

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/377443166>

Bitter Winter to Bite the Power Sector of Bangladesh

Article · December 2023

CITATIONS

0

READS

17

5 authors, including:



Hasan Mehedi

CLEAN (Coastal Livelihood and Environmental Action Network)

33 PUBLICATIONS 244 CITATIONS

SEE PROFILE



Shezina Khan

Coastal Livelihood and Environmental Action Network (CLEAN)

3 PUBLICATIONS 0 CITATIONS

SEE PROFILE



Kaniz Rabeya

Khulna University

3 PUBLICATIONS 0 CITATIONS

SEE PROFILE

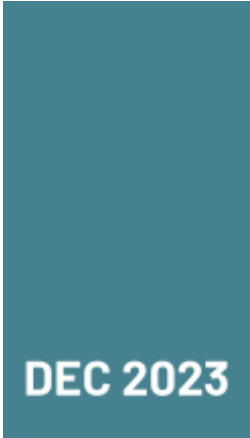


Sarmin Akter Bristy

Coastal Livelihood and Environmental Action Network (CLEAN)

4 PUBLICATIONS 0 CITATIONS

SEE PROFILE



Bitter Winter to Bite

the Power Sector of Bangladesh

Hasan Mehedi, Shezina Khan, Kaniz Rabyea, Sarmin Akter Bristy and S K Reason

The winter season of four months (November - February) has started in Bangladesh while the people are waiting cautiously for the upcoming parliament election in January 2024. As some major parties are yet to participate in the national election, serious political unrest in the country may impact the industrial and commercial sectors seriously. Consumption of power depends on those sectors, along with domestic consumption.

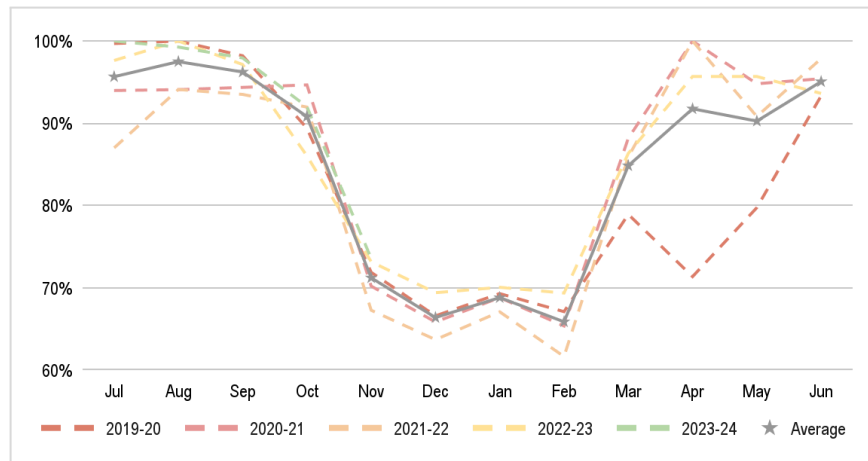


Figure 1. Monthly Power Consumption Ratio of last five years (2019-20 to 2023-24, in %)

According to the Daily Power Generation Reports of the Bangladesh Power Development Board (BPDB), electricity consumption in the months of winter is generally 29%-34% lower than in the hot months in Bangladesh (BPDB, 2023a). The current economic crisis and political unrest centering on the national election may further decrease power consumption.

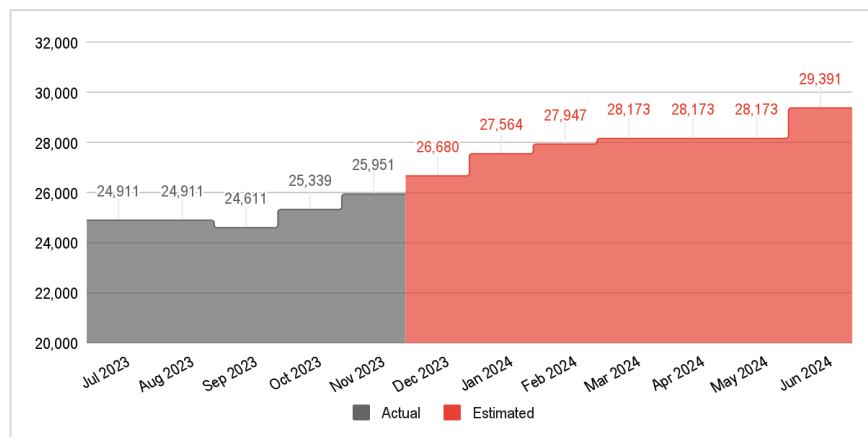


Figure 2. Installed Capacity in the Power Sector in FY 2023-24 (MW)



The current installed capacity of 152 grid-connected power plants under BPDB is 25,951 MW. Other four power plants with a capacity of 729 MW are to start commercial operation by December 2023 (BPDB, 2023b). By June 2024, the installed capacity may reach 29,391 MW, which will increase the stranded asset even more.

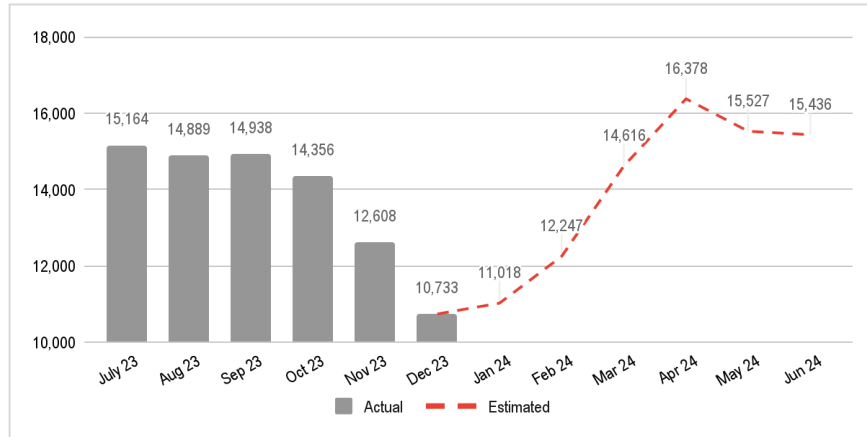


Figure 3. Peak Hour supply of Power from July 2023 to June 2024 (gWh). Compiled from the daily Power Generation Records of BPDSB

However, the peak hour supply has not been increased at that rate. Last July, the peak hour supply of power was 15,164 MW, which decreased to 12,608 MW in November and might decrease to 10,733 MW in December 2023. Thus, the peak hour supply has been decreasing at 6.5% on average. It may increase by only 2.7% in January and 11.2% in February 2024.

OVERCAPACITY IN THE POWER SECTOR REACHED 106% IN NOVEMBER 2023

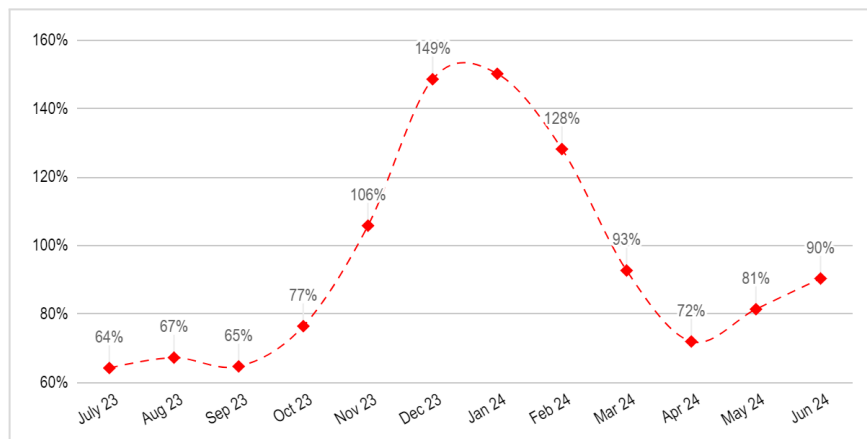


Figure 4. Overcapacity in the Power Sector in FY 2023-24 (%)

The Power sector is already suffering from a serious level of overcapacity. In July 2023, 9,747 MW of the installed capacity were kept idle, which was 64% of the peak hour generation. The overcapacity reached 106% (13,343 MW) in November. It may further increase to 149% (15,947 MW) in December 2023 and come down to 93% (13,557 MW) in March 2024 and 90% (13,955 MW) in June 2024.

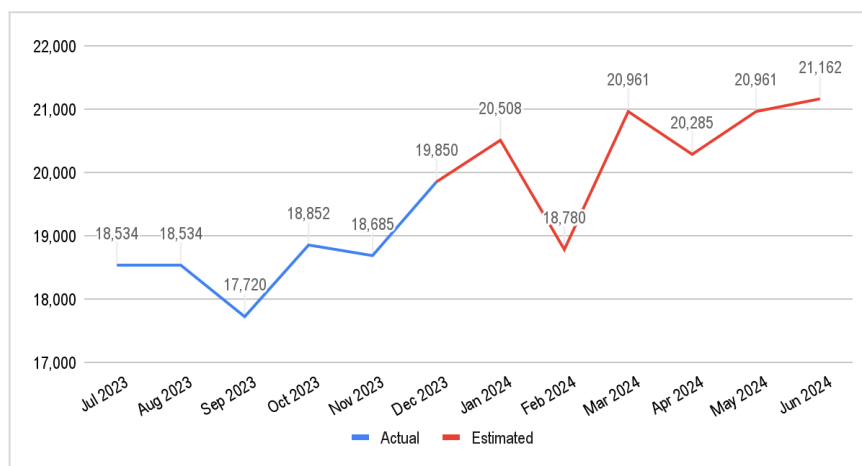


Figure 5. Monthly Generation Capacity of the Power Sector in 2023-24 (gWh)

Based on the installed capacity, the power sector was capable of generating 18,354 Gigawatt-hour (gWh or million units) in July 2023. It can generate 18,685 gWh in November 2023 and 19,850 gWh in December 2023. On average, the generation capacity is increasing at a rate of 1.18% per month and 14.18% annually.

Month	Generation Capacity (gWh)	Actual Generation (gWh)	Idle Capacity (gWh)	PLF (%)
July 2023	18,534	9,240	9,294	49.9%
August 2023	18,534	9,173	9,361	49.5%
September 2023	17,720	9,050	8,670	51.1%
October 2023	18,852	8,502	10,350	45.1%
November 2023	18,685	6,797	11,868	36.4%
December 2023*	19,850	6,410	13,440	32.3%
January 2024*	20,508	6,644	13,864	32.4%
February 2024*	18,780	6,360	12,420	33.9%
March 2024*	20,961	8,194	12,767	39.1%
April 2024*	20,285	9,659	10,626	47.6%
May 2024*	20,961	8,719	12,242	41.6%
June 2024*	21,162	9,182	11,980	43.4%

Table 1. Monthly Power Generation (2023-24) * estimated

But the electricity generation is much lower than the capacity. A total of 9,240 gWh was generated in July 2023 at 49.9% Plant Load Factor (PLF). The generation decreased to 6,796.63 gWh in November at a 36.4% PLF rate. It may further decrease to 6,410 gWh in December 2023. The total generation capacity in four months of winter (Nov-Feb) might be 77,823 gWh, while consumption may reach 26,234 gWh only.

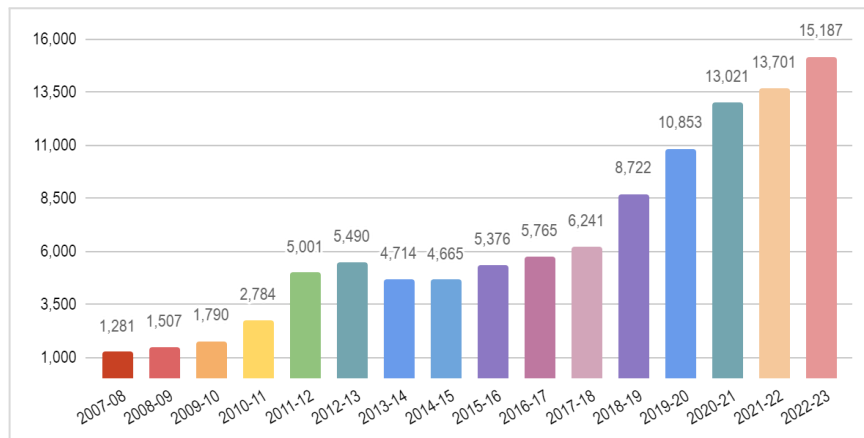


Figure 6. Annual Capacity Charges of the Private Power Producers (BDT Crore)

The State Minister for the Ministry of Power, Energy and Mineral Resources (MOPEMR) disclosed in the parliament that BDT 104,962.81 crore has been paid to private power producers since 2009-10 (TBS, 2023). Out of the amount, BDT 15,186.91 crore was paid in FY 2023-24 only (Ali, 2023).

BDT 4,232 CRORE IS TO PAY AS CAPACITY CHARGES IN THE WINTER SEASON

According to the Power Purchase Agreements (PPA), BPDB is obliged to pay capacity charges to the Independent Power Producers (IPP) even if they do not generate a single unit of electricity. As per the calculation, the estimated capacity charges of the IPPs in 2023-24 may reach BDT 18,810 crore, of which BDT 4,232 crore could be paid during the winter season only. At the end of the year, the capacity charges will add BDT 1.80 to generate each unit of electricity.

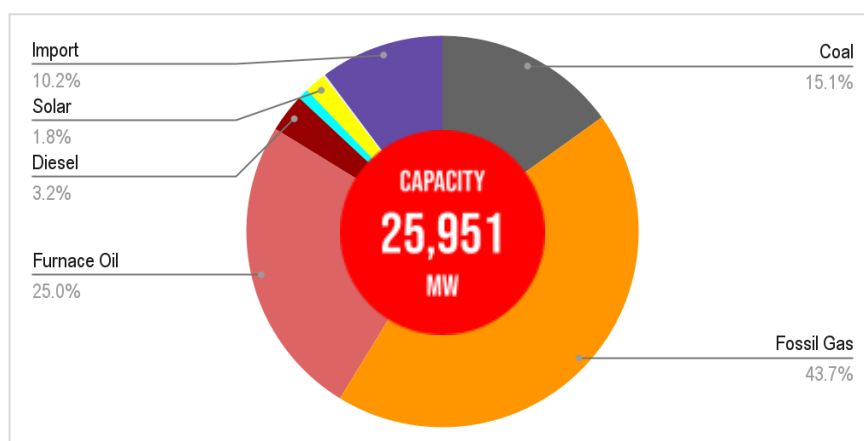


Figure 7. Fuel Mix in the Installed Capacity (%). Source: BPDB Monthly Progress Reports

Fossil Gas is still the dominating energy source in the power sector of Bangladesh with 11,332 MW (43.7%), followed by Furnace Oil (6,492 MW), Coal (3,916 MW), Import (2,656 MW), Diesel (826 MW), Solar (459 MW) and Hydro (230 MW). The 2nd Phase of Rampal Coal Power Plant (617 MW), Cox’s Bazar 60

MW Wind Power Plant, Sonagazi 50 MW Solar Power Plant, and Sirajganj 2 MW Wind Power Plant are to be added to the national grid from December 2023 (BPDB, 2023b). Currently, only 2.8% of the installed capacity is based on Renewable Energy (RE) including Hydropower.

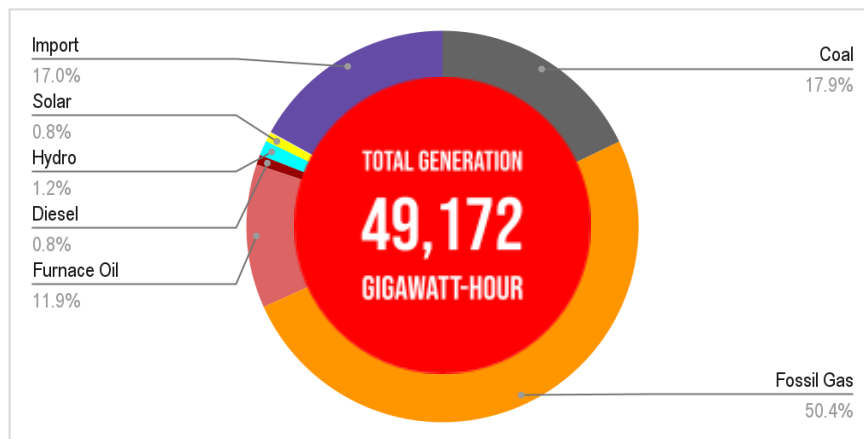


Figure 8. Fuel Mix in electricity generation from July to November 2023 (%)

However, from the generation point of view, fossil gas contributed to 21,516 gWh (50.4%) of electricity from July to November 2023, followed by coal (7,624 gWh), Import (7,253 gWh), furnace oil (5,065 gWh), Hydro (524 gWh), Diesel (352 gWh) and Solar (335 gWh). As a whole, Renewables, including Hydropower, contributed only 819 gWh (2.06%) to the generated electricity.

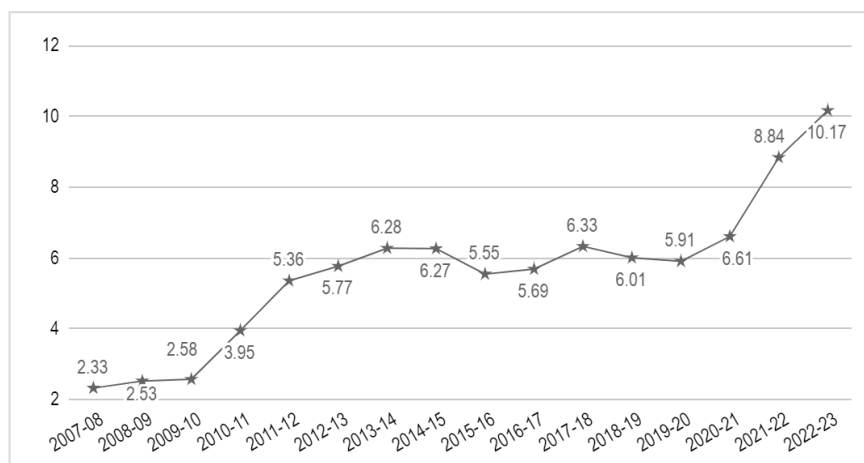


Figure 9. Increasing generation cost of electricity generation (BDT)

It is observed that the share of coal has increased from 12.1% in the last year to 17.9% this year. With the increasing share of imported fossil fuels, the average generation cost is increasing gradually. In the last 15 years, the generation cost has increased 4.4 times at an average increasing rate of 11.46% per annum. On the other hand, the generation cost of RE is decreasing gradually. In 2017-18, the generation cost of solar power was 16.40 per kWh, which decreased to BDT 13.20 per kWh in 2022-23. Immediate shift to RE is the only sustainable solution to the problems related to the power sector of Bangladesh.

Recommendations

Five immediate actions must be taken on an urgent basis to reduce the overburden on the national economy:

1. Pay all electricity generation costs in local currency (BDT) instead of United States Dollars (USD).
2. Remove Capacity Charges from the PPAs and implement 'No Electricity No Pay' (NENP) for purchasing power from the IPPs.
3. Cancel all fossil fuel (especially Coal, LNG, and petroleum) power plants that are in the pipeline and approved in principle.
4. Adopt an updated Renewable Energy Policy (REP) in line with the Mujib Climate Prosperity Plan (MCPPI).
5. Cancel all duties and taxes over the RE accessories, including solar panels, mounting structures, and inverters.

Three long-term actions are required to supply green, affordable, and sustainable electricity for the citizens:

6. Adopting a comprehensive action plan to achieve 30% Renewable Energy by 2030, 40% by 2041, and 100% by 2050, committed in the MCPPI.
7. Allocate sufficient budget for RE projects in line with the MCPPI and 8th Five-year Plan.
8. Establish the 'Renewable Energy Division' and a 'One Stop Centre' for quick approval of RE-based projects.

Expected Citation

Mehedi, H., Khan, S., Rabeya, K., Bristy, S.A., & Reason, S. (2023). "Bitter Winter to Bite the Power Sector of Bangladesh". Bangladesh Working Group on External Debt (BWGED): December 2023

References

- Ali, Ismail (2023). "[বিদ্যায়ী অর্থবছর উৎপাদন কমলেও ক্যাপাসিটি চার্জ বেড়েছে ১১%](#)". The Daily Share Biz: 7 September 2023
- BPDB (2022). [Annual Report 2021-2022](#). Bangladesh Power Development Board (BPDB): November 2022
- BPDB (2023a). Daily Generation Archive. Bangladesh Power Development Board (BPDB): January-November 2023
- BPDB (2023b). [Progress Report of the Power Sector](#). Bangladesh Power Development Board (BPDB): 16 November 2023
- TBS (2023). "[Tk 1.04 lakh crore paid as capacity charge, rental in AL govt's three terms: Nasrul](#)". The Business Standard (TBS): 5 September 2023



Bangladesh Working Group on External Debt (BWGED)

Email: bwged.bd@gmail.com | Website: <https://bwged.org>

Blog: <https://bwged.blogspot.com>