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Fostering Bangladesh's energy transition

The highly import-dependent energy system requires a strategic reset – renewable energy, efficiency, loss minimisation, and fiscal prudence are key to the sector's sustainability

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Key findings

Heightened risks of global supply disruptions, fiscal burden, and rising costs underscore the importance of fostering Bangladesh’s energy transition. Renewable energy, a natural hedge against fossil fuel supply disruptions and price spikes, contributes to 2.3% of the country’s power generation against the global average of around 33.8%. This highlights the need to swiftly shore up the country’s clean energy capacity.

Currency depreciation and the high prices of imported fossil fuels do not fully explain Bangladesh’s soaring power generation cost. Costly peaking plants alongside capacity payments due to high reserve margin and fuel supply shortage make its power significantly expensive, leading to continued fiscal burden.

In FY2024-25, private oil- and coal-fired power plants received capacity payments of BDT9.5/kWh and BDT5.9/kWh respectively, raising the average generation cost substantially. Bangladesh’s reliance on expensive oil-fired plants for 10.7% of power generation is much higher than India (0.02%), Pakistan (0.6%), and Vietnam (0.06%), which creates an immediate opportunity to utilise renewables and contain costs.

Bangladesh could pay a large subsidy of around USD1.07 billion to import LNG to meet its power demand in April-June 2026. Besides accelerating domestic renewable energy, the country may consider tapping into the potential of regional hydropower post 2030 to limit its reliance on LNG.

The country could further cut its exposure to volatile fossil fuel markets by containing system loss, enhancing energy efficiency, and maintaining domestic gas supply. For the power sector’s sustainability, Bangladesh should reduce its reserve margin, thereby minimising its high subsidies.

Executive summary

Between fiscal year (FY) 2020-21 and 2024-25, Bangladesh's primary energy imports surged from 47.7% to 62.5%, intensifying exposure to highly volatile international fossil fuel markets. Limited investment has led to falling domestic gas supplies, raising the country's dependence on liquefied natural gas (LNG) and other imported fossil fuels. Renewable energy, which provides a natural hedge against fossil fuel price spikes, contributes to only 2.3% of the country's grid-based power generation. The global average for the same stands at 33.8%. As such, any disruption in the global fossil fuel market immediately affects price-sensitive Bangladesh's energy system, increasing its fiscal burden.

Between FY2020-21 and FY2022-23, average power generation costs soared from BDT6.61/kilowatt-hour (kWh) (USD0.054/kWh) to BDT11.33/kWh (USD0.092). While high prices of imported fossil fuels, especially following the Russia-Ukraine war, and the United States Dollar's (USD) appreciation against the BDT are generally considered responsible for the spike in costs, this study shows that capacity payments and expensive peaking plants have also contributed significantly.

For instance, Bangladesh's power sector registered a large reserve margin of 61.3% (58.6% based on derated capacity) in FY2024-25 due to an insufficient growth in demand, resulting in large capacity payment obligations. IEEFA's assessment concludes that private coal-fired and furnace oil-based plants received an average capacity payment of around BDT5.9/ kilowatt-hour (kWh) (USD0.048/kWh) and BDT9.5/kWh (USD0.077/kWh), respectively. Moreover, insufficient fuel supply increased capacity payment in gas-fired plants. Available data shows that load factor influences average generation costs – plants operating at over 75% load factor and less than 25% load factor generated power at around BDT6/kWh (USD0.049/kWh) and BDT16.85/kWh (USD0.137/kWh), respectively.

Bangladesh's reliance on oil-fired peaking power plants stood at 10.7% in FY2024-25, as opposed to well below 1% in India, Pakistan, and Vietnam, raising its power generation costs. Besides, high system losses in the gas sector take a toll on the energy and power sectors.

The latest energy supply disruption, from geopolitical tensions in the Middle East, has also affected the country severely. Bangladesh could end up paying around USD1.07 billion in subsidies for LNG imports during April-June 2026, to secure the equivalent amount of LNG imported in the same quarter of 2025, based on the spot price of about USD20/million British thermal units (MMBtu). The foreign currency constraints could ultimately limit the country's capability to import the required volume of LNG, forcing load shedding. Expensive oil and coal could also increase the subsidy burden. To keep the economy afloat with a sufficient energy supply, Bangladesh has already sought support of about USD2 billion from multilateral agencies.

These challenges highlight the need to revamp Bangladesh's decades-long energy policy frameworks that are built around imported fossil fuels and inherent inefficiencies. The solutions to the persistent problems lie closer to home, such as in expanding domestic renewable energy at scale while limiting fossil fuel-based plants to contain overcapacity.

Further, by tapping into the regional, cost-competitive hydropower potential, Bangladesh could reduce its gas demand, thereby limiting its exposure to price-volatile LNG. For instance, post 2030, a combined hydropower capacity of 6,000 megawatts (MW) for the high-demand March-September period will likely help the country reduce annual gas consumption by up to 257 billion cubic feet (Bcf).

Bangladesh could further assess the opportunity to export power to Bhutan and Nepal during the winter season through the Bangladesh-Bhutan-India-Nepal (BBIN) framework. It could also explore the option of purchasing the highly cost-competitive renewable energy offered in the Indian day-ahead market, thereby reducing its average power generation cost.

The country should encourage industries to shift to grid power, reducing reliance on both captive power and gas boilers, subject to a reliable electricity supply. In addition, demand-side efficiency improvement and reduction in gas sector system losses will likely limit Bangladesh's growing LNG demand. This will help the country devise a realistic plan for domestic gas capacity addition.

To attract capital for a clean energy transition, the government should enhance investors' confidence. The recently approved guidelines for utilising public land in renewable energy projects under the Public-Private-Partnership (PPP) model will likely address the challenges in land acquisition in some projects. The government should fix a timeline from land allocation to selection of private partners, tariff negotiation, and project implementation to avoid delays. Moreover, the government should offer a feasible open access tariff for utility-scale renewable energy projects under the Corporate Power Purchase Agreement (CPPA) to provide the opportunity to industries like garments and corporates to green their operations as part of their greenhouse gas mitigation targets. Besides, distributed renewable energy systems require an urgent waiver/reduction in high import duties for their rapid scale up.

While industrial electrification and domestic renewable energy expansion are central to energy system transformation, Bangladesh should also consistently invest in grid modernisation for reliability and flexibility (see Table 1).

The global energy supply disruption, triggered by the geopolitical crisis in the Middle East, again shows that imported fossil fuels make Bangladesh's energy system vulnerable and increase its fiscal burden. The country should now design an ecosystem that fosters an effective energy transition, gradually insulating it from the high price volatility of fossil fuels in the international market.

Table 1: Recommendations for increasing energy system resilience and curbing costs

Demand projection • Estimate more rational power and energy demand to avoid overcapacity and to contain rising subsidies. • Plan for a power system that maintains a reserve margin of 20%, excluding variable renewable energy.
Expand renewable energy **Domestic** • Set a more ambitious goal for 2050, compared to the 20% and 30% targets for 2030 and 2040, incorporate the government's ambition to install solar capacity of 10,000MW by 2030 and rebuild investor confidence. • Develop a roadmap for renewable energy targets. • In addition to traditional utility-scale projects, utilise the CPPA instrument to help corporations and industries reduce emissions and fix a timeline for renewable energy projects in public lands under PPP model. • Provide a minimum target of incorporating battery energy storage in utility-scale projects. • Take advantage of distributed renewable energy, such as rooftop solar, solar irrigation, etc. • Waive/reduce high import duties on imported components of distributed systems (e.g. rooftop solar) and lithium-ion batteries. **Regional** • Tap into the hydropower potential of BBIN to meet part of future baseload and limit reliance on LNG. • Explore the Indian day-ahead market for cost-effective energy.
Modernise the power grid • Invest in grid modernisation to increase penetration of renewable energy while making power supply more reliable and flexible.
Minimise the use of expensive oil-fired plants • Reduce the contribution of oil-fired plants in total power generation to 5% and 1% by 2030 and 2040, respectively. • Phase out the old oil-fired plants or allow Bangladesh Power Development Board (BPDB) to acquire part of them.
Industrial electrification • **Captive power:** Get half of the industrial sector to switch to the national grid by 2030, subject to reliable power supply. This would enhance efficiency and utilisation of the available power capacity. • **Gas boiler:** Encourage the remaining industries to transition from gas boilers to electric boilers or heat pumps by 2030.
Domestic gas • Develop a realistic plan to enhance domestic gas supply, attract investment in the sector, and limit dependence on imported LNG. • Enhance capacity of Bangladesh Petroleum Exploration and Production Company. • Utilise the potential of regional hydropower to contain the surging LNG demand.
Limit losses • Reduce technical grid losses in the power sector to around 8% and 6% by 2030 and 2035, respectively. • Reduce unaccounted for gas (losses due to pilferage and leakage in old pipelines) to 2% by 2030.

Energy efficiency improvement

- Maintain 1.5% energy efficiency improvement rate per annum till 2030 and move to more ambitious energy efficiency goals post 2030.
- Fix energy efficiency standards and labels of all essential appliances by 2035.
- Waive/reduce import duties on the components of efficient appliances.

Cooking and electric vehicles (EVs)

Cooking

- Develop a holistic clean cooking plan that includes provision of improved cookstoves, LPG, and electric cooking.
- Transition to electric cookstoves gradually to avoid sudden surge in demand for grid power.
- Standardise electric cookstoves to ensure energy efficiency.

EVs

- Devise a roadmap for promotion of EVs.
- Bring electric three-wheelers (E3Ws) under a national monitoring mechanism.
- Develop sufficient solar-powered charging facilities for EVs to reduce unaccounted for electricity consumption.

Background

Energy and power sector models that do not properly consider key system parameters like import dependence, currency risks, and reserve margin could undermine the benefits of substantial infrastructure investments, leading to a growing fiscal burden. Bangladesh currently experiences similar challenges.

Once driven by industry-led high economic growth, Bangladesh's power sector expansion model transformed it from a power-deficient to a power-surplus country by 2019. However, the COVID-19 pandemic, followed by the Ukraine-Russia conflict, resulted in a period of lower-than-expected economic growth and exposed the country's vulnerability to high dependence on the volatile international fossil fuel market. Despite the rising overcapacity and fuel supply uncertainty, the country continued building new power generation capacity.

The maximum grid-based power demand registered in FY2024-25 was 17,000 megawatts (MW) against an installed capacity of 27,424MW (derated capacity: 26,955MW) recorded on 30 June 2025.[1] This demonstrates a high installed capacity that exceeded the 20% reserve margin, requiring payments for idle power plants as contractual obligations. Further, people with lower power consumption enjoy subsidised tariffs. A gap of over Bangladeshi Taka (BDT) 5/kilowatt-hour (kWh) (USD0.041/kWh) between power generation costs and selling price imposes a heavy fiscal burden on the government. Between fiscal year (FY) 2018-19 and FY2024-25, power sector subsidy surged from BDT79.7 billion (USD0.65 billion) to BDT386.7 billion (USD3.15 billion), marking a 4.85-fold rise.[2,3] Despite allocating a record subsidy in FY2024-25, the power sector's losses reached BDT170.2 billion (USD1.39 billion).[4]

Bangladesh's energy sector too faces similar subsidy issues. High cost of imported liquefied natural gas (LNG) strains the energy sector. Despite gas tariffs rising by 271% in January 2023-April 2025, the government allocated BDT60 billion (USD0.49 billion) to cover the LNG import subsidy in FY2025-26.[5,6]

In July 2025, the International Monetary Fund (IMF) called for reducing the subsidy burden in power and energy sectors.[7] Upon taking office on 17 February 2026, Bangladesh's new government vowed to reduce system loss and costs to halt power tariff adjustments.[8]

[1] Bangladesh Power Development Board (BPDB). Daily Generation Archive. Date Accessed: 1 April 2026.
[2] BPDB. Annual Report 2018-19 to 2024-25. Date Accessed: 25 February 2026.
[3] USD to BDT conversion rate considered: BDT122.75/USD
[4] BPDB. Annual Report 2024-25. 9 October 2025. Pages 90 and 102.
[5] IEEFA. Bangladesh's Energy Efficiency Goals Within Reach. 17 December 2025. Page 14.
[6] Energy and Mineral Resources Division. Bangladesh's Energy Sector: Current Situation and Future Plan. February 2026. Page 12.
[7] The Daily Star. Govt to Cut Subsidies under 3yr IMF-backed Plan. 18 July 2025.
[8] The Financial Express. No Power Tariff Hike Likely in Two Years. 23 February 2026.

Two weeks later, the elevated prices of fossil fuels in the international market due to the geopolitical crisis in the Middle East have raised concerns about the urgency of securing additional funds for energy imports. Without an alternative route, the government has solicited financial support from multilateral agencies for approximately USD2 billion in March 2026.[9] The Bangladesh government has increased prices of different fuel oils and will likely increase power tariffs to enhance sustainability. However, it should identify areas to minimise costs and remove inefficiencies to ensure that the people are not compelled to bear the full subsidy burden. Furthermore, the elevated risk of fossil fuel dependence is a clear signal to swiftly expand renewable energy in the country, thereby reducing its import dependence and fiscal strains.

> **The elevated risk of fossil fuel dependence is a clear signal to swiftly expand renewable energy in the country, thereby reducing its import dependence and fiscal strains.**

This study examines the key factors that continue to deepen financial distress in the energy and power sectors. It then assesses key areas that the country can prioritise to reset these sectors and gradually make them sustainable. The study aims to offer a more coherent and enabling ecosystem to advance Bangladesh's energy transition.

Prevailing challenges in energy and power sectors

Bangladesh's domestic gas production declines while its renewable energy sector remains underexplored. Besides, high reserve margin and associated capacity payments in the power sector, expensive peak electricity generation and system losses in the gas sector pose significant challenges to the country's current fossil fuel-heavy energy system.

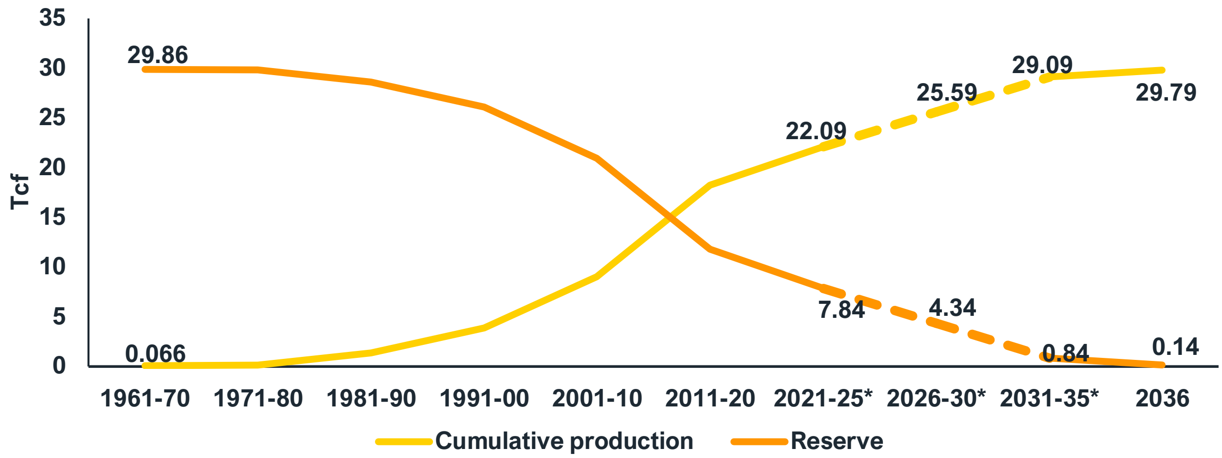
Limited success in harnessing local resources

Gas production

From 1961-70, Bangladesh consumed only 0.066 trillion cubic feet (Tcf) of its recoverable gas reserve of 29.94Tcf. Gas consumption started to increase from the 1980s onwards.[10] At the current level of annual production of 696.1Bcf (approximately 700Bcf), the country's remaining gas reserve will likely be depleted by 2036, barring discovery of new domestic sources (see Figure 1). LNG imports started in 2018 and by FY2024-25, it contributed to 28.8% of the country's total gas consumption of 978Bcf.[11,12]

[9] TRT World. Bangladesh Seeks $2 Billion in Loans to Tackle Energy Security Amid Middle East War. 21 March 2026.
[10] Hydrocarbon Unit (HCU). Annual Report on Gas Production, Distribution and Consumption 2024-25. November 2025. Page 44.
[11] IEEFA. Bangladesh's LNG Dependence Raises Concerns about Energy Resilience. 29 December 2025.
[12] Contribution of LNG: [281.9Bcf/ (696.1+281.9)] = 28.8%

Figure 1: Falling local gas reserves (without a significant new discovery)

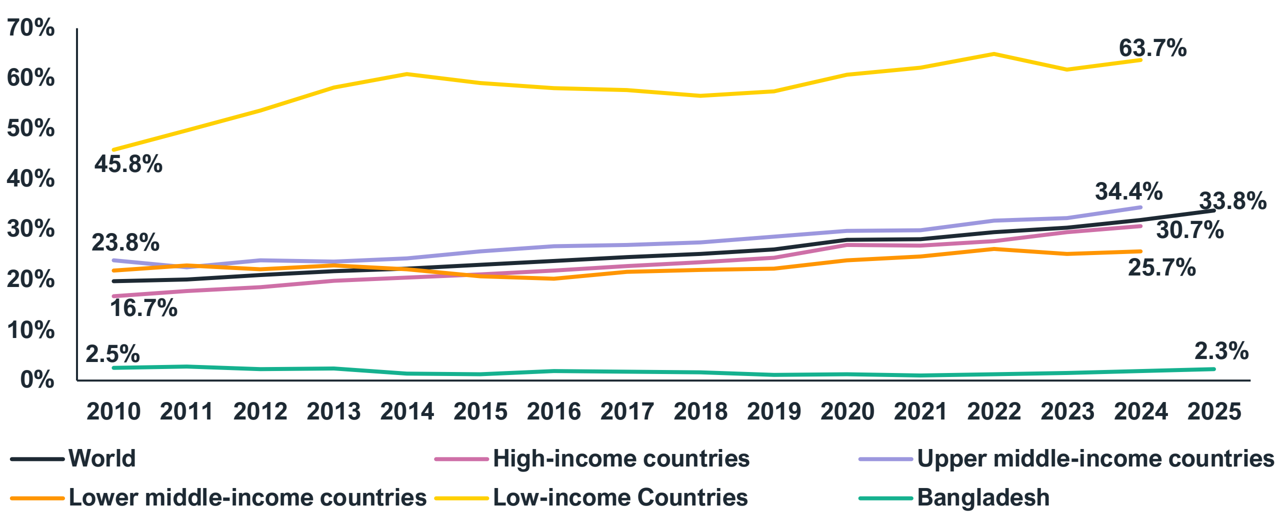


Sources: HCU; IEEFA's Analysis.
**From 2026 onwards, this graph considers average annual gas production of 700Bcf. However, this consumption trajectory may significantly fall.*

Low renewable energy share in power generation

Renewable energy accounted for approximately 2.3% of Bangladesh's domestic power generation in 2025, marginally lower than the 2010 level.[13] Its overall performance remains well below the 33.8% global average and the 25.7% average of lower-middle income countries (see Figure 2).[14]

Figure 2: Bangladesh's renewable energy share in power generation as compared to various country groups



Sources: Ember; BPDB; IEEFA's Analysis

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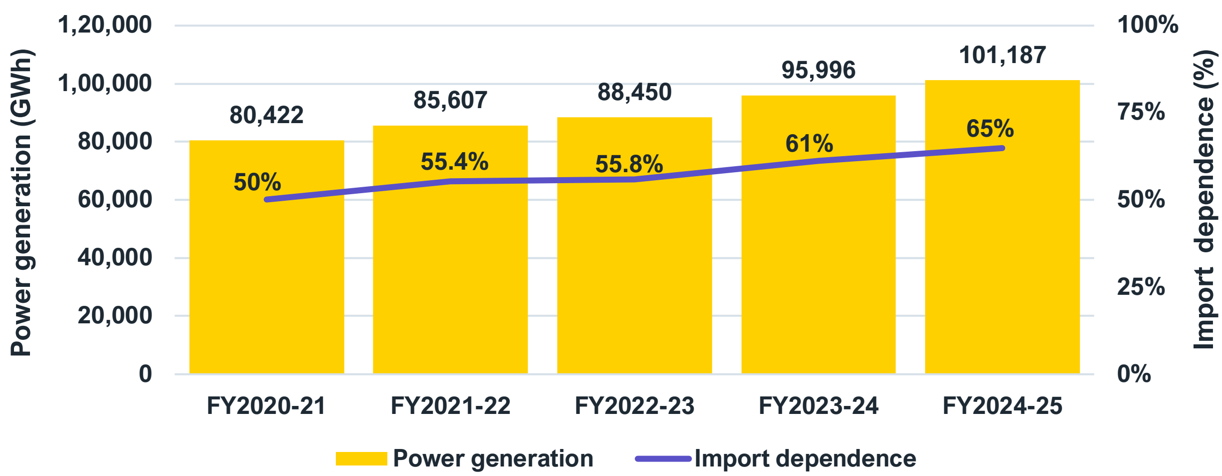
[13] BPDB. Annual Reports 2009-10 to 2024-25. Date Accessed: 20 February 2026.
[14] Ember. Energy Institute – Statistical Review of World Energy (2025) – with Major Processing by Our World in Data. 2026. Date Accessed: 28 April 2026.

Dependence on imported fossil fuels

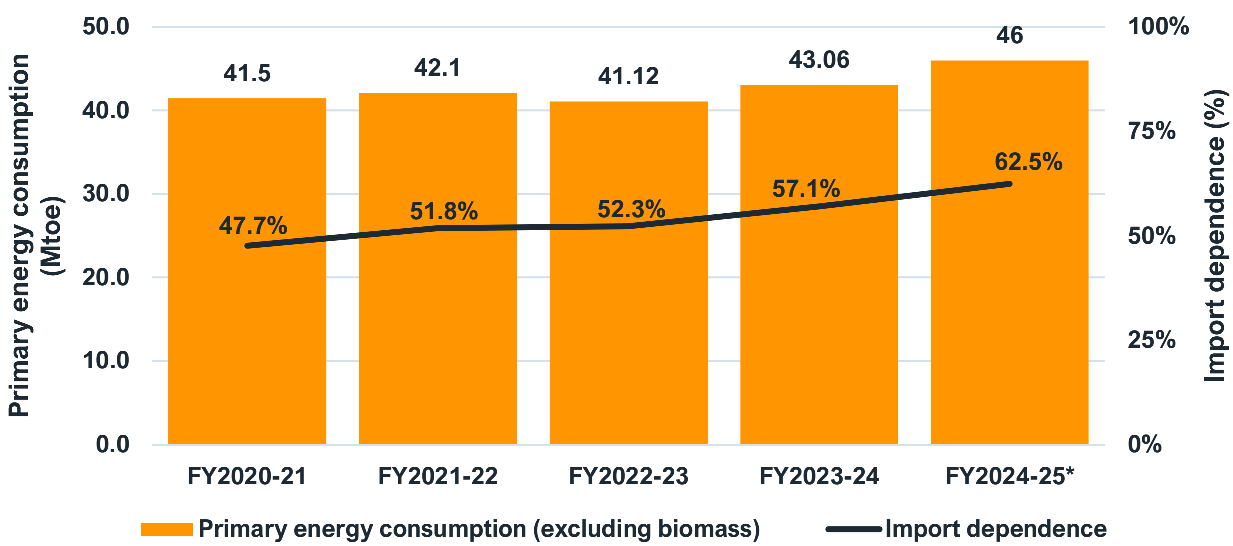
Between FY2020-21 and FY2024-25, power sector imports rose from 50% to 65% (see Figure 3). At the same time, primary energy imports, dominated by fossil fuels, surged from 47.7% to 62.5% (see Figure 4).

Figure 3: Import dependence in the power sector



Sources: BPDB; HCU; IEEFA's Analysis

Figure 4: Import dependence in the energy sector



*Sources: HCU; BPDB; IEEFA's Analysis. *Data for FY2024-25 not available fully. Note: While the HCU uses the generation capacity of plants in case of renewable energy and imports in calculating primary energy consumption in Mtoe, IEEFA considers actual generation from renewable energy plants and actual power imports.*

Growing import dependence has caused persistent vulnerabilities in Bangladesh's energy and power sectors. An abrupt surge in prices in the international markets made fuel imports more expensive between January 2022 and July 2024, raising domestic costs.[15,16] Prices increased further as USD appreciated against the BDT. The increase in import bills affected the country's reserves, limiting its capacity to ensure uninterrupted energy supply, resulting in load shedding and energy supply rationing in 2022-24.

However, other facts also contribute to the sector's rising costs and subsidies.

Between FY2020-21 and FY2024-25, Bangladesh's average grid power generation cost rose 83% from BDT6.61/kWh (USD0.054/kWh) to BDT12.1/kWh (USD0.0986/kWh). The power sector experienced a massive increase of 71.4% between FY2020-21 and FY2022-23 [from BDT6.61/kWh (USD0.054/kWh) to BDT11.33/kWh (USD0.092/kWh)].[17] During the latter period, the country generated 50-60% of its power from gas-fired plants. Oil and coal contributed up to 23.34% and 11.4% respectively to power generation. Renewable energy had a meagre share of less than 2%. It imported the remaining power through cross-border trade.

Volatile LNG prices do not affect power generation cost in Bangladesh as the government keeps gas prices fixed in the power sector. However, the country relies on imported coal for all its coal-fired plants, excluding Barapukuria. Likewise, it depends on imported oil for power generation. Therefore, this study considers coal and oil as significant contributors to the rising power generation cost during the stated period.

For instance, the average coal price based on the Newcastle index increased by 290% between FY2020-21 and FY2022-23 (note: average generation cost remained steady in FY2023-24) (see Figure 5 and Annexure 2; Bangladesh takes the average of Newcastle and Indonesian indexes to determine coal price. The Newcastle Index is shown here).[18] Between FY2020-21 and FY2022-23, furnace oil remained very expensive from February 2022 to July 2022 (hovered around USD450/tonne and even crossed USD500/tonne for a brief period) but remained at the pre-Ukraine-Russia conflict price afterwards (see Figure 6; the 180 cst index reflects the price trend of furnace oil that Bangladesh imports). Between FY2020-21 and FY2022-23, the USD appreciated by 28.3% against the BDT.[19]

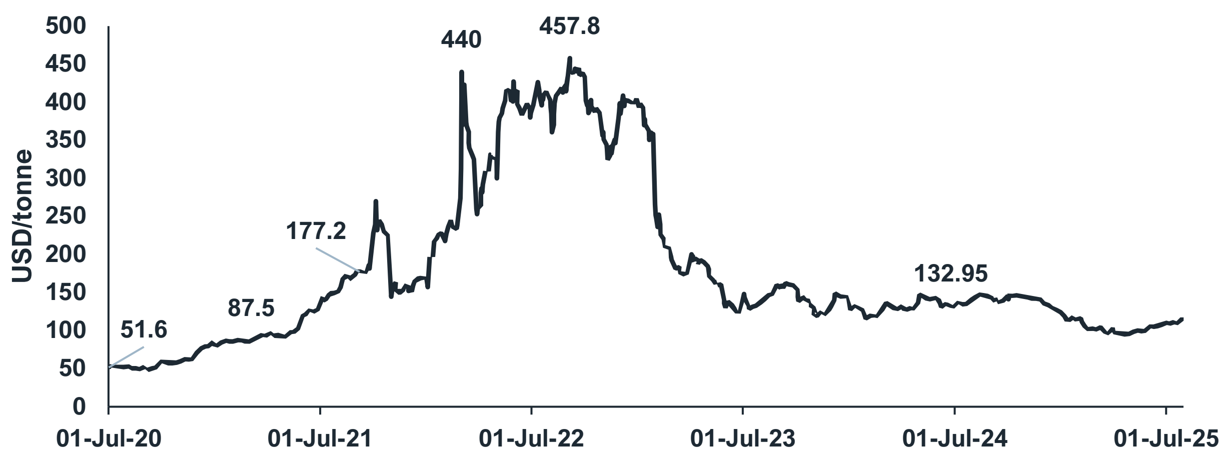
Despite the falling fossil fuel prices, the average power generation cost in FY2024-25 demonstrated a year-on-year increase of 6.6%. The average price of coal in FY2024-25 fell to USD122.18/tonne

[15] While the Newcastle Coal price showed a temporary rise in October 2021, it remained expensive and volatile after Russia's invasion of Ukraine. The highest prices recorded from January 2022-December 2022 and from January 2023-December 2023 were USD457.8/tonne and USD397.5/tonne, respectively.
[16] Price of furnace oil (Singapore fuel oil 180cst) soared from just over USD420/tonne to over USD540/tonne between 3 January 2022 and 11 April 2022. Price of furnace oil fell afterwards and occasionally crossed USD430/tonne till July 2024.
[17] BPDB. Annual Report 2020-21 to 2024-25. Date Accessed: 25 February 2026.
[18] Average coal prices in FY2020-21 and FY2022-23 were USD77.7/tonne and USD303.4/tonne, respectively, calculated from daily coal price as per the Newcastle Index.
[19] Rate of USD appreciation: Ratio of Bangladesh Bank's selling price of USD on 30 June 2023 to the same recorded on 5 July 2021.

compared to USD303.4/tonne in FY2022-23 (see Figure 5 and Annexure 2). Oil price also hovered at a much lower level in FY2024-25 compared to the previous three years (see Figure 6 for the trend of oil price; the price trend of gas is excluded as Bangladesh charges power plants a fixed gas price irrespective of the import cost of LNG). Moreover, the USD rose by only 4.1% in FY2024-25 compared to FY2023-24.[20] Therefore, Bangladesh's power generation cost is influenced by factors other than just the price volatility of fossil fuels and currency depreciation.

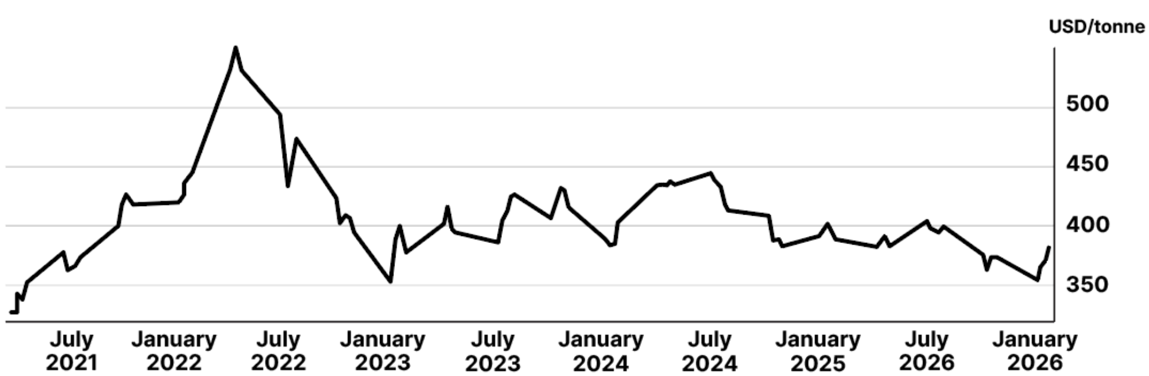
> **Bangladesh's power generation cost is influenced by factors other than just the price volatility of fossil fuels and currency depreciation.**

Figure 5: Price trend of coal based on Newcastle Index (6,000kcal/kg)



Sources: Investing.com; IEEFA's Analysis.

Figure 6: Price trend of Singapore fuel oil 180cst



Source: Financial Times.

[20] Ratio of Bangladesh Bank's selling price of USD on 30 June 2024 to the same on 30 June 2025.

High reserve margin and fuel shortage escalate costs

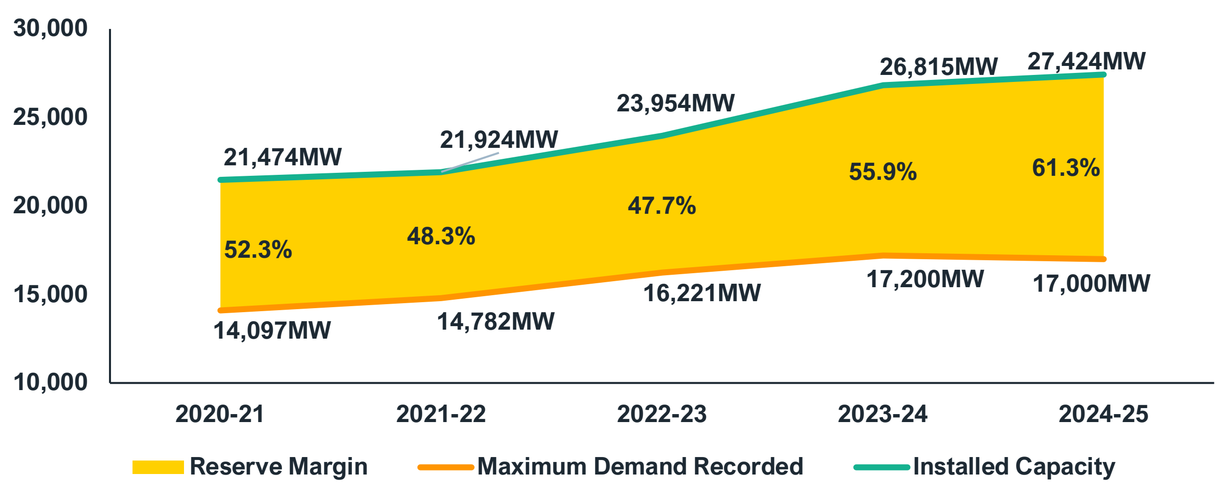
Bangladesh's power capacity expansion to ensure 100% access to electricity and to meet the anticipated high growth in demand ultimately raised the sector's reserve margin. Between FY2020-21 and FY2024-25, the reserve margin surged from 52.3% to 61.3% on an installed capacity basis (see Figure 7a).[21] The reserve margin showed a similar trend when the derated capacity was considered (see Figure 7b).

With an on-grid variable renewable energy share of 2.9%, the reserve margin is too high for Bangladesh's power sector. IEEFA's analysis indicates that power systems of countries like India and Vietnam have high reserve margins, including variable renewable energy capacity. Their reserve margins, excluding variable renewable energy, however, fall below 30%.[22] Bangladesh's reserve margin falls very little when renewable energy is excluded.

> **IEEFA's analysis indicates that power systems of countries like India and Vietnam have high reserve margins, including variable renewable energy capacity. Their reserve margins, excluding variable renewable energy, however, fall below 30%. Bangladesh's reserve margin falls very little when renewable energy is excluded.**

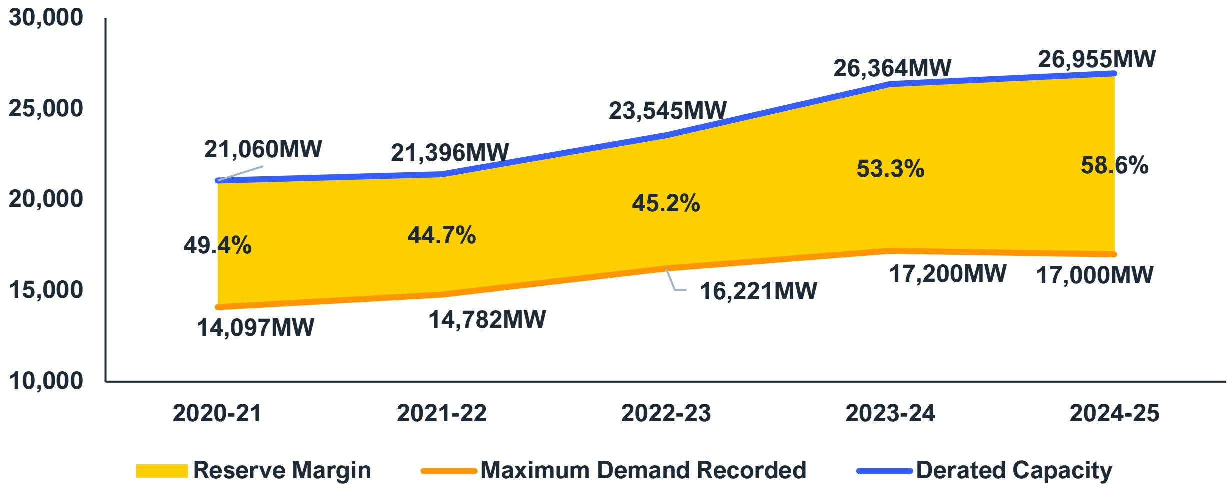
Figure 7: Bangladesh's power sector reserve margin

a. Reserve margin based on installed capacity*



[21] Taking the registered maximum peak demand.
[22] IEEFA. Fixing Bangladesh's Power Sector. December 2024. Page 11.

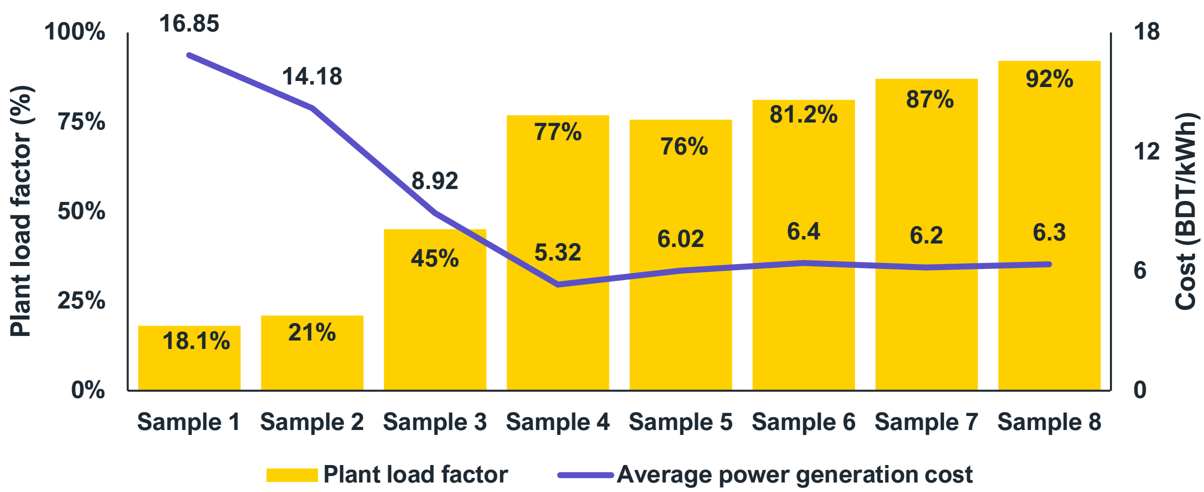
b. Reserve margin based on derated capacity*



*Source: Power Grid Bangladesh PLC; BPDB's daily Generation Archive; BPDB's Annual Reports; IEEFA's Analysis; * Excluded the plants that are under long-term maintenance.*

The high reserve margin means plants remain underutilised, accruing capacity payments as part of contractual obligations and raising average power generation cost. The problem compounds when foreign currency shortages disrupt fuel imports, leading to a rise in idle power capacity and associated payments. A closer inspection of some gas-fired Independent Power Producers (IPPs) reveals that their power generation cost varies substantially with changing plant load factor. For example, the average cost ranged from BDT 5.32/kWh (USD0.043/kWh) to BDT6.4/kWh (USD0.052/kWh) in plants when operating at over 75% load factor. In contrast, plants operating at less than 25% load factor produced electricity at a high cost of up to BDT16.85/kWh (USD0.137/kWh) (see Figure 8). The fixed cost, i.e., capacity charge, intensifies the average generation cost of a plant operating at a lower load factor (see Annexure 1 for details).

Figure 8: Impact of plant factor on cost in selected gas-fired plants



Source: BPDB; IEEFA's Analysis.

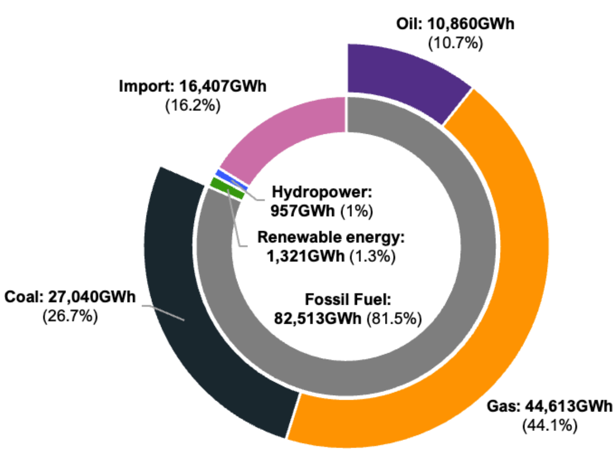
Besides, IEEFA's assessment concludes that coal-fired power plants, excluding the BPDB's units, produced power at an average cost of BDT13.13/kWh (USD0.107/kWh) in FY2024-25.[23] With fuel cost hovering at approximately BDT7.24/kWh (USD0.059/kWh), these plants received an average capacity payment of around BDT5.89/kWh (USD0.048/kWh) in FY2024-25, contributing significantly to Bangladesh's power generation cost.[24] At the same time, oil-fired IPPs received about BDT9.5/kWh (USD0.077/kWh) (see Annexure 1 for details).[25]

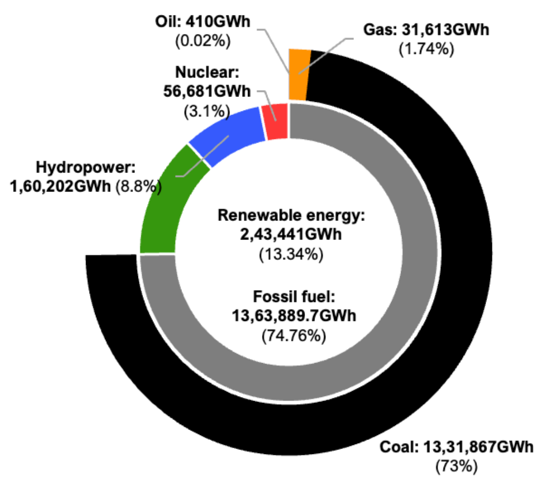
Costly peaking power plants

Bangladesh continues to rely heavily on expensive furnace oil-based power plants to meet peak demands. In FY2024-25, the furnace-oil-fired plants cost the country about BDT27.5/kWh (USD0.224/kWh) against the average grid-based power generation cost of BDT12.1/kWh (USD0.0986/kWh).[26,27] Bangladesh's share of oil-fired power generation (10.7%) is too high compared to its regional peers, i.e., India (0.02%) and Pakistan (0.6%). The country also depends far more on oil-fired power than Vietnam (0.06%), which remains its competitor in apparel export (see Figure 9).

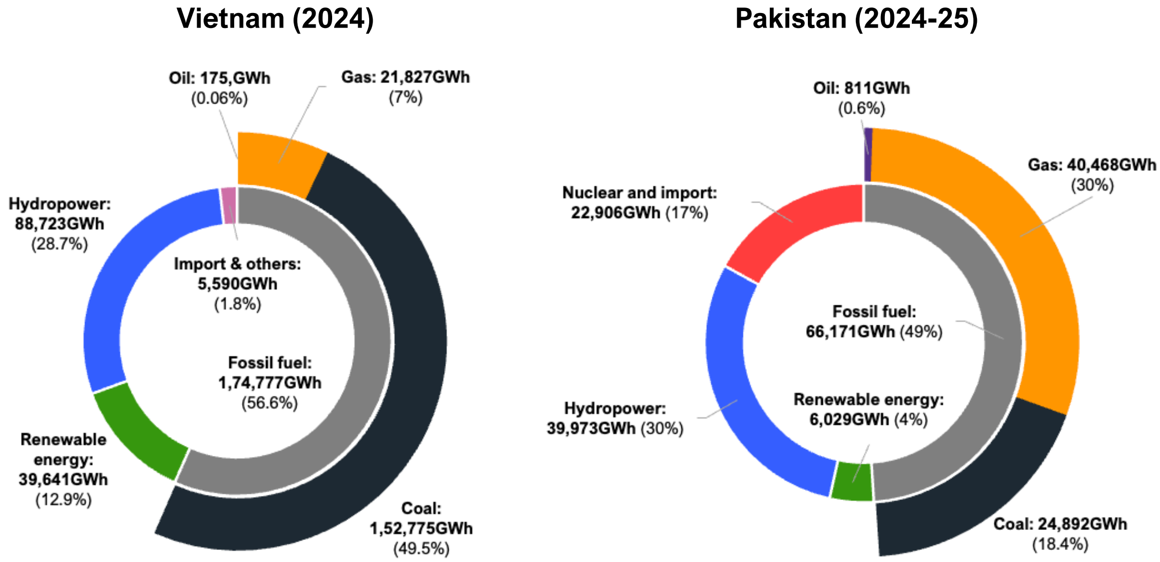
While the government tried to limit the operation of expensive oil-fired power plants in January 2025, it could not achieve the goal.[28] Insufficient renewable energy capacity compels the country to use oil-fired plants during peak hours. A comparison with the energy mixes of India, Pakistan, and Vietnam shows that Bangladesh remained significantly behind in ramping up renewable energy capacity.

Figure 9: Share of oil in power generation in selected countries





[23] Plant-specific total generation and costs are considered.
[24] Fuel cost per kWh is deducted from average generation cost to derive capacity charge per kWh.
[25] Calculated from the average generation cost and fuel cost of more than 40 oil-fired IPPs.
[26] BPDB. Annual Report 2024-25. 9 October 2025. Page 90.
[27] While the annual report provides the average generation cost of grid-based power, it does not estimate the average cost of power from oil-fired plants. Based on individual plant data, IEEFA calculates the average power generation cost of oil-fired plants.
[28] New Age. PDB Plans to Cut Cost by Tk 10,000cr in FY25. 18 January 2025.



Sources: BPDB; NITI Aayog and Central Electricity Authority (CEA), India; National Electric Power Authority (NEPRA), Pakistan; Vietnam Electricity (EVN); IEEFA's Analysis.*
**Both CEA and NITI Aayog's data are used to estimate the share of oil in India's power generation.*

> **Bangladesh's share of oil-fired power generation (10.7%) is too high compared to its regional peers, i.e., India (0.02%) and Pakistan (0.6%). The country also depends far more on oil-fired power than Vietnam (0.06%), which remains its competitor in apparel export.**

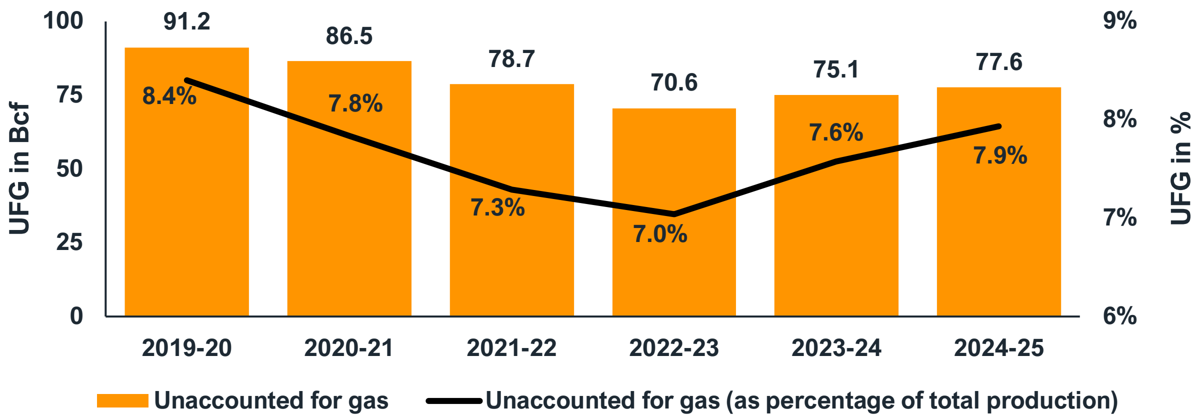
Transmission, distribution, and unaccounted energy losses

The transmission and distribution (T&D) systems of Bangladesh's energy and power sectors offer a significant opportunity to contain losses, minimising considerable energy consumption.

For instance, losses termed as unaccounted for gas (UFG) are very high in Bangladesh. After a gradual improvement from 8.4% to 7% between FY2019-20 and FY2022-23, the country's UFG again rose to 7.95% in FY2024-25 (see Figure 10). This means a massive 77.7 Bcf of gas did not reach the intended consumers.

Two factors contribute to this loss – gas pipelines installed 40 to 50 years ago have developed leakages amid a lack of proper maintenance and replacement work. Further, unauthorised consumers use gas without paying for it. However, the leakages in older pipelines are primarily responsible for high UFG.

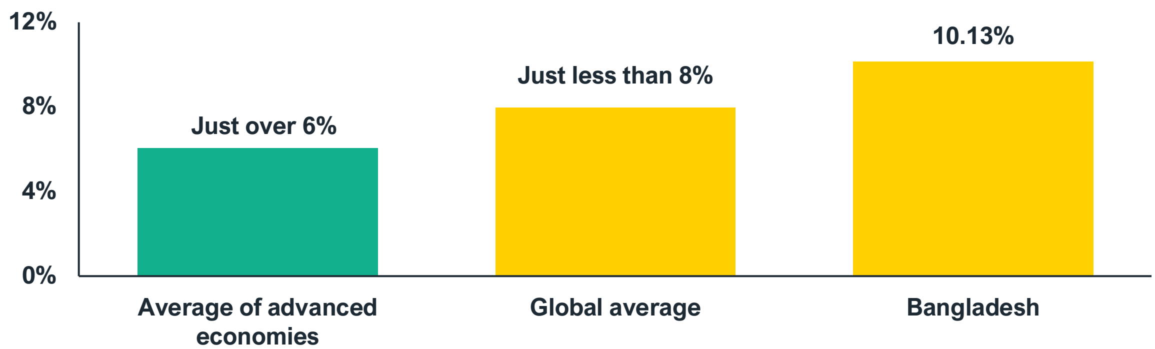
Figure 10: UFG in Bangladesh



Sources: Bangladesh Oil, Gas and Mineral Corporation; HCU; IEEFA's Analysis

T&D losses in Bangladesh's power sector increased marginally to 10.13% in FY2024-25 from 10.06% in FY2023-24 after decades of significant reduction.[29] Notably, these losses are still higher than the global average technical grid losses, offering a significant window of opportunity for the country to reduce energy wastage (see Figure 11).

Figure 11: Technical grid losses at global level vs Bangladesh's T&D losses



Sources: IEA; BPDB; IEEFA's Analysis

Broader energy efficiency and conservation

Between FY2014-15 and FY2023-24, Bangladesh achieved an average energy efficiency improvement of 1.52% per annum.[30] However, there is still untapped energy efficiency potential in industry, commercial, and household sectors with the prospect of cutting back on imported fossil

[29] BPDB. Annual Report 2024-25. 9 October 2025. Page 10.
[30] IEEFA. Bangladesh's Energy Efficiency Goals within Reach. 17 December 2025.

fuels. Bangladesh can further reduce energy consumption by raising awareness among people on energy conservation and its dividends.

Rationale for advancing Bangladesh's energy transition

Rising costs, high subsidy burden, and inefficiencies affect the resilience of Bangladesh's business-as-usual (BAU) energy model and highlight the importance of energy independence. As the country built significant fossil-fuel reliant power capacity, the current system is unlikely to rectify the sector's problems. Meanwhile, the latest fuel supply disruption in the Middle East calls for the need to accelerate the clean energy transition to enhance the system's resilience.

> **Rising costs, high subsidy burden, and inefficiencies affect the resilience of Bangladesh's business-as-usual (BAU) energy model and highlight the importance of energy independence.**

The force majeure leading to the suspension of long-term LNG contracts with Qatar and Oman has compelled Bangladesh to increase its exposure to the heated spot market. It purchased LNG at higher-than-usual costs, ranging from USD19.77/MMbtu to USD28.28/MMBtu in March 2026.[31] This is driving up Bangladesh's energy bills and subsidies considerably. The nine LNG cargoes procured from the spot market in March 2026 resulted in a subsidy of approximately BDT67.05/m^3 (USD0.55/m^3), excluding regasification and terminal costs (see Annexure 3).[32] To meet the summer power demand, Bangladesh will likely require importing a significant amount of LNG from the spot market in the event of a prolonged supply disruption. If, following last year's trend, it imports approximately 77.32Bcf LNG during April-June 2026, it will likely incur an additional subsidy of USD1.07 billion (BDT131.34 billion) based on the spot price of USD20/MMBtu, excluding regasification and terminal costs. If the spot price rises, the country's subsidy burden will go up too, with the need to adjust tariffs. There is also a high risk of delay in bringing Qatar's LNG capacity back online following the reported damage to the infrastructure.[33] This may raise both cost and supply volatility, severely affecting a price-sensitive LNG buyer like Bangladesh.

Similarly, Brent Crude oil price surged by 46.8% between 27 February and 20 March 2026.[34,35] Its price remains elevated due to continued uncertainty in the Middle East. The cost of refined products

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[31] IEEFA. Renewables are a Natural Hedge Against Fossil Fuel Shocks. 6 April 2026.
[32] Ibid.
[33] Reuters. Iran Attacks Wipe Out 17% of Qatar's LNG Capacity for up to Five Years, QatarEnergy CEO Says. 20 March 2026.
[34] Investing.com. Brent Oil Futures Historical Data. Date Accessed: 21 March 2026.
[35] Price recorded on 27 February and 20 March 2026: USD72.48/barrel and USD106.41/barrel respectively.

such as diesel shows an even steeper increase compared to the crude oil price.[36] This will affect Bangladesh on multiple fronts – higher diesel price will raise the cost of irrigation, oil-based captive power generation in industries, and transportation. By the first week of March 2026, coal price rose by 8.6%. [37] The difficulty in importing sufficient fossil fuels could lead to widespread loadshedding.

The BPDB is already ridden with debt, facing a revenue shortfall of BDT556.6 billion (USD4.53 billion) in FY2024-25, which will further surge as a ripple effect of current Middle East crisis. Meanwhile, the IMF, while evaluating the terms before releasing the sixth tranche of its USD5.5 billion loan facility (extended from USD4.7 billion), has suggested that Bangladesh reduce the power and energy subsidy burden by 2028.[38]

While different countries steadily evolved in the last decade and some countries, like Pakistan, pushed for an energy transition in the aftermath of the Ukraine-Russia conflict, Bangladesh's efforts fell short, deepening the financial risk of its power and energy sectors (see Box 1 below on the impact of solar expansion on Pakistan's LNG import). Amid the recurring fuel supply disruptions, 2026 could mark an inflection point for the country to redesign its energy system, pursuing an effective transition. Policy makers must plan this transition, focusing on renewable energy and its benefits against global fossil fuel volatility.

> **2026 could mark an inflection point for the country to redesign its energy system, pursuing an effective transition. Policy makers must plan this transition, focusing on renewable energy and its benefits against global fossil fuel volatility.**

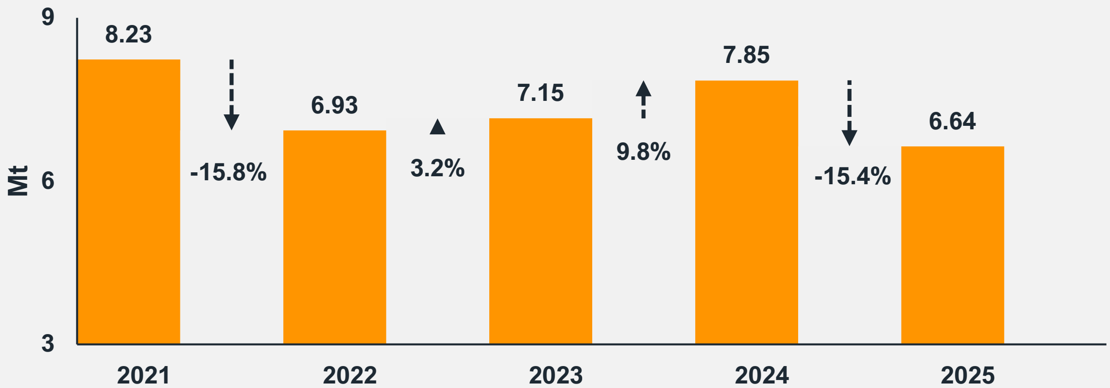
Box 1: Solar boom helps Pakistan limit its LNG dependence

As of 2025, Pakistan had added a combined rooftop solar capacity of 34,000MW, leading to a 11% drop in grid-based power demand, as compared to 2022.[39] Its year-on-year LNG demand contracted by 15.4% in 2025 (see Figure 12). Power supply disruptions and high tariffs motivated stakeholders, including households and industries, to pursue rooftop solar in Pakistan.[40]

While the country's fall in LNG demand after 2022 was temporary, the decline recorded in 2025 is likely to be sustained. This is because its solar power growth has already resulted in surplus LNG volume of 177 cargoes to offload elsewhere between 2026 and 2031.[41]

[36] Bloomberg. The Biggest Oil Risk Is at the Bottom of the Barrel. 15 March 2026.
[37] Bloomberg. Coal Prices Jump as Qatar Halt Boosts Fuel-switching Needs. 3 March 2026.
[38] IEEFA. What Bangladesh's New Government Must Prioritise to Tackle Power and Energy Challenges. 5 March 2026.
[39] IEEFA. Pakistan's LNG Surplus Crisis: Assessing Evolving Energy Dynamics and the Need for Flexibility. 19 March 2026. Page 5.
[40] IEEFA. Rooftop Solar's Time to Shine in Bangladesh. 18 August 2025. Pages 4-5.
[41] IEEFA. Pakistan's LNG Surplus Crisis: Assessing Evolving Energy Dynamics and the Need for Flexibility. 19 March 2026. Page 1.

Figure 12: Pakistan's LNG import trend



Sources: Kpler; IEEFA's Analysis

While Bangladesh's distributed rooftop solar capacity is very low (reportedly around 356MW), even a modest expansion of a couple of thousand MW can reduce its dependence on imported fossil fuel.[42,43]

Key areas to shape Bangladesh's energy transition

As Bangladesh will likely finalise its Energy and Power Sector Master Plan 2026 (EPSMP 2026) soon, policymakers should build on lessons from the prevailing vulnerability to improve the country's energy resilience and independence. The plan should draw on expert inputs through rigorous consultations for a consensus on the country's energy transition pathway.

To resolve long-standing issues like capacity payments, the plan should avoid ambitious demand projections. The EPSMP 2026 should acknowledge that the problem with LNG lies in high costs and global energy market volatility. Instead, the country should now strongly consider renewable energy and energy efficiency. Among other things, it should refrain from advocating for underperforming and expensive carbon capture and storage (CCS) technology to bury carbon underground.

Rationalising expansion of fossil fuel plants based on demand

As of February 2026, Bangladesh's installed power generation capacity stood at 28,919MW (derated capacity: 28,494MW) against the highest peak demand of 17,200MW recorded in 2024.[44,45] The

[42] SREDA. Net Metering Rooftop Solar. Date Accessed: 28 April 2026.
[43] SREDA. Rooftop Solar Except Net Metering. Date Accessed 28 April 2026.
[44] BPDB. Daily Electricity Generation Report. 1 March 2026.
[45] Power Grid Bangladesh PLC. Operations Monthly Report - April 2024. Date Accessed: 27 February 2026.

maximum peak demand may touch 18,500MW in 2026. Since power plants of approximately 6,300MW capacity, including nuclear power, will come online by 2030, Bangladesh's power system capacity will likely cross 35,000MW.[46,47] Even after phasing out expensive and inefficient power plants, the country will possess enough power capacity to meet demand beyond 2030. As such, Bangladesh should avoid adding new fossil-fuel-based capacity, keeping sufficient space for renewables.

Laying the foundation for renewable energy development

Bangladesh aims to meet 20% and 30% of its power demand from renewable energy sources by 2030 and 2040, respectively.[48] Realising the urgency of accelerating renewable energy to address price shocks of fossil fuels emanated from the Middle East crisis, the government has vowed to install solar energy capacity of 10,000MW by 2030.[49] This will require the country to develop a renewable energy action plan that can incorporate both local resources and the vast renewable energy potential of the South Asia region. A combination of domestic and regional efforts will likely reshape Bangladesh's fossil fuel-based primary energy consumption pattern, helping it contain exposure to volatile markets.

> **A combination of domestic and regional efforts will likely reshape Bangladesh's fossil fuel-based primary energy consumption pattern, helping it contain exposure to volatile markets.**

Accelerating domestic renewable energy projects

Bangladesh should develop a framework that will enable the uptake of both utility-scale and distributed renewable energy (DRE) systems and avoid policy uncertainty. For instance, the abrupt cancellation of utility-scale projects that received letters of intent (LOIs) without competition shook investor confidence.[50] While the interim government selected 12 solar projects in 2025 through tenders, in the absence of an implementation agreement (IA), financiers are unlikely to provide loans on favourable terms, delaying project execution.

The issuance of guidelines, allowing public lands in renewable energy projects under Public-Private-Partnership (PPP) in April 2026, is a welcome step to mitigate land acquisition hurdles faced by the

[46] BPDB. Advancement of Power Sector – 14 January 2026. Date Accessed: 20 February 2026.
[47] Half of the capacity of the Patuakhali coal-fired plant and Ghorashal unit 3 are under operation. They are excluded from the under-construction capacity of 7,114MW reported by the BPDB.
[48] Ministry of Power, Energy and Mineral Resources (MPEMR). The Renewable Energy Policy 2025. 23 June 2025.
[49] New Age. Govt Targets 10,000MW Solar Power by 2030. 17 April 2026.
[50] IEEFA. Catalysing Renewable Energy Finance in Bangladesh. 25 June 2025. Page 22.

private sector.[51] However, the delays in traditional PPP projects mean that the government needs to chart a way to eliminate the same in shoring up renewable energy.

Likewise, developers interested in building utility-scale solar projects to support the decarbonisation of the apparel industry and corporations may downgrade their ambitions due to high open access costs. Distribution utilities reportedly proposed an open access cost of up to BDT2.48/kWh (USD0.02/kWh) for projects under CPPAs against the current wheeling charge of BDT0.31/kWh (USD0.0025/kWh) applicable for other power projects.[52]

At the same time, DREs such as rooftop solar face high import duties, ranging from 28.73% to 61.8% on various components, limiting their potential for scaling up.[53,54]

Given the limited progress of the renewable energy sector, Bangladesh can build investor confidence by creating a suitable project pipeline and providing public land under the PPP guidelines. It should also address the concern of financiers through measures such as developing a payment security mechanism, supported by the Multilateral Development Banks (MDBs). Moreover, unless Bangladesh offers an attractive open-access cost, investors and power consumers will shy away from renewable energy projects under CPPAs, hindering the country's energy transition. The government could also incentivise DREs such as rooftop solar by providing a duty waiver for at least a limited period (see Box 2 for details). With growing energy price volatility and supply disruptions, consumers such as households in rural areas and industries will likely prefer energy storage for DREs in the foreseeable future. The government should, therefore, reduce the high import duties on lithium-ion batteries, making them affordable.

Box 2: Recommended measures to support renewable energy

Investors' confidence and guarantee: As the private sector will likely drive Bangladesh's renewable energy transition, the government should attempt to rebuild investors' confidence. To that end, it may develop a project pipeline by allocating public lands according to the PPP modality.[55] The pipeline may comprise previously assessed capacity of 6,000MW solar projects implementable in char areas (islands) of Jamalpur district.[56] As a next step, government agencies can float tenders to select private partners to implement projects from the pipeline under the PPP model. To avoid delays the government can fix a timeline from land allocation to the selection of private partners, tariff negotiation and project implementation.

[51] MPEMR. Guidelines of Development of Renewable Energy Using Land Owned by Government Agencies under PPP Modality, 2026. 7 April 2026.
[52] Jugantor. Concerns about Negative Impact on Investment (Biniyoge netibachok provab porar ashonka). 16 February 2026.
[53] IEEFA. Getting Bangladesh's Renewable Energy Transition on Track. 3 February 2026.
[54] Bangladesh Customs. Bangladesh National Tariff 2025-26. 29 July 2025. Pages 168, 171, 201, 202 and 211.
[55] MPEMR. Guidelines of Development of Renewable Energy Using Land Owned by Government Agencies under PPP Modality, 2026. 7 April 2026.
[56] The Business Standard. Govt Plans 6000MW Solar Power Hub in Jamalpur. 8 May 2024.

Given that the interim government eliminated the 'IA' provision, the present government may consider designing a payment guarantee facility, supported by MDBs, to attract private investment in projects that will not utilise public lands. In a recent case, the World Bank extended guarantees to derisk the payment obligation of Sri Lanka's Ceylon Electricity Board on account of renewable energy purchase, thereby mitigating project risks and building private investors' confidence.[57] With support from the World Bank and other MDBs, Bangladesh can also contemplate designing a payment guarantee facility to dispel concerns of private investors to mobilise the essential capital in its renewable energy transition.

Open access cost: The average tariff of the 12 solar projects selected through recent tenders is USD0.0827/kWh (BDT10.15/kWh).[58] Taking this tariff and incorporating the open access cost of BDT2.48/kWh (USD0.02/kWh), proposed by the utilities, the cost of solar project under CPPA reaches BDT12.63/kWh (USD.103/kWh). This may affect project viability. The assumption that utilities will lose their high paying industrial consumers is untenable as the country is yet to implement a project under the CPPA. Industrial grid-based power consumption showed an annual increase of about 1,125.5GWh (4.8%) in FY2024-25.[59,60] A combined renewable energy capacity of 800MW under the CPPAs could offset this increasing power demand in industry.[61] As the country implemented only 839MW of utility-scale projects since 2018, commissioning of 800MW new solar capacity under CPPAs will take time. Therefore, the government may set a capacity cap for projects to be eligible for lower open access cost under the CPPAs before raising the same.

Duties on rooftop solar: In FY2024-25, Bangladesh reportedly mobilised a total revenue of BDT3,708.74 billion (USD30.21 billion) through direct and indirect taxes.[62] IEEFA's ballpark estimate shows that a combined rooftop solar capacity of 100MW will generate one-off revenue of BDT1.5 billion (USD0.012 billion) on account of import duties. This represents a meagre 0.04% of FY2024-25's annual revenue. However, rooftop solar capacity of 100MW will save the country about BDT50 billion (USD0.41 billion) in its life cycle of 25 years by reducing furnace oil import, excluding fuel tax.[63,64]

[57] World Bank. World Bank Group to Support Sri Lanka's Clean Energy Transition with $150 Million Program. 20 June 2025.
[58] The Business Standard. Solar Tariff: Open Bidding Slashes Rates of New Projects by Over a Third. 2 October 2025.
[59] BPDB. Annual Reports 2023-25. Accessed on 21 February 2026.
[60] Industrial retail power consumption growth = (Consumption in FY2024-25 – Consumption in FY2023-24) = (26.79%*90,939 - 26.94%*86,255) GWh = 1,125.46GWh = ~1,125.5GWh
[61] Approximate annual power generation capacity of 800MW solar project = 800*4*350/1,000 = 1,120GWh
[62] Ministry of Finance. Bangladesh Economic Review 2025 - Fiscal Policy and Fiscal Management. January 2026. Page 32.
[63] In FY2024-25, the furnace oil cost per kWh, excluding fixed charge, was BDT18. The fuel cost becomes BDT14.23/kWh, excluding import duties of 26.5%.
[64] Assumption: Rooftop solar projects will operate for four hours per day for 350 days a year.

Harnessing South Asia's renewable energy potential

The BBIN countries can mutually benefit from the region's vast, untapped renewable energy potential. Bilateral energy trade already exists among these countries. Bangladesh imports 40MW hydropower from Nepal, a country with an economically viable hydropower potential of 40,000MW.[65] Likewise, Bhutan can install a hydropower capacity of about 23,000MW.[66] Notably, both countries have only exploited a fraction of their feasible hydropower potential.

With Bangladesh relying on substantial gas-driven baseload power capacity amid a shrinking domestic fuel supply, hydropower from the BBIN region could ideally reduce this demand, limiting dependence on LNG. Hydropower currently costs USD0.064/kWh (BDT7.86/kWh) against Bangladesh's average power generation cost of BDT12.1/kWh (USD0.0986/kWh) recorded in FY2024-25.[67,68] Even after including less than BDT0.5/kWh (USD0.004/kWh) as the cost of power transmission through India, hydropower is economical for the country and is likely to remain much cheaper than LNG-based power, proving its potential as an important element of Bangladesh's energy system beyond 2030.

A hydropower purchase of 6,000MW (firm capacity) from Nepal and Bhutan during the period of high demand, i.e. March to September, could help Bangladesh reduce annual gas consumption from 223Bcf to 257Bcf (see Annexure 4). The country can invest in Nepal and Bhutan to tap into the regional hydropower potential. It can further explore the scope to export power to Bhutan and Nepal during the lean hydro season, when Bangladesh generally experiences a very high surplus generation capacity.

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Besides, it may explore the likelihood of importing comparatively cheaper electricity from India's day-ahead market through the India Energy Exchange (IEX), advancing further from the current bilateral power trade. The average green day-ahead market price for renewable energy recorded INR4.06/kWh (USD0.044/kWh) in January 2026 could reduce Bangladesh's power generation cost.[69]

[65] IEEFA. Cross-border Electricity Trade among BBIN Countries Offers Mutual Benefits. 28 February 2023.
[66] Ibid.
[67] The Kathmandu Post. Three-nation Deal Signed for Nepal to Trade Power with Bangladesh via India. 3 October 2024.
[68] BPDB. Annual Report 2024-25. 9 October 2025. Page 90.
[69] MERCOM. IEX Electricity Volumes Rise 19.6% YoY to Record 13,050 MU in January. 4 February 2026.

India's day-ahead market offers even cheaper conventional power at INR3.86/kWh (USD0.042/kWh).[70]

India could also benefit from dedicated hydropower plants, if installed in Nepal and Bhutan, to serve its future high power demand while meeting its ambitious clean energy goal.

As geopolitics continues to raise concerns about the risks of energy supply disruptions, highly import-dependent countries will remain vulnerable. Therefore, the South Asia region could elevate energy trade from bilateral to multilateral cooperation, enhancing resilience and building a pathway for energy sufficiency. This will entail developing a favourable ecosystem and leveraging necessary investment in infrastructure.

Managing local gas supply

The considerable success in harnessing domestic renewable energy with battery energy storage systems (BESS), hydropower imports from Nepal and Bhutan, and power purchase from the Indian green day-ahead and day-ahead markets will likely reduce Bangladesh's high dependence on imported gas. For instance, a firm hydropower capacity of 6,000MW will reduce gas demand of about 704 million cubic feet per day (MMcfd) (see Annexure 4). However, the country is unlikely to completely avoid gas reliance in the foreseeable future due to the fuel's relevance in the power sector and industrial production. Within this context, it should ensure efficient use of gas to limit locking in expensive LNG infrastructure. This includes reducing UFG and increasing energy efficiency in captive power and other gas-consuming areas. Bangladesh will further need an industrial transition from gas boilers to electric boilers or heat pumps.

With persistent gas supply constraints, industries have started using alternatives such as compressed natural gas (CNG) and liquefied petroleum gas (LPG). However, CNG supply is limited, and the local LPG market shows sporadic supply and price volatility raising sustainability concerns for industries.[71] Given the BPDB's surplus generation capacity, the transition to electric boilers or heat pumps is feasible provided the country ensures reliable power supply. Many of the operational gas boilers are already old and operate at lower efficiency compared to electric boilers (point of use efficiency nearly 100%).[72] Heat pumps also offer significant energy efficiency.

Apart from these, Bangladesh will require to add at least 500MMcfd of gas to the grid to maintain approximately 3,000MMcfd gas supply, including the existing LNG regasification capacity, till 2045 (this projection includes a demand reduction of about 704MMcfd of gas due to hydropower and 287.7MMcfd of gas due to enhanced efficiency in captive power and other sectors. It further includes gas savings of 164MMcfd owing to reduced UFG). This scenario is developed till 2045, assuming a significant boom in BESS beyond 2030. This will help the country meet a demand of about

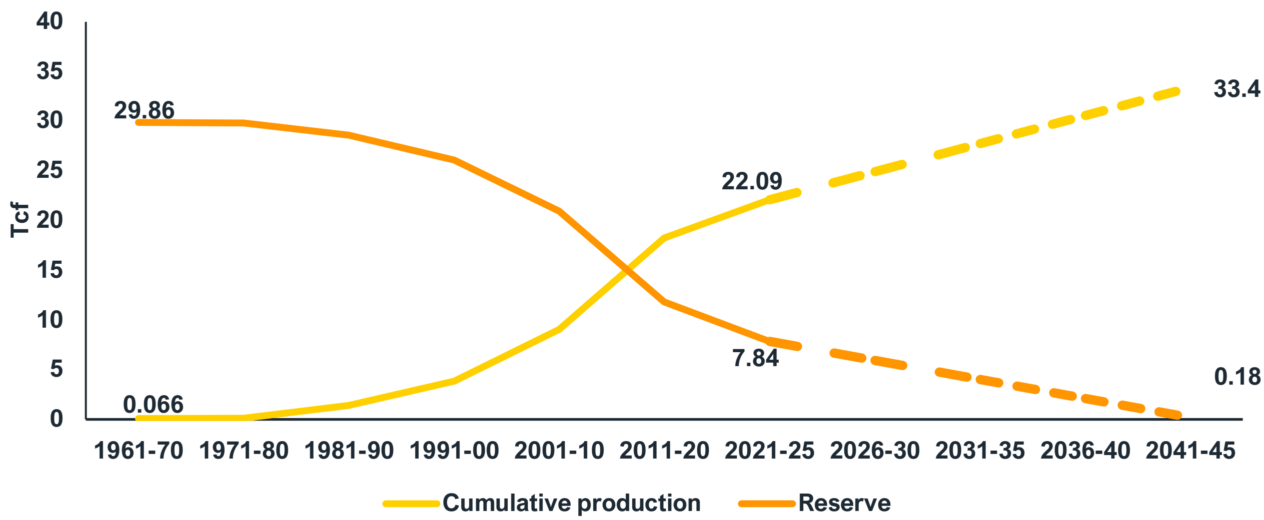
[70] Ibid.

[71] IEEFA. Bangladesh's Next Government Must Prioritise Power Sector Sustainability. 23 January 2026.

[72] IEEFA. Bangladesh's Energy Efficiency Goals within Reach. 17 December 2025.

4,000MMcfd of gas after 2030.[73] However, the scenario will also change significantly if Bangladesh can add 1,000MMcfd gas in addition to enhancing energy efficiency, reducing losses and harnessing regional power.

Figure 13: Local gas supply scenario under enhanced efficiency and reduced losses



Sources: HCU; IEEFA's Analysis. From 2026 onwards, this graph considers average annual local gas supply of 730Bcf (2,000MMcfd gas supply).

Minimising power sector T&D losses

Bangladesh's sustained efforts between FY1999-2000 and FY2024-25 helped bring its power sector's T&D losses, including pilferage, down from 31.8% to 10.13%.[74,75] However, the global average for technical grid losses is less than 8%, and the average for advanced economies' is just over 6% (see Figure 11).

Bangladesh should aspire to achieve the global average for technical grid losses and gradually advance towards the figures achieved by advanced economies.

Other important areas

Cooking and electric vehicles (EVs), including three-wheelers, are vital for Bangladesh's overall energy system planning. While the country aims to achieve clean cooking by 2030, it faces severe

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[73] Total demand reduction of gas after 2030 = (704 + 287.7) = 991.7MMcfd; Remaining demand = 4,000 – 991.7 = ~3,000MMcfd. Domestic gas supply of 2,000MMcfd along with 1,000MMcfd of imported LNG will help meet the gas demand for 3,000MMcfd after 2030.

[74] Power Cell. Overall System Loss. Date Accessed: 17 February 2026.

[75] BPDB. Annual Report 2024-25. 9 October 2025. Page 10.

challenges. Constrained by domestic gas supply shortages, the government has been promoting LPG burners. This demand is now increasing with rising per capita income. However, the LPG supply disruptions during December 2025 and January 2026, due to local market manipulation and financing bottlenecks, led many consumers to purchase electric cookstoves. Increased usage of such cookstoves could severely affect Bangladesh’s power supply, as even 1 million new cookstoves would lead to additional power demand of over 2,000MW.[76] With over 40 million consumers relying on grid power, 5 million new electric cookstove users could significantly strain the power grid by raising an additional demand of 10,000MW.[77] The government should therefore consider planning for cooking energy needs more holistically and consider a gradual transition to electric cookstoves.

Bangladesh could devise a proper plan to accelerate the adoption of various EVs, supported by the required charging facilities. By installing solar-powered charging facilities, the country could even raise the share of renewable energy. However, the country’s vast number of electric three-wheelers (E3Ws) highlights a key challenge of unregulated EV expansion. While the number of E3Ws operating in the country has increased over the last decade, and could have surpassed 5 million, Bangladesh does not have an official record of their number. Hence, utilities cannot properly account for these vehicles’ power consumption. According to BPDB’s annual report, energy consumption from all EVs accounted for 927.58GWh in FY2024-25.[78] This is well below the energy consumption of even 3 million E3Ws, requiring approximately 6,300GWh based on a conservative estimate.[79] This large gap in estimates persists as many people charge E3Ws at home and utilities lose revenue due to lower household power tariffs compared to charging stations. This weakens the financial health of utilities. A proper monitoring mechanism with sufficient charging stations will likely reduce this pilferage.

Recommendations and way forward

Evolving national priorities over the years, coupled with supply disruptions-led price spikes, are gradually reshaping the energy systems of various countries. Likewise, Bangladesh’s energy needs have evolved over the last decade to a varying degree, but its success in translating its transition priorities into implementation has remained limited, as renewable energy contributes to a mere 2.3% of the country’s grid-based power generation. With large subsidy burden and a high exposure to the volatile fossil fuel market, the country has reached an inflection point on the energy transition front.

This study demonstrates that Bangladesh’s energy and power sector challenges are more of a question of policy streamlining to avoid overcapacity, high exposure to the unstable fossil fuel market and inefficiencies while expanding renewable energy. The risk of the BAU energy pathway lies not

[76] Electric cookstoves sold in the market have rated power consumption of up to 2.2KW.
[77] Taking a wattage of 2kW per electric cookstove, the power demand of 5 million cookstoves will reach (5*1,000,000*2/1,000) = 10,000MW
[78] 1.02% of the retail consumption of 90,939GWh = ~927.58GWh.
[79] Energy consumption of 3 million E3Ws = 6,300GWh. Assumptions: motor load = 1kW (normally, it is higher); Charging period = 6 hours per day for 350 days a year (more hours are needed)

only in present uncertainty itself, but also in meeting future demand. This requires devising a proper plan with time-bound activities to achieve and monitor goals.

> **Bangladesh's energy needs have evolved over the last decade to a varying degree, but its success in translating its transition priorities into implementation has remained limited**

Table 2 below provides component-by-component goals and action plans that could foster Bangladesh's energy transition. Ultimately, the pathway to energy transition hinges on prudent policy decisions about implementing targets on the ground, thereby minimising the country's heavy reliance on imported fossil fuels and high subsidies.

Table 2: Action plan for Bangladesh's energy transition

Key component	Goal	Action plan	Timeline to complete specific activity
Demand projection	Minimise overcapacity and avoid ambitious growth scenarios to limit avoidable infrastructure	i. Contain the power sector's reserve margin to 20%, excluding variable renewable energy ii. Limit fossil-fuel-based plants beyond those already under construction iii. Avoid an aggressive fossil fuel energy infrastructure expansion plan that could heighten import risk	2030 2030 Continue
Modernise the power grid	Develop a resilient and flexible grid to ensure reliable electricity supply	Provide budgetary allocation and explore support from international development agencies: i. Prepare the grid to accommodate a higher share of variable renewable energy ii. Make the grid flexible and resilient for demand side response	Continue
		Develop a Roadmap for Renewable Energy	December 2026

Renewable energy	**Domestic sources**: a. Achieve at least 20% by 2030 and make it compatible with the recent target of installing 10,000MW solar by 2030 b. Achieve 30% by 2040 c. Set a significantly higher goal for 2050	**Utility-scale renewable energy procured by the BPDB** i. Rebuild investors' confidence by developing a pipeline of renewable energy projects ii. Establish a payment security mechanism to address financiers' concerns about payment guarantee iii. Set a time-bound implementation framework for projects in public lands under the PPP model iv. Design reverse auctions to reduce the cost of power purchase from utility-scale renewable energy projects v. Build an ecosystem for BESS adoption to improve grid stability and flexibility and provide a minimum BESS target for each project	December 2026
		Utility-scale renewable energy under the CPPA i. Incentivise renewable energy projects under the CPPA by keeping the open access tariff, wheeling charges, and other components at a level that will attract project developers, investors and buyers. ii. Keep open access rate for the first few CPPA projects low; review in two years to assess whether the rate needs to be increased	October 2026 2028
		Distributed renewable energy i. Revisit the goal to install 3,000 MW of new rooftop solar capacity of by December 2025 and set an achievable timeline and address key concerns ii. Coordinate the planned replacement of approximately 200,000 diesel-run pumps (roughly 20%) with 45,000 solar irrigation systems and design a programme to replace the remaining diesel pumps with solar-powered systems. iii. Plan to build sufficient solar charging stations to meet the growing power demand of E3Ws. iv. Develop a dedicated finance facility for distributed renewable energy projects through the Bangladesh Bank's green finance facilities	June 2026 2030 December 2026 October 2026

		v. Allow microfinance institutions to utilise Bangladesh Bank's green refinance scheme to support solar irrigation projects vi. Design and implement a credit risk guarantee scheme, supported by the Bangladesh Bank, to de-risk small-scale distributed renewable energy projects	December 2026
		Import duty i. Waive or reduce high import duties (61.8%) on lithium-ion batteries to make BESSs feasible ii. Waive or minimise import duties applicable on distributed solar systems' components (e.g. solar panel and inverter: 28.73%, solar charge controllers: 39.75% and mounting structures and direct current cables: 61.8%) to ramp up their installation.	National budget, June 2026
	Cross-border energy trade through BBIN (*may include Sri Lanka as per the considerations of the new regional project)[80]	**Regional hydropower** i. Finalise cross-border trade modality for a greater contribution of hydropower in Bangladesh's energy system through BBIN ii. Catalyse investment in infrastructure for new hydropower projects in Nepal and Bhutan iii. Increase the role of regional hydropower in grid-based electricity	December 2028 2030-40 2030 onwards
		Indian green day ahead market i. Finalise bilateral agreement with India to import green power from its green day-ahead market. ii. Import power from the green day-ahead market	December 2028 2030 onwards
Limiting the use of oil-fired power plants	5% by 2030 and 1% by 2040	i. Chart a plan for a gradual reduction in usage of furnace oil-based plants with increasing penetration of renewable energy ii. Phase out old oil-fired power plants and capacitate BPDB to acquire selected plants for grid balancing.	2026 2027-40

[80] European Commission. South Asia Energy Connectivity. Date Accessed: 27 February 2026.

Industrial electrification	Increasing reliance on grid power by 2030	**Reducing captive power generation** i. Attract half of the industries to switch to grid power, subject to a reliable supply	2030
		Transition from gas boilers to electric boilers or heat pumps i. Encourage half of the industrial sector to shift from gas boilers to electric boilers or heat pumps	2030
Domestic gas supply with limited exposure to volatile LNG	Maintaining domestic gas supply 2030-50	i. Prepare a realistic plan to ramp up the domestic gas supply ii. Ensure sufficient budgetary allocation to add domestic gas to the grid iii. Develop the capacity of Bangladesh Petroleum Exploration and Production Company Limited and attract investment to shore up domestic supply to limit costly LNG dependence. In doing so, the government should assess the key factors that deterred the capacity development of BAPEX in the last decade.	2026 Budget 2026 onwards June 2026 onwards
Cooking plan	Clean cooking by 2030, based on the existing plan	i. Develop a holistic clean cooking plan, keeping the provision of improved cookstoves, LPG and electric stoves ii. Deploy measures for a gradual transition to electric cookstove iii. Standardise electric cookstoves and ensure the availability of the same	December 2026 2030 2030
Transportation plan	Streamline electric three-wheelers and craft a plan for a systematic promotion of electric vehicles by 2030	i. Bring E3Ws under the national monitoring mechanism ii. Set up sufficient charging stations, supported by solar power, under private and private-public-partnership models to promote electric vehicles iii. Ensure that E3Ws rely on charging stations	2027 2030 2030
Limit T&D losses	Power sector: 8% by 2030 and 6% by 2035	i. Bring down technical losses and pilferage	2026-2035
	Gas sector: 2% by 2030	i. Design and implement projects to replace old pipelines to remove gas leakages ii. Bring down pilferage to a minimum	2026 onwards 2030

Energy efficiency improvement	Maintain 1.5% per annum through 2030 and set a higher goal for 2040	i. Raise awareness to adopt energy-efficient technologies ii. Ensure the availability of low-cost green finance to catalyse investment in energy-efficient technologies iii. Waive or reduce the applicable import duties on the components of efficient appliances iv. Fix energy efficiency standards and labels of appliances	Continue Continue June 2026 2035

Annexure 1: Power generation cost, plant load factor, and capacity charge

Generation cost in selected gas-fired plants:

Sample	Total generation in FY2024-25 (kWh)	Total cost in FY2024-25 (BDT)	Average generation cost (BDT/kWh)	Plant load factor (%)
1	925,653,846	15,600,029,978	16.85	18.1%[81]
2	3,031,318,900	16,139,340,598	5.32	76.9%
3	2,216,332,886	13,334,464,614	6	75.5%

Generation cost in local coal-fired plants, excluding Barapukuria units:

Sample	Total generation in FY2024-25 (kWh)	Total cost in FY2024-25 (BDT)	Average generation cost (BDT/kWh)
1	3,686,615,951	33,668,729,185	9.13
2	5,033,610,920	63,511,941,069	12.62
3	1,861,828,704	24,984,280,055	13.42
Note: The average cost of coal power was BDT13.13/kWh in FY2024-25.			

Calculation of capacity payment in local coal-fired plants, excluding Barapukuria units:

Formula: Average power generation cost in coal-fired plants – Average fuel cost in coal-fired plants
= BDT13.13/kWh – BDT7.24/kWh[82,83,84]
= BDT5.89/kWh = ~BDT5.9/kWh

Generation cost in oil-fired IPPs

Sample	Total generation in FY2024-25 (kWh)	Total cost in FY2024-25 (BDT)	Average generation cost (BDT/kWh)
1	16,726,958	605,635,946	36.2
14	283,623,974	7,012,206,130	24.72
22	239,124,672	6,899,327,374	28.85
Note: The average cost of power from oil-fired IPPs was BDT27.5/kWh in FY2024-25.			

Calculation of capacity payment in oil-fired IPPs

Formula: Average power generation cost in oil-fired IPPs – Average fuel cost in oil-fired IPPs
= BDT27.5/kWh – BDT18/kWh[85,86,87]
= BDT9.5/kWh

81 Plant load factor: Actual generation/Maximum possible generation
82 Power Grid Bangladesh PLC. Operation Monthly Reports. Date Accessed: 22 February 2026
83 Data from Sep 2024 to June 2025 is used to calculate average fuel cost. Due to inconsistency, data for August and September 2024 are excluded.
84 While calculating average fuel cost, the cost of coal in Barapukuria plants are excluded.
85 Power Grid Bangladesh PLC. Operation daily reports. Date Accessed: 15 February 2026
86 To calculate average fuel cost in oil-fired IPPs, data of 4 to 5 days are randomly selected from each month based on availability.
87 Fuel cost in public oil-fired power plants is excluded.

Annexure 2: Coal price trends

Sample coal prices in FY2020-21

Date	Price (USD/tonne)	Date	Price (USD/tonne)
1 July 2020	51.6	28 December 2020	85.35
30 July 2020	51.9	26 January 2021	86
24 August 2020	49.7	23 February 2021	85.5
21 September 2020	52.45	18 March 2021	91
12 October 2020	56.85	27 April 2021	93.1
25 November 2020	63.75	31 May 2021	118.9
8 December 2020	75.95	22 June 2021	127.25
The average coal price in FY2020-21 was **USD77.7/tonne** based on available data of 258 days[88]			

Sample coal prices in FY2022-23

Date	Price (USD/tonne)	Date	Price (USD/tonne)
14 July 2022	416.35	16 January 2023	368.75
22 August 2022	418.35	21 February 2023	208.5
9 September 2022	435.25	27 March 2023	176.25
17 October 2022	392.15	24 April 2023	190
15 November 2022	341	26 May 2023	160
6 December 2022	408.8	1 June 2023	130.15
30 December 2022	404.15	20 June 2023	126.55
The average coal price in FY2022-23 was USD303.4/tonne based on available data of 258 days[89]			
% change of average coal price in FY2022-23 compared to FY2020-21 = (303.4-77.7)/77.7 = +**290%**			

Sample coal prices in FY2024-25

Date	Price (USD/tonne)	Date	Price (USD/tonne)
3 July 2024	135	31 December 2024	125.25
22 July 2024	135	20 January 2025	118.15
16 August 2024	146.75	27 February 2025	102.4
12 September 2024	138.15	26 March 2025	96.75
21 October 2024	145.6	14 April 2025	95.5
11 November 2024	142.25	19 May 2025	99.25
16 December 2024	129.25	9 June 2025	105.25
The average coal price in FY2024-25 was **USD122.2/tonne** based on available data of 258 days[90]			
% change of average coal price in FY2024-25 compared to FY2022-23 = (303.4-122.2)/303.4 = **-59.7%**			

[88] Investing.com. Newcastle Coal Futures Historical Data. Date Accessed: 25 January 2026.
[89] Ibid.
[90] Ibid.

Annexure 3: Subsidy due to expensive LNG spot purchases

Average price of LNG based on spot purchases in March 2026[91]
= (28.28 + 23.08 + 21.58 + 20.76 +20.76 +20.96 + 20.92 + 19.77 + 20)/9
= USD21.79/MMBtu
= **BDT91.3/m^3** [92] …………………… i

Gas consumption and tariffs by sectors

Sector	Share in total gas consumption[93]	Tariff (BDT/m^3)[94,95]
Power generation	41.35%	14.75
Captive generation	16.63%	31.5 - 42 (average: 36.75)
Industry	18.91%	30 – 40 (average: 35)
Fertilizer	6.3%	16
Tea	0.12%	11.93
Commercial	0.63%	30.5
Household	10.87%	18
CNG	5.19%	35
Average tariff	**BDT23.816/m^3 = BDT23.82/m^3 = USD0.194/m^3** ……………………… ii	

Average subsidy against the LNG purchased in March 2026
= (91.3 – 23.82)
= BDT67.48/m^3 = **~BDT67.5/m^3** (using i and ii) (note: this excludes regasification and terminal costs)

Estimated subsidy burden during April-June 2026
Assumptions:
a. Bangladesh will likely maintain the import level of April-June 2025 in April-June 2026 (77.32Bcf = 74.7 million MMBtu = 2,188.71 million m^3)[96,97]
b. Bangladesh may spend USD20/MMbtu to import LNG from the spot market

Subsidies = Probable LNG imports * import price – Probable revenue
= 74.7 million MMBtu *USD20/MMBtu – 2188.71 million m^3 * USD0.194/m^3 [98]
= USD1,069.39 million
= ~USD1.07 billion = BDT131.3425 billion = ~BDT131.34 billion

[91] Just Energy News. Bangladesh Buying 3 More LNG Cargoes at Double Price. 11 March 2026.
[92] Using Approximate Conversion Factors
[93] HCU. Annual Report on Gas Production, Distribution and Consumption 2024-25. November 2025.
[94] MPEMR. Tariffs for Consumers of Different Gas Distribution Companies under Bangladesh Oil, Gas and Mineral Corporation (Petrobangla). 18 January 2023.
[95] Bangladesh Energy Regulatory Commission. Gas Prices for New, Promised and Existing Industries and Captive Power Plants (including the consumption within and beyond sanctioned loads). 13 April 2025.
[96] HCU. Monthly Reports on Reserve and Production of Gas and Coal April to June 2025. 4 August to 29 September 2025.
[97] Using Approximate Conversion Factors
[98] See ii.

Annexure 4: Gas savings potential with hydropower imports beyond 2030

Assumptions:
Contracted hydropower capacity: 6,000MW
Import period: March to September

Total energy imports beyond 2030 on account of hydropower:
6,000* 214 * 24/1,000 = 30,816 million kWh[99]
Total gas-based power generation in FY2024-25: 44,613 million kWh[100]
Total gas consumption in the power sector in FY2024-25: 372.296Bcf[101]
Gas consumption per kWh: 372.296*1000/44,613 = 8.345 cubic feet = 0.236 cubic meter[102] ….. (i)

Annual gas savings due to energy imports of 30,816 million kWh from hydropower
= 8.345*30,816/1000
= 257.16Bcf (using i)
= ~257Bcf = 704.1MMcfd = **~704MMcfd**

Alternate calculation:
Energy efficiency of gas-fired plants in FY2024-25
= 860*100/ (lower calorific value of natural gas * natural gas consumption in cubic meter/kWh of electricity)[103]
= 860*100/ (8,400*0.236) = 43.38% (see i)

Assuming an average efficiency of 50%, the gas consumption per kWh of electricity
= 860*100/ (8,400*50) = 0.205m^3 = 7.24 cubic feet ………………………………………………… (ii)

Therefore, annual gas savings due to energy imports of 30,816 million kWh
= 7.24*30,816/1000 = 223.1Bcf = ~223Bcf = 610.95MMcfd = **~611MMcfd**

[99] Since March, May, July and August have 31 days, the number of days during the mentioned seven months is 214.
[100] BPDB. Annual Report 2024-25. 9 October 2025.
[101] HCU. Annual Report on Gas Production, Distribution and Consumption 2024-25. November 2025.
[102] Using Approximate Conversion Factors.
[103] IEEFA. Industrial Energy Efficiency to Curb Bangladesh's Short-term LNG Demand Growth. 13 May 2024. Page 33.

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