- Oil enters 2026 in surplus. The EIA expects global inventories to build by more than 2 million barrels a day next year and Brent to average about \$55 a barrel ¹. The risk that matters most is not a lack of barrels but where they have to travel: roughly a fifth of world oil consumption still passes through the Strait of Hormuz ².
- LNG is moving from tightness towards a buyers' market. The IEA counts some 300 bcm a year of new export capacity due by 2030 ³, and Pakistan has already cancelled 21 Eni cargoes it could not use ⁴.
- US power is short of firm capacity, not energy. PJM's 2027/28 auction cleared at its price cap and fell 6,623 MW short of its reliability requirement ⁵, while large loads seeking connection in ERCOT rose from 63 GW to about 226 GW in eleven months ⁶.
- Pakistan's power sector has better numbers than a year ago, with circular debt stock down Rs779 billion to Rs1,614 billion at end-June ⁷. Gas sector debt is larger and still rising, and contracted LNG now exceeds what the system can burn.
- Critical minerals are the new chokepoint. China is the leading refiner for 19 of 20 strategic energy minerals ⁸, and its October export controls have been suspended, not withdrawn, until November 2026 ⁹.

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1 The quarter in brief

The final quarter of 2025 closed with two energy markets moving in opposite directions. Fuel markets loosened. Brent averaged \$64 a barrel in November, \$11 lower than a year earlier, as production growth in the Americas and the return of OPEC+ barrels outpaced demand ¹. The LNG market, after three years of scarcity, is now pricing in the largest wave of new liquefaction capacity in its history ³. For importers such as Pakistan, India and much of Southeast Asia, that is the most benign fuel outlook since before the 2022 crisis.

Electricity markets went the other way. In the United States, the PJM capacity auction held in December cleared at its cap for the second year running and procured less capacity than its reliability standard requires, the first time the whole region has fallen short ^{5,10}. Texas is fielding connection requests for about 226 GW of new large loads, most of them data centres ⁶. In Europe, the report on the April blackout in Spain and Portugal pointed to voltage control rather than to renewable generation as such ¹¹. In each case the constraint is the same: firm capacity, wires and system services are being built more slowly than demand and variable generation are growing.

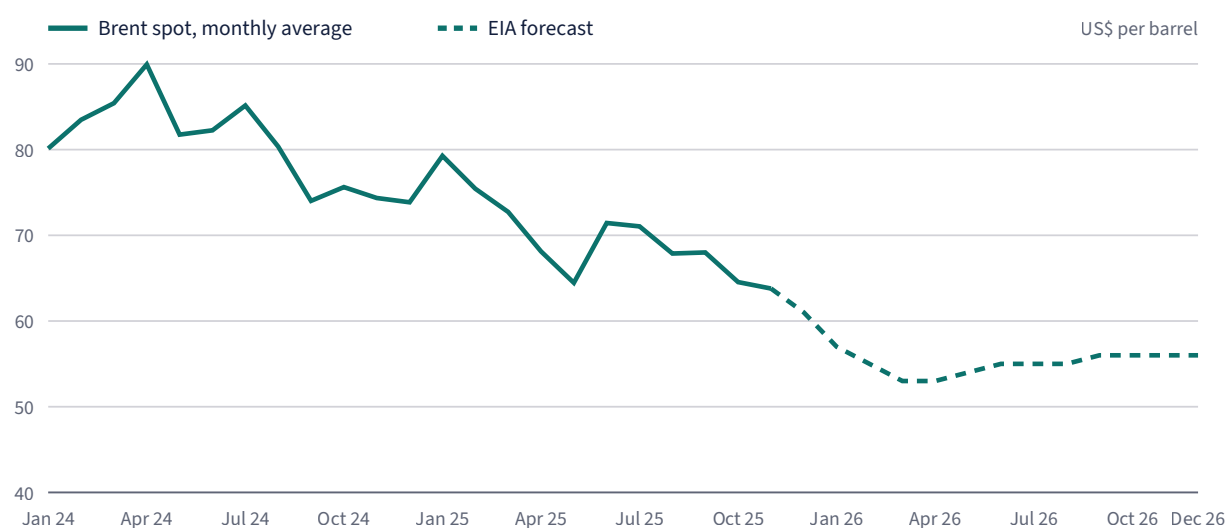
Our central reading for early 2026 is therefore a split one. Cheap and plentiful fuel lowers the cost of running existing systems. It does little to fix the shortage of grid capacity and accredited supply that now sets the pace of electrification. Policymakers who read low oil and gas prices as a sign that energy security has been solved will be looking at the wrong half of the system.

2 Oil and the Strait of Hormuz

A surplus that keeps growing

The December Short-Term Energy Outlook from the US Energy Information Administration sets out the case for lower prices plainly. It expects global oil inventories to keep rising through 2026, with builds of more than 2 million barrels a day, similar to 2025, and forecasts Brent to fall to an average of \$55 a barrel in the first quarter of 2026 and stay near that level for the rest of the year ¹. Inventories have risen quickly in the second half of 2025, and the agency notes that persistent builds could fill onshore commercial storage and push traders towards costlier options such as floating storage.

The supply side explains most of this. The EIA expects global liquid fuels production to rise by 3.0 million barrels a day in 2025 and by more than 1.2 million in 2026, with the United States, Brazil, Guyana and Canada providing more than half of 2025 growth ¹. Demand is growing too, by 1.1 million barrels a day in 2025 and 1.2 million in 2026 on the EIA's numbers, but that growth is concentrated in non-OECD Asia, the Middle East and Africa, and it is not enough to absorb the new barrels. China's liquid fuels consumption rises by only 250,000 barrels a day this year in the EIA's estimate ¹, and the IEA has described Chinese demand for road and aviation fuels as having reached a plateau ¹².

Figure 1. Brent crude oil spot price, January 2024 to November 2025, with the EIA forecast to December 2026

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, December 2025, Table 2¹. Dashed line is the EIA forecast.

OPEC+ has slowed the unwind

The eight OPEC+ countries carrying voluntary cuts agreed on 2 November to add 137,000 barrels a day in December from the second tranche of 1.65 million barrels a day, and then to pause further increments in January, February and March 2026, citing seasonality¹³. The pause was reaffirmed on 30 November¹⁴. The EIA expects OPEC+ to produce about 1.3 million barrels a day less than its targets in 2026, because producers will not want to add barrels into a market that is already building stocks¹. The group is defending price with time rather than with new cuts. That keeps spare capacity in the system, which is the main reason the market can be relaxed about supply risk.

Hormuz: the risk that a surplus does not remove

The Strait of Hormuz carried an average of 20 million barrels a day of oil in 2024, equal to about a fifth of global petroleum liquids consumption and more than a quarter of seaborne oil trade, according to the EIA². Around a fifth of global LNG trade, mainly from Qatar, also passed through it. The EIA estimates that 84 per cent of the crude and condensate moving through the Strait went to Asia in 2024, with China, India, Japan and South Korea together taking 69 per cent².

Alternatives are limited. Saudi Arabia's East-West pipeline to Yanbu and the UAE's 1.8 million barrel a day line to Fujairah can carry some of these volumes, but the EIA puts the capacity that could be made available to bypass the Strait at only about 2.6 million barrels a day². Brent rose from \$69 to \$74 a barrel in a single day in June 2025 when hostilities between Israel and Iran began, even though shipping was not blocked². The episode passed quickly, but it was a reminder that the surplus is held in tanks and fields that sit on one side of a single sea lane.

A large surplus and a chokepoint risk can coexist because they describe different things. The surplus is a statement about annual balances. Hormuz is a statement about the route those balances take. Spare capacity, which our earlier work has described as the core insurance of the oil system¹⁵, sits overwhelmingly in Gulf producers whose own exports depend on the Strait. Strategic stocks in importing countries, and the speed at which they can be released, are the only buffer that does not.

OIL SCENARIOS FOR THE FIRST HALF OF 2026

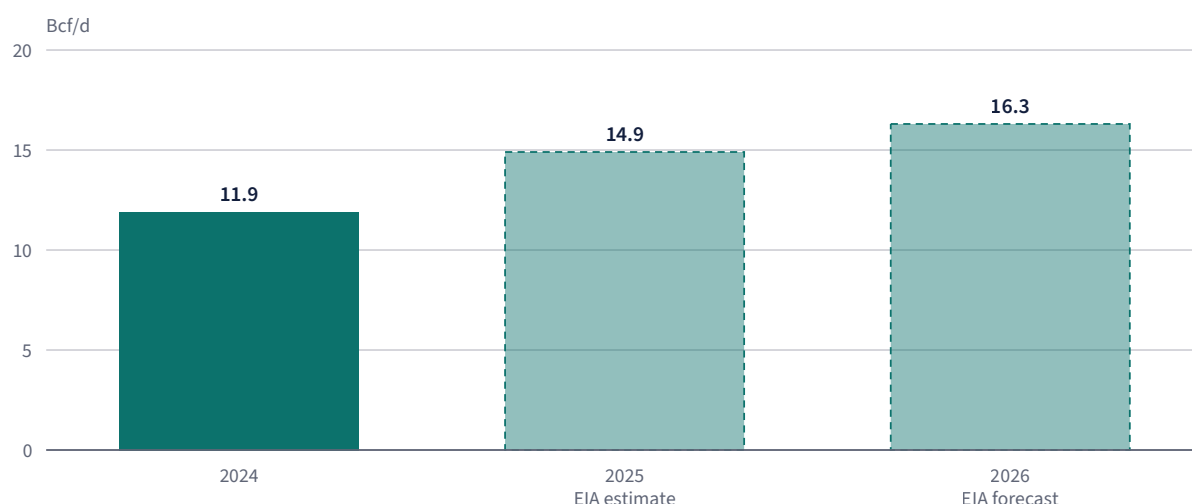
- **Surplus case.** Assumes OPEC+ resumes small monthly increments after March, Chinese stockpiling slows and non-OPEC growth continues as the EIA expects. Inventories build, the forward curve stays in contango and prices drift towards the EIA's \$55 range. Importers gain, and US shale activity slows.
- **Managed case.** Assumes OPEC+ extends the pause into the second quarter and China keeps adding to strategic stocks. Prices hold in a range above the EIA forecast but below 2025 averages. This is the outcome OPEC+ communication has been aimed at.
- **Disruption case.** Assumes renewed conflict in the Gulf affects shipping through Hormuz for weeks rather than days. Bypass capacity covers only a fraction of lost flows, Asian importers bear the first impact, and the surplus held in onshore stocks matters only to the extent that it sits outside the Gulf. We regard this as a low-probability, high-impact case that importers should plan for, not a central view.

3 Global LNG and gas

The supply wave is arriving

The IEA's World Energy Outlook 2025, published on 12 November, counts an unprecedented 300 bcm a year of new LNG export capacity scheduled to start operating by 2030, a 50 per cent increase in available global supply, around half of it in the United States and a further 20 per cent in Qatar ³. In its Stated Policies Scenario, price-sensitive markets in South and Southeast Asia absorb much of that supply, yet an overhang of 65 bcm remains in 2030 ¹⁶. Its mid-year Gas Market Report had already forecast global LNG supply growth of 5.5 per cent in 2025 and 7 per cent in 2026, led by North America ¹⁷.

US exports are the clearest sign of the wave. The EIA puts US LNG gross exports at 11.9 billion cubic feet a day in 2024, an estimated 14.9 Bcf/d in 2025 and 16.3 Bcf/d in its 2026 forecast ¹. That growth follows the Department of Energy's decision in January 2025 to end the pause on new export approvals to countries without free trade agreements ¹⁸. Approvals do not build trains, but the trains now under construction are enough to shift the market.

Figure 2. US LNG gross exports, billion cubic feet per day

Source: EIA, Short-Term Energy Outlook, December 2025, Table 5a ¹. Annual averages of monthly values.

Henry Hub moves up as feedgas rises

The same exports are pulling US gas prices up. The EIA expects the Henry Hub spot price to average almost \$4.30 per million British thermal units this winter, more than 40 cents higher than in its November outlook, because of a colder than expected December, and about \$4.00 for 2026 as a whole ¹. That compares with \$2.19 in 2024. The United States remains the cheapest large gas market, but the gap to Europe and Asia is narrowing as more domestic gas is exported, and as power demand grows.

Demand is the uncertainty

The supply side of LNG is now relatively well known. Demand is not. In Europe, ACER has warned that EU LNG demand faces up to 90 bcm of uncertainty depending on how far decarbonisation goes beyond the Fit for 55 package ¹⁹. China's LNG imports, which rose 9 per cent to 77 million tonnes in 2024, fell 19 per cent in the first seven months of 2025 as domestic production, pipeline imports and mild weather reduced the call on cargoes ²⁰. Chinese weather and industrial activity remain the swing factor for spot prices in both Asia and Europe.

Pakistan offers a small but telling case. In November, Pakistan LNG Limited arranged to cancel 21 cargoes under its long-term contract with Eni, covering planned 2026 and 2027 deliveries, at the request of SNGPL, and sought to renegotiate supply from Qatar ⁴. A country that was rationing gas three years ago now has more contracted LNG than its power plants and pipelines can absorb, largely because rooftop solar and high tariffs have cut grid demand ²¹. Soft markets make such cancellations possible. They will not always be available.

LNG SCENARIOS FOR 2026

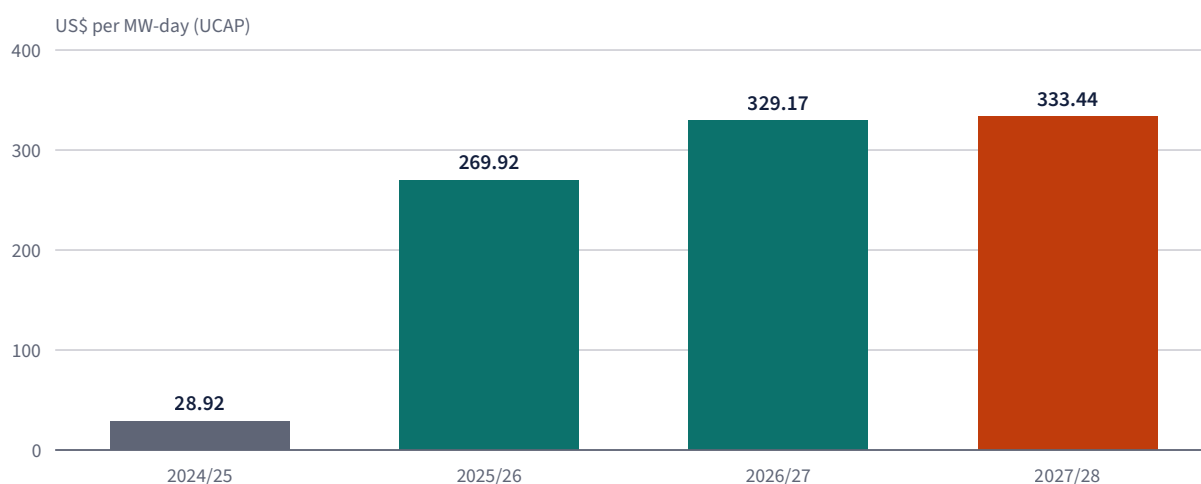
- **Buyers' market.** Assumes new North American trains start on schedule, Chinese demand stays weak and Europe meets storage targets without strain. Spot prices fall, price-sensitive buyers in South and Southeast Asia return, and contract renegotiations favour importers.
- **Delayed wave.** Assumes start-up delays at large projects and a cold northern hemisphere winter. The shift to surplus slips into 2027 and spot prices stay closer to 2025 levels.
- **Route shock.** Assumes any disruption to Qatari or Emirati exports through Hormuz. With almost a fifth of LNG trade at risk and no alternative route ², the market would tighten sharply regardless of how much US capacity is under construction.

4 US power markets

PJM: the first regional shortfall

PJM's Base Residual Auction for the 2027/28 delivery year, announced on 17 December, procured 134,479 MW of unforced capacity at the FERC-approved cap of \$333.44 per MW-day across the whole footprint, a 1.3 per cent increase on the previous auction ⁵. Cleared supply multiplied by the clearing price comes to \$16.4 billion. Including resources committed under Fixed Resource Requirement plans, procured capacity was short of PJM's reliability requirement by 6,623 MW ⁵. The auction report shows a cleared installed reserve margin of 14.4 per cent, 5.6 percentage points below the 20 per cent target, and notes that a shortfall of more than one percentage point triggers an investigation into its causes ²².

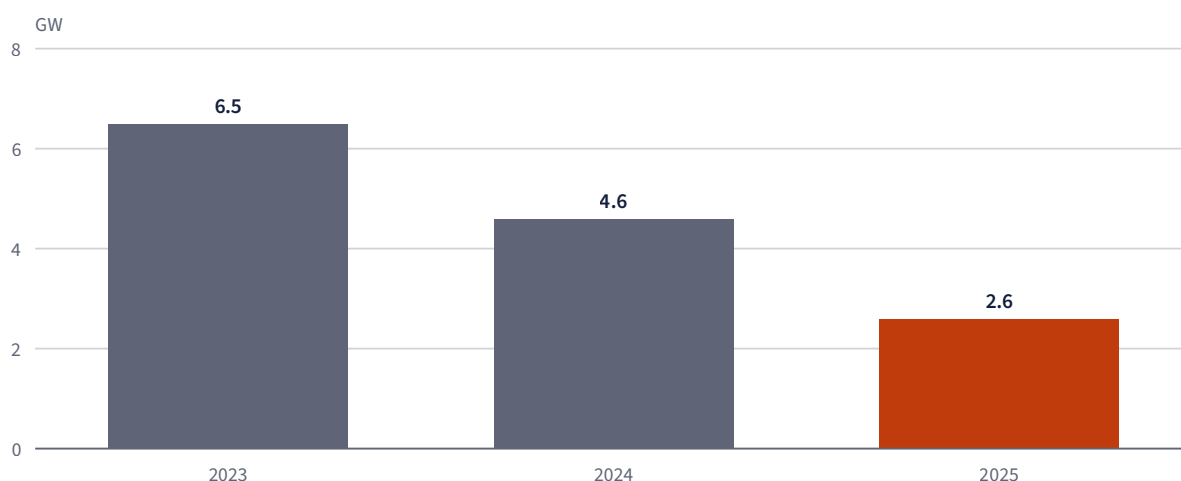
The American Public Power Association noted that this was the first auction in which the whole RTO, including FRR areas, fell short of the reliability requirement, and that the load forecast underpinning it again included large additions of data-centre load ¹⁰. Prices have moved from \$28.92 per MW-day in the 2024/25 auction to \$269.92 in 2025/26 and to the cap in the two auctions since ^{23,22}. PJM says the shortfall does not necessarily mean it will be unable to serve load in 2027/28 and points to mitigating factors ⁵. Still, a market that clears at its cap and still falls short is no longer sending a price signal. It is reporting a quantity problem.

Figure 3. PJM Base Residual Auction clearing price for the RTO, by delivery year

Sources: PJM, 2027/2028 Base Residual Auction Report ²²; PJM, 2025/2026 Base Residual Auction Report ²³. The 2026/27 and 2027/28 auctions cleared at a price cap agreed for those two auctions.

MISO and the shrinking surplus

MISO's spring auction for June 2025 to May 2026 showed the same pattern earlier in the year. Summer capacity cleared at \$666.50 per MW-day across all zones, against about \$30 the year before, and summer surplus above the planning reserve margin fell to about 2.6 GW from 4.6 GW in 2024 and 6.5 GW in 2023 ^{24,25}. New capacity of 5.1 GW was more than offset by reduced accreditation, suspensions and retirements ²⁵. MISO says resources are sufficient for the planning year. The trend line says the margin is being used up.

Figure 4. MISO summer capacity surplus above the planning reserve margin target

Source: MISO, 2025 Planning Resource Auction results and summer readiness presentation ²⁴.

Retirements, emergency orders and the federal tax clock

Two federal decisions now shape the supply side. First, planned coal retirements are being delayed. The EIA's 2025 inventory showed 12.3 GW of planned retirements this year, 8.1 GW of them coal, including large units such as J.H. Campbell in Michigan and Brandon Shores in Maryland, while emergency authorities are being used to compel temporary retention where reliability is in question ²⁶. Keeping old units open buys time, but at poor heat rates and rising forced-outage risk. Second, the One Big Beautiful Bill Act, signed on 4 July, limits the technology-neutral credits for wind and solar to projects that begin construction by 4 July 2026 or are placed in service by 31 December 2027 ²⁷. Storage, nuclear, geothermal and hydropower keep the longer schedule. The result is a rush to start wind and solar construction in the first half of 2026, followed by a thinner pipeline.

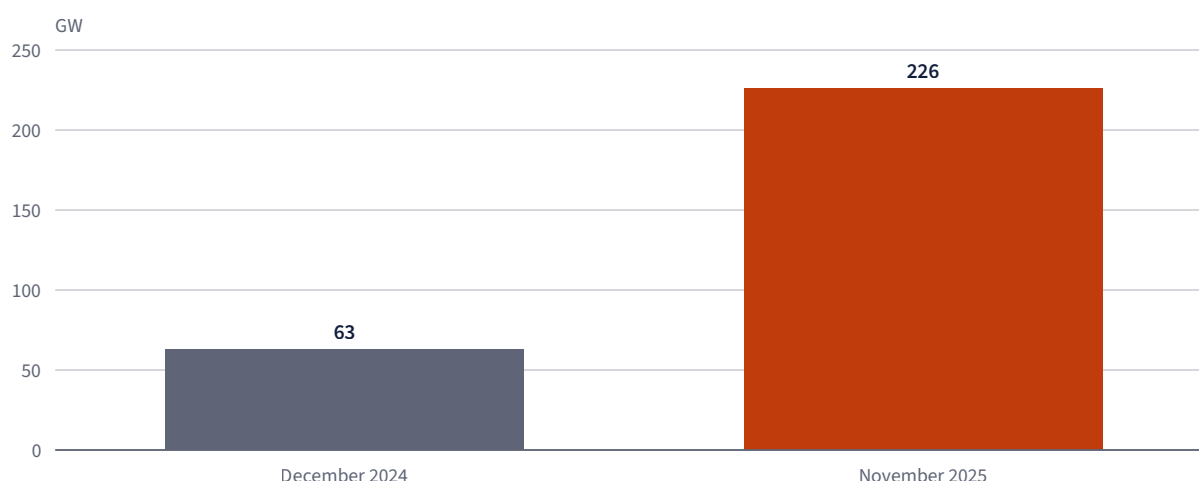
The EIA expects US power sector generation to rise 2.4 per cent in 2025 and 1.7 per cent in 2026, driven mainly by large customers in the ERCOT and PJM regions. It trimmed its 2026 figure in December after reviewing how much large-load demand has actually come online ¹. Coal consumption is up 9 per cent in 2025 on higher gas prices and demand, and is expected to fall in 2026 as renewable output rises ¹.

5 Data centres and load growth

Texas: requests outrunning the grid

ERCOT is the sharpest example of large-load growth anywhere in the world. Its December update to the Board recorded about 226 GW of large loads seeking interconnection, against 63 GW in December 2024, with about 73 per cent of the total from data centres ⁶. It had received 225 new large-load requests in 2025 by mid-November, compared with 152 over 2022 to 2024 combined. ERCOT's year-end constraints report puts total load seeking interconnection at about 239 GW, and notes that transmission providers' own forecast now implies demand of 218 GW in 2031, against 150 GW in the forecast submitted a year earlier ²⁸.

These numbers should not be read as demand that will appear. ERCOT itself adjusts transmission providers' figures for typical delays and realisation rates before using them in planning ²⁹. But even heavily discounted, the requests imply a grid that must be planned for growth on a scale not seen in a generation.

Figure 5. Large loads seeking interconnection in ERCOT

Source: ERCOT, System Planning and Weatherization Update to the Board, December 2025⁶. About 73 per cent of the November 2025 total is data centres.

The policy questions are about cost and sequence

Three issues will shape how much of this load connects and who pays for it. The first is tariff design for large loads co-located with generation. Opaque deals for campuses sited at power plants will not scale; if a campus needs network upgrades it should face those costs, and credits for co-located generation should be measured rather than assumed³⁰. The second is transmission. Investment sized for a flat-load era will congest sooner, and FERC's Order No. 1920 requires long-term regional planning and cost allocation that states must now accept in practice³¹. The third is forecast quality. A large load that is double-counted across several utilities' queues raises capacity prices for everyone before a single server is installed.

Our view is that the US load story is real but its timing is uncertain. The EIA's decision to trim near-term generation growth is a sensible signal that the first wave of campuses is taking longer to energise than developers promised¹. Capacity markets, by contrast, price on forecasts. That gap between forecast load and energised load is where the risk of over-procurement, and of political backlash against data centres, now sits.

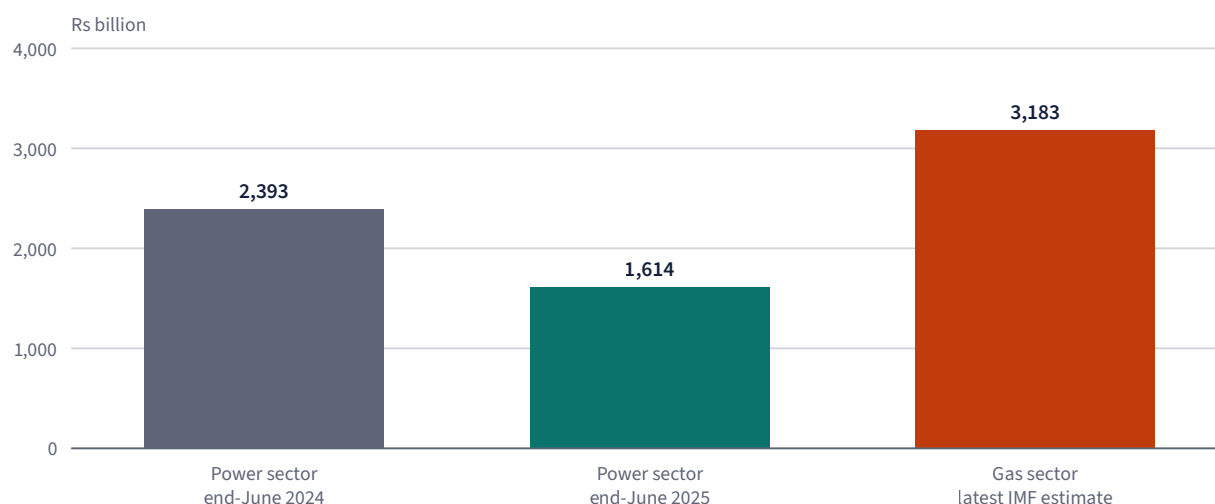
6 Pakistan: power and gas

Circular debt: better stock, harder flow

The IMF's second review of Pakistan's Extended Fund Facility, completed on 8 December, released about \$1.2 billion across the EFF and the Resilience and Sustainability Facility³². The staff report credits timely tariff adjustments, lower international fuel prices, improved recoveries and lower interest rates with cutting the power sector circular debt stock by Rs779 billion to Rs1,614 billion, or 1.4 per cent of GDP, at end-June 2025⁷. Flow also beat targets in March and June.

Gas is the weaker side. Principal gas circular debt fell by Rs86 billion, but higher estimated late payment surcharges raised the total by Rs227 billion to Rs3,183 billion, or 3.0 per cent of GDP ⁷. Our year-end review argued that stock can fall for accounting reasons while flow keeps running, and that a joint power and gas dashboard would stop victories in one sector hiding losses in the other ³³. The IMF figures support that caution.

Figure 6. Pakistan circular debt stock, end-June 2025

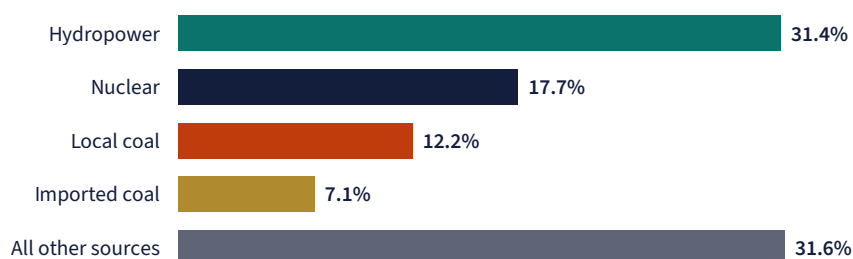


Source: IMF Country Report No. 25/332, Second Review under the EFF ⁷. End-June 2024 power figure is the end-June 2025 stock plus the Rs779 billion reduction reported by the IMF.

Demand, solar and the plan

Pakistan generated 127,160 GWh in FY2025, about 6 per cent below the reference target, against 45,888 MW of installed capacity ³⁴. Hydropower supplied 31.4 per cent of generation, nuclear 17.7 per cent, local coal 12.2 per cent and imported coal 7.1 per cent. The IMF notes one bright spot: incentives to move captive power producers onto the grid lifted industrial power consumption by 35 per cent year on year in April to August 2025 ⁷.

Figure 7. Pakistan's power generation by source, FY2025, share of 127,160 GWh



Source: PACRA rating reports on Thar power producers, as summarised by Transition Economics Institute ³⁴. "All other sources" is the remainder and includes gas, RLNG, furnace oil, wind, solar and bagasse.

The underlying driver of weak grid demand is distributed solar. Official estimates cited in July put net-metered connections at about 325,000, with around 6,500 MW of capacity, after the Prime Minister paused a third attempt to cut buyback rates from about Rs27 to about Rs11.3 per unit ³⁵. Ember estimates that Pakistan imported about 16 GW of panels in 2024, of which only about 1.2 GW was registered under net metering ³⁶. Most of the fleet is therefore invisible to the planner. The draft Indicative Generation Capacity Expansion Plan 2025-35 is under review at NEPRA ³⁷, and our October analysis argued that DISCO-level distributed energy forecasts should be treated as auditable regulatory filings rather than optional annexes ³⁸.

Transport fuels and the oil narrative

Two smaller measures matter for the oil bill. The Climate Support Levy, in force since 1 July, adds Rs2.5 a litre to petrol, diesel and furnace oil in 2025-26, rising to Rs5 in 2026-27 ³⁹. The New Energy Vehicle levy funds a five-year scheme for 116,000 electric motorcycles and 3,170 electric rickshaws and loaders, at an estimated cost of around Rs100 billion, within a policy that targets 30 per cent electric sales by 2030 ⁴⁰. Two-wheelers are where Pakistan's fuel imports can be cut fastest. By contrast, the talk of large oil reserves that followed the US trade arrangement in July rests on a 2015 EIA estimate of technically recoverable shale resources, not on discoveries ⁴¹.

PAKISTAN SCENARIOS FOR WINTER 2025-26 AND THE FIRST HALF OF 2026

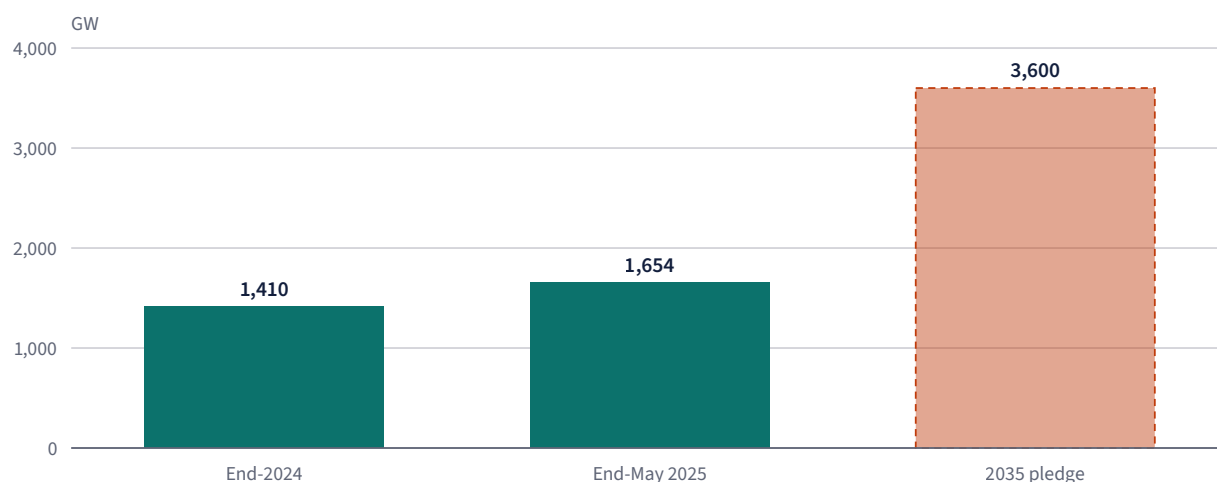
- **Orderly case.** Assumes international fuel prices stay low, the first DISCO privatisation bids close in early 2026 as planned ⁷, and LNG volumes are rebalanced through further deferrals. Circular debt flow stays within target and tariff pressure eases.
- **Surplus strain.** Assumes grid demand stays weak as solar spreads. Take-or-pay LNG and capacity payments are spread over fewer units sold, raising the case for another round of tariff and contract restructuring.
- **Import shock.** Assumes an external price shock in oil or LNG. Pakistan has more flexibility than in 2022 because of solar and contract cancellations, but its fiscal room to cushion consumers remains narrow.

7 China

A cautious pledge with a binding capacity number

On 24 September, President Xi Jinping announced China's 2035 nationally determined contribution: a cut in economy-wide net greenhouse gas emissions of 7 to 10 per cent from peak, a non-fossil share of more than 30 per cent of energy use, and wind and solar capacity of more than six times the 2020 level, aiming for 3,600 GW ⁴². The headline cut disappointed those who expected 30 per cent or more. The capacity figure is the more useful signal. With about 1,410 GW of wind and solar at the end of 2024, the target implies average additions of around 200 GW a year to 2035, below the pace of recent years ⁴³.

That pace was distorted in 2025 by policy. Under Document 136, projects connected before 1 June kept existing tariff treatment, and China connected 92.92 GW of solar in May alone, taking cumulative solar capacity past 1,000 GW ⁴⁴. Average utilisation hours across all plants fell by 132 hours year on year in the first five months. The second half of 2025 has been a test of whether provincial bidding under the new market rules sustains investment.

Figure 8. China's wind and solar fleet against its 2035 pledge

Sources: National Energy Administration data as reported by Transition Economics Institute ^{43,44}; China NDC announcement, 24 September 2025 ⁴². End-May 2025 is about 1,084 GW of solar plus about 570 GW of wind.

Fuel imports and the swing role

China's coal imports reached a record 548 million tonnes in 2024, and the IEA expected a retreat towards 489 million tonnes in 2025 on high stocks and soft demand ²⁰. LNG imports fell sharply, as noted above. The EIA expects China to keep building strategic oil stocks into 2026, which has limited the fall in crude prices this year ¹. China is acting as the world's swing buyer in all three fuels, and its weather, hydro output and stockpiling policy will do much to set Asian prices in 2026.

The 15th Five-Year Plan, due for adoption in March 2026, will show whether domestic targets go further than the international floor ⁴³.

8 India

Capacity milestones, generation reality

India reached 50 per cent non-fossil power capacity in June 2025, five years ahead of its 2030 commitment, with 242.78 GW of non-fossil capacity ⁴⁵. Generation tells a different story: coal still fuels more than 74 per cent of the country's power, and the coal ministry projects a 55 per cent share by 2030. To reach its domestic goal of 500 GW of non-fossil capacity by 2030, India needs to add close to 47 GW a year, roughly double the additions of 2023-24 ⁴⁵.

Carbon market and nuclear opening

Two structural reforms landed this quarter. On 8 October the environment ministry notified the Greenhouse Gases Emission Intensity Target Rules, 2025, covering 282 units in cement, aluminium, chlor-alkali, and pulp and paper, with intensity cuts from a 2023-24 baseline over 2025-26 and 2026-27 ⁴⁶. The sector-wide reductions are modest for cement at about 3.4 per cent and more demanding for aluminium at 5.8 per cent. The scheme is as much about preparing exporters for Europe's carbon border adjustment, whose definitive phase starts in January, as about domestic emissions.

In December, Parliament passed the SHANTI Act, which repeals the Atomic Energy Act of 1962 and the 2010 nuclear liability law, gives statutory status to the Atomic Energy Regulatory Board and opens plant operation and parts of the fuel cycle to private companies ⁴⁷. India has about 8 GW of nuclear capacity and a goal of 100 GW by 2047. The law removes the supplier liability barrier that kept foreign vendors away. Rules, regulatory capacity and the first private projects will decide whether the goal is credible.

9 Europe

Climate law, gas exit and the price of flexibility

On 5 November, EU environment ministers agreed a binding 2040 target of a 90 per cent cut in net emissions from 1990, with up to 5 per cent of 1990 emissions to be met through international credits from 2036, and a one-year delay to the ETS2 carbon market for buildings and road transport, to 2028 ⁴⁸. On 3 December the Council and Parliament reached a provisional agreement to end Russian gas imports permanently, with LNG phased out by the end of 2026 and pipeline gas by 30 September 2027, or 1 November 2027 for member states struggling to meet storage targets ⁴⁹. The timing is favourable. A global LNG surplus makes the replacement of remaining Russian volumes cheaper than it would have been at any point since 2022.

The tension in European power is between low average prices and rising system costs. Renewables supplied 47 per cent of EU electricity in 2024, coal generation fell 27 per cent and the Commission's power benchmark fell 22 per cent to €74 per MWh ⁵⁰. But the first quarter of 2025 showed how weather can reverse gains: renewables fell to 41 per cent, fossil generation rose to 33 per cent and prices were 49 per cent higher than a year earlier.

The Iberian lesson

ENTSO-E's factual report on the blackout of 28 April, published on 3 October, called it the most severe on the European system in more than 20 years and the first caused by overvoltage ¹¹. Spain lost about 2.5 GW of generation in seconds as plants tripped on voltage protection. The lesson for every system with high inverter-based generation is that voltage control and grid-forming capability need to be procured and paid for as services. It is not a case against renewables. The final report with root causes is due in the first quarter of 2026.

10 Middle East and Africa

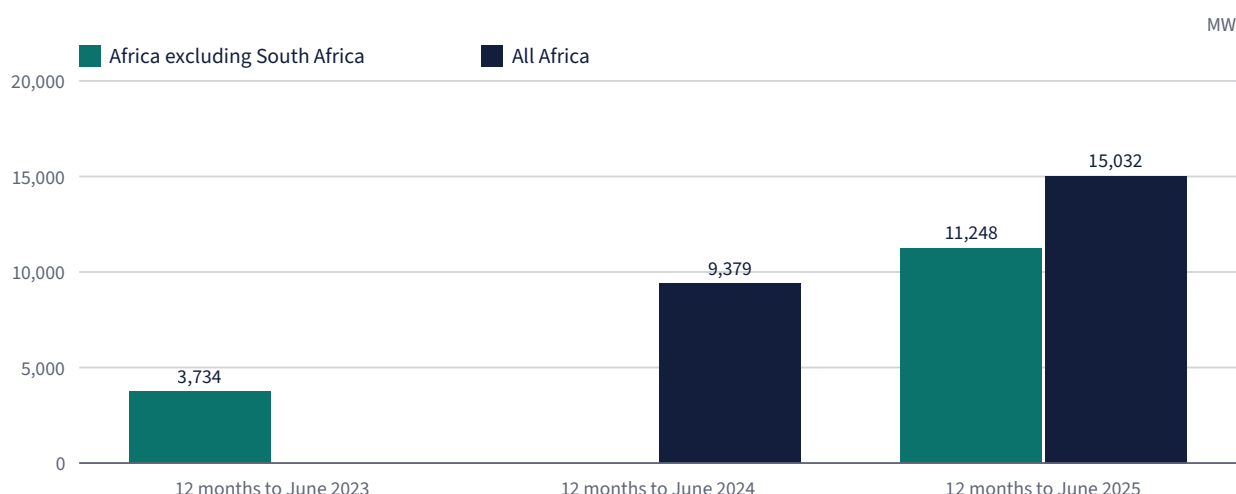
The Gulf: spare capacity and LNG expansion

Gulf producers carry most of the world's spare oil capacity and a fifth of the coming LNG wave, through Qatar's expansion ³. Saudi Arabia moved 5.5 million barrels a day of crude and condensate through Hormuz in 2024, 38 per cent of the Strait's crude flows ². The region is also a growing consumer: the EIA expects Middle East liquid fuels demand to rise by 170,000 barrels a day in 2025 ¹. A softer oil price tests budgets that were set when Brent was higher, and our earlier analysis noted that past OPEC+ decisions have shown a preference for defending price when demand looks soft ¹⁵.

Africa: solar from below, hydro from above

The most important energy trend in Africa this year has been distributed. Ember's analysis of Chinese customs data shows African imports of solar panels rising 60 per cent to 15,032 MW in the 12 months to June 2025³⁶. Outside South Africa, imports nearly tripled in two years. Twenty countries set import records. Nigeria became the second-largest importer, and Ember estimates a payback of roughly six months on a panel bought to displace diesel generation there. Few utility-scale projects outside South Africa have started construction, so this is the same behind-the-meter pattern that reshaped Pakistan's grid, and African utilities are no better prepared for it⁵¹.

Figure 9. African imports of solar panels from China, 12 months to June



Source: Ember analysis of Chinese customs data, August 2025³⁶.

At the other end of the scale, Ethiopia inaugurated the Grand Ethiopian Renaissance Dam on 9 September at its full 5,150 MW, Africa's largest hydropower plant, in a country where about 55 per cent of people had electricity in 2022⁵². The challenge now is transmission, export contracts and tariffs, alongside a continuing dispute with Egypt over Nile flows.

After Belém

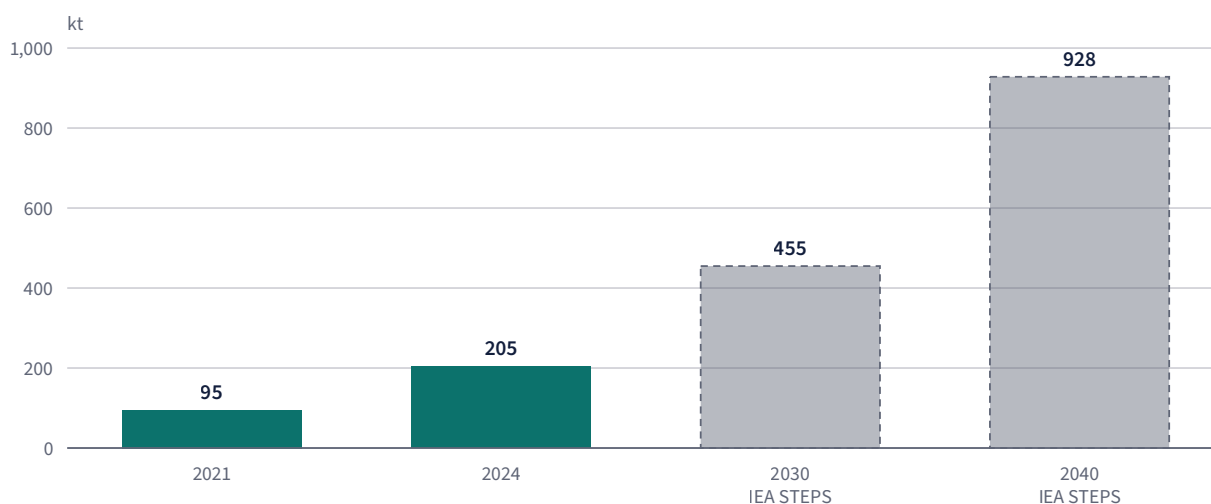
COP30 ended on 22 November without a negotiated roadmap away from fossil fuels; more than 80 countries backed one, but the final text referred only to the COP28 outcome⁵³. The Brazilian presidency will develop a fossil fuel transition roadmap under its own authority, and Colombia will host a conference on phasing out fossil fuels in April 2026. For energy investors in Africa and South Asia, the more practical outcomes were the call to triple adaptation finance by 2035 and the new dialogues on trade measures, which reflect pressure from developing countries against measures such as CBAM⁵³.

11 Critical minerals

Concentration is rising, not falling

The IEA's Global Critical Minerals Outlook 2025 found that lithium demand rose nearly 30 per cent in 2024, while demand for nickel, cobalt, graphite and rare earths grew 6 to 8 per cent ⁵⁴. Supply grew faster, so prices fell: lithium prices are down more than 80 per cent since 2023. Concentration, however, increased. The average market share of the top three refining countries for key energy minerals rose from about 82 per cent in 2020 to 86 per cent in 2024, with about 90 per cent of supply growth coming from a single top supplier: Indonesia for nickel, China for cobalt, graphite and rare earths ⁵⁴. China is the leading refiner for 19 of the 20 energy-related strategic minerals the IEA examined, with an average share of around 70 per cent ⁸.

Figure 10. Global lithium demand, thousand tonnes of lithium content



Source: IEA, Global Critical Minerals Outlook 2025, lithium outlook table ⁵⁵. 2030 and 2040 are IEA Stated Policies Scenario projections.

Export controls as policy tools

Two producer-side interventions defined the year. China's commerce ministry announced sweeping export controls on rare earths, lithium batteries and graphite anode materials on 9 October, then, after the US and China agreed a trade truce, suspended them on 7 November until 10 November 2026 ^{9,56}. The IEA's World Energy Outlook notes that more than half of the strategic minerals it tracks were subject to some form of export control as of November ¹⁶. The suspension buys a year, not a solution.

The Democratic Republic of Congo, which supplies more than 70 per cent of world cobalt, replaced its February export ban with quotas on 16 October: 18,125 tonnes for the final quarter of 2025 and 96,600 tonnes a year for 2026 and 2027 ⁵⁷. The ban more than doubled the price of cobalt hydroxide. The risk for Kinshasa is that sustained high prices accelerate the shift to cobalt-free battery chemistries.

CRITICAL MINERALS SCENARIOS FOR 2026

- **Managed truce.** Assumes the US-China suspension holds through 2026 and Congo's quotas are administered predictably. Prices stay well below 2022 peaks and diversification projects in Australia, Africa and Latin America struggle to compete with Chinese refiners.
- **Controls return.** Assumes trade relations deteriorate before November 2026. Magnet and battery supply chains outside China face licence delays, and policy support for non-Chinese refining becomes more urgent and more expensive.

12 What to watch in Q1 2026

- **OPEC+ after March.** Whether the eight countries resume monthly increments in the second quarter, or extend the pause, will decide whether the EIA's \$55 Brent path holds ^{14,1}.
- **Gulf security.** Any incident affecting shipping in the Strait of Hormuz would test bypass capacity of about 2.6 million barrels a day against flows of about 20 million ².
- **Winter gas.** US storage and Henry Hub through January and February, with the EIA expecting a winter average near \$4.30 ¹, and European storage at the end of the heating season.
- **PJM's shortfall investigation** and any changes to auction parameters or large-load rules that follow the 2027/28 result ²².
- **ERCOT large-load rules** under Texas legislation, and whether the backlog of requests starts to sort into credible and speculative projects ²⁸.
- **US wind and solar starts** ahead of the 4 July 2026 construction deadline ²⁷.
- **Pakistan.** DISCO privatisation bids, NEPRA's decision on IGCEP 2025-35, the net-metering reset and the winter LNG cargo plan ^{7,37}.
- **China's 15th Five-Year Plan** in March, and full-year 2025 capacity data from the National Energy Administration ⁴³.
- **Europe.** The final Iberian blackout report, the formal adoption of the Russian gas regulation, and the start of CBAM's definitive phase on 1 January ^{11,49,53}.
- **Critical minerals.** Licence approvals under Congo's cobalt quotas and any change to China's suspended export controls ^{57,9}.

Sources

1. U.S. Energy Information Administration, Short-Term Energy Outlook, December 2025 (released 9 December 2025), report and data tables. <https://www.eia.gov/outlooks/steo/archives/dec25.pdf>
2. U.S. Energy Information Administration, "Amid regional conflict, the Strait of Hormuz remains critical oil chokepoint", Today in Energy, 16 June 2025. <https://www.eia.gov/todayinenergy/detail.php?id=65504>
3. International Energy Agency, World Energy Outlook 2025, Executive summary, 12 November 2025. <https://www.iea.org/reports/world-energy-outlook-2025/executive-summary>
4. Reuters, "Pakistan cancels Eni LNG cargoes, seeks to renegotiate Qatar supplies", 4 November 2025. <https://www.reuters.com/sustainability/boards-policy-regulation/pakistan-cancels-eni-lng-cargoes-seeks-renegotiate-qatar-supplies-2025-11-04/>
5. PJM Interconnection, "PJM Auction Procures 134,479 MW of Generation Resources", 17 December 2025. <https://www.pjm.com/-/media/DotCom/about-pjm/newsroom/2025-releases/20251217-pjm-auction-procures-134479-mw-of-generation-resources.pdf>
6. ERCOT, Item 16.2: System Planning and Weatherization Update, Board of Directors, December 2025. https://www.ercot.com/files/docs/2025/12/02/16.2-System-Planning-and-Weatherization-Update_Revised.pdf
7. International Monetary Fund, Pakistan: Second Review under the Extended Arrangement, IMF Country Report No. 25/332, December 2025. <https://www.imf.org/en/publications/cr/issues/2025/12/11/pakistan-second-review-under-the-extended-arrangement-under-the-extended-fund-facility-572472>
8. International Energy Agency, "Diversification is the cornerstone of energy security, yet critical minerals are moving in the opposite direction", 21 May 2025. <https://www.iea.org/news/diversification-is-the-cornerstone-of-energy-security-yet-critical-minerals-are-moving-in-the-opposite-direction>
9. Xinhua, "China's commerce ministry suspends some export control measures announced on Oct. 9", 7 November 2025. <https://english.news.cn/20251107/7a75d5b66d544baab747f77d6b9f52f0/c.html>
10. American Public Power Association, "PJM Details Auction Procurement Results", December 2025. <https://www.publicpower.org/periodical/article/pjm-details-auction-procurement-results-says-capacity-resources-procured-plus-frr-resources-short>
11. Transition Economics Institute, "The Iberian Blackout Report Points to Voltage Control, Not Renewables as Such", 13 October 2025. <https://tei-energy.org/articles/2025-10-13-iberian-blackout-factual-report.html>
12. Transition Economics Institute, "Oil balances into late 2025: non-OPEC supply, China plateau, OPEC+ glide path", 13 October 2025. <https://tei-energy.org/articles/2025-10-13-oil-market-non-opec-supply-surplus-risk.html>
13. OPEC, press release on the meeting of eight OPEC+ countries, 2 November 2025. <https://www.opec.org/pr-detail/579-02-november-2025.html>
14. OPEC, press release on the meeting of eight OPEC+ countries, 30 November 2025. <https://www.opec.org/pr-detail/583-30-november-2025.html>
15. Transition Economics Institute, "Middle East supply, spare capacity, and the cost of defending price", 18 August 2025. <https://tei-energy.org/articles/2025-08-18-middle-east-spare-capacity-oil.html>
16. Transition Economics Institute, "WEO 2025 Puts Energy Security First", 17 November 2025. <https://tei-energy.org/articles/2025-11-17-iea-weo-2025-energy-security-scenarios.html>
17. International Energy Agency, Gas Market Report, Q3-2025, July 2025. <https://www.iea.org/reports/gas-market-report-q3-2025>
18. Transition Economics Institute, "Energy Dominance Rhetoric and the Engineering Reality of United States Gas Markets", 17 November 2025. <https://tei-energy.org/articles/2025-11-17-federal-energy-dominance-and-gas-markets.html>
19. Transition Economics Institute, "LNG contracting under European demand uncertainty into 2030", 15 December 2025. <https://tei-energy.org/articles/2025-12-15-lng-contracting-europe-demand-uncertainty.html>
20. Transition Economics Institute, "China's dual energy reality: coal import swings and LNG optionality", 17 November 2025. <https://tei-energy.org/articles/2025-11-17-china-lng-coal-power-dual.html>
21. Transition Economics Institute, "Cancelling Eni Cargoes: Contract Flexibility Meets Soft Offtake", 4 November 2025. <https://tei-energy.org/articles/2025-11-04-eni-lng-cargo-cancellations.html>
22. PJM Interconnection, 2027/2028 Base Residual Auction Report, December 2025. <https://www.pjm.com/-/media/DotCom/markets-ops/rpm/rpm-auction-info/2027-2028/2027-2028-bra-report.pdf>

23. PJM Interconnection, 2025/2026 Base Residual Auction Report, July 2024. <https://www.pjm.com/-/media/DotCom/markets-ops/rpm/rpm-auction-info/2025-2026/2025-2026-base-residual-auction-report.pdf>
24. MISO, 2025 Planning Resource Auction results and summer readiness presentation, April 2025. <https://www.in.gov/iurc/files/1.-MISO-SRF-Presentation-2025.pdf>
25. Utility Dive, "MISO summer capacity prices jump to \$666.50/MW-day as power supplies shrink", 29 April 2025. <https://www.utilitydive.com/news/miso-capacity-auction/746576/>
26. Transition Economics Institute, "When Planned Coal Exits Meet Reliability Politics: Watching the 2025 Retirement Docket", 15 December 2025. <https://tei-energy.org/articles/2025-12-15-coal-retirement-delays-and-emergency-orders.html>
27. Transition Economics Institute, "The One Big Beautiful Bill Act Puts Wind and Solar on a Two-Year Clock", 21 July 2025. <https://tei-energy.org/articles/2025-07-21-obbbba-wind-solar-credit-cliff.html>
28. ERCOT, Report on Existing and Potential Electric System Constraints and Needs, December 2025. <https://www.ercot.com/files/docs/2025/12/23/2025-Report-on-Existing-and-Potential-Electric-System-Constraints-and-Needs.pdf>
29. ERCOT, Long-Term Load Forecast Update (2025-2031) and Methodology Changes, April 2025. <https://www.ercot.com/files/docs/2025/04/07/8.1-Long-Term-Load-Forecast-Update-2025-2031-and-Methodology-Changes.pdf>
30. Transition Economics Institute, "Co-Located Large Loads: Tariff Design Before the Next Data-Centre Wave", 13 October 2025. <https://tei-energy.org/articles/2025-10-13-colocated-large-loads-and-tariff-design.html>
31. Transition Economics Institute, "The Transmission Investment Gap as United States Load Growth Reappears", 18 August 2025. <https://tei-energy.org/articles/2025-08-18-transmission-investment-gap-load-growth.html>
32. International Monetary Fund, press release 25/411, completion of the second EFF review and first RSF review for Pakistan, 8 December 2025. <https://www.imf.org/en/news/articles/2025/12/08/pr-25411-pakistan-imf-completes-2nd-rev-of-ext-arrange-eff-and-1st-rev-of-arrange-rsf>
33. Transition Economics Institute, "After a Year of Reform Rhetoric: Is Circular Debt Flow Actually Slowing?", 10 December 2025. <https://tei-energy.org/articles/2025-12-10-circular-debt-stock-vs-flow.html>
34. Transition Economics Institute, "Reading FY2025's Generation Mix: Hydro, Nuclear, and Coal Shares", 15 September 2025. <https://tei-energy.org/articles/2025-09-15-fy25-generation-mix.html>
35. Transition Economics Institute, "The Prime Minister's Third Pause on Net-Metering Revision", 21 July 2025. <https://tei-energy.org/articles/2025-07-21-pm-blocks-net-metering-review.html>
36. Ember, "The first evidence of a take-off in solar in Africa", August 2025. <https://ember-energy.org/latest-insights/the-first-evidence-of-a-take-off-in-solar-in-africa/>
37. Transition Economics Institute, "IGCEP 2025-35: Revising the Plan While Demand Shifts under Solar", 20 August 2025. <https://tei-energy.org/articles/2025-08-20-igcep-2025-35-revision.html>
38. Transition Economics Institute, "Distributed Energy in IGCEP: Planning for the Solar the DISCOs Already Host", 14 October 2025. <https://tei-energy.org/articles/2025-10-14-ders-disco-igcep-inputs.html>
39. Transition Economics Institute, "Pakistan's Climate Support Levy Is Small, Regressive in Form and Still Worth Keeping", 7 July 2025. <https://tei-energy.org/articles/2025-07-07-climate-support-levy-fuel.html>
40. Transition Economics Institute, "Pakistan's EV Levy Funds the Right Vehicles", 8 September 2025. <https://tei-energy.org/articles/2025-09-08-nev-policy-levy-electric-two-wheelers.html>
41. Transition Economics Institute, "Pakistan's 'Massive Oil Reserves' Are a Diplomatic Asset, Not an Energy Plan", 6 October 2025. <https://tei-energy.org/articles/2025-10-06-trump-oil-reserves-claim-reality.html>
42. Xinhua, full text of President Xi Jinping's remarks announcing China's 2035 NDC, 25 September 2025. <https://english.news.cn/20250925/6ca0255f74a44dee8bf402ce2fc49467/c.html>
43. Transition Economics Institute, "China's 2035 Pledge: A Modest Headline Built on an Ambitious Capacity Number", 6 October 2025. <https://tei-energy.org/articles/2025-10-06-china-2035-ndc-7-to-10-per-cent.html>
44. Transition Economics Institute, "93 GW in a Month: What China's Pre-Deadline Solar Rush Says About the Second Half", 30 June 2025. <https://tei-energy.org/articles/2025-06-30-china-may-solar-rush-93gw.html>
45. Transition Economics Institute, "Half the Fleet, a Fifth of the Energy: India's 50 Per Cent Non-Fossil Milestone in Perspective", 21 July 2025. <https://tei-energy.org/articles/2025-07-21-india-50-per-cent-non-fossil-capacity.html>
46. Transition Economics Institute, "India's First Binding Emission Targets", 20 October 2025. <https://tei-energy.org/articles/2025-10-20-india-carbon-market-first-intensity-targets.html>

47. World Nuclear News, "India's SHANTI bill completes legislative process", December 2025. <https://www.world-nuclear-news.org/articles/indias-shanti-bill-completes-legislative-process>
48. Transition Economics Institute, "The EU's 90 Per Cent 2040 Target Survives, but the Flexibilities Will Decide What It Means", 17 November 2025. <https://tei-energy.org/articles/2025-11-17-eu-2040-target-90-percent-flexibilities.html>
49. European Commission, "EU agrees to permanently stop Russian gas imports and phase out Russian oil", press release IP/25/2860, 3 December 2025. https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_25_2860/IP_25_2860_EN.pdf
50. Transition Economics Institute, "European electricity: renewables deliver, flexibility still under-ordered", 15 September 2025. <https://tei-energy.org/articles/2025-09-15-european-electricity-flexibility-gap.html>
51. Transition Economics Institute, "Africa's Solar Import Surge Is Happening Behind the Meter", 1 September 2025. <https://tei-energy.org/articles/2025-09-01-africa-solar-imports-surge.html>
52. Transition Economics Institute, "The Grand Ethiopian Renaissance Dam Is Finished", 15 September 2025. <https://tei-energy.org/articles/2025-09-15-gerd-inauguration-power-and-the-nile.html>
53. Transition Economics Institute, "After Belém, the Fossil Fuel Transition Moves Outside the COP", 8 December 2025. <https://tei-energy.org/articles/2025-12-08-cop30-belem-mutirao-fossil-fuel-roadmap.html>
54. International Energy Agency, Global Critical Minerals Outlook 2025, Executive summary, 21 May 2025. <https://www.iea.org/reports/global-critical-minerals-outlook-2025/executive-summary>
55. International Energy Agency, Lithium: outlook for key energy transition minerals, Global Critical Minerals Outlook 2025. <https://www.iea.org/reports/lithium-2>
56. Bloomberg, "China Formalizes Rare Earth Curbs Suspension After Trade Truce", 7 November 2025. <https://www.bloomberg.com/news/articles/2025-11-07/china-formalizes-rare-earth-curbs-suspension-after-trade-truce>
57. Transition Economics Institute, "Congo's Cobalt Quotas Turn a Price Shock Into a Policy", 27 October 2025. <https://tei-energy.org/articles/2025-10-27-drc-cobalt-quotas-replace-ban.html>

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