

Bangladesh Regulator Prepares to Conduct Energy Audits for Thermal Power Plants, Increase Energy Efficiency



A BERC presentation during an August 2022 training on conducting energy audits in Dhaka, Bangladesh. Photo Credit: BADGE

May 2023 – In Bangladesh, the demand for electricity is expected to rise from 9,000 megawatts (MW) to 35,000 MW by 2030, which will require an increase in power generating capacity.¹ However, the country has historically relied on its national reserves of natural gas, which is becoming increasingly unsustainable in terms of its cost and accessibility. Natural gas levels are running low, and the deficit between usage and supply is predicted to reach 52% in 2030.² In addition to looking into other fuel sources, it is important for Bangladesh to reduce its strain on energy production.

One way to do so is by facilitating the implementation, execution, and proliferation of energy efficiency and conducting energy audits. Energy audits are key mechanisms for improving energy efficiency, as they provide a benchmark for managing energy and planning more effective use of energy throughout a given facility. With support from the United States Agency for International Development (USAID), the National Association of Regulatory Utility Commissioners (NARUC) developed an [Energy Audit Manual for Thermal Power Plants](#) and accompanying [Annexures](#) for the Bangladesh Energy Regulatory Commission (BERC) that will enable the regulator to conduct energy audits for thermal power plants (TPPs).

In particular, BERC is focused on auditing the maintenance and operations of TPPs, such as adherence to recommended maintenance schedules, performing spare part replacement, assessing power plant efficiency targets, evaluating fuel procurement contracts, and benchmarking power plant performance. BERC is mandated to perform energy audits of generation facilities and this information will help it to do so for various types of generation facilities under its purview.

The Benefits of an Energy Audit

An energy audit is a comprehensive study of a plant or a facility to determine how and where energy is used and to identify methods for saving energy. The objective of an energy audit is to identify and develop modifications that would reduce energy use and/or the cost of operating a facility. During an energy audit, an auditor makes recommendations on how to save energy by optimizing operating practices or retrofitting or upgrading energy-consuming equipment.³

In September 2022, the Bangladeshi Government announced plans to add around 4.3 gigawatts of coal-based thermal power to address frequent blackouts, which had been causing a major strain on its industries.⁴ As the share of coal power in Bangladesh's total annual generation is estimated to reach 12.6% in 2032,⁵ auditing TPPs to ensure their efficiency will be increasingly important for Bangladesh moving forward. Combining efforts to move away from fuel dependence on natural gas with improved energy efficiency measures will help Bangladesh to keep pace with its growth in energy demand by ensuring that generating stations are operating as effectively as possible and at maximum capacity.⁶

Further, as the thermal efficiency of a coal-fired power plant is increased, less coal is burned per kilowatt hour of electricity generated, and there is a corresponding decrease in carbon dioxide (CO₂) and other air emissions.⁷ This means that improving the efficiency of TPPs could enable them to

generate the same amount of electricity from less fuel and significantly decrease CO₂ emissions.⁸ Since greenhouse gas (GHG) emissions from electricity generation are essentially composed of CO₂ emissions, improvements in efficiency are also a direct means of reducing GHG emissions.⁹

The Energy Audit Manual and Annexures

The *Energy Audit Manual for Thermal Power Plants* provides a brief overview of the Bangladesh Energy Efficiency and Conservation Master Plan (BEECMP) 2030 and information on BERC's responsibilities in terms of regulating the price of gas, electricity, and petroleum products. It also identifies the need for energy audits and energy conservation in TPPs and explores potential cost-saving options in critical energy-consuming areas. Meanwhile, the accompanying *Annexures* include a large variety of relevant information, such as a sample energy audit report and details on different types of power plants in Bangladesh.



Speakers during the August 2022 training with BERC on conducting energy audits in Dhaka, Bangladesh. Photo Credit: BADGE

Prior to finalizing the *Energy Audit Manual for Thermal Power Plants*, in August 2022 NARUC co-organized a training on its contents alongside the Bangladesh Advancing Development and Growth through Energy (BADGE) in Dhaka, Bangladesh. During the training, NARUC experts discussed all the necessary steps that BERC should take to conduct an energy audit and made suggestions regarding when it should engage third parties and other energy sector stakeholders for assistance.

The training convened BERC staff as well as representatives from utilities and gas, transmission, and distribution companies in Bangladesh. Participants had the opportunity to ask questions about audit phases and provide constructive feedback based on their experiences and knowledge of similar processes. NARUC incorporated this feedback into the final version of the manual, which BERC and the other training attendees can now follow as they work to create a more efficient and sustainable power sector.

Building BERC's Regulatory Capacity

This assistance builds on [USAID efforts to accelerate sustainable, clean energy solutions in Bangladesh](#) and NARUC's longstanding work with BERC under the USAID and NARUC [Bangladesh Energy Regulatory Partnership](#), which began in 2004. From 2004 to 2008 and from 2011 to 2012, NARUC assisted Bangladeshi regulators with interpreting BERC's founding legislation, creating an organizational structure, and providing a foundation for regulatory growth. In 2018, NARUC expanded efforts as the partnership progressed, helping BERC operate within the social, political, and economic realities of Bangladesh and working to encourage consumer education.

Over the past few years, NARUC experts have shared information with BERC staff on public communications, stakeholder engagement, rate design and depreciation for electricity tariffs, and dispute resolution, which will help the regulator to increase transparency and promote an enabling environment for investment through boosting investor confidence. Now that BERC is expanding upon this foundation of knowledge by learning how to conduct energy audits of thermal power plants, it can provide an avenue to save energy and minimize costs as well as help to improve the efficiency of electricity generation.

While the *Energy Audit Manual for Thermal Power Plants* and *Annexures* contain information that is specific to Bangladesh, other countries can use the principles and underlying steps to conduct energy audits

for power plants in their respective energy sector contexts. In doing so, they can take steps to realize the same benefits of energy efficiency that BERC is aiming for, including diversifying their utility resource portfolios and reducing the need to invest in new electricity generation and transmission infrastructure in the long-term.¹⁰

This story is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of NARUC and do not necessarily reflect the views of USAID or the United States Government.

¹ “Powering Bangladesh’s Future.” Toshiba. <https://www.global.toshiba/ww/company/energy/topics/thermal/powering-bangladeshs-future.html>

² Hartley-Louis, Rob and Salma Islam. “Energy Efficiency and Energy Auditing in Bangladesh.” 2018. <https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/EDGG+Paper+10+Energy+Efficiency+and+Energy+Auditing.pdf>

³ “Energy Audit Manual for Thermal Power Plants.” USAID-NARUC.

⁴ Ibid.

⁵ “Bangladesh leans towards coal-based power as renewables face challenges.” Power Technology. 2023. <https://www.power-technology.com/comment/bangladesh-power-challenges/>

⁶ “Sector Assessment (Summary): Power.” Asian Development Bank. <https://www.adb.org/sites/default/files/linked-documents/37113-013-ban-ssa.pdf>

⁷ Campbell, Richard. “Increasing the Efficiency of Existing Coal-Fired Power Plants.” Congressional Research Service. 2013. <https://sgp.fas.org/crs/misc/R43343.pdf>

⁸ Ibid.

⁹ Ibid.

¹⁰ “Local Energy Efficiency Benefits and Opportunities.” United States Environmental Protection Agency. <https://www.epa.gov/statelocalenergy/local-energy-efficiency-benefits-and-opportunities#:~:text=The%20many%20benefits%20of%20energy, stabilize%20electricity%20prices%20and%20volatility.>