

**ODISHA ELECTRICITY REGULATORY COMMISSION  
BIDYUT NIYAMAK BHAWAN  
PLOT NO.-4, CHUNOKOLI, SHAILASHREE VIHAR  
BHUBANESWAR - 751 021**

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**Present: Shri U. N. Behera, Chairperson  
Shri S. K. Parhi, Member  
Shri G. Mohapatra, Member**

**Case No. 61/2020**

GRIDCO Ltd.	.....	Petitioner
Vrs		
PTC India Ltd. & Others	.....	Respondents

**In the matter of:** Application filed by GRIDCO under Section 86 of Electricity Act, 2003 read with Section 21 of the OER Act, 1995 and other enabling provisions seeking post facto approval of Power Sale Agreement (PSA) executed between PTC India Ltd. and GRIDCO Ltd. on dated 30.08.2019 for purchase of 79.01 MW hydro power from Mangdechhu Hydro Electric Project, Bhutan.

**For Petitioner:** Sri S. K. Panda, G.M. (PP), Ms. Sasmita Pattajoshi, AGM (PP) and Ms. Murchhana Dhar, AGM (PP) of GRIDCO Ltd.

**For Respondent:** Sri Ravi Shankar, Advocate on behalf of PTC India Ltd., Sri R.P. Mahapatra and Sri P. K. Pradhan. Nobody was present on behalf of DoE, Government of Odisha.

**ORDER**

**Date of hearing: 05.01.2021**

**Date of order: 25.05.2021**

GRIDCO Ltd. has filed the present petition seeking post facto approval of Power Sale Agreement (PSA) dated 30.08.2019 executed between PTC India Ltd. and GRIDCO Ltd. for procurement of 79.01 MW hydro power from Mangdechhu Hydro Electric Project, Bhutan as allocated by MoP, Government of India.

2. GRIDCO has submitted that the Mangdechhu Hydro Electric Project Authority (MHEA), constituted by the Government of India and the Royal Government of Bhutan, has developed the Mangdechhu Hydro Electric Project having capacity of 720 MW (4 x 180 MW), which is a run-off-river power plant built on Mangdechhu river in Bhutan. Further, there are two other hydro electric projects namely, Punatsangchu-I (1095 MW) and Punatsangchu-II (1020 MW) also being developed in Bhutan by MHEA. The CEA vide its letter dated 18.05.2018 and ERPC vide its letter dated 25.05.2018 had intimated GRIDCO that Punatsangchu-I & II projects have been delayed and only Mangdechhu HEP is expected to come up by 2018. The MoP, GoI

vide its letter dated 21.12.2018 had allocated power from Mangdechhu HEP among the ER and NER states and requested to convey the consent regarding acceptance of allocated power by 28.12.2018. In principle acceptance to the allocated power from Mangdechhu HEP was given by GRIDCO vide its letter dated 28.12.2018 with following considerations and after due approval of the competent authority.

- a) Hydro Electric Power plants offer greater operational flexibility since they can immediately respond to fluctuations in demand of electricity. When black out occurs or when demand is at peak, hydel plants can flawlessly feed into the grid compared to other sources, which greatly assists in bringing equilibrium between the demand and supply. Keeping in view, the various issues such as the need of hydro-thermal/solar power ratio, fast depleting of fossil fuel, clean environmental norms, long life of hydel plants, reliable source of energy and system stability etc., procurement of hydro power will always be beneficial.
- b) Further, the phasing out process of different NTPC thermal stations will start from the year 2021 onwards as given below:

Station	Phasing Out Year	State Allocation (in MW)
FSTPS I & II	2021-22	218
KhSPTS-I	2021-22	132
TSTPS-I	2022-23	323
TSTPS-II	2029-30	200
KhSTPS-II	2035-36	39
FSTPS-III	2037-38	86

- c) In order to assess the power availability for future, a long term load and demand forecast (LGBR) was prepared by GRIDCO by considering various assumptions. From the LGBR report GRIDCO has forecast that there will be peak shortage of power from FY 2025-26 and off-peak shortage of power from FY 2032-33 onwards. Hence there will be requirement of power in future to meet the state demand.
- d) The tariff of Mangdechhu HEP is stable, whose average price for 35 years comes around Rs.5.32/Kwh, which is a bilaterally agreed price between Government of India and Royal Government of Bhutan. This tariff will not be coming under any regulatory purview either in India or in Bhutan.

- e) The agreement to purchase power from Mangdechhu HEP is for 35 years i.e. upto FY 2054-55 and the tariff for last five years (i.e. from 31<sup>st</sup> year to 35<sup>th</sup> year) is at Rs.6.35/Kwh which seems to be reasonable at that period of time.
3. The MoP, GoI vide letter dated 07.03.2019 has finally allocated 85% (612 MW) from Mangdechhu HEP to Assam, Bihar, Odisha and West Bengal. Odisha has a share of 9.33% i.e. about 67.15 MW. Further, MoP, GoI vide letter dated 28.08.2019 decided to add 15% (108 MW) unallocated power of Mangdechhu HEP to the allocated share in the same proportion. Thus, now GRIDCO has an entitlement of 79.01 MW power from Mangdechhu HEP. The PTC India Ltd. has been designated as nodal agency by MoP, GoI for inter-country sale of power from Mangdechhu HEP. A protocol to this effect has been signed between Government of India and Royal Government of Bhutan on 23.04.2019. The Project was inaugurated on 17.08.2019 and PPA was signed on the same date.
4. GRIDCO, along with other beneficiary states has signed the PSA with PTC on 30.08.2019 for availing Odisha share of power from Mangdechhu HEP. The salient points of the said PSA are given hereunder.
- a) Installed Capacity : 720 MW
- b) Odisha Share : 79.01 MW = 67.15 MW (firm)+11.86 MW (unallocated capacity)
- c) Tariff trajectory for 35 years is as follow:

Year	Tariff (Rs./Kwh)	Year	Tariff (Rs./Kwh)	Year	Tariff (Rs./Kwh)
1	4.12	13	4.99	25	5.76
2	4.12	14	4.99	26	6.05
3	4.12	15	4.99	27	6.05
4	4.12	16	5.49	28	6.05
5	4.12	17	5.49	29	6.05
6	4.54	18	5.49	30	6.05
7	4.54	19	5.49	31	6.35
8	4.54	20	5.49	32	6.35
9	4.54	21	5.76	33	6.35
10	4.54	22	5.76	34	6.35
11	4.99	23	5.76	35	6.35
12	4.99	24	5.76		

- d) Trading Margin claim of PTC: 7 paise/unit

- e) Terms of PPA : 35 years from the date of Commercial Operation of the project as per allocation of Mangdechhu HEP and/or as decided by MoP, GoI from time to time.
  - f) Commercial Operation of the Project : 16th August 2019
  - g) GRIDCO has started availing power from Mangdechhu Hydro Electric Project with effect from 1<sup>st</sup> September 2019.
5. The Board of Directors of GRIDCO in their 183rd meeting held on 25.09.2019 have ratified the action taken by GRIDCO for signing PSA with PTC India Ltd. for availing the aforesaid power from Mangdechhu HEP. In view of the above, GRIDCO has prayed the Commission to allow post facto approval of the said PSA dated 30.08.2019 executed between GRIDCO and PTC India Ltd. for procurement of State's share of power from Mangdechhu HEP.
6. The respondent Sri P.K. Pradhan has submitted that since Mangdechhu HEP is a run-off the river power plant, the generation is constant throughout the day as there is continuous flow of water. Thus, though it is a hydro electric project, it cannot be termed as a peak generating station. Hence, power availed from this HEP does not contribute in bringing equilibrium between the demand and supply of electricity, as submitted by GRIDCO in its petition. Further as seen from the LGBR furnished by GRIDCO, although there will be surplus energy, there will be a peak demand shortage from FY 2025-26. But it is not understood from the LGBR, why the schedule of power from GMR, Kamalanga has been made zero from FY 2025-26. Further in the LGBR, power availability from TTPS expansion project (2 x 660 MW) has not been shown, for which GRIDCO has already signed the PPA. If availability of these power is considered there may not be any shortage of peak demand. Therefore, the LGBR needs to be recast with due diligence for proper planning of power requirement.
7. Sri P. K. Pradhan further submitted that the average price of Mangdechhu power is Rs.5.32/Kwh for 35 years, which is much higher compared to thermal power stations. From such stations GoI allocates power to different states with their consent. The allocation made by MoP is not binding unless the state gives its consent. As seen from the letter dated 24.07.2015 of MoP, GoI, eight numbers of states from ER and NER were asked to give their consent for availing power from Mangdechhu. Some states did not opt for this power for which the Mangdechhu power is reallocated among the

four states including Odisha. On the above backdrop, it is to be analysed whether GRIDCO has rightly opted to avail such costly power from Mangdechhu HEP by giving its consent in December, 2018, when GRIDCO was not able to sell its surplus power and incurring a huge loss by way of paying fixed charges of the surplus capacity. Normally as time passes the cost of power from hydro power stations is gradually reduced as the capital cost is recovered. But in instant case because of the international relationship, the price escalation of 10% is there in every five years. Therefore, GRIDCO has not made due diligence while confirming to CEA for allocation of power from Mangdechhu HEP.

8. He further submitted that the present price of Mangdechhu Power is Rs.4.19/Kwh (Rs.4.12+Rs.0.07 PTC Margin) excluding central transmission charges. Since the Commission is following merit order dispatch principle while approving the power procurement cost in the ARR of GRIDCO, the power from Mangdechhu HEP may not qualify for procurement for the consumers of the State. Therefore, the Commission may not accord approval of the subject PSA. In case the PSA is approved by the Commission, this costly power need not be utilised for the consumers of the State till deficit of power arises and GRIDCO should sell this power in the market.
9. The respondent Sri R. P. Mahapatra has submitted that GRIDCO has to procure power on merit order basis. The Commission in its past tariff orders have disallowed procurement of high cost power from various NTPC stations based on the least cost power purchase for the state consumption. The tariff trajectory of Mangdechhu HEP for 35 years varies after every five years i.e. from Rs.4.12/Kwh in the first year to Rs.6.35/Kwh in the 31st year. Knowing the above, the BoD of GRIDCO in its 183rd meeting held on 25.09.2019 have ratified the action taken for signing of PSA with M/s. PTC India Ltd. to avail 79.01 MW power from Mangdechhu HEP and accordingly GRIDCO has signed PSA on 30.08.2019 and filed the application only on 28.10.2020 for post facto approval of the PSA. The BoD of GRIDCO has given the approval in order to avail peak hydro power as well as to maintain Indo-Bhutan International Relationship.
10. He further submitted that the LGBR submitted by GRIDCO shows that the shortage of power for meeting the peak load is 245 MW starting from FY 2025-26 and is progressively increasing to 1911 MW for the year 2033-34. Though the allocated

share to Odisha is 79.01 MW, GRIDCO has made theoretical assumption of receiving 50 MW power both during peak and off peak periods as Mangdechhu HEP is a run-off the river power station, but GRIDCO has not submitted any document regarding peak power availability from the project. No levelised tariff calculation has been submitted. The tariff shown in the application is based on the protocol between Government of India and Royal Government of Bhutan wherein the tariff is increased by 10%/5% after every five years for the total period of 35 years. There is no reason for adjustment of tariff. The justification given by GRIDCO for accepting such higher tariff of Rs.6.35/Kwh during the last five years period should not be accepted. It may be justified if the project is commissioned during that time. A tariff of Rs.6.35/Kwh at the fag end of a project, commissioned during 2019-20 cannot be justified.

11. He has further submitted that regarding phasing out of different NTPC stations by the end of FY 2037-38 as submitted by GRIDCO in its application, it is to intimate that power from Mangdechhu HEP with allocation of 79.1 MW cannot meet the quantum of power phased out. However, the NTPC power stations are not going to be totally phased out but will continue to be in operation after Renovation and Modernisation. There is no reason why GRIDCO has filed this petition for approval of the PSA, when power was already drawn from Mangdechhu HEP from 01.09.2020. Now, GRIDCO states that availing power from Mangdechhu HEP will help GRIDCO to meet hydro power obligation (HPO) as a separate entity in non-solar RPO as per the MoP notification dated 08.03.2019. This statement of GRIDCO is not tenable as it had conveyed its in-principle acceptance to MoP vide its letter dated 28.12.2018 which is before the MoP notification dated 08.03.2019. Further the approval of BoD of GRIDCO held on 25.09.2019 was on the ground of “to avail peak hydro power as well as to maintain Indo-Bhutan International Relation” and not on the ground of availing renewable energy. Therefore this compliance of GRIDCO is only an afterthought.
12. The respondent has submitted that if the energy from Mangdechhu HEP is sourced as non-solar renewable power, the tariff determined in an arbitrary manner should not be allowed and only the levelised tariff determined should be allowed to be recovered by GRIDCO in its ARR. The difference between the tariff as per PSA and the levelised tariff may be given as subsidy to GRIDCO by the central/state government otherwise the Commission may not approve the subject PSA for procurement of power by

GRIDCO for state consumers. GRIDCO can trade this power outside the state and any profit or loss should be to its account.

13. The respondent M/s. PTC India Ltd. has submitted that the levelised tariff in respect of power supplied under PSA executed with GRIDCO Ltd. on 30.08.2019 for sale of 79.01 MW from Mangdechhu HEP, Bhutan for 35 years has been worked out as Rs.4.68 with discount rate of 10.36%. The discount rate has been considered as per CERC notification dated 07.10.2019 applicable for the period from 01.10.2019 to 31.03.2020 for computation of levelised transmission charges for bid evaluation of transmission projects i.e. during the year the project has been commissioned.
14. Replying to the objections raised by the respondents, GRIDCO has submitted that the delay in filing the subject PSA for approval was not intentional; hence GRIDCO has prayed the Commission to condone the delay in the interest of justice. As pointed out by the respondents, GRIDCO has prepared a revised LGBR for coming ten years considering the schedule of 79 MW for Mangdechhu HEP as per the PSA. GRIDCO has submitted that still there is shortage of power with effect from FY 2024-25 till FY 2029-30. GRIDCO has also limited the procurement from M/s. GKEL as per the consent given for next five years block period in accordance with the provisions of existing PPA. However, the same has been duly incorporated in the revised LGBR. Regarding non-consideration of TTPS Phase-III expansion projects (2 x 660 MW), GRIDCO has submitted that it has signed PPA dated 27.12.2010 for procurement of contracted capacity of 50% of the installed capacity. Out of the balance 50%, 35% has been allocated to various ER beneficiaries and balance 15% is unallocated. However, as per CERC Tariff Regulations, 2019, NTPC had sought consent from GRIDCO as long term beneficiary before execution of the project. No consent has yet been given by GRIDCO. Therefore, allocation of TTPS stage-III has not been considered in the revised LGBR.
15. GRIDCO has further submitted that in order to promote hydro power sector, the MoP vide its notification dated 08.03.2019, wherein the large hydro power projects more than 25 MW capacity are declared as RE sources. Hydro power purchase obligation (HPO) is notified as a separate entity within non-solar RPO. The HPO shall cover all large hydro power projects commissioned after issue of this office memorandum as well as the untied capacity (i.e. without PPA) of the commissioned projects. During FY 2019-20, GRIDCO has a shortfall of around 1435.25 MU of energy to fulfil its

RPO obligation. In order to meet the RPO obligation, GRIDCO along with other ER beneficiaries have signed the PSA with PTC to avail power from Mangdechhu HEP from 01.09.2019. The Commission while approving the ARR of GRIDCO for FY 2020-21 have approved the purchase of 270 MU from Mangdechhu HEP @ Rs.4.293/Kwh (including transmission charges).

16. In response to the query of the respondents regarding higher tariff of Mangdechhu HEP, GRIDCO has submitted that the tariff of small hydro as well as biomass projects within the State approved by the Commission for FY 2020-2021 are Rs.3.81/Kwh and Rs.5.78/Kwh respectively. Hence, the price of Mangdechhu HEP @ Rs.4.293/Kwh (including transmission charges) to meet the RPO appears to be commercially prudent and justified. The non-solar RPO met by GRIDCO during FY 2019-20 with and without considering Mangdechhu power are 3.29% and 2.77% respectively against the target of 5.50%. Similarly, considering Mangdechhu power, the non-solar RPO met for the FY 2020-21 (upto October, 2020) is 5.62%.
17. Regarding levelised tariff of the project for 35 years, GRIDCO has submitted that M/s. PTC India Limited is the designated nodal agency by MoP, GoI for inter-country sale of Mangdechhu power. GRIDCO has further submitted that it has purchased power from power exchange during FY 2018-19 at an average rate of 390.32 Paisa/Kwh. The average RTC rate at the power exchange during FY 2018-19 was 381.547 Paisa/Kwh. Further, large/small hydro projects are not being commissioned in the State within scheduled time due to various reasons. Power from Mangdechhu HEP is being procured by GRIDCO looking into the hydro-thermal mix for the State and also for the contribution towards meeting non-solar RPO. Therefore, during December, 2018 GRIDCO gave in-principle consent to avail Mangdechhu power keeping in view availing clean and sustainable hydro power on a long term basis. GRIDCO has prayed the Commission to allow post facto approval of the subject PSA executed between GRIDCO Ltd. and M/s. PTC India Limited for procurement of State's share of power from Mangdechhu HEP.
18. Heard the parties. Their written notes of submission are taken into records. The Commission observed that GRIDCO is the State designated entity to procure power on behalf of the DISCOMs for State consumption and in past has entered into PPA with many thermal/ hydro generators so that it has surplus power on annual basis. However, from the revised LGBR submitted by GRIDCO in its rejoinder, it is



observed that GRIDCO will have deficit of power from the FY 2025-26 onwards due to phasing out of old NTPC power stations from the FY 2021-22 onwards. The Commission further observed that as per the tariff schedule furnished with the petition, the tariff of Mangdechhu HEP is Rs. 4.12/Kwh in the year of commercial operation and gradually increases each 5 years period and reaches Rs. 6.35/Kwh in the last block of 5 years i.e. from 31st year to 35th year. The levelised tariff however, will be less considering the discount rate. Now, emphasis is being given both globally as well as nationally for harnessing clean and green energy for safeguarding our environment. It is also observed that the MoP, GoI vide its office Memorandum dated 08.03.2019 have taken initiatives for declaring large hydro plants as renewable energy sources and notified Hydro Power Purchase Obligation (HPO) as a separate entity within the non-solar RPO. Further, GRIDCO is also in need of renewable power to fulfil its renewable purchase obligation. In view of the above, the Commission is inclined to accord post facto approval of the subject PSA executed between M/s. PTC India Ltd. and GRIDCO Ltd. on dated 30.08.2019 for purchase of 79.01 MW hydro powers from Mangdechhu Hydro Electric Project, Bhutan.

19. With the above observations the case is disposed of.

Sd/-  
**(G. Mohapatra)**  
**Member**

Sd/-  
**(S. K. Parhi)**  
**Member**

Sd/-  
**(U. N. Behera)**  
**Chairperson**