Bangladesh: Power System Efficiency Improvement Project

Project Name: Power System Efficiency Improvement Project
Project Number: 37113-013
Country: Bangladesh
Project Status: Active
Project Type / Modality of Assistance: Grant
Source of Funding / Amount:
- Loan 2769-BAN: Power System Efficiency Improvement Project
  - Ordinary capital resources: US$ 300.00 million
  - Loan: Power System Efficiency Improvement Project
  - Islamic Development Bank: US$ 200.00 million
- Grant 0583-BAN: Power System Efficiency Improvement (Off-grid Solar Photovoltaic Pumping Systems Component) - Additional Financing
  - Clean Energy Fund under the Clean Energy Financing Partnership Facility: US$ 3.00 million
- Grant 0584-BAN: Power System Efficiency Improvement Project (Off-grid Solar Irrigation Component) - Additional Co-financing
  - Strategic Climate Fund - SREP: US$ 22.44 million

Strategic Agendas:
- Environmentally sustainable growth
- Inclusive economic growth
- Inclusive economic growth
- Effective gender mainstreaming

Drivers of Change:
- Partnerships

Sector / Subsector:
- Energy - Energy efficiency and conservation - Renewable energy generation - solar

Gender Equity and Mainstreaming:
- Effective gender mainstreaming

Description:
The draft power sector master plan 2010, updated 2016, identifies the need to add 11 CCPs each with 450 MW capacity by 2016. The proposed Ashuganj 450 MW plant (part A) can be considered one of these CCPs. Further, the government has identified the proposed plant as a priority project in its expansion plan. The economic cost of electricity supply from the Ashuganj CCP is similar to or lower than those of a coal-fired power plant (based on the costs taken from the master plan), confirming that the proposed plant is among the least-cost options for generating new capacity. CCP design will use the latest commercially available technology to harness the maximum benefit of energy efficiency. Part B of the project will demonstrate renewable energy technologies and their application for long-term large-scale penetration into the Bangladesh power system. The subcomponents in part B use solar photovoltaic, wind power and LEDs, which are commercially proven technologies. Additional financing will be utilized for installation of 2,000 solar irrigation pumps in ten different districts of Bangladesh.

Project Rationale and Linkage to Country/Regional Strategy:
- Energy shortage is considered the most critical infrastructure constraint to Bangladesh's economic growth. The present maximum demand for electricity is about 5000 MW (Megawatt) and it is expected to rise to 7,000 MW in two years. But the maximum available generation is about 3,800 MW leaving a significant supply gap. The main causes for the supply shortage, among others, are (i) poor operational efficiency of thermal power plants (ii) inadequate supply of natural gas which forms the main source of primary energy for electricity generation (80% of generation capacity is based on natural gas) (iii) slow progress on cross-border energy cooperation; and (iv) lack of diversification in energy supply. To address shortages, the power plants meant for peaking load operation are being used for base-load generation making their operation extremely energy inefficient. These issues have also been highlighted in the ADB’s 2009 Bangladesh energy sector assistance program evaluation (SAPE). In the absence of lack of private sector interest in recent times and considering the critical requirement of base-load power generation SAPE has recommended public sector investment in base-load power plants.

In line with the government policy, ADB country partnership strategy for Bangladesh (CPS) addresses the main issues in the energy sector. It emphasizes on (i) continuation of the policy, legal and regulatory reforms to create enabling business environment for the private sector; (ii) implementation of power transmission interconnections with India; (iii) investment in new power generation facilities and rehabilitation of old power plants for improved efficiency; (iv) increased investment in clean energy such as wind and solar power through public private partnerships; and (v) transmission network strengthening for expected generation capacity additions.

The most important development in 2010 is the signing of the memorandum of understanding on energy cooperation between India and Bangladesh. Specific areas of cooperation include (i) India’s agreement to supply on a fast track basis at least 250 MW of power to Bangladesh; (ii) joint development of thermal power generation facilities in Bangladesh. Facilitating this process ADB has approved a loan to construct the 5000MW Bangladesh-India electricity transmission interconnection in the western border of Bangladesh. The proposed loan will address three key areas in the electricity supply sector. They are, improving operational efficiency of thermal power plants, expanding the renewable energy base and improving the transmission network capacity. A project preparatory technical assistance (PPTA) has been undertaken to prepare the project for ADB financing. The project interventions will include: (i) replacing some of the old power plants at Ashuganj power station (260MW, consisting of one old combined cycle plant and two steam turbine plants) with a more efficient combined cycle power plant (318MW); (ii) installation of a 5MW solar photovoltaic (PV) at Kaptai hydropower plant premises; (iv) installation of wind-solar hybrid systems in St Martin (0.75 MW) and Hatiya (1 MW) islands and; (v) construction of 2,000 solar irrigation systems in ten different districts of Bangladesh. The subcomponents in part B use solar photovoltaic, wind power and LEDs, which are commercially proven technologies. Additional financing will be utilized for installation of 2,000 solar irrigation pumps in ten different districts of Bangladesh.

Impact:
- Increased provision of better access to electricity
- Increased provision of better access to electricity
Increased electricity generating capacity

Ashuganj, Barisal, Chittagong, Dhaka, Hatiya, Kaptai, Khulna, Rajshahi, Sylhet

Electricity generating capacity increased by below project components:

B

Hongwei Zhang
South Asia Department

All procurement of goods and works will be undertaken in accordance with ADB’s Procurement Guidelines. For procurement under Part A, an expanded list of countries to allow participation by firms and entities from countries eligible under ADB Procurement Guidelines and IsDB Procurement Guidelines.

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 eligible countries to allow participation by firms and entities from countries eligible under ADB Procurement Guidelines and IsDB Procurement Guidelines. Consultants, 9 PM of international and 24 PM of national consultants, will be required.

E

The project will use natural gas as fuel and meet the cooling water requirements of 6.4 cubic meters cubic meters per second, or 52,000 cubic meters per gigawatt-hour, using water from the Meghna River, which will be released back to the river after 3% to 5% loss, or 1,500 to 2,600 cubic meters per gigawatt-hour. CCP technology has high thermal efficiency, and a burner will be used that limits the formation of nitrogen oxide. A pond will temporarily hold cooling water discharges, and the discharge channel will have adequate turbulence to dissipate heat before its final discharge back into the Meghna River. The plan for abandoning the replaced power plant units will be prepared by APSCL. ADB will review the plan prior to any decommissioning works.

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The project is classified under involuntary resettlement category B. Constructing the Ashuganj CCPP will require relocating 134 people to alternative, vacant, and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial compound. Affected people have been consulted on the process and consented to relocation and suitable accommodation inside the Ashuganj industrial comp...
Grant 0583-BAN

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Grant 0584-BAN

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Loan 2769-BAN

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Project Page  
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