since independence to implement the Rooppur Nuclear Power Project till the present government came to power in 2009. The decision of the government to revive the Rooppur Nuclear Power Project is justified in view of the serious energy and power crises which the government inherited mainly from the past regimes. There was a shortage of 1500 to 2000 MW of electric power during the peak hours recently. Unable to meet the demand, the Power Development Board (PDB) had to opt for unpopular load shedding in a large scale.

The situation regarding the supply of primary energy sources also became precarious. About 90 percent of the present power generation is based on natural gas. Without any new discoveries in the recent past, the present production of natural gas is unable to meet the total demand in the power, fertiliser, industrial, transportation and domestic sectors. Naturally, no new gas-based power plant can now be built in the country unless new gas fields are discovered.

The country has good deposits of coal, 2 GT or more. Only one coalmine, Barapukuria, is under production but its performance together with that of a pit-head coal-fired power plant has been unsatisfactory due to poor planning and management. Depending on what method of extraction is chosen, coal may sustain a total of 10,000 to 15,000 MW of electric power when in full production. Further mining of coal is being delayed due to the absence of a national coal policy in the country. Imported oil is too expensive to generate electricity. Some rental power plants, based on diesel and fuel oil, are now under construction or in operation. Indigenous hydro resources are limited and have been fully exploited. Use of renewable energy for power production in commercial quantities is expensive and limited.

It is estimated that the country will need an additional 21,000 MW of electrical power by 2025. If no new natural gas field is discovered, this power must be met by coal, nuclear power and imported oil. Assuming that coal supplies 10,000 MW, a highly optimistic figure, and imported oil 5,000 MW, the rest of the power, i.e. 6,000 MW must be supplied by nuclear power.

On a request by the government of Bangladesh, Russia has shown interest in building two advanced pressurised water reactors (APWR), 1,000 MW each, at Rooppur. A memorandum of understanding and an agreement for cooperation on use of atomic energy for peaceful purposes have been signed by Bangladesh and Russia. Technical teams from both the countries exchanged visits to collect data and relevant information. An agreement for the construction of the first nuclear power plant in Bangladesh is likely to be signed early next year in Moscow during the scheduled visit of Prime Minister Sheikh Hasina. The nuclear power deal between Bangladesh and Russia will herald a new phase of cooperation between the two friendly countries.

The APWR design is completely different from that of the Chernobyll reactor in which a serious accident occurred in 1986, due to a combination of both design faults and operational errors. Russia has successfully overcome the shortcomings that caused the Chernobyll accident. Russia is building nuclear power reactors in Iran, India, China and Bulgaria. Present day Russian reactors, designed with containment buildings, are safe like any reactor in the western world. As a result, an accident like that of Chernobyll will be an unlikely event at Rooppur. BAEC should, however, ensure that the safety features of the proposed Russian reactors for Rooppur adhere to US Nuclear Regulatory Commission (USNRC) or European Utility Requirements (EUR) or equivalent standards.

Bangladesh Atomic Energy Commission must do its homework properly and thoroughly before the contract is signed so that the first nuclear power plant of the country can be built without unnecessary hitches. The major challenges of the project implementation are likely to be the following:

- availability of technical personnel for the construction and operation of the plant;
- availability of sufficient cooling water for the condenser and the design of the intake structure;
- transportation of heavy equipment to the site and
- maintenance of the schedule of construction.

At present, there is a total vacuum of senior engineers with nuclear background in BAEC. This vacuum has been created mainly for two reasons. First of all, without any nuclear power programme in hand, BAEC was unable to recruit or attract suitable engineers. Secondly, most of the engineers who were recruited and trained at the research reactor at AERE , Savar left their jobs for better opportunities in the private sector or abroad. The Commission must immediately recruit engineers at various levels, some at senior levels with experiences of construction and operation of large industrial plants and train them in nuclear reactor engineering.