



ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

4thFloor, Singareni Bhavan, Red Hills, Hyderabad 500 004

THURSDAY DAY, THE TWELFTH DAY OF NOVEMBER
TWO THOUSAND AND TWENTY

:Present:

Justice C.V. Nagarjuna Reddy, Chairman

Sri P. Rajagopal Reddy, Member

Sri Thakur Rama Singh, Member

O.P.No.7 of 2020

**Evacuation of (12X80MW) Power from Polavaram Hydro Electric Project in East
Godavari District of AP**

PETITIONER

Transmission Corporation of AP Ltd.

The Original Petition has come up for hearing finally on 28-10-2020 in the presence of Sri P. Shiva Rao, learned Standing Counsel for APTRANSCO and APDISCOMs. After carefully considering the material available on record and after hearing the arguments of the learned counsel and the learned objector, Sri Venugopala Rao, the Commission passed the following:

ORDER

1. Vide Lr.No.CE/400KVCont/SE/PM/400kV/D1-A(S)/Polavaram/D.No.214/18, Dt: 18-06-2018, APTRANSCO submitted to the Commission for approval, an investment scheme, titled "Transmission Scheme for Power evacuation from (12x80 MW) Polavaram Hydro Electric Project in E.G. District of AP (Polavaram)". The objective of the Scheme was to evacuate 960 MW (12 x 80 MW) of Power from Polavaram Hydro Electric Project taken up APGENCO. The Scheme envisaged (a) Erection of 70 Km 400 KV QMDC line from Polavaram HEP to the 400/220 KV Kamavarapukota SS (b) Erection of 2 Nos of 400 KV bays at the 400/220 KV Kampavarapukota SS. The estimated Project cost was Rs. 292.49 Crores including IDC. The Scheme was approved in the 42nd meeting of SRPCTP (Standing Committee on Power System Planning for Southern Region) held at Ernakulum on 27-04-2018. The Commission

granted approval for the scheme vide Lr.No.E-500-66/DD-Trans/2018 dated 21-07-2018.

2. Vide Lr.No.CE/400kVCont/SE/PM/400kV/D1-A(S)/Polavaram/D.No.448/18,Dt: 19-12-2018, APTRANSCO submitted proposals to the Commission revising the Scheme approved at Para (1). The revised Scheme envisages (a) Erection of 400 KV QDMC line of 60 km length from Polavaram HEP to 400/220/11 KV Guddigudem SS (b) Erection of 2 Nos of 400 KV Bay extensions at 400/220/11 KV Guddigudem SS (c) Making LILO (2x12 Km) of existing 220 KV DC line from Pallantla SS to Pattiseema SS at 400/220/11 KV Guddigudem SS (d) Laying 220 KV DC line (32 Km) from 220 KV Purushothapatnam SS to the 400/220/11 KV Guddigudem SS. The estimated scheme cost pertaining to the items (a) and (b) was indicated as Rs. 358.10 Crores. However, there was no mention of the cost of items (c) and (d) in the proposal. APTRANSCO has not mentioned in the proposal for which items it was seeking approval from the Commission (However, vide letter Dt.15.05.2019, APTRANSCO submitted a separate proposal for items (c) and (d), among others, along with their costs and sought the approval of the Commission. The Commission returned this proposal pointing out certain discrepancies and directing APTRANSCO to submit a revised comprehensive investment scheme). Regarding items (a) and (b), APTRANSCO stated that the reasons for increase in the cost by Rs. 66 Crores as compared to the Scheme at Para (1) are (a) The 400 KV QMDC Polavaram HEP-Guddigudem SS line needs to cross Godavari river and requires 6 Nos towers with Pile foundations which cost more compared to the normal tower foundations (b) The prices were revised as per the latest 400 KV SSR. The revised Scheme was approved in the 2nd SRSCT (Southern region Standing committee on Transmission) held at Bengaluru on 10-06-2019.
3. Vide Lr.No.E-500-66/DD-Trans/2019, Dt:10.04.2019, the Commission returned the above revised proposal stating that the geographical distance between Polavaram and Guddigudem is not matching with the proposed 400 KV QMDC line of 60 Km length from Polavaram HEP to 400/220/11 KV Guddigudem SS.
4. Vide Lr.No.CE/400kVCont/SE/PM/400kV/D1-A(S)/Polavaram/D.No.139/19,Dt: 30-04-2019, APTRANSCO re-submitted the proposal stating that the length of 60 Km QMDC line from Polavaram HEP to the 400/220/11 KV Guddigudem SS is for the

estimate purpose only and that the length was considered on higher side keeping in view the number villages, developed areas, Real Estate Ventures, gardens along the route of the line etc. APTRANSCO further stated that the payments will be limited both for the supplies and the works to the actual during execution, depending on the final check survey.

5. The Commission decided to conduct Public Hearings to elicit the views of the stakeholders/interested persons on the proposal submitted by APTRANSCO at Para (2) (restricted to items (a) and (b) only since no costs were indicated for items (c) and (d) in the proposal) as the Capital investments made to create Transmission Network affect the tariff. Accordingly, the Commission issued a Public Notice inviting interested persons/stakeholders to send comments/ objections/suggestions on the above proposal to the Commission Secretary by 05:00 PM on 17-02-2020 which was subsequently extended up to 05.00 PM of 18-03-2020. Further, it was informed that the Public Hearing on the proposal will be conducted in the Court Hall of APERC at 11.00 AM on 24-03-2020.
6. In response to the Public Notice, Sri M. Venugopala Rao, Senior Journalist, Hyderabad made the following observations vide letter dated 15-02-2020.
 - A. Central Electricity Authority vide letter dated 10-07-2019 granted approval for the following two 400 KV lines for evacuation of power from Polavaram Hydro Electric Project:
 - i) Polavaram -Guddigudem 400 KV double circuit (D/C) quad line.
 - ii) Polavaram - Eluru 400 KV double circuit (D/C) Quad line.However, APTRANSCO has submitted an investment scheme for approval of the first item for an amount of Rs 358.10 Crores. Nothing is mentioned about the other line for power evacuation from Polavaram to Eluru line. It is difficult to understand the investment, if formulated in bits and piecemeal manner. For any project, detailed project report (DPR) is imperative. The subject proposal also must be a part of DPR of Polavaram.
 - B. Power generation from Polavaram Hydel plant may happen during June to December in a year. Wind generation plants in Andhra Pradesh generate power during June to September, being wind season.

- C. Solar power plants would generate power throughout the year. The total Solar and Wind generation in the State is around 8500 MW. The State demand is around 10000 MW.
- D. APTRANSCO has not given the details of the generation mix considered to arrive at the present network. APTRANSCO may have to conduct system studies for the following cases:
- Case 1: Considering peak wind generation plus solar generation and other existing Thermal/Hydel generation.
- Case 2: Maximum Solar generation without Wind generation (for off season of wind) and other existing Thermal/Hydel generation.
- The above two studies have to be conducted for off peak demand also.
- E. The details of peak demand and off peak demand for different seasons (scenarios) are not furnished. To arrive at optimum and efficient network, it is important to conduct system studies for different scenarios. No such study report is enclosed.
- F. The present scheme talks about a 400 KV power evacuation network. It is not known whether any downstream network is envisaged or not. If downstream network is required, the details of the same may be furnished.
- G. If the details of total investment are known, then only cost benefit analysis can be studied.

7. APTRANSCO furnished the following replies to the observations made by Sri M. Venugopala Rao under Para (6).

Reply to observation A: As per the CEA approval Dt: 10-06-2019, as part of Polavaram hydro power evacuation scheme.

- (a) 400kV Quad moose Double circuit line from Guddigudem to Polavaram was approved.
- (b) 400kV Eluru to Guddigudem line is not envisaged in Polavaram scheme. It is part of 400kV Eluru substation scheme. Separate investment approval will be sought from the Hon'ble APERC if Eluru scheme materializes.

Reply to observations B to E: APTRANSCO conducted system studies with the following scenarios.

- a. Considering peak Wind, peak Solar and other Thermal/Hydel/Gas generation.

- b. Considering peak wind, no solar and other Thermal/Hydel/Gas generation.
- c. Considering no Wind, peak Solar and other Thermal/Hydel/Gas generation.

Off-peak demand generally occurs at night time. Therefore, system studies have been carried out considering the above and peak Wind, no solar scenario.

Reply to observations F&G: APTRANSCO accorded approval for downstream network also vide T.O.O.1041, Dt 03-01-2019 and the same is herewith enclosed. APTRANSCO accorded approval for the downstream network in which total investment cost was Rs.472.50 Cr.

8. **Commission's Analysis and decision:** The observations made by Sri M. Venugopala Rao under Para 6 are answered in this Para. On the observation at Para 6(A), it may be noted that though CEA mentioned the 400 KV Guddigudem- Eluru QMDC line as part of the Polavaram HEP evacuation Scheme in the Minutes of the 2nd SRSCT meeting held on 10-06-2019, the above line is not part of the evacuation Scheme as per the load flow studies information submitted by APTRANSCO. On the observations at Paras 6(B) to 6(E), it may be noted that the system studies pertaining to various scenarios as stated by APTRANSCO under Para (7), are shown in the load flows studies information submitted by APTRANSCO. On the observation at Para 6(F), it may be noted that that the downstream network i.e. (a) Making LILO (24 Km) of existing 220 KV DC line from Pallantla SS to Pattiseema SS at 400/220/11 KV Guddigudem SS (b) Laying 220 KV DC line (32 Km) from 220 KV Purushothapatnam SS to the 400/220/11 KV Guddigudem SS have already been considered as part of the Scheme for the evacuation of power from Polavaram HEP as per the Minutes of the 2nd SRSCT meeting and also the load flows studies information furnished by APTRANSCO. On the observation at Para 6(G), it may be noted that earlier, 400 KV SS at Polavaram HEP was proposed by APTRANSCO for evacuation of power from the project. However, due to space constraints at Polavaram HEP, 400 KV QMDC line from the Polavaram HEP to the 400 KV Guddigudem SS (along with associated bays) was proposed by APTRANSCO. The 400 KV Guddigudem SS has already been taken up by APTRANSCO and is under construction. Hence, this SS is proposed to be utilized by APTRANSCO for evacuation of power (12 x 80 MW) from Polavaram HEP. The financial benefit per year and the annual rate of payback for the investment in 400 KV QMDC line from Polavaram HEP to 400 KV Guddigudem SS

(along with associated bays), were indicated as Rs. 73.87 Crores and 20.63% respectively. The 400 KV QMDC line from the Polavaram HEP to the 400 KV Guddigudem SS (along with associated bays) is essential for evacuation of power from Polavaram HEP.

Further, hydel generation from Polavaram HEP is a clean and green energy which can be quickly brought on to the Grid. The generation can also be ramped up / down quickly which is very much essential for a renewable energy rich state like Andhra Pradesh. The quick energy balancing mechanism offered by Hydel generation aids in the safe maintenance of the grid besides ensuring uninterrupted supply to the consumers.

The load flow studies and other related information furnished by APTRANSCO had been examined by the Commission and scheme is found to be technically feasible. Moreover, it is observed that system losses will also be reduced with the implementation of the scheme.

The cost of the scheme submitted by APTRANSCO is estimate only and the Commission will determine the final scheme cost after prudent check before passing it to the consumers through tariff as per relevant Regulations

For the aforesaid reasons, the Commission accords in-principle approval to the scheme proposed by APTRANSCO i.e. 400 KV QDMC line from Polavaram HEP to 400/220/11 KV Guddigudem SS along with 2 Nos 400 KV Bay Extensions at 400/220/11 KV Guddigudem SS. Further, APTRANSCO is once again directed to submit a Comprehensive Scheme associated with the evacuation of 960 MW (12 x 80 MW) of hydel generation from Polavaram HEP including the downstream network and also periodical reports on the progress of the Scheme.

Sd/-
Thakur Rama Singh
Member

Sd/-
Justice C.V. Nagarjuna Reddy
Chairman

Sd/-
P. Rajagopal Reddy
Member