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State of the Power Sector in FY2020–21 and Allocative Priorities in the National Budget of FY2021–22

Khondaker Golam Moazzem
A S M Shamim Alam Shibly
Helen Mashiyat Preoty



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Centre for Policy Dialogue (CPD) was established in 1993 as a civil society initiative to promote an ongoing dialogue between the principle partners in the decision-making and implementing process. Over the past 29 years, the Centre has emerged as a globally reputed independent think tank, with local roots and global reach.

A key area of CPD's activism is to organise dialogues to address developmental policy issues that are critical to national, regional and global interests, with a view to seeking constructive solutions from major stakeholders. The other key area of CPD's activities is to undertake research programmes on current and strategic issues.

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The present paper titled ***State of the Power Sector in FY2020–21 and Allocative Priorities in the National Budget of FY2021–22*** has been prepared by *Dr Khondaker Golam Moazzem*, Research Director, CPD (moazzem@cpd.org.bd), *Mr Abu Saleh Md. Shamim Alam Shibly*, Research Associate, CPD (shibly@cpd.org.bd), and *Ms Helen Mashiyat Preoty*, Research Associate, CPD (preoty@cpd.org.bd).

Series Editor: *Dr Fahmida Khatun*, Executive Director, CPD.

For the power and energy sector, the national budget carries special importance in terms of policy issues, and sectoral allocation priority. It also reflects various commitments of the government on different national and international platforms regarding the shift in the fuel mix. The government as per their commitment has shelved coal fuel-based power generation however attention to renewable energy-based power generation is missing. Private investors are discouraged due to the inadequate fiscal incentive structure. The budgetary allocation in RE is also missing to encourage the investors. In terms of policy formulation, the national budget lacks focus on efficiency in budget allocation during the pre and post-pandemic period as the burden of the subsidy for fossil fuel-based power generation is remaining as a concern. In addition, the quantity-based development projects lack proper planning as having a higher number of projects with lower allocation in T&D leads to the deferment of the projects. Progress of the development projects is also in a murky state as the progress projects under power and EMRD division are not satisfactory. Financial mismanagement in the power sector like increased allocation of the power plants that are being developed, unutilised and underutilised generation capacity, and an extension of rentals and quick rentals need to be addressed and reformed.

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Acronyms

8FYP	8th Five Year Plan
ADP	The Annual Development Programme
AFD	French Development Agency
BPDB	Bangladesh Power Development Board
BREB	Bangladesh Rural Electrification Board
B-R PCL	BR Powergen Company Ltd
COVID-19	Coronavirus Pandemic
CPGCBL	Coal Power Generation Company Bangladesh Limited
DESCO	Dhaka Electric Supply Company Ltd
DPDC	Dhaka Power Development Company
EGCB	Electricity Generation Company of Bangladesh
GoB	Government of Bangladesh
HFO	Heavy Fuel Oil
HSD	Health Service Division
IPP	Independent Power Producer (Plant)
LNG	Liquefied Natural Gas
MoF	Ministry of Finance
MT	Metric Tonne
MW	Megawatt
NWPGCL	North-West Power Generation Company Limited
PGCB	Power Grid Company of Bangladesh
RPC	Rural Power Company
SIPP	Small Independent Power Producer (Plant)
SREDA	Sustainable and Renewable Energy Development Authority
WZPDCL	West Zone Power Distribution Company Limited

1. INTRODUCTION

Power and energy is one of the prioritized sectors in the National Budget of Bangladesh, especially because of its major role in ensuring smooth power supply for all kinds of economic activities. Considering its importance, the power sector has been receiving a significant portion of budgetary allocation since 2009. In this connection, the National Budget for FY2021–22 bears special importance for the power sector in view of a number of major policy issues. During FY2020–21, the government publicly announced abandoning coal-based power generation. In various international platforms, the Prime Minister announced Bangladesh’s commitment towards shifting from fossil-fuel based power generation to clean power generation. The 8th Five Year Plan (FY2021–25), which has officially been made public in December 2020, identifies the points of attention in the power and energy sector. Although the document does not properly reflect the stance on shifting from coal and promoting renewable energy-based power generation, the Plan elaborates on gradual phasing-out of quick rental power plants by 2024. Hence, the National Budget for FY2021–22 could have been one of the first official documents to supposedly reflect the government’s political stance and policy commitments through fiscal and budgetary measures. This paper aims to put in-depth focus on the efficiency of the allocated budget for the power and energy sector in the national budget FY2021–22. The present budget analysis has been carried out from two vantage points: efficiency-based analysis, and sectoral reform analysis to address the existing problems. Hence this study presents an analysis of the budgetary allocation for the power sector in FY2021–22 from two angles—allocative priority and reform.

2. STATE OF THE POWER SECTOR IN FY2020–21: A BRIEF OVERVIEW

2.1 Power Generation in FY2020–21: Efficiency Analysis

The power generation capacity has continued to rise at a rate of 8 per cent in FY2020–21 (table 1). Overall per capita generation capacity reached 514 kwh, which is 20 per cent higher than the previous year. Due to the COVID-19 pandemic, the demand for electricity has increased at a lower rate (3.7 per cent) in comparison to the rise in generation capacity. Table 2 presents the state of energy-mix in power generation in the country. Historically, the energy-mix is overwhelmingly based on fossil-fuels; the main source of energy is gas (51.8 per cent) which is followed by heavy fuel oil (HFO) (27.4 per cent). The other sources include coal, high speed diesel (HSD), and imports. During the pandemic, the energy-mix has experienced marginal changes. While the number of coal and gas-based power plants in operation has reduced, their generation capacity has increased, including those that use HFO. On a positive note, renewable energy-based power generation has

Table 1: Generation of Electricity in FY2018–19, FY2019–20, FY2020–21

Determinant	Actual (MW)			% Change in 2020	% Change in 2021
	2019	2020	2021 (Up to May 2021)		
Generation Capacity	18,610	20,383	22,023*	9.53	8.05
Maximum Demand	12,100	13,300	13,792**	9.92	3.69
Maximum Generation	12,893	12,738	13,792	-1.20	8.27
Per Capita Feneration (kWh) (grid)	426.05	426.23	512	0.04	20.12
Per Capita Consumption (kWh) (grid)	375	378		0.8	

Source: Bangladesh Power Development Board (BPDB) (2021).

Note: *Total generation capacity as of July, 2021 was 25,235MW. **Data till 27 April 2021.

Table 2: Energy-Mix in Power Generation in FY2019–20 and FY2020–21

Raw Materials	Number of Plants			Power Generation (MW)		
	2020	2021	Changes	2020	2021	Changes
Coal	4	3	Decreased	1,146	1768	Increased
Gas	71	67	Decreased	10,979	11402	Increased
HFO	56	61	Increased	5,540	6044	Increased
HSD	10	10	Same	1,290	1290	Same
Hydro	1	1	Same	230	230	Same
Solar	4	7	Increased	38	129	Increased
Power Import	-	-	Same	1,160	1160	Same
Total	146	149	Increased	20383	22023	Increased

Source: Authors' calculation based on annual reports from BPDB (2018, 2019, and 2020).

increased in FY2020–21, albeit not by a significantly. The clean power, based on renewable energy, is yet to receive focus across all energy-mix.

The private sector is increasingly playing a major role in generating power generation. Various private sector power plants contributed about 48.7 per cent of total power generation capacity which include independent power producer (IPP) and small independent power producer (SIPP), and joint venture and rental power plants. Table 3 presents the ownership distribution of the power plants. On the other hand, public sector has played a major role by contributing about 46.7 per cent of total power-generation capacity. During FY2020–21, a major structural change has been observed in sources—as many as 19 public power plants retired, yet power generation did not decrease (rather increased by 6.04 per cent). On the other hand, a substantial rise in power generation in the private sector was observed, both in number of power plants and the amount of power generation. As many as 22 new IPPs and SIPPs have been established with a rise in generation capacity of 589 MW. One quick rental power plant retired, though overall generation by rental power plants did not decrease.

Table 3: Power Plants Under Different Ownership

Ownership	Number of Plants			Generation Capacity (As of May 2021)		
	2020	2021	Changes	2020	2021	Changes
Public PP	76	57	Decreased	9568	10146	Increased
Joint Venture	1	1	Same	771	1244	Increased
IPP & SIPP	49	71	Increased	7,583	8172	Increased
Rental PP	21	20	Decreased	1,301	1301	Same
Imported				1160	1160	Same
Total	147	149	Increased	20383	22023	Increased

Source: Authors' calculation based on progress reports from BPDB 2020 and 2021).

The sector is burdened with excess generation capacity. It increased to 37 per cent by the end of June 2021 (table 4). Over the years, excess capacity has been increasing with the rise in installed capacity and relatively less growth in electricity consumption. The excess capacity is related to the number of old and dated power plants beyond their operational life, quick rental power plants to be retired by 2024 (1300MW), and inefficient power plants operating as public Power Producers and private Power Producers. These plants have been targeted to be phased out, but the plan still has

not been implemented by the government. As a whole, it reflects weak implementation capacity as well as a lack of efficiency in power generation in the country.

Table 4: Excess Generation Capacity

Year	Total installed capacity (mw)	Over capacity (as per max. generation) (mw)	% Of share of over capacity of installed capacity
2000–01	4,005	972	24.27%
2010–11	7,264	2374	32.68%
2015–16	12,365	3329	26.92%
2018–19	18610	6068	32.60%
2019–20	20383	7645	37.51%
2020–21	22023 ¹	8231	37.37%

Source: Authors' calculation based on annual reports from BPDB (2018), BPDB (2019), and BPDB (2020).

2.2 State of Transmission and Distribution of Electricity

Development of transmission and distribution of electricity has experienced some improvement during FY2020–21 (table 5). The length of transmission and distribution lines has increased at a slower pace compared to the generation of electricity during FY2020–21 (3.7 per cent and 5.9 per cent respectively vis-à-vis 8 per cent). Given the frequently of load-shedding in the country, slow rise in transmission and distribution lines were found to be insufficient in meeting the requirement of uninterrupted electricity supply. Surprisingly, official data indicates zero load-shedding in the country although numerous load-shedding cases are reported in the media. The discrepancy between the data provided by BPDB and the real scenario, particularly in some specific areas of Bangladesh, needs to be addressed by concerned authorities.

Table 5: Transmission and Distribution of electricity in FY2019–21

	2019	2020	2021	Changes Between 2019–2020	Changes Between 2020–2021
Transmission line (ckt km)	11,650	12,283	12,744	633 (5.4%)	461 (3.7%)
Distribution line (km)	5,24,000	5,77,479	612000	53,479 (10.2%)	34,521 (5.98%)

Source: Authors' calculation based on annual reports from BPDB (2018), BPDB (2019), and BPDB (2020).

2.3 Renewable Energy-Based Power Generation

Renewable energy-based power generation has experienced noticeable rise during FY2020–21 (table 6). The rise in renewable energy-based power generation has increased its overall share in 2021 (from 3.12 per cent to 3.32 per cent). The total generation capacity 730MW comprises of 47.8 per cent off-grid and 52.1 per cent on-grid renewable energy. The off-grid energy is mainly solar-based home system, while on-grid energy is mainly hydro and solar power (table 7). There is marginal contribution of wind, biogas and biomass in power generation.

The Lack of smart grid system is a major bottleneck for the expansion of grid-based solar renewable energy. Net metering system has added only 24.7 MW electricity till date (table 8). This is only 3.3 per cent of the total installed capacity of renewable energy. The main contribution is made by

¹Current total installed capacity as of 18 July 2021 is 25,235MW; % of share of over capacity of installed capacity is 45.35 per cent.

Table 6: Share of Renewable Energy

	2019	2020	2021	% Δ between 2019 and 2020	% Δ between 2020 and 2021
Installed capacity	615	649.5	730.6	5.6	12.5
% Share of RE in total installed capacity	2.73	3.12	3.32		

Source: Authors' calculation based on annual reports from BPDB, (2018, 2019, and 2020) and Sustainable And Renewable Energy Development Authority (SREDA).

Table 7: Different Sources of Renewable Energy

Technology	Off Grid (MW)	On Grid (MW)	Total (MW)
Solar	346.69	149.93	496.62
Wind	2	0.9	2.9
Hydro	0	230	230
Biogas to Electricity	0.69	0	0.69
Biomass to Electricity	0.4	0	0.4
Total	349.78	380.83	730.61

Source: SREDA.

Table 8: State of Net Metering System

Utility Name	Installed Capacity	Quantity
BPDB	6.9 MW	307
BREB	11.5 MW	261
DPDC	2.2 MW	243
DESCO	2.3 MW	325
WZPDCL	0.9 MW	199
NESCO	0.9 MW	50
TOTAL	24.7 MW	1385

Source: SREDA.

Dhaka Electric Supply Company Ltd. (DESCO), Dhaka Power Distribution Company Ltd. (DPDC), and Bangladesh Rural Electrification Board (BREB).

2.4 Financial Status of BPDB in FY2019–20

The financial statement of BPDB for FY2020–21 is yet to be published. Hence, this section discusses the financial condition of BPDB for an earlier year (FY2019–20), which includes operational cost and operating income. The analysis provides an overall understanding about the structure and composition of the income and expenses of BPDB. Table 9 presents BPDB's total costs and per unit generation cost in FY2019–20.

BPDB's overall operational cost was almost in FY2019–20 compared to FY2018–19. This can happen mainly because of the slow rise in demand for electricity during the COVID-19 pandemic which affected during the last quarter of FY2019–20. There is a major difference observed in the share of power generation and share of costs from different sources. While the BPDB contributes 52 per cent of total generation capacity of electricity, its share in total cost is only 25.1 per cent. In contrast, the private sector's contribution in power generation is 48 per cent but its share in

overall cost is 71.5 per cent. The quick rental power plants, which have a share of 4.6 per cent in total generation capacity, possess a share of 20.2 per cent in total BPDB's expenditure. A major reason for such a high-cost burden for private sector-led power generation is associated with the obligation of capacity payment due to excess generation capacity. Such a high capacity payment is the major reason behind high expenditure of BPDB and high price per unit electricity.

During the fiscal year, per unit cost of electricity (Tk/kwh) has experienced a decline, from Tk 6.01 per kwh to Tk 5.91 per kwh. A major reason for slow fall in unit price is because of the high amount of average cost of electricity procured from the private sector, particularly from the IPP (Tk 7.00 per kwh) and rental plants (Tk 8.34 per kwh). The electricity generation cost is the lowest in case of BPDB power plants (Tk 4.47 per kwh) and public sector plants (Tk 3.86). The high generation cost of electricity is associated with the type of fuel used, level of efficiency of power plants, obligation to pay capacity payment and so on.

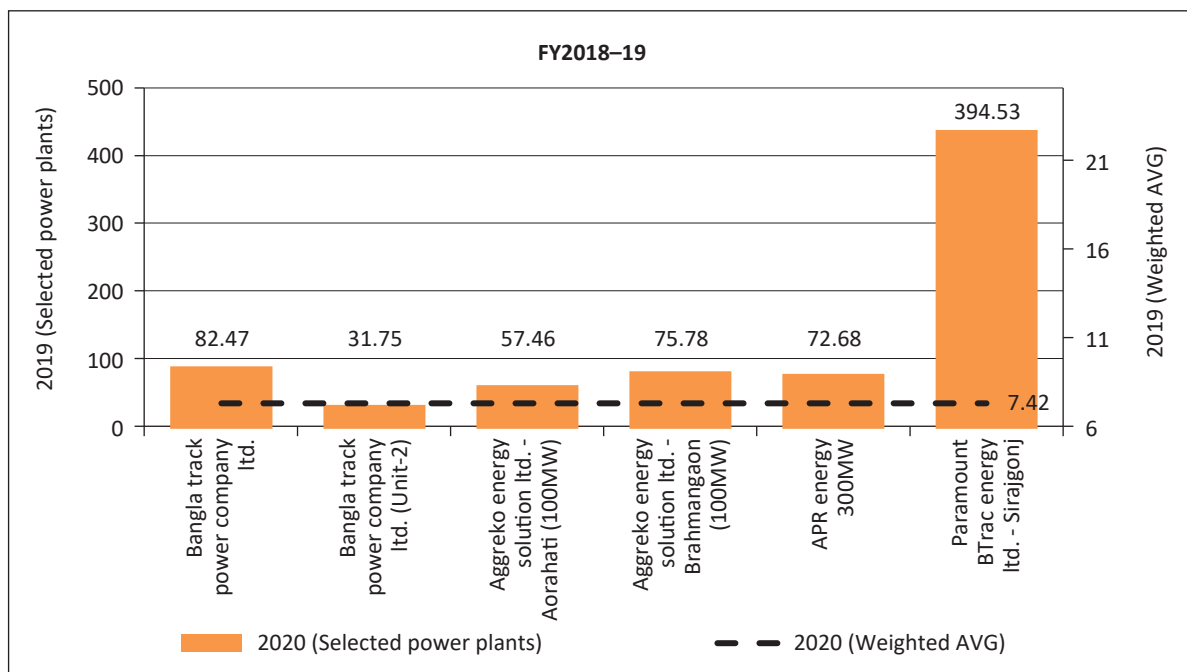
Table 9: Share of Total Costs and per Unit Generation Costs Between FY2017–18 and FY2019–20

	Share of Total Costs			Per Unit Cost (Tk/kwh)			Changes in Per Unit Cost	
	FY18	FY19	FY20	FY18	FY19	FY20	Between FY18 and FY19	Between FY19 and FY20
Total costs (Tk. in crore)	38,576.80	41,245.10	41,198.80	6.33	6.01	5.91	-5.1	-1.70
BPDB's Generation	24.40	18.50	18.10	6.44	4.58	4.47	-28.90	-2.40
Purchase from IPP	27.00	38.20	42.50	5.72	7.42	7.00	29.70	-5.70
Purchase from rental	16.30	12.20	7.80	8.77	8.40	8.34	-4.20	-0.70
Purchase from public plant	18.90	16.60	16.20	4.52	3.82	3.86	-15.50	1.00
Purchase from India	7.30	9.00	9.80	5.87	5.46	6.01	-7.00	10.10
Interest on budgetary support	3.10	3.10	3.10	0.20	0.19	0.19	-5.00	0.00
Provision for maintenance and development fund	3.00	2.40	2.50	0.19	0.15	0.15	-21.10	0.00

Source: Authors' calculation based on the annual reports from BPDB (2018, 2019, and 2020).

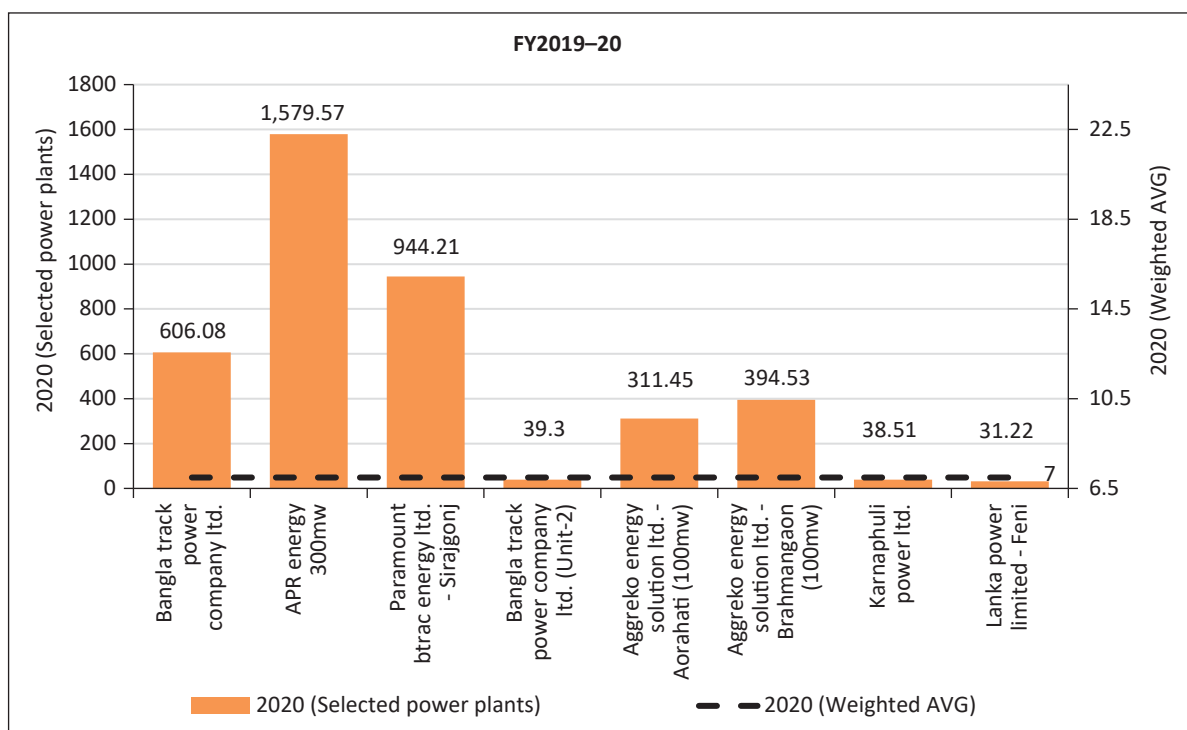
A significant disparity was also observed in the per unit cost of electricity between different power plants. As discussed earlier, the weighted average cost in FY2018–19 and FY2019–20 are Tk 7.42 and Tk 7.0 respectively. Interestingly, the per unit cost for some of the plants are significantly high, as shown in figures 1 and 2. In FY2018–19, per unit costs of some of the power plants were Tk 31.75, Tk 57.46, Tk 75.78 and even as high as Tk 394.53. Similarly, unit costs in FY2019–20 for some of the power plants were very high, even as high as Tk 944 and Tk 1579 respectively. Such a high cost is attributed to the payment of capacity charges to individual power plants. Because of the differences in using private sector power plants, the variance in power generation between the private sector power plants and public sector power plants is very high. In 2020, the amount of unutilised power capacity was larger than that of 2019. Hence, the variation in unit cost in 2020 was higher compared to 2019 (table 10). By addressing this issue, a comparatively low average production cost can be achieved which will help BPDB function more efficiently.

Figure 1: Unit Cost of Power Generation in Selected Power Plants in FY2018-19



Source: Authors' Calculation Based on the Annual Reports from BPDB (2019).

Figure 2: Unit cost of Power Generation in Selected Power Plants in FY2019-20



Source: Authors' Calculation Based on the Annual Report from BPDB (2020).

Table 10: Standard Deviation of Unit Cost of Power Generation

Particulars	FY2018–19	FY2019–20
Public power plants	6.0	131.7
IPP and SIPP	19.6	245.7
Rental and quick rental power plants	6.9	8.7
Purchase from India	1.4	1.6

Source: Authors' calculation based on the data of Annual reports from BPDB (2019 and 2020).

BPDB's financial position is still in the red although the operating losses has slightly reduced. During FY2019–20, operating loss is about Tk 4350 crore (table 11). The cost under several accounts has increased significantly in FY2018–19 and 2020.

Table 11: BPDB's Operating Income/Expenses

Head of Accounts	Operating Incomes/Expenses			Change % Per Year	
	2018	2019	2020	Between 2018 and 2019	Between 2019 and 2020
Operating revenue (1)	30604	34507	35535	12.8	2.9
Operating expenses (2)	36812	39553	39887	7.5	0.8
Operating profit/loss= (1-2)	-6207	-5046	-4352	-18.7	-13.8

Source: Authors' calculation based on the annual reports from BPDB (2018, 2019, and 2020).

2.5 Selected Initiatives and Activities Undertaken by the BPDB in FY2020–21

The Ministry of Power, Energy and Mineral Resources (MPEMR) has sought approval from the Prime Minister's office to abandon 13 coal-based power projects which either made little progress or could not secure financing. However, the project activities related to other coal-fired power projects went through. Mega projects having 3,840 MW power generation capacity were implemented at Payra, Moheshkhali and Matarbari areas. However, due to the lack of transmission system, BPDB needed to pay the Payra power company an amount of Tk 115 crore every month as "capacity payment".

There were official announcements about setting targets to generate 2000 megawatts of electricity from renewable energy sources in three years, which will be 10 per cent of the country's total power production. BPDB has started evaluating a number of bids made by aspiring bidders for two more wind-based power plants, each with generation capacity of 50-MW, one in Chandpur and another at Inani Beach, Cox's Bazar. At the same time, BPDB will purchase electricity from the plant at a levelised tariff of Tk 10.56 per kilowatt hour (each unit) over the period of 20 years.

Import of liquefied natural gas (LNG) has been on the rise in the country. Bangladesh accounts for 1.2 per cent of the global share of LNG imports in 2020, an increase of 0.1 per cent from 2019. Bangladesh was supposed to buy two LNG cargoes from spot market in June, one less from May 2021 since it will be importing more gas from term suppliers in the hot summer month. It will buy another 33.6 lakh MMBtu of LNG from the spot market to meet the growing demand for the super-chilled fuel. Bangladesh initiated to import LNG from spot market after two years of the country's first LNG cargo import in August 2018.

The government for the first time has taken the pricing authority of liquefied petroleum gas (LPG) marketed by private companies in its hand by re-fixing its price at the retail level. According to the

order, 12kg LPG cylinder will cost Tk 975, which is now being sold at Tk 1000 to Tk 1100, depending on companies. The retail price of the state-owned LP Gas Limited's 12.5kg cylinder will cost Tk 591, instead of the current price of Tk 600.

BPDB has undertaken several new initiatives regarding the efficiency of the power sector. The "Power Factor Improvement and Smart Grid," under DPDC is the first ever smart grid project in Bangladesh and will be implemented over the next five years. Electricity billing will be online in future as part of upgrading the system, which will help stop 'inflated' electricity bills. The French Development Agency (AFD) and the government have signed a grant financing agreement of 12 million euro or around Tk 1.24 billion to support advanced digital solutions. It will also prevent an accumulated 1,04,000 tonnes of CO2 emissions per year.

3. POWER SECTOR IN THE FY2021–22 NATIONAL BUDGET

In the policy statement of the National Budget for FY2021–22, the Finance Minister mentioned that the aim is to ensure power and energy security through public investment. Henceforth, a total of 97 power plants are at the stages of being approved or being constructed, LOI/NOA, tender and others in FY2020–21. Considering the integration of large-scale power plants in the national grid system, setting up necessary transmission and distribution lines are also being planned. The government has a plan to increase the number of transmission lines to 28,000km and the number of distribution lines to 6.60 lakh km by 2030. Reduction in the system loss improved from 14.3 per cent in 2009 to 8.7 per cent in May 2021.

According to the budget statement of the Finance Minister, the government has taken initiatives to increase the supply of LNG as well as other fuels with a view to ensuring energy security. In this connection, a land-based LNG terminal with a capacity of 1,000 million cubic feet per day has been planned to set up in the Matarbari area of Cox's Bazar district. Besides, the government has taken steps to increase fuel oil reserves as well. Till FY2020–21, the country's fuel storage capacity has been increased to about 13.20 million MT in 2021 from 8.94 lakh MT in 2009.

The Finance Minister indicated that in alignment with the national policy documents, government has also focused on renewable energy-based electricity generation. According to the national budget FY2021–22, the country's present renewable energy-based electricity generation stands at 722 MW. Solar and wind-based power plants are being installed to generate 10 per cent of the total electricity from renewable energy. Apart from that, under the 'My Village My Town' initiative, government has declared to encourage and support setting up biogas plants and solar panels on group-basis to increase the supply of electricity and energy in the villages and make them more reliable.

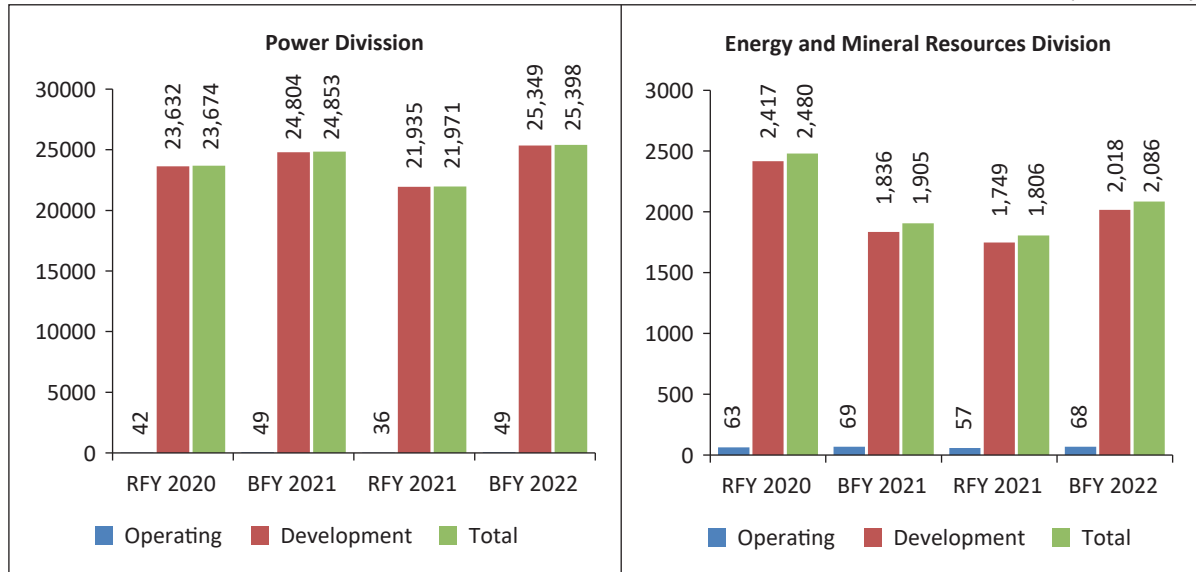
Overall, the policy statement of the Finance Minister has been concentrated on energy security and access to electricity based on fossil-fuels. Despite having the political commitment of the government, as well as with specific mention of the transition towards clean energy and clean power, little efforts are reflected in the policy statement related to the power sector in the FY2021–22 National Budget.

3.1 Overall Allocation for Power Sector

In the FY2021–22 budget (BFY2021–22), power and energy sector has received an allocation of Tk 27,484 crore (of which power division has received BDT 25,398 crore and energy division has

Figure 3: Budget Allocation for Power and Energy and Mineral Resources Division

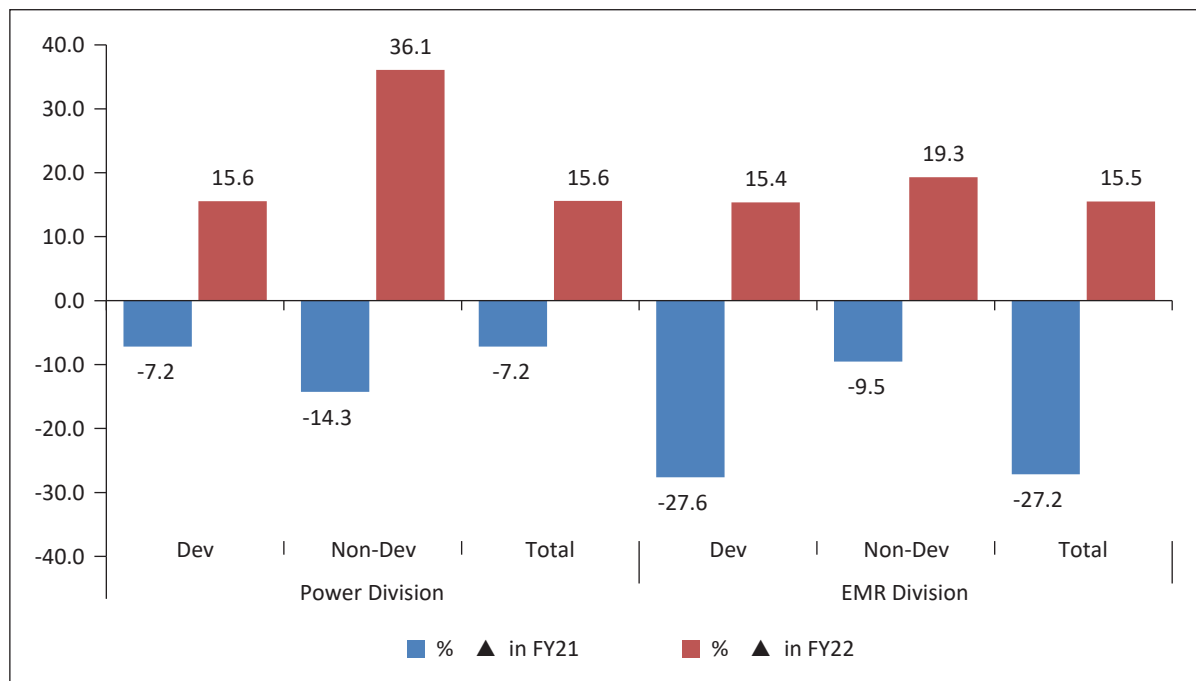
(in Crore taka)



Source: Authors' calculation from the Ministry of Finance (MoF) (2021).

received BDT 2086 crore) (figure 3). The allocation has increased by 15.6 per cent in BFY2021–22 compared to RFY2021–22 (Tk 23,777 crore). The growth rate is almost at the same level in the Power Division and the Energy and Mineral Resources Division. This rise in allocation happened against low-budget allocation base of FY2020–21. As a result, despite the rise in allocation, share of power and energy sector in the total budget has reduced in FY2021–22 (from 4.71 per cent in FY2020–21 to 4.55 per cent in FY2021–22) (figure 4).

Figure 4: Percentage Change in Budgetary Allocation in FY2020–21 and FY2021–22



Source: Authors' calculation from MoF (2021).

The Power Division usually receives the major share of budget allocation. About 92.2 per cent of the allocation of the sector is earmarked for the Power Division (Tk 25,398 crore). The Power Division uses most of its allocation for implementing development projects. For instance, Tk 25,349 crore will be used for development projects and Tk 49 crore will be used for meeting operating expenses during FY2021–22.

The Annual Development Programme (ADP) allocation for the power sector is distributed to three core sub-sectors—(a) generation, (b) transmission, and (c) distribution. Table 12 presents the distribution of budget allocation for the three sub-sectors. Major share of allocation is earmarked for generation which accounts for 62 per cent, followed by transmission (19.2 per cent) and distribution (18.7 per cent). The share of generation includes ADP allocation for Ruppur Power Plant which is being implemented under the Ministry of Science and Technology. A major reason for persistent high allocation on generation is the possible rise in power demand in the newly implemented special economic zones where a considerable demand for electricity is expected. Moazzem and Shibly (2020) highlighted that the ADP allocation for power sector should gradually reduce allocation for generation related projects since the country is already burdened with very high excess capacity. Moreover, implementing those projects would increase operational costs owing to payment of possible maintenance charges. Hence, the power sector should allocate more fund for transmission and distribution related projects.

The government has not given due importance towards generation of renewable energy-based power generation in FY2021–22 budget. SREDA—the authority dealing with renewable energy-based projects, has no new project in hand for investment in renewable energy, other than the existing ones. Despite the political commitment for phasing out from fossil-fuel based power generation towards clean energy-based power generation, FY2021–22 budget has failed to address that commitment. Hence, the government should allocate more funds for renewable energy-based power generation.

Table 12: Distribution of ADP Allocation of FY2021–22 in Power Sector

Sub-Sector	Allocated ADP (Lakh)	% Of Total ADP
Generation	Tk 28325.4	62.03%
Transmission	Tk 8779.3	19.23%
Distribution	Tk 8,558.6	18.74%
Total	Tk 45663.3	100%

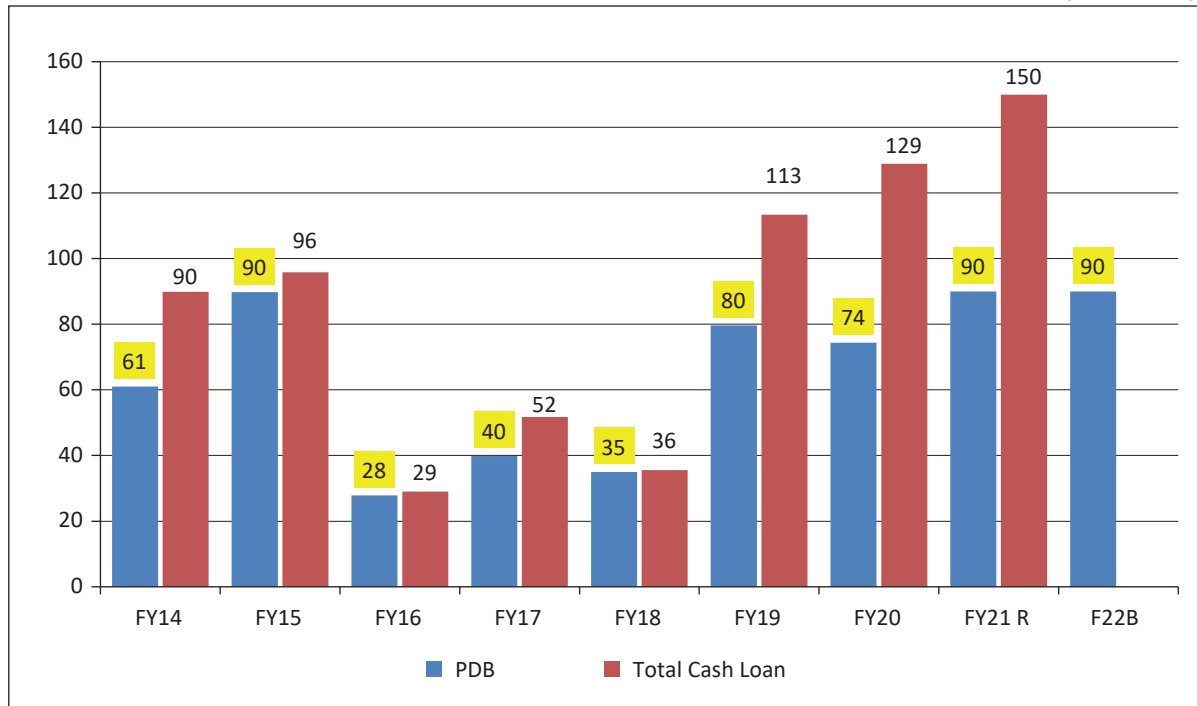
Source: Authors' calculation from MoP (2021).

3.2 Allocation of Cash Loan for Power Sector

The power division needs to take cash loan from the government to meet its operational costs of the power plants. In fact, BPDB is the single largest borrower of cash loan from the government. A large part of these borrowed fund is likely to be used to meet the charges for capacity payment to the private sector firms. During FY2021–22, the subsidy allocated for the power sector is Tk 9000 crore which is the same amount as in FY2020–21. In other words, the subsidy will be used for continuing the burden of fossil-fuel based power generation. In fact, BPDB has kept taking subsidy over the years. Since 2014, a total of Tk 58,800 crore subsidy has been allocated for the BPDB (figure 5). Such a high allocation of subsidy has been creating opportunity to continue the fossil-fuel based power generation in the country. Hence, the subsidy allocation for fossil fuel-based power generation needs to be reduced in a gradual manner.

Figure 5: Cash Loan Received by the Power Sector

(in Crore Taka)

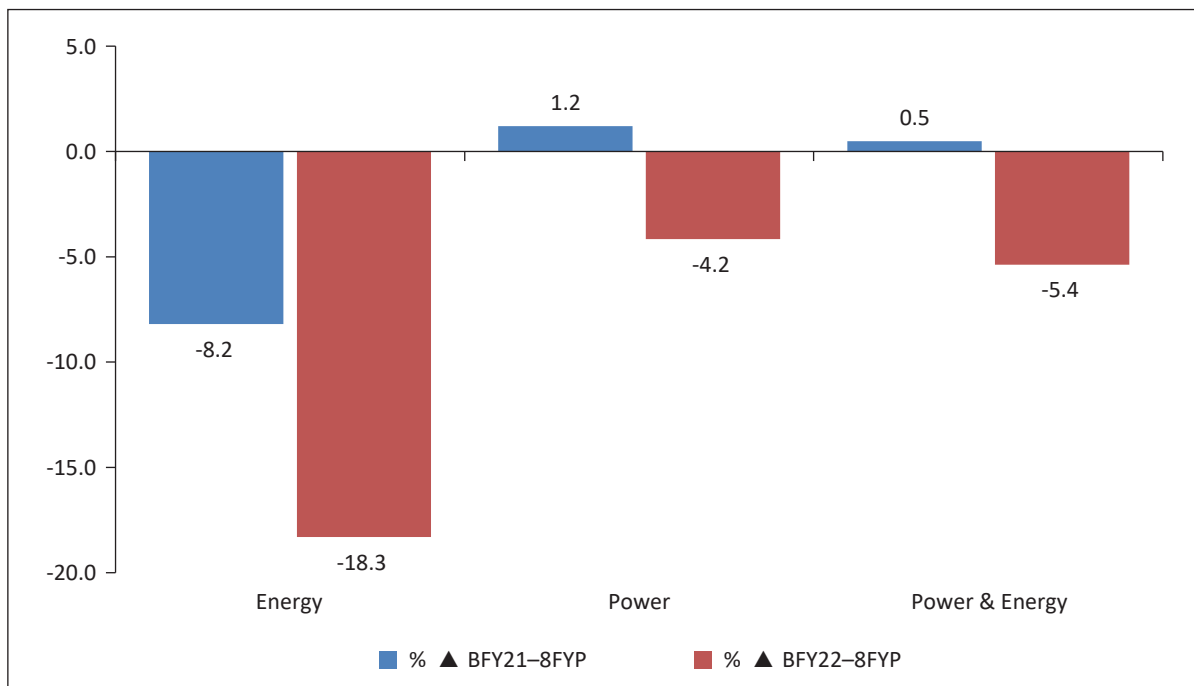


Source: Authors' calculation from MoF (2021).

3.3 Comparison of ADP Allocation for FY2021–22 Against 8FYP Targets

The Power sector does not get allocation in accordance with the 8th FYP (figure 6). During FY2021–22, the allocation for energy and power are less than that mentioned in the policy document. Both

Figure 6: Percentage Changes in Development Allocation of Budget in 8FYP



Source: Authors' calculation from GED (2021).

the power and energy divisions received less allocation. Such disparity for fossil-fuel based energy and power sector is a blessing in disguise.

4. A PROJECT-WISE ANALYSIS OF ADP ALLOCATION

A total of 102 projects will be implemented under Power Division during FY2021–22. The highest number of projects are related to distribution (31), followed by energy (27) and generation (26) (table 13). Notably, the number of transmission related projects in the ADP for FY202 is less. All ADP projects to be implemented in FY2022 has been categorised into three groups—(a) “carryover,” which include projects whose completion timeline is over and is being implemented with necessary allocation; (b) “concluding,” which include those whose project completion timeline is within this year, and (c) “continuing,” including the projects whose completion timeline is in the coming years. Table 14 presents the distribution of different categories of projects under three sub-sectors—generation, transmission and distribution.

Table 13: Types of Implementing Project Under ADP in FY2021–22

Types of Projects	Frequency	Percent
Distribution	31	30.39
Fuel & Energy	27	26.47
Generation	26	25.49
Transmission	18	17.65
Total	102	100

Source: Authors' calculation from MoP (2021)

Table 14: Project Completion Status by Types of Projects

(in number)

Project	Carry Over	Concluding	Continuing	New	Total
Distribution	15	11	4	1	31
Fuel & Energy	6	9	12	0	27
Generation	11	9	6	0	26
Transmission	8	6	4	0	18
Total	40	35	26	1	102

Source: Authors' calculation from MoP (2021).

Among the implementing projects, majority are carryover projects (40) followed by concluding (35) and continuing projects (26). Majority of the carryover projects are related with distribution of power and energy. Similar case is noticeable in case of transmission and generation related projects. Implementing such a large number of carryover projects indicate that high inefficiency in project implementation. In other words, unless the level of efficiency in implementing projects are ensured, higher allocation for transmission and distribution would marginally improve the energy system in the country.

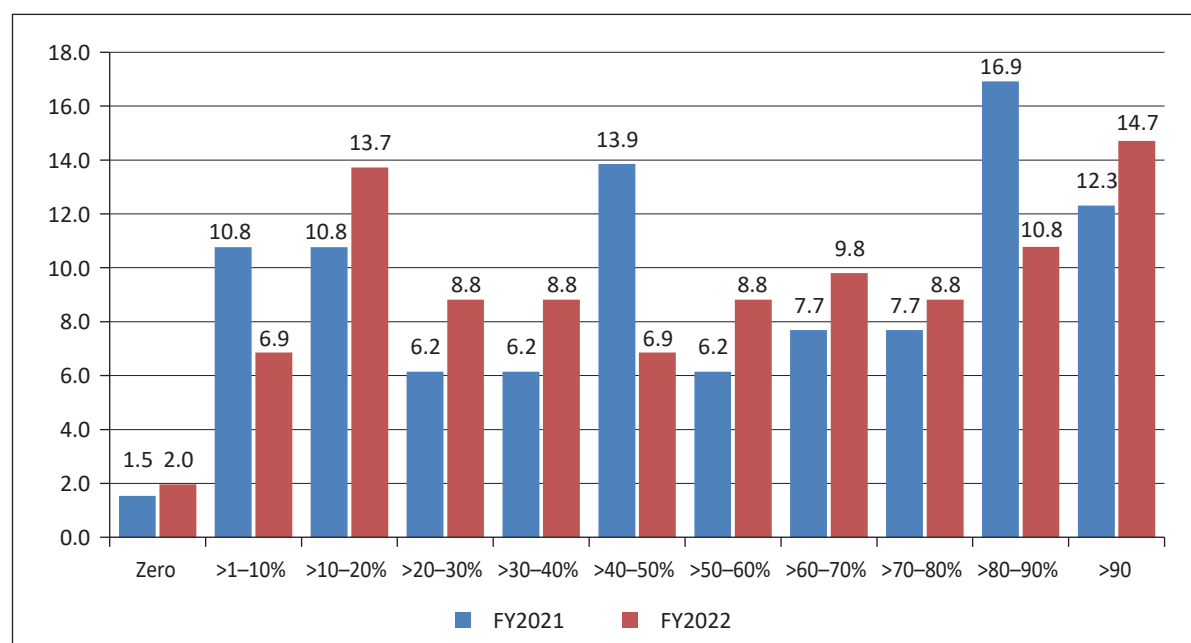
Majority of the ADP projects under power and Energy and Mineral Resources Division (EMRD) are at the early stage of implementation (table 15). The study estimates the rate of total project cost to be realised at the end of FY2021–22. According to the analysis, about 38.2 per cent of projects' maximum possible implementation rate will be less than 50 per cent level by the end of FY2021–22. The level of implementation was similar in FY2020–21 (figures 7 and 8).

Table 15: Project Completion Status by Types of Implementing Project

Project	Carry Over	Concluding	Continuing	New	Total
Distribution	48.4	35.5	12.9	3.2	100
Fuel and Energy	22.2	33.3	44.4	0.0	100
Generation	42.3	34.6	23.1	0.0	100
Transmission	44.4	33.3	22.2	0.0	100
Total	39.2	34.3	25.5	1.0	100

(in per cent)

Source: Authors' calculation from MoP (2021).

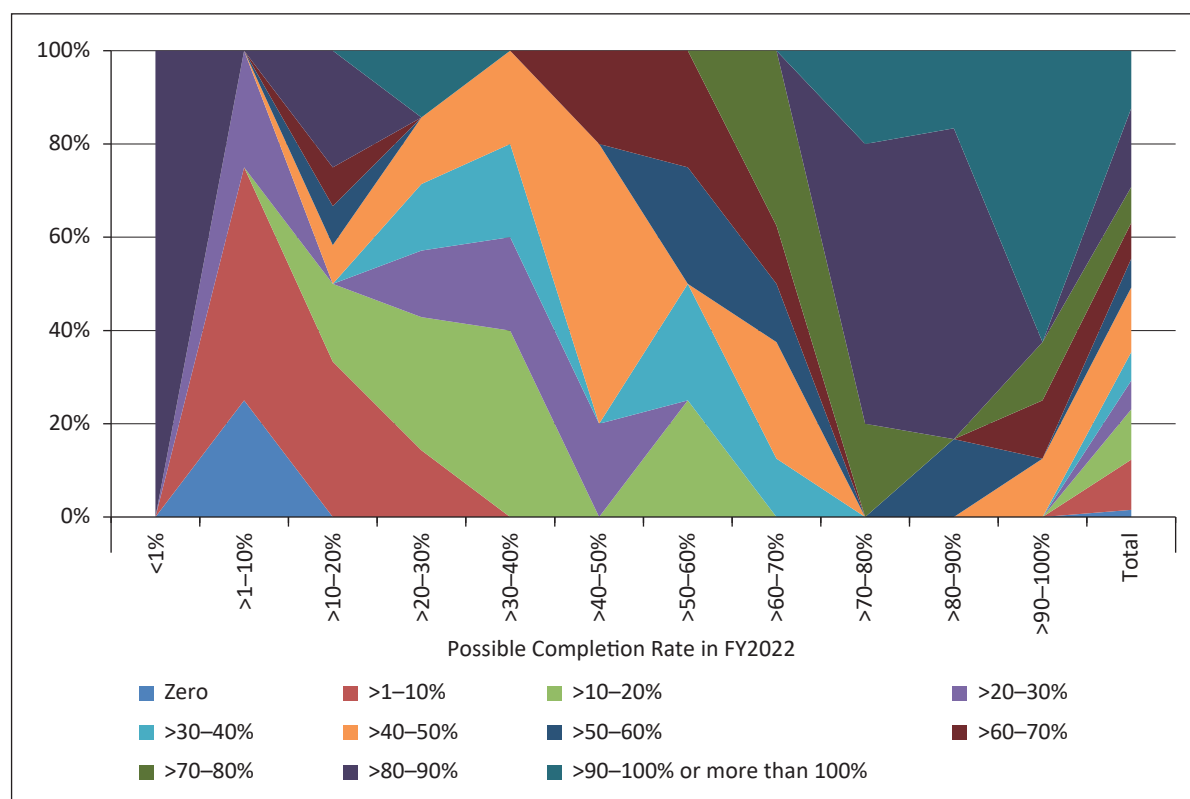
Figure 7: Possible Project's Implementation Rate in FY2021 and FY2022— A Relative Performance

Source: Authors' Calculation from MoP, (2021).

The state of carryover projects is very shocking. Most of these projects will not be completed even within the fiscal year. Among the total number of projects, 15 per cent of the projects would reach 20 per cent of completion, while 13 per cent of the projects will reach 40 per cent of completion. Majority of these projects have lost their track of project completion cycle. In other words, further extension of time and allocation of the carryover projects will be required which will cause continuation of financial burden for the power sector.

Analysis of ADP allocation by organizations reveal that allocations are not evenly distributed. Allocation has increased for DPDC while it has declined in case of other organisations such as BPDB, BREB, DESCO and West Zone Power Distribution Company (WZPDCL). The allocation for transmission has been made to the Power Grid Company of Bangladesh (PGCB) while generation related allocation has been made for companies under BPDB, Coal Power Generation Company Bangladesh Limited (CPGCBL) and North-West Power Generation Company Limited (NWPGCL). It is found that a number of companies received less allocation such as BR Powergen Company Ltd (B-R PCL), Electricity Generation Company of Bangladesh Limited (EGCB) and Rural Power Company (RPC).

Figure 8: Comparison of Completion Rate of Similar Projects Between FY2021 and FY2022



Source: Authors' Calculation from MoP, (2021).

5. ALLOCATION FOR CLEAN POWER AND ENERGY

A number of renewable energy based projects are being implemented by different ministries and departments (table 16). These include three projects under MPEMR, three projects under (Ministry of Agriculture (MoA), one project under Ministry of Textiles (MoT). The projects include solar panel establishment, solar power plant, irrigation through solar pump, micro-irrigation through solar energy and establishment of a solar base station. The implementation status is also mixed where two of them are carryover, three are concluding and two of them are continuing projects. Unfortunately, none of the projects are included under Sustainable And Renewable Energy Development Authority (SREDA) in the ADP for FY2021–22. It is to be noted that the private sector is involved in implementing a number of renewable energy projects.

Table 16: State of Renewable Energy-based Projects Implemented by the MPEMR

Name of project	Maximum Possible Completion by FY22 (%)	Organisation	Type of Project	Project Status	Ministry
Electricity distribution through solar panel establishment in the remote areas of Chattogram hill tracts	39	CHTDB	Generation	Continuing	MPEMR
Sonagaji 50MW solar power plant building	36	EGCB	Generation	Carry over	MPEMR
Agriculture irrigation through solar driven pump	93	BREB	Distribution	Carry over	MPEMR

(Table 16 contd.)

(Table 16 contd.)

Name of project	Maximum Possible Completion by FY22 (%)	Organisation	Type of Project	Project Status	Ministry
Increase crop production through expansion of solar energy and water saving modern technology (pilot)	82	DAE	Generation	Concluding	MoA
Experimental research on extension of two-tier agricultural technology through solar energy based irrigation system and its versatility	100	RDA	Generation	Concluding	MoA
Development of micro-irrigation using solar energy	48	BADC	Generation	Continuing	MoA
Strengthening Teletalk network coverage in remote and inaccessible areas by setting up solar base stations	78	Tele Talk	Generation	Concluding	PTD

Source: Authors' calculation from MoP (2021).

6. ADDRESSING REFORM ISSUES IN THE POWER SECTOR DURING FY2021–22

6.1 Coal-Based Power Plants Are Still Being Financed

The ADP allocation for FY2021–22 includes nine coal-fired power projects with allocation which raises questions about the Ministry's position regarding government's stance on abandoning coal-fired power plants. These projects include, among others, land acquisition, development, and resettlement for implementation of Patuakhali thermal power plant (revised) (Tk 37 crore); land acquisition, protection and feasibility study for Bangladesh-Singapore 700MW ultra super critical coal-based power plant (2nd revised) (Tk 40 crore); and land acquisition, development and conservation for Patuakhali 1320MW super thermal power plant equivalent to Tk 42 crore.

It is to be noted that a number of coal-fired projects which were planned earlier did not get any allocation for FY2021–22. These projects include land acquisition for Moheshkhali power hub, and Matarbari ultra super critical coal fired power project-2 (PGCB part from Matarbari to Madunaghat 400KV transmission line). Annex Table 1 presents the list of coal-based power projects and their current status. Overall, government should immediately stop financing all kinds of activities related to coal-based power generation projects particularly those which are in the pipeline.

6.2 Allocation for Ruppur Nuclear Power Plant Should be Reduced

Ruppur Nuclear Power Plant received the highest allocation in the ADP 2022 equivalent to Tk 18426 crore (table 17). Such an allocation will help to complete about 53 per cent of the project related works. Given the huge amount of excess generation capacity, such a huge allocation for quick implementation of the project—slated to complete by 2025—would further increase the pressure of excess electricity. Hence, allocation for this project should be reduced from both our government and the Russian government. The receivable allocation from the project could be redirected to implementing renewable energy-based power generation projects.

Table 17: Allocation for Ruppur Nuclear Power Plant and its Transmission Activities in FY2021–22

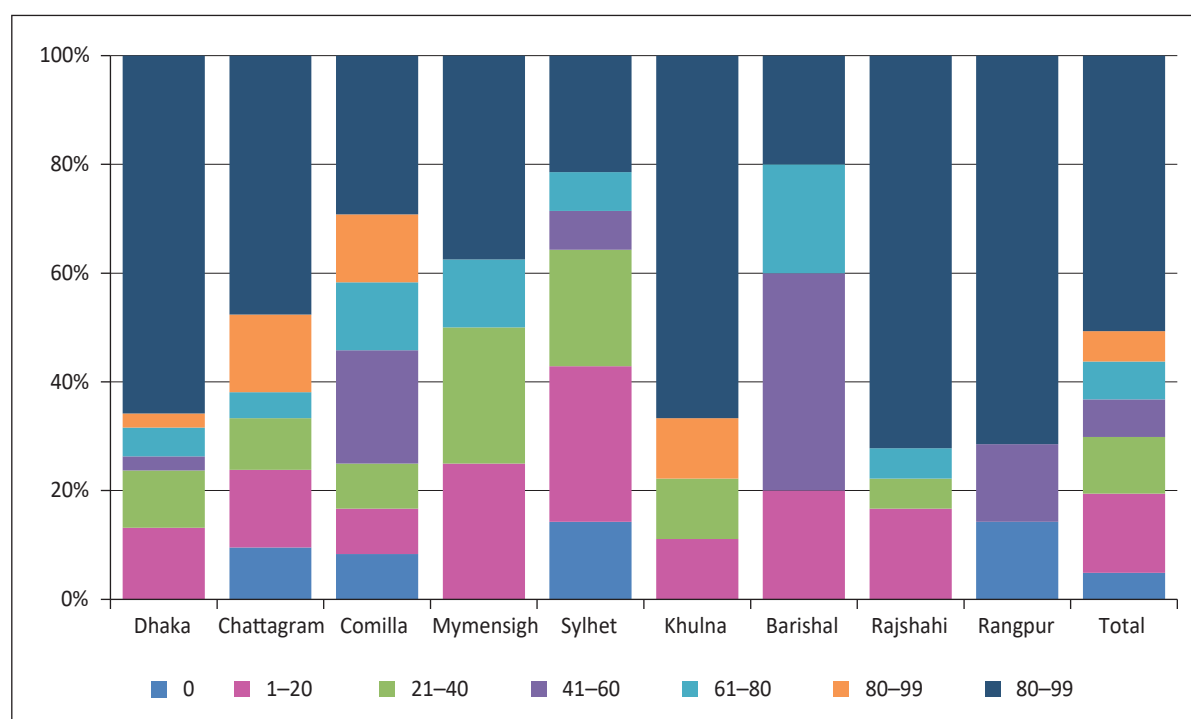
Name of project	Implementing organisation	Type of Project	Allocation FY22	Project Aid	GoB	Maximum Possible Completion by FY22	Project completion status
Ruppur nuclear power plant	Bangladesh Nuclear Energy Commission	Generation	1842616	1600000	242616	53%	Continuing
Development of transmission infrastructure for generated power evacuation of Ruppur Nuclear Power Plant	PGCB	Transmission	207939	164995	42944	24%	Continuing
Total			2050555	1764995	285560		

Source: Authors’ calculation from MoP, (2021)

6.3 Excess Generation Capacity Should be Significantly Reduced

Excess capacity has increasingly become a concerning issue for the power sector. As much as 60 per cent capacity is currently unutilized.² A plant-wise analysis shows that majority of the plants remain idle as high as 100 per cent in a particular day (figure 9). Such inefficiency has been causing high-capacity payment to a large number of private sector power plants—a huge financial burden for

Figure 9: Plant Wise Overcapacity on 16 May 2021



Source: BPDB, 2021.

²As of 16 May 2021.

BPDB. It is increasingly getting difficult to accommodate such costs and bear BPDB's huge amount of losses which has been forcing it to take loan from the government. Hence, BPDB should revise its generation plans for 2030 considering the renewed demand. It should phase out quick rental power plants, and inefficient, old, and dated plants. Additionally, it should stop financing new fossil-fuel based power plants.

6.4 Exiting Quick Rental Power Plants

The 8th FYP stipulates government's stance on phasing out of quick rental power plants by 2024. Despite such policy and official stances on quick rental power plants, the contract period of most of the quick rental plants has been extended (GED, 2020, page-361). Given the excess capacity, there is no risk of lack of capacity to meet the peak demand by other power plants. During FY20, only 440 MW worth of electricity was used against the total capacity of quick rental power plants which was only 1/3 of their total capacity. Given the fiscal and financial burden, these plants should be phased out. Phasing out of the plants would create space for grid based renewable energy power demand in the country.

6.5 No further Extension of Speedy Supply of Power and Energy Act

Bangladesh's energy and power sector needs to shift its activities from the mode of "emergency management" (initiated in early 2010s) to "market-led" management. It needs to reduce lack of transparency, accountability, efficiency, irregularities, and corruption in power and energy sector related different activities over the years due to inappropriate use of the Act.

Speedy Supply of Power and Energy Act 2010 was enacted targeting special needs in 2010. It was enacted on October 12, 2010, for two years. In September 2012, the government first extended the Act for two years which expired on October 11, 2014. The Act was further extended for another four years till October 11, 2018. The Act once again got extension for three more years – till 10 October, 2021.³ It was CPD's stance that given the development of the power and energy sector, the Speedy Supply of Power and Energy Act needs to be discontinued immediately. As per the Act, it can be discontinued any time before its period of expiry through repealing it.

7. CONCLUSION

It is time to look beyond the numbers and statistics related to power and energy sector projects. It is time to prioritize quality and efficiency in power sector projects. The expected progress of the ADP projects under power and EMRD division in 2022 doesn't seem satisfactory. The annual budget allocations in renewable energy-related projects are largely missing. More budget allocation should be made for renewable energy-based power generation for more renewable energy-based small and large-scale projects. It is crucial to give importance to SREDA—the organization should widen its activities. With the aim to attract private investment in renewable energy based power sector projects fiscal incentive structure for investment should be widened. Foreign Direct Investments (FDI) in the renewable energy should be facilitated by making the domestic business environment favorable. De-risking investment and doing businesses must be eased for this purpose. . It is time that the power sector becomes more competitive, where all types of bidding should be held under an open bidding system by maintaining transparency. In this context, Speedy Supply of Power and Energy Act should have to be discontinued as quickly as possible.

³Unfortunately, the Cabinet decided not to renew this Act on 6 August, 2021.

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ANNEX

Annex Table 1: Status of ADP Allocation for Different Projects related to Coal-Based Power Generation and Transmission

Name of Project	Organization	Type of Project	Type of Plant	Cumulative Expenditure up to June 2020	Revised Allocation FY21	Allocation FY22	Maximum Possible Completion by FY22 (%)	Project Status	Possible Completion by FY21 (%)
Land acquisition for Moheshkhali power hub	BPDB	Generation	Coal & gas	131,661	58,210	1	143	Carry over	99.4
Land acquisition, development, and resettlement for implementation of Patuakhali thermal power plant (Revised)	RPCL	Generation	Thermal/Ultra super thermal	0	11250	3700	17	Concluding	82.4
Land acquisition, protection and feasibility study for Bangladesh-Singapore 700MW ultra super critical coal-based power plant (2nd revised)	CPGCBL	Generation	Ultra-super/ Ultra super critical coal	55,638	2200	4000	72	Concluding	87.5
Feasibility study for setting up CPGCBL-Sumitomo 1200 MW ultra-superpower plant	CPGCBL	Generation	Ultra-super/ Ultra super critical coal	0	175	150	18	Concluding	47.7
Land acquisition and ancillary activities for setting up CPGCBL-Sumitomo 1200 MW ultra-super critical coal-based power plant	CPGCBL	Generation	Ultra-super/ Ultra super critical coal	0	1	10	0	Concluding	85
Matarbari 2 *600 MW ultra-super critical coal fired power project	CPGCBL	Generation	Ultra-super/ Ultra super critical coal	1,274,693	420000	616200	64	Continuing	46.1

(Annex Table 1 contd.)

(Annex Table 1 contd.)

Name of Project	Organization	Type of Project	Type of Plant	Cumulative Expenditure up to June 2020	Revised Allocation FY21	Allocation FY22	Maximum Possible Completion by FY22 (%)	Project Status	Possible Completion by FY21 (%)
Land acquisition, development, and conservation for Patuakhali 1320MW super thermal power plant	APSCL	Generation	Thermal/Ultra super thermal	0	12395	4200	20	Carry over	40.4
Link road and ancillary infrastructure building projects for Payra 1320MW thermal power plant	NWPGCL	Generation	Thermal/Ultra super thermal	0	7500	10000	70	Carry over	50.3
Matarbari ultra super critical coal fired power project-2 (PGCB part from Matarbari to Madunaghat 400KV transmission line)	PGCB	Transmission	Ultra-super/ Ultra super critical coal	52,593	56450	1	100	Carry over	104.1

Source: Annual Report, BPDB.

Annex Table 2: Quick Rental Power Plants and Their Different Issues

Name of plant	Fuel	Installed capacity (MW)	Derated capacity (MW)	Contract period (in years)	Contract expired
RPP					
Venture 34.5 MW, Bhola	Gas	56	50	3	11.07.2021
Enegyprima, Sylhet	Gas	50	50	3	04.01.2020 (ext.)
Energyprima. Bogra	Gas	20	10	3	12.11.2020 (ext.)
Precision, Ashuganj	Gas	60	55	3	06.04.2023 (ext.)
Energyprima, Fenchuganj	Gas	44	44	3	14.02.2021 (ext.)
GBB, Bogra	Gas	23.3	21.7	15	16.06.2023
Barakatullah, Fenchuganj	Gas	55.1	51	15	23.10.2024
Shajibazar (Hobiganj)	Gas	92.8	86	15	09.02.2024
Desh, Kumargaon, Sylhet	Gas	11.7	10	15	17.03.2024
Sub-Total (RPP)		412.9	377.7		
QRPP					
Ghorasal 78.5MW (Max), Narsingdi	Gas	78	78	3	08-01-21 (Extended)
Ashuganj (United), B-Baria	Gas	53	53	3	21-06-19 (Extended)
Bhola (Aggreko)	Gas	95	95	4	17-03-22 (Extended)
Madanganj (Summit), Narayanganj	HFO	102	101.2	5	31-03-21 (Extended)
Meghnaghat (IEL), Narayanganj	HFO	100	100	5	07-05-21 (Extended)
Siddirganj (Dutch Bangla), Narayanganj	HFO	100	100	5	20-07-21 (Extended)
Power Pac Mutiara, Keranigonj, Dhaka	HFO	100	100	5	26-03-22 (Extended)
Noapara (Khan Jahan Ali), Jessore	HFO	40	40	5	28-05-21 (Extended)
Khulna (KPCL-II), Khulna	HFO	115	115	5	31-05-21 (Extended)
Amnura Sinha Power, Chapainawabganj	HFO	50	50	5	12-01-22 (Extended)
Katakhali (Northern), Rajshahi	HFO	50	50	5	21-05-22 (Extended)
Julda (Acorn), Chattogram	HFO	100	100	5	25-03-22 (Extended)
Sub-Total (QRPP)		983	982.2		
Total RPP and QRPP			1359.9		

Source: Annual Report, BPDB.

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