

**KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM**

RP No 2/2016

420/D (F&T)/2016/KSERC/

In the matter of : Review of the Commission's Order No. 02234/C.Engg/BDPP/2014 dated 12.01.2016 on replacement of two faulty diesel engine generator set with new gas based generator set at Brahmapuram Diesel Power Plant (BDPP) of KSEB Limited.

Petitioner : Kerala State Electricity Board Limited, Vydyuthi Bhavanam, Pattom, Thiruvananthapuram.

Present : **Shri T. M. Manoharan**
Shri K.Vikraman Nair, Member
Shri S.Venugopal, Member

ORDER dated 09.08.2016

Background

1. Kerala State Electricity Board Limited (KSEB Ltd), has vide its application dated 18.11.2014, requested for investment approval for the replacement of the existing two faulty Diesel Generators at BDPP with new Gas based generator sets. Commission has vide the order No. 02234/C.Engg/BDPP/2014 dated 12.01.2016 declined the proposal of the KSEB Limited for replacing the two faulty diesel generator sets with new gas based generator sets at BDPP citing the following reasons:

- a) *The State is having only manageable shortage in the next five to six years.*
 - b) *The tariff of the proposed gas plant is prohibitively high when compared with the cost of electricity available from other sources.*
 - c) *The ‘take or pay’ condition to be included in the Gas Supply Agreement and the ‘ Ship or pay’ condition to be incorporated in the Gas Transport agreement would force KSEB Limited bear the fuel cost including transportation charges irrespective of scheduling of power.*
2. KSEB Ltd. has, vide the letter KSEBL/ TRAC/ BDPP/2016 dated 14-03-2016 filed a review petition before the Commission on 14-03-2016 and prayed that,
- ‘KSEBL may humbly pray before the Hon’ble Commission to review the order No. 022343/C.Engg/BDPP/2014 dated 12.01.2016 ‘in the matter of replacement of two faulty diesel engine generator sets with new gas based generator sets at BDPP’ and kindly grant the investment approval for the replacement work at BDPP’*
3. The petition was admitted as RP/2016. Commission has scheduled a hearing on the petition on 10-05-2016. Sri. B. Pradeep, Deputy Chief Engineer, TRAC, KSEB Ltd and Sri. Bibin Joseph, Deputy Chief Engineer appeared before the Commission on behalf of KSEB Ltd.
4. The reasons submitted by the KSEB Ltd for reviewing the order of the Commission dated 12-01-2016 is summarized below.
- “ KSEB Limited had prepared the detailed project report(DPR) on the proposal of Replacement of two faulty diesel engine generator set at Brahmapuram Diesel Power Plant (BDPP), at the beginning of the year 2014 and facts and figures reported were that available at that time. Hon’ble Commission has rightly relied on the said facts and figures while issuing the*

order dated 12-01-2016. Subsequently the international energy scenario has entirely changed with substantial fall in crude oil and natural gas price. Hence, the review is requested on the following grounds:

(i) Reduced gas price

In the DPR, the variable cost of the project was estimated as Rs.9.53/unit based on LNG price of US\$ 20/ MMBtu prevailing at that time. However, the landed cost of fuel has shown a downward trend since then and present landed cost is about US\$ 7/MMBtu only. Thus with a guaranteed heat rate of 1906 kCal /kWh the variable cost of the project is now estimated as Rs.3.60/ kWh (@ US\$= 68 INR). With revised levelised fixed cost of the Plant at 37.5% PLF at Rs 1.35/kWh, the tariff for electricity generated from the proposed project would come down to Rs. 4.95/kWh instead of Rs.12.43 indicated in the project report.

(ii) Availability of gas from M/s Petronet LNG

M/s Petronet LNG had approached KSEB Ltd for supply of gas from Kochi LNG terminal for generation of electricity in the State. The officials of Petronet LNG indicated that their plant has already been commissioned and is supplying gas to BPCL and to FACT intermittently. The contract can also have desired flexibilities relating to 'take or pay' condition and in other clauses in the agreement to be executed for the supply and transportation of LNG gas for power plants in the State. The advantage of the BDPP plant is its proximity to GAIL pipe line (by about 700 meters). The delivered price indicated by M/s. Petronet LNG at the plant is in the price band of US\$ 8 to 9/ MMBtu for the next two years and the indicative variable cost will be Rs.4.073/ kWh to Rs 4.580/unit (@ US\$= 68 INR) .

(iii) Energy demand

K S E B Ltd submitted that, the Commission has declined the proposal citing the low energy and peak demand of the State from 2012-13 to 2014-15 compared with 18th power survey. During the years 2012-13 & 2013-14, power restriction and load shedding were imposed due to power crisis. Thus energy to the tune of 682.75 MU was restricted during 2012-13 and about 319.44 MU during 2013-14. A comprehensive tariff increase after a gap of 10 years and fuel surcharge were also imposed. Above factors have a combined impact on the pattern of energy and peak demand during this period. When sufficient energy is available to meet the demand without any restriction and as the commercial implication of tariff revision gets absorbed by the State economy, the energy demand in the State is likely to show upward trend.

Iv) Operational Flexibility.

The lowest bid obtained for the project was based on gas engine based solutions. Combustion engine based power plants can start and reach full load in less than 10 minutes. It provides flexible, quick-start capability than combined cycle gas turbines. The plant is capable of peaking operation as well as base load operation. Due to the peculiar load curve of Kerala system, a station capable of peaking operation is beneficial to the system.

In order to achieve renewable power purchase obligation, generation/purchase from such sources which are infirm in nature must be increased which in turn requires higher internal generation at peak hours from other sources. The intermittent and infirm nature of renewable source like solar and wind necessitates flexible generating stations which can vary scheduling in very short durations. In view of the higher

procurement of renewable energy in future, PLF of 50% to 60% can reasonably be expected for the gas engine based station.

(vi) Reduction in Capital cost and fixed charge

KSEB Limited had originally estimated a capital cost of the project at Rs.171 crore based on technology independent gas based generation options including combined cycle solutions and invited the tender for the work on 'technology independent solutions basis' and the lowest bid was offered on gas engine based solutions. The successful bid was for Rs104 crore. Based on the lowest bid and at the prevailing tariff norms, the levelised fixed cost works out to be Rs.1.35/kWh at the proposed PLF of 37.5 % PLF and Rs. 0.60/kWh at 85% PLF, which is lower than fixed charge of recently commissioned coal based stations like Vallur, NTPL -Tuticorn and Simhadri TPS stage-II.

(vii) Injection of power at a major load centre

The present load at Brahmapuram 220 kV substation is about 100 to 130 MW and expecting further higher load growth. The generation at the load centre can considerably reduce the transmission losses and is beneficial to the Kerala System.

(viii) Maintaining internal generation

The proposed project seeks to replenish 40MW liquid fuel based generation facility that has been de-commissioned during 2012-13. Hence the project would help in maintaining the internal generation capacity.

5. Based on the clarification sought by the Commission vide the daily order dated 17.05.2016, KSEB Ltd submitted additional details on the matter on 3.6.2016, which are summarized below as follows.

- (i) Options for converting the existing plants like RGCCP-Kayamkulam, BSES-Kerala Power Limited and KDPP to gas based stations and their comparative costs:

(a) RGCCP- Kayamkulam: RGCCPP can be converted into an LNG-based plant with an additional cost of Rs.30 crore for the technological conversion of Kayamkulam Station from Naphtha firing to multi fuel (RLNG/Natural/Liquid) firing facility for GT's. The following are the concerns of KSEBL regarding the gas conversion of the plant:

- Round the clock absorption of about 350 MW.
- No pipeline connectivity of LNG available at Kayamkulam. Re-gasification facility at Kayamkulam with barges for LNG transportation would cost about Rs 300 crore, which would either increase the capex or reflect in the gas price offered.
- Poor guaranteed net heat rate of 2000 kCal/kWh.

(b) BSES-Kerala Power Limited: The LNG connectivity to the plant already exists and the estimated capital cost of proposed conversion of the plant from liquid fuel to gas is about Rs 173 crore (assuming an exchange rate of 1 US\$=Rs.68). The gas conversion and long term extension of the PPA is presently held up due to the following reasons:

- the station being a combined cycle plant, offers little flexibility and cannot be used as a peaking plant.
- the heat rate expected is about 1978 kcal/kWh at base load with sprint technology for GT's, which is on the higher side compared to green field projects of comparable capacity.

(c) Kozhikode Diesel Power Plant (KDPP): As there is uncertainty in extending gas pipeline to Kozhikode area, KSEB Ltd has not initiated any steps on conversion.

(ii) Compliance of the proposed engine with the emission standards notified by Ministry of Environment, Govt. of India.

It is a bid condition that the bidder shall guarantee the emissions conforming to CPCB standards. The bidder/contractor has guaranteed that the plant shall meet the emission standards prescribed by Ministry of Environment and Forests (MoEF)/Central Pollution Control Board (CPCB)/ Kerala State Pollution Control Board (KSPCB).

(iii) Heat rate of the proposed project:

The net heat rate guaranteed for the plant is 1906 kCal/kWh.

(iv) Increase in maintenance cost of the proposed plant due to frequent start and stop operations.

The bidder has guaranteed that the equivalent operating hours (EOH) for start-stops do not apply to the proposed gas engines and hence there is no additional maintenance cost for frequent starts in the stipulated operating pattern. Also, this matter was taken care of in the bidding process by requiring the bidders to quote for the routine maintenance of the engine/turbine for the first 15 years separately and this has been considered while evaluating the bid. The specified pattern of operation has two start-stops every day. KSEBL has the option to go for the scheduled maintenance contract with the bidder for 15 years and the quote will be valid for upto one year after the commissioning of the plant.

Analysis and Decision

6. The review petition RP No. 2/2016 filed by KSEB Ltd is against the order of the Commission dated 12-1-2016 in Petition No. 02234/C.Engg/ BDPP/2014, wherein the Commission declined the investment proposal of KSEB Ltd for replacing the two faulty diesel engine generator sets with new gas based generator sets at BDPP. In the order dated 12-01-2016, the Commission had examined in detail the following three issues, before arriving the decision.

- (i) Whether the State of Kerala, requires additional power on long-terms basis during next '5'years in view of the anticipated the demand supply position and also, considering the large quantum of power tied up from various sources including Central Generating Stations, traders, generators etc ?
- (ii) Whether the cost of electricity generated from the proposed project is competitive when comparing the price of electricity from other sources ?
- (iii) Whether it is prudent to invest in a gas based plant ?

While issuing the order dated 12-1-2016, the Commission had examined the above issues in detail and concluded that, it is not prudent to make investment in a gas based power plant in the State in the near future.

7. The Commission had examined in detail, the arguments raised by KSEB Ltd for reviewing the Commission's order dated 12-1-2016. The reduction in price of naphtha and price of gas in the international market can be a temporary phenomenon. Even with the reduction in capital cost and gas price, the electricity to be generated from the proposed plant could not find a place in the merit order of schedule of generation.

8. Further, the Commission has limited powers on reviewing its orders or decisions. The relevant provisions in the Electricity Act-2003, Code of Civil Procedure 1908, and KSERC (Conduct of Business) Amendment Regulation, 2014 is extracted below.

(i) The Section 94 of the Electricity Act 2003 empowers the Commission to review its decisions or orders. The relevant provisions in the Electricity Act-2003 is extracted below.

94. (1) The Appropriate Commission shall, for the purposes of any inquiry or proceedings under this Act, have the same powers as are vested in a civil court under the Code of Civil Procedure, 1908 in respect of the following matters, namely: -

.....

(f) reviewing its decisions, directions and orders;

(g) any other matter which may be prescribed

(ii) As per the section 114 and Order XLVII of the Code of Civil Procedure (CPC) 1908, a Court may allow a review on the following grounds.

(a) Discovery of new and important matter or evidence which after the exercise of due diligence was not within the knowledge of the aggrieved person or such matter or evidence could not be produced by him at the time when the order was made; or

(b) Mistake or error apparent on the fact of the record; or

(c) For any other sufficient reason which is analogous to the above two ground.

(iii) Regulation 67 of the Kerala State Electricity Regulatory Commission (Conduct of Business) Amendment Regulations, 2014 deals with the procedures for reviewing its decisions, direction or orders. The Regulation-67 is extracted below.

“67. Powers of review,-

(1) Any person or party affected by a decision, direction or order of the Commission may, within forty five days from the date of making such decision, direction or order apply for the review of the same.

(2) An application for such review shall be filed in the same manner as a petition under Chapter III of these regulations.

(3) The Commission may after scrutiny of the application, review such decisions, directions or orders and pass such appropriate orders as the Commission deems fit within forty five days from the date of filing of such application:

Provided that the Commission may, at its discretion, afford the person or party who filed the application for review, an opportunity of being heard and in such cases the Commission may pass appropriate orders as the Commission deems fit within thirty days from the date of final hearing:

9. As extracted above, as per the provisions in the Code of Civil Procedure, 1908, the Commission can review its decision or orders, if there is ‘mistake or error apparent on the fact of the record in the decision/ order of the Commission’ or ‘in the case of discovery of new and important matter or evidence’. However, in the review petition, the KSEB Ltd has failed to point out any mistake or error in the order of the Commission dated 12-1-2016 or to place any new material or facts before the Commission for reviewing its decision dated 12-1-2016. Further, even if all the statements made by K S E B Ltd. regarding the cost of generation are true, the energy to be generated from the proposed plant will not come into merit order of the schedule for generation in the state.

Order of the Commission

In the light of the materials placed before the Commission and the detailed analysis as above, the Commission has found that no sufficient grounds have been placed by the petitioner KSEB Ltd. before the Commission, necessitating a review of its Order dated 12-01-2016 in the matter of 'Replacement of two faulty diesel engine generator sets with new gas based generator sets at BDPP. Accordingly, the petition is rejected. Ordered accordingly.

Sd/-

K.Vikraman Nair
Member

Sd/-

S.Venugopal
Member

Sd/-

T M Manoharan
Chairman

Approved for issue

Sd/-

Santhosh Kumar K.B
Secretary