

**ODISHA ELECTRICITY REGULATORY COMMISSION  
BUDYUT NIYAMAK BHAWAN  
PLOT NO.-4, CHUNOKOLI, SHAILASHREE VIHAR  
BHUBANESWAR - 751021  
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**Present: Shri S.C. Mahapatra, Chairperson  
Shri G. Mohapatra, Member  
Shri S. K. Ray Mohapatra, Member**

**Case No. 88/2020**

M/s. Baitarani Power Project Pvt. Ltd.

.....Petitioner

Vrs.

GRIDCO Ltd. & others

..... Respondents

**In the matter of: Determination of CUF upon remand of the matter by the Hon'ble  
Appellate Tribunal for Electricity as per the order dated 30.05.2023  
passed in IA No.168 of 2023 and Appeal No.172 of 2023**

**AND**

**Application for approval of Project Specific Tariff for the 24 MW  
Small Hydro-electric Project of the Petitioner, based on Clause 10 of  
the Order dated 16.02.2019 of the Hon'ble Commission in Case No.  
46 of 2018 for finalization of tariff of Renewable Energy Sources  
including Co-generation for the third Control Period 2018-19 to  
2020- 21.**

**For Petitioner:** Ms. Swapna Seshadri, Advocate, Ms. Shivani Verma, Advocate, Shri  
Amal Nair, Advocate and Shri Subba Rao on behalf of the Petitioner-M/s.  
Baitarani Power project Pvt. Ltd.

**For Respondents:** Shri R. K. Mehta, Sr. Advocate, Shri Mukতিকanta Sahoo, Sr. GM (PP), &  
Shri. Rutupurna Mansingh, DGM (RE), GRIDCO Ltd., Shri Subrat Kumar  
Nayak, S.E (PP&M), EIC (Electricity)-cum-PCEI, GoO. Non appears on  
behalf of DoE, GoO.

**ORDER**

**Date of Hearing: 08.08.2023**

**Date of Order: 30.09.2023**

The Petitioner, M/s. Baitarani Power Project Pvt. Ltd. (hereinafter referred to as M/s. BPPPL in short), has constructed a Small Hydro Electric Project (SHEP) of 24 MW (3X8 MW) capacity on river Baitarani under 2003 policy of Government of Odisha for SHEP. The project was cleared by the then State Technical Committee (STC) in its 56<sup>th</sup> sitting dt.18.11.2013 with a project cost of Rs.239.19 Crore. Techno Economic Clearance (TEC) was also issued on 26.02.2014 without any further enhancement in the project cost. The project was commissioned in August, 2020 during the third control period. GRIDCO had signed PPA with the developer in 2014 which was subsequently

revised and was approved by the Commission in its Order dated 05.07.2016 in Case No. 06/2016.

2. The Commission in their order in Case No.17/2019 in para 23 dt. 21.08.2020 had observed that *“The Commission has only determined the generic tariff of the SHEPs for specific control period. But the petitioner is at liberty to approach the Commission for project specific tariff if they desire so.”* Accordingly, the Petitioner had filed the application before OERC in Case No 88 of 2020 for determination of project specific tariff on the basis of enhanced project cost of Rs 416.59 Crore against project cost of Rs.239.19 Crore already approved by the STC.
3. In that proceeding, on request of the Petitioner, OERC had appointed a Technical Consultant (TC) for verification of the Project Cost in respect of 24 MW Lower Baitarani SHEP and it had recommended a Project Cost of Rs.360.45 Crore. However, after detailed analysis of various components of the project cost in the report of Technical Consultant and other relevant provisions/information, OERC vide Order dated 15.01.2022 in Case No.88/2020, had approved a Project cost of Rs.314.80 Crore for the Lower Baitarani SHEP. Accordingly, the Commission had determined a Project Specific Tariff @ Rs.5.99/kWh considering project Cost of 314.80 Crore and an Annual Generation of 84.36 MU (minus Auxiliary Consumption of 1%) at a CUF of 40.33% for 35 years. However, since the STC had recommended an upper cap limit of Rs.5.71/kWh in their 2<sup>nd</sup> STC meeting held on 13.08.2021 and also the generic tariff determined by CERC for SHEP was Rs.5.71/kWh, the Commission approved a Project Specific Tariff for BPPPL’s 24 MW SHEP@ Rs. 5.71/kWh w.e.f. 01.02.2022.
4. The direction of Commission vide its Order dated 15.01.2022 in Case No. 88 of 2020 is reproduced below:

*“The State Technical Committee in their 2<sup>nd</sup> meeting held on 13.08.2021 had suggested the Commission not to allow project specific tariff and if at all it is absolutely essential to determine project specific tariff, the generic tariff derived by CERC i.e. Rs.5.71/ Unit may be considered as the upper limit and maximum allowable limit after duly taking into consideration the views of GRIDCO. Accordingly, the Commission after taking a note of suggestions of STC approves the tariff of Rs 5.71/ kWh for 24 MW Baitarani SHEP. It is upto GRIDCO to decide whether to procure power from the project for 35 years or for 40 years. Amendments to PPA may be made accordingly by both the parties if necessary. The project specific tariff thus approved shall be effective from 01.02.2022 for energy to be sold to GRIDCO.”*

5. Being aggrieved by the above order dated 15.01.2022 of the Commission, both BPPPL and GRIDCO had filed two separate appeals (Appeal No.73& 392 of 2022) before the Hon'ble APTEL challenging the said Order. The Hon'ble APTEL heard the matter clubbing the above two Appeals. As both the parties had reservations against OERC Order, the Hon'ble APTEL, vide Order dated 17.10.2022 in above Appeals, remitted the matter to OERC for a fresh adjudication with the following observations/directions:

*"5. We note here that during the course of exercise for tariff determination, the Commission had statedly appointed a consultant whose report was before the Commission at the time of the impugned Order being passed. It is the grievance of the generator that some of the aspects on which the consultant had made recommendations having either been glossed over or totally ignored without any proper justification. Though the learned counsel for the State Commission has his own answer to these contentions, we reserve any comment on this aspect at this stage. We would only say that while revisiting the question of tariff, the Commission will consider such report, assisted by the learned counsel for both sides, and take appropriate view thereupon, and if there is any recommendation not to be accepted, the Commission will give proper reasons for dissociation from such views.*

*6. For the above reasons, the impugned order is set aside and the matter is remitted to the Commission for fresh adjudication. The provisional tariff as is being put in position in terms of above shall be subject to adjustment after the Commission has rendered its final decision afresh."*

6. Pursuant to the above order of the Hon'ble APTEL, this Commission heard both the sides and pronounced the order dated 06.01.2023. As to determination of CUF, this Commission vide paragraph-11 of the order observed/held as follows:

*"11. Now we shall discuss about CUF to be accepted for tariff determination. From the pleading of the parties, the Commission observes that the Techno Economic Clearance (TEC) which is referred to in the revised PPA states that "The total annual gross energy from the project at 75% dependable year, as estimated by the developer will be taken as 101 MU (saleable energy of 99.99 MU) for arriving the tariff structure for sale of power." This results in a CUF of about 47.55%. It has also been observed that the Actual CUF for FY 2021-22 comes out to be about 53.32% (with actual energy of 112.10 MUs procured) whereas the actual CUF of the project since date of commissioning till October 2022 is about 48.57% (with actual energy of 221.31 MUs procured). Moreover, the report of IIT, Bhubaneswar considering the actual data of 1972-73 till 2014-15 from CWC states that "... the available annual energy during first two decades is below 100 MU whereas during the latter two decades there are above 100 MU with a long term average of 43 years is 101 MU." The expected generation as mentioned by IIT in their report and actual generation for complete FY 2021-22 are more than what had been determined by the TEC of STC. Therefore, it would be prudent to accept the recommendation of TEC which had prompted GRIDCO to sign PPA with the Petitioner BPPPL. The procurer GRIDCO has given its commitment to procure the*

7. Aggrieved by the order dated 06.01.2023 passed in the Case No.88 of 2020 upon remand, the present petitioner again approached the Hon'ble APTEL in Appeal No.172 of 2023 and the Hon'ble Tribunal vide the order dated 30.05.2023 has again remanded the matter to the Commission, of course, for the limited purpose of determination of CUF afresh.
8. The relevant part of the order dated 30.05.2023 of the Hon'ble Appellate Tribunal containing the observations and directions may be reproduced here below for ready reference:

16. During the hearing on the IA for interim relief, it was consented by both the parties, the Appellant and the Respondent, to make submissions only on the limited issue of CUF only, therefore, during the proceedings, only the arguments were held confining to the issue of CUF.

23. *On the contrary, the Appellant argued that the State Commission has failed to consider any of the contentions of the parties and passed the Impugned Order, the relevant extract of the order is quoted as under:*

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*procurer GRIDCO has given its commitment to procure the power on the basis of those clearances. Moreover, the actual generation data corroborates with the average generation data provided by IIT Bhubaneswar i.e. 101 MU. Therefore, in line with the provisions of TEC as well as considering the facts of actual generation, the Commission considers 100 MUs as the total annual gross generation with saleable energy of 99.00 Mus from the project for 75% dependable year. Accordingly, the CUF considered for calculation of Tariff comes to 47.55%.”*

24. *From the above, it can be seen that the State Commission has ignored its own report i.e. the TC Report and passed the Impugned Order on the basis of fresh report submitted by IIT Bhuvaneshwar, without assigning or giving any justification for ignoring the report, also disregarding the remand directions whereby the State Commission was directed to consider the TC Report, the relevant direction given is reproduced as under:*  
  
*“We would only say that while revisiting the question of tariff, the Commission will consider such report, assisted by the learned counsel for both sides, and take appropriate view thereupon, and if there is any recommendation not to be accepted, the Commission will give proper reasons for dissociation from such views.”*
25. *The Appellant submitted that the State Commission in Original Order dated 15.01.2022, had determined the CUF of 40.33% considering all aspects and the TC Report, the Chapter 4 of TC Report provides the results of the Assessment of Generation Potential conducted, also, the overall plant efficiency was taken at 86.68% based on Turbine efficiency of 91%, generator efficiency of 97.1% and flywheel efficiency of 98% i.e. on the basis of the prudent practice and the guaranteed parameters given by the equipment supplier and applying the appropriate formulas, the weighted average efficiency of the plant has been arrived at as 86.68%, further, the Plant Availability had been taken as 95%, which is the widely accepted norm since no plant can be available 100%.*
26. *We are bound to accept such contentions of the Appellant and the recommendation of the TC Report which is the most prudent practice adopted and certainly no generating plant can be available for 100%.*
27. *However, disregarding the Remand Judgment, the State Commission has not even referred to the TC Report, instead, the State Commission has gone on the basis that in the Detailed Project Report (“DPR”), the developer had estimated the gross energy as 101 MUs, the Actual CUF from commissioning till October 2022 comes to 48.57 % and the IIT Bhuvaneshwar Report which has considered the actual data of 1972-73 to 2014-15 of CWC given a long-term average generation for 43 years as 101 MUs.*
28. *It cannot be disputed that the DPR is prepared at the stage of planning of a project and the parameters considered therein cannot be taken as final and binding on either of parties, the State Commission should consider the realistic parameters to the extent these are available, since the State Commission has decided to determine a project specific tariff under section 62 of the Electricity Act, 2003 in the case of the Appellant, therefore, cannot go on the basis of the DPR alone.*
29. *It is also submitted by the Appellant that the generating plant since its commissioning in August of 2020 till October 2022 has experienced 2.5 to 3*

*high hydro seasons and therefore, the combined CUF has worked out to 48.57% , however, the Appellant had explicitly placed before the State Commission that FY 2020-21, it had generated only from September 2020 to March 2021, for FY 2021- 22, the CUF was higher at 53.32% due to heavy rainfall but for the full FY 2022- 23, if the date is extrapolated, the actual CUF would work out to around 39%.*

30. *It cannot be denied that while fixing a long term parameter for 35 / 40 years, the State Commission cannot decide on the basis of specific period of higher inflow of water.*
31. *The Appellant also argued that if the hydrological data relied upon by IIT Bhubaneswar, which is based on CWC data for a period of 43 water years (1972- 73 to 2014-15) is considered and then by applying the 90% dependability or 75% dependability, the CUF would work out to 36.4% and 41.4% respectively (using daily discharge data) and 38.5% and 42.8% respectively (using 10 daily discharge data), however, the hydrological data, if taken for 50 years, which is again based on CWC data from 1972 to 2022 (50 water years), and by applying the 90% dependability or 75% dependability, the CUF would work out to 36.4% and 41.1% respectively (using daily discharge data) and 37.1% and 42.8% respectively (using 10 daily discharge data).*
32. *Contrary to above the IIT Report considered the same, however, made the erroneous assumptions of 100% plant availability and 91% plant overall efficiency, instead of plant availability of 95% and the plant overall efficiency of 86.68% resulting into much higher CUF which is contrary to the prudent practice and is beyond achievement.*
33. *The Appellant, further, submitted that Respondent No. 2 referred Para 6 (xii) of the Impugned Order where the contentions of the Appellant were recorded in brief, in spite of it, the finding at Para 11 is completely bereft of any consideration of the above submissions, further added that the State Commission had given time to the Appellant to file its detailed calculations and submissions on the IIT Bhubaneshwar Report by 26.12.2022 and the Appellant had filed the said submissions by 26.12.2022 and given another copy by 30.12.2022, however, there is no consideration of any of these submissions by the State Commission in the Impugned Order.*
34. *We are inclined to accept the contentions of the Appellant, the State Commission being a technical and adjudicatory body, having all the support of technical experts and technical consultants, which it had realised and appointed a Technical Consultant, must scientifically arrive at the CUF after considering the submissions of all parties, the State Commission is expected to deal with the submissions by passing a speaking order.*
35. *It cannot be disputed that as a matter of principle, the CUF determination by all regulatory bodies in the country is based on design energy and 90% dependability and so is by the Central Electricity Authority, the Apex Technical Statutory Organisation vested with the powers to accord Concurrence to Hydro Electric Projects with specified cost and capacity under the Electricity Act, 2003, however, even if the State Commission adopted 75% dependability based on the DPR, there cannot be any justification for the State Commission to take the dependability at 50% and therefore, cannot be agreed to.*

36. *Secondly, the plant availability at 100%, as considered by the State Commission, is deserved to be rejected outrightly, as any generating plant cannot achieve 100% availability during its entire life of 35/40 years and also the widely accepted norm for plant availability adopted by all regulatory bodies is 95% only.*
37. *Further, the Plant efficiency would depend on the guaranteed norms / parameters given by the equipment supplier and cannot be assumed arbitrarily, further, regarding the hydrological data, the Appellant has filed several charts taking into account the IIT Bhuvaneshwar Report and the 43 years data as well as 50 years data and explained all these calculations in its submissions both before the State Commission as well as before this Tribunal, however, it is seen that there is no consideration or finding on any of these submissions by the State Commission.*
38. *Therefore, we consider it most appropriate to set aside the determination of CUF made by the State Commission at 47.55% in the Order dated 13.01.2023, and direct that the State Commission will re-determine the CUF considering all submissions of the Appellant as well as of the GRIDCO and the observations made by us in this Order, having all the powers under the law, we expect the State Commission to deal with the detailed submissions of the parties made before it.*
39. *We note here that the State Commission, being the court of first instance, it ought to have considered all submission and contentions made before it for determining proper CUF and after hearing both the parties herein, failing which we find it most just and reasonable to set aside the Impugned Order and remanding the matter back to the State Commission to determine the CUF afresh.*
40. *The right of the Appellant to challenge the other issues relating to capital cost, time overrun and IDC is also reserved and can approach this Tribunal after the State Commission passed the order afresh under the remand proceeding for determining the CUF.*
41. *Since the Appellant is a small hydro project and has already suffered a substantial reduction in tariff of Rs. 5.71/- per unit as against the tariff of Rs. 5.99 per unit/ Rs. 6.0 per unit as determined by the State Commission in the Original Order, which was being paid from its commissioning and as per our Remand Judgment dated 17.10.2022, and considering that further reduction to Rs. 5.03 per unit will cause irreparable injury to the generator, we direct that for the electricity generated and supplied by from the generating plant of the Appellant to GRIDCO during the pendency of the matter before the State Commission for redetermination of CUF would be at Rs. 5.71/- per unit. This would be an interim arrangement and subject to final adjustment upon determination of tariff for the Appellant's small hydro plant."*
9. *In course of hearing of the matter upon remand, the rival sides advanced their submissions/contentions which may be briefly stated here-in-after.*

10. **Submissions of the Petitioner-M/s. Baitarani Power Project Pvt. Ltd.**

- a) After rehearing of the remand proceedings, the Commission has ignored the findings contained in the report of the Technical Consultant, thus violating the directions given in the remand judgement. The recommendation of TC in its report was that the annual energy generation at 75% dependability shall be 84.85 MU at 40% CUF, whereas GRIDCO has adopted design energy generation equal to the average energy generation of 101 MU at 48% CUF which is at 50% dependability which is on higher side and cannot be considered. In the impugned order dated 06.01.2023, the Commission retained the capital cost at Rs.314.80 crore, but increased the CUF substantially from 40.33% to 47.55%, as a result, the tariff has been severely affected. The determination of CUF at 47.55% by the Commission is completely erroneous and illogical, as it is not possible to be achieved over the life of the project and also contrary to its determination at 40.33% in the original order passed by the Commission. Considering the recommendation in the TC report.
- b) The Commission has relied on the limited data to determine the CUF at 47.55% and also considered another report prepared by IIT, Bhubaneswar submitted by GRIDCO, in which certain fundamental errors has been considered such as assuming plant availability at 100% and overall efficiency at 91% and the Commission has considered the data for 43 years based on average energy (50% dependability) instead of design energy on 75% dependability years.
- c) The Commission in its original order dated 15.01.2022, had determined CUF of 44.33% considering all aspects and TC report, the Chapter 4 of TC report provides the result of the assessment of generation potential conducted, also the overall plant efficiency was taken at 86.68% based on turbine efficiency of 91%, generator efficiency of 97.1% and flywheel efficiency of 98% i.e. on the basis of the prudent practice and the guaranteed parameters given by the equipment supplier and applying the appropriate formulas, the weighted average efficiency of the plant has been arrived at 86.68%, further, the plant availability had been taken at 95% which is the widely accepted norm since no plant can be available 100%.
- d) The generating plant, since its commissioning in August, 2020 till October, 2022, has experienced 2.5 to 3 high hydro seasons and therefore, the combined



CUF has worked out to 48.57%, however, for FY 2021-22 (September, 2020 to March, 2021) the CUF was at 43.32% and for FY 2022-23, the actual CUF would work out to around 39%.

- e) The hydrological data relied upon by IIT, Bhubaneswar, which is based on CWC data for the period of 43 water years (1972-73 to 2014-15), if considered, then by applying 90% dependability or 75% dependability, the CUF would work out to 36.4% and 41.4% respectively (using daily discharge data) and 38.5% and 42.8% respectively (using 10 daily discharge data). However, the hydrological data based on CWC data from 1972 to 2022 (50 water years), if taken and by applying the 90% dependability or 75% dependability, the CUF would work out to 36.4% and 41.1% respectively (using daily discharge data) and 37.1% & 42.8% respectively (using 10 daily discharge data). Contrary to the above, the IIT report considered the same, however, made the erroneous assumption of 100% plant availability and 91% plant overall efficiency, instead of plant availability of 95% and plant overall efficiency of 86.68% resulting into much higher CUF which is contrary to the prudent practice and beyond achievement. The detail calculations and submissions made by the Petitioner on 26.12.2022 and again the same on 30.12.2022 in respect of the IIT report, has not been considered by the Commission in the impugned order.
- f) The attempt made by GRIDCO is to re-argue all the issues which it had agitated in Appeal No.172 of 2023 before the Hon'ble Tribunal and GRIDCO impressed that only Para 38 of the judgement of the Hon'ble APTEL needs to be read by this Commission in order to decide the remand and the other contents of the order can be held as interim command. However, the following aspects have attained finality by the order dated 30.05.2023 passed by the Hon'ble Tribunal:
  - (i) The recommendation made by the Technical Consultant report is based on the most prudent practice adopted (Para 26);
  - (ii) It is not correct to go only on the basis of the DPR or the report given by IIT Bhubaneswar (Para 27);
  - (iii) It is not correct to only go by the generation achieved by the plant since its commissioning in August 2020 till October 2022 since there were 2.5 to 3 high hydro seasons yielding a combined CUF of 48.57% (para 29);

- (iv) No plant can achieve 100 % plant availability as assumed in the report of IIT Bhubaneswar and the plant overall efficiency ought not to have been taken at 91% instead of plant availability of 95% and the overall plant efficiency of 86.68% (para 32);
- (v) Even if the hydrological data as relied upon by the Petitioner is taken, which is based on the Central Water Commission data for a period of 43 years, by applying a 90% or 75% dependability, CUF would work out to be 36.4% and 41.4% respectively (using daily discharge data) and 38.5% and 42.8% (using 10 daily discharge data) (para 31);
- (vi) Further, if the above data is extrapolated for 50 years that as per 1970 to 2022 and the dependability of 90% and 75% is applied, the CUF would work out to 36.4% and 41.1% respectively using daily discharge data and 37.1% and 42.8% respectively using 10 daily discharge data (para 31);
- (vii) At Para 34 of the remand Order, the Hon'ble Tribunal has accepted the contentions of the Appellant. Further, as a matter of principle the Hon'ble Tribunal has decided that all regulatory bodies in the country decide the CUF based on a design energy and 90% dependability, but even if this Hon'ble Commission would adopt 75% dependability as per the DPR, there is no case for justification to adopt the dependability of 50%. Further, the plant availability cannot be considered at 100% and the plant efficiency would depend on the guarantee norms and parameters given by the open supply. These are the findings recorded at paragraphs 35 to 37 of the order of the Hon'ble Tribunal.
- (viii) Further, all the contentions which were raised by GRIDCO as defences in the hearing held on 08.08.2023 were also raised by it before the Hon'ble Tribunal and recorded at paragraphs 19 to 22 of the remand order. Obviously, the conclusions reached at paragraphs 35 to 37 are after considering the above objections of GRIDCO and there is no case to once again argue the very same points before this Hon'ble Commission, contrary to the findings reached by the Hon'ble Tribunal.
- g) Any DPR is prepared at the stage of planning of the project/conceptualisation of the project and cannot be taken as final or binding on any of the parties and

especially not on this Commission, which is undertaking a cost-plus based tariff determination process under sections 61, 62, and 64 of the Electricity Act, 2003.

- h) It cannot be that whatever was stated in the DPR should be taken as sacrosanct and the Petitioner should be made to suffer an unrealistic CUF for the life of the project. No doubt that the techno-economic clearance was given on the basis of the DPR. However, it is wrong on the part of GRIDCO to state that it was induced to sign the power purchase agreement based on the TEC.
- i) The entire exercise of project specific tariff determination would become futile if parties would only go by the DPR or the TEC. It is evident from the judgment of Hon'ble Supreme Court in Gujarat Urja Vikas Nigam Limited vs. Solar Semiconductor Power Company (India) Private Limited and Ors. (2017) 16 SCC 498 that the sanctity of the power purchase agreements cannot be violated without the consent of the contracting parties.
- j) The judgements of the Hon'ble Supreme Court relied on by GRIDCO i.e. (i) Gujarat Urja Vikas Nigam Ltd. vs. ACME Solar Technologies (Gujarat) Pvt. Ltd. and Ors. (2017) 11 SCC 801 and (ii) Gujarat Urja Vikas Nigam Limited vs. Solar Semiconductor Power Company (India) Private Limited and Ors. (2017) 16 SCC 498, deal with the sanctity of the power purchase agreement and the Hon'ble Supreme Court has held that the agreement solemnly entered into between the parties cannot be given altered by a unilateral modification of one of the parameters of the agreement at the instance of one party. There is no doubt on the above legal principle. However, the above principle is not applicable to the present facts.
- k) The Petitioner is seeking to rescind any part of the PPA that it has entered into with GRIDCO. On the contrary, the Petitioner is seeking the project specific tariff determination in terms of the provisions of the PPA - Article 6.
- l) The report of the technical consultant is clear and considers the entire data that was available before it. In fact, all the data has been made available both before the STC and GRIDCO at all stages. However, when a question was put by this Commission to the STC in the earlier proceedings, it made a submission that it did not have the wherewithal to comment on the project cost of the Petitioner.

- m) Even then, this commission did not unilaterally appoint the technical consultant. It did so after obtaining approval from both parties which includes GRIDCO.

*“57. The TC, however, went into a detailed study and concluded that while the DPR was based on the vintage 10 years from 1988 to 1998, but the Project achieved COD in August 2020 and therefore, the subsequent hydrological data of the Baitarani River for the period 2005-2015 is the current data point. The TC investigated the discharges from the Baitarani River through an independent analysis including on the Flow duration curves. Based on the same, the TC recommended the CUF of 40.33%.*

*58. The only difference between the original claim of the Petitioner i.e. 42.18% and the recommendation of the TC i.e. 40.33% is that the Petitioner had taken the combined efficiency as 91% whereas the weighted average efficiency in the assessment of the TC worked out to 86.68%. Once the TC report was available, the Petitioner revised its claim for CUF at 40.33% which was accepted by this Hon'ble Commission in the original tariff order as under:*

*“16. BPPPL has submitted that the Revised Project Timeline has been changed to 44 months from actual completion period of 51 months. Their specific comments on taxes & duties, project management expenses, interest during construction are most relevant. BPPPL further submitted that the annual gross energy of 101 MU (40%) approved by the STC in 2013 is based on the hydrology of 1988 with 75% dependability whereas the energy of 88.69 MU (42.18%) considered by them in the year 2020 after COD is based on construction work. It may be mentioned that the TC has compared the flows and has observed that the discharges have reduced in river Baitarani over time due to reduced rainfall in the river catchment. Earlier while filing the petition in December, 2020 plant efficiency of 91% for calculation of annual energy was considered. The Jadavpur University conducted performance test in January, 2021 i.e. after the submission of petition and have arrived at plant efficiency of 88.69%. accordingly, CUF was modified from 42.18% to 40.33%.”*

- n) The argument of GRIDCO, that the Technical Consultant had gone by the performance test report of the Jadavpur University which was obtained in ideal condition and only conducted for a period of 3 days, is factually incorrect. The technical consultant has gone by various aspects including the design energy, the plant availability, the operational efficiency and the ten year hydrological data of the Baitarani River i.e., from 2005 to 2014, which is the current data point. These were analysed by the technical consultant before recommending the CUF of 40.33%.
- o) GRIDCO repeatedly argued that the report given by IIT Bhubaneswar neither assumes the plant availability of 100% nor the plant efficiency of 91%. Since the report is silent on this aspect and GRIDCO has not produced any contrary

material, the Petitioner has back calculated the numbers assumed in the report of IIT Bhubaneswar which clearly demonstrate the assumption of plant availability at 100% and plant efficiency of 91%.

- p) The plant availability has been assumed by IIT Bhubaneswar 100% which is technical impossibility. The TC as well as the Petitioner as per the settled industrial practice has taken the plant availability at 95%. Moreover, the overall efficiency has been assumed by IIT Bhubaneswar as 91% which has no basis as compared to 86.68% which has been arrived at by the TC after considering the performance tests conducted by Jadavpur University. This test is mandatory and is conducted on the operating plant in order to judge whether it is entitled for capital subsidy under the MNRE Guidelines for grant of subsidy.
- q) The Petitioner has submitted that the observations made by GRIDCO during the hearing that the Flow in the river Baitarani has increased over the Years is incorrect as against the observation of the Technical Consultant that the flows have decreased. The DPR is based on the Data of the 10 Years 1988-89 to 1997-98 and is the Reference Data for comparison of Flows for the purpose of this Project. The Technical Consultant has compared the Flows of the 10 Year Period 2005-06 to 2014-15 with those of the 10 Year Period 1988-89 to 1997-98 considered at the stage of DPR. As per the comparison of flows made by the Petitioner, from the Reference Data (DPR 10 Year Data) upto 2014-15 and also upto 2021-22, it establishes that the Flows have reduced.
- r) The comparison of the tariff of the Petitioner with other small hydro plants cannot be made by GRIDCO when the proceedings are limited to determining a realistic and project specific CUF for the Petitioner. If GRIDCO wishes that the generic tariff parameters are to apply, the Tariff should also be determined considering a CUF at 30% and dependability of 90% as per the generic tariff order.
- s) With regard to the actual operation of the plant, at the stage of the appeal, the appellant had produced the date of the October, 2022 which included 2.5 to 3 high hydro seasons. Now, the full data for financial year 2022-23 is available and the generation has been to the extent of 85.10 MUs which deals as CUF of 40.33 %. The CUF cannot be varied on a year-to-year basis depending on what is achieved by the Petitioner since there would be no long-term tariff determination in such case. If GRIDCO wants to go by actual figures, in each year, the actual CUF achieved should be adopted along with all other parameters of that year of tariff determination. Obviously, such an approach would be

unsustainable while fixing the project specific tariff for 35/40 years. However, going by the above submission of GRIDCO would be a violation of para 29 and 30 of the judgement of the Hon'ble Tribunal dated 30.05.2023 since it has been held that this Commission cannot decide the issue of CUF on the basis of the specific period of higher inflow of water.

- t) The Petitioner submits that this Commission should either adopt the figure given by the TC (which was accepted by this Commission in its Order dated 15.01.2022) or determine the CUF based on 90 / 75% dependability, 95% plant availability and 86.67% overall plant efficiency. This would yield the correct CUF and would ensure that a small hydro generating plant, which is to be promoted in terms of Section 86 and 61 of the Electricity Act, 2003, is able to consistently generate and supply electricity to GRIDCO over the life of the plant.

**11. Submissions of the Respondent-GRIDCO:**

- a) The DPR of the subject SHEP was prepared by the Petitioner incorporating the suggestions of Roorkee University and WAPCOS, a Government of India organisation & WR Department, Government of Odisha forming parts thereof. As per the DPR 'The Annual Generation based on an Installed Capacity of three units 8.00 MW units is 101 Million Units (MU) gross in a 75% dependable year with 95% Machine Availability and Overall Efficiency of 91%. The Net Energy available for sale after allowing for internal consumption and losses is 99.99 MU.'
- b) As per Clause 8.4 of the DPR, the Power Output is computed using the discharge for the day and the corresponding Net Head and assuming overall efficiency of 91%, without imposing any restriction on installed capacity. These declarations by the Petitioner in the DPR clearly established that Annual Gross Generation of 101 MU is arrived at after considering 75% dependable year, 95% Machine Availability and Overall Efficiency of 91% resulting in 99.99 MU of Net Energy available for sale after allowing internal consumption and losses.
- c) As per DPR, the levelized tariff was calculated at Rs.4.31/kWh.
- d) The Techno Economic Clearance (TEC) was also granted considering the total Annual Gross Energy at 75% dependable year as 101 MU (Saleable Energy of 99.99 MU) for arriving at the Tariff Structure with the levelized maximum tariff of Rs.4.31/kWh.

- e) GRIDCO has entered into PPA with the Petitioner on the basis of the Generation (Saleable Energy of 99.99 MU) and tariff (Rs.4.31/kWh) as projected by the Petitioner in the DPR and the TEC. Hence it is not open to the petitioner to take a contradictory stand now. It is the settled position of law that PPA is sacrosanct and binding on the parties. In this regard GRIDCO has relied upon the following judgements of the Hon'ble Supreme Court of India in case of (i) Gujarat Urja Vikas Nigam Limited Vs. ACME Solar Technologies (Gujarat) Pvt. Ltd. &Ors., (2017) 11 SCC 801 – Para 7, Pg. 806 and (ii) Gujarat Urja Vikar Nigam Limited Vs. Solar Semi-Conductor Power Co. (India) Pvt. Ltd., (2017) 16 SCC 498 – Para 60 (Pg.533), Para 64 (Pg.534), Para 65-66 (Pg.535).
- f) At para 4.4 and 4.5 of the Technical Consultant Report, the issue of CUF has been discussed, wherein the TC has stated that the CUF of 42.18% has been adopted for computation of levelized tariff which is the same as what is presented by the Petitioner-M/s. BPPPL in its petition. This observation has been made by the TC only considering the report of Jadavpur University, without even considering to, much less considering the DPR submitted by M/s. BPPPL and TEC report.
- g) The Performance Test Report, which is claimed to be the actual results of the Operating Plant, is in fact prepared using Daily Generation and Discharge Data for August 2020 to December 2020 (Pg.70-75 of Jadavpur University Report) and the actual Plant Parameters recorded during a couple of visits to the Plant during December 17-19, 2020 and January 3-4, 2021 (Pg. 115 of Jadavpur University Report), which is a lean generation period in a Hydrological Year.
- h) In its report, the Technical Consultant has mentioned that the discharges have reduced in the Baitarani River over a period of time due to reduction in rainfall in the River Catchment and it has considered Design Discharge of 135.63 m<sup>3</sup>/sec as against DPR Design Discharge of 147 m<sup>3</sup>/sec, which has resulted in reduction in Annual Energy Generation. The Technical Consultant has taken the maximum Power Output as 27.679 MW as against Daily Schedule given by the Petitioner showing maximum Power Output as 30 MW.
- i) The following analysis of meter data of Lower Baitarani SHEP for FY 2021-22 and FY 2022-23 suggests the capacity of machines to be much more than the value suggested by the Technical Consultant:

- i. During FY 2021-22, generation exceeded 27.679 MW in 6776 number of 15 minutes Block Periods and more than 30 MW during 248 number of Blocks with maximum of 30.768 MW during the 66<sup>th</sup> & 67<sup>th</sup> Blocks on 09.07.2021.
- ii. During FY 2022-23, Generation exceeded 27.679 MW in 5699 number of Blocks and more than 30 MW during 3402 number of Blocks with maximum of 32.30 MW during the 61<sup>st</sup> & 63<sup>rd</sup> Blocks on 15.07.2022.
- iii. The Machines also ran at the above output for days together.
- iv. During FY 2021-22 from 21.06.2021, from 23.06.2021 to 26.06.2021, from 09.07.2021 to 11.07.2021, from 22.07.2021 to 23.07.2021, from 25.07.2021 to 05.08.2021, on 08.08.2021, from 13.08.2021 to 18.08.2021, from 29.08.2021 to 30.08.2021, from 08.09.2021 to 14.09.2021, from 19.09.2021 to 22.09.2021, from 26.09.2021 to 07.10.2021 and from 19.10.2021 to 23.10.2021 the Plant has generated continuously more than 27.679 MW.
- v. During FY 2022-23 from 16.07.2022 to 19.07.2022, from 23.07.2022 to 24.07.2022, from 10.08.2022 to 14.08.2022, from 16.08.2022 to 20.08.2022, from 24.08.2022 to 06.09.2022, from 12.09.2022 to 16.09.2022, from 21.09.2022 to 23.09.2022, from 25.09.2022 to 02.10.2022, from 05.10.2022 to 08.10.2022 and from 13.10.2022 to 18.10.2022 the Plant has generated continuously more than 27.679 MW.

The above facts clearly demonstrate that the observations in the Jadavpur University Report and the TC Report suggesting Lower Efficiency of the Machines are factually incorrect and the TC Report has accepted the observations given by the Jadavpur Report without any justification/reasoning. Thus, the TC Report with regard to CUF cannot be relied upon.

- j) In view of the stand of BPPPL and Report of Technical Consultant with regard to the reduction of Water Flow affecting the Annual Generation, GRIDCO had requested the IIT, Bhubaneswar for verification of the same. Following the same procedure as adopted in the DPR, the IIT, Bhubaneswar has only expanded the calculation for a duration from 10 years to 43 years i.e. from FY 1972-73 to 2014-15 using the data available at Anandapur G/D Site of Central Water



Commission to find out whether the flow of water has actually decreased. The Report of IIT, Bhubaneswar was sought by GRIDCO to ascertain available Annual Energy Generation of the SHEP of M/s. BPPPL and the said Report of IIT, Bhubaneswar is based on:

- i) Actual Flow Data at Anandapur CWC G/D Site collected from Central Water Commission for a period of Forty-Three (43) Water Years. from 1972-73 to 2014-15, i.e. Data of four 10 year block period and a fraction;
- ii) The decadal Annual Average Energy Generation varies from 96.00 MU to 107.00 MU with an average of 101.00 MU for the total period of 43 years;
- iii) It is the fact that there will be a flow variation in a catchment with the changed effect of different parameters affecting flow. Therefore, the philosophy of IIT Study is to take care of any variation in flow for a shorter duration and give a fair estimate of Average Generation over the years.
- iv) The submissions of M/s. BPPPL that IIT has considered 100% Plant Availability, 91% Plant Efficiency and 50% Dependability has no basis. The calculations prepared by M/s. BPPPL are on the basis of the parameter contrary to the DPR and TEC, based on which GRIDCO had entered into the PPA with the Petitioner.
- v) M/s. BPPPL has calculated the Annual Energy by factoring in 75% dependable year, 95% Machine Availability but reducing the Overall Efficiency to 86.68% from 91%. Thus, M/s. BPPPL has drastically reduced the Annual Energy claimed by them in the DPR in order to obtain undue advantage. M/s. BPPPL cannot be allowed to take advantage of its inefficiency in operation of the Plant.
- vi) From the comparison between M/s. BPPPL's calculations of Annual Energy for the period 1988-89 to 1997-98 as submitted in the DPR and the same submitted in its Petition, it is evident that the total Generation from the Plant is in the range of 92.82 MU to 130.2 MU with the CUF ranging between 44.15% and 61.93% (Average CUF 53.28%) as per DPR whereas as per the submission in the Appeal of M/s. BPPPL, it is in the range of 78.18 MU to 120.84 MU with the CUF ranging between 37.19% and 57.48% (Average CUF 48.42%). The unilateral reduction of Annual Generation by M/s. BPPPL in its submission is based on wholly frivolous premises in order to obtain undue advantage by way of Tariff, resulting in undue burden on the Consumers of the State.

- vii) During the actual operation of the SHEP after COD, the Plant has generated a total of 221.31 MU (CUF of 48.57%) for the period from September, 2020 to October, 2022. The generation for the only available complete Financial Year 2021-22 was 112.10 MU (CUF of 53.32%) and even during the complete Water Year i.e. June, 2021 to May, 2022, the Generation is 109.12 MU (CUF of 51.90%).
  - viii) The CUF of other SHEPs on the rivers of Odisha are also comparable with the SHEP of M/s. BPPPL. The average CUF of the 37 MW SHEP of M/s. Meenakshi Power Ltd. during the period from FY 2010-11 to 2022-23 is 59.22% and the average CUF of 20 MW Samal Barrage SHEP is 45.54% for the same period. Similarly, the tariff of other SHEPs in the State varies from Rs.3.68/kWh to Rs.5.06/kWh. When the matter is required to be dealt with reasonable probability, the aforesaid data assume greater relevancy.
12. Heard the Petitioner-M/s. BPPPL and the Respondent-GRIDCO at length. In this connection, a reference may be made to the order dated 17.10.2022 passed by Hon'ble APTEL in Appeal Nos.73 of 2022 and 392 of 2022 while remitting the present matter earlier. The said order contained, inter-alia, the directions as follows:
- “5. *We note here that during the course of exercise for tariff determination, the Commission had statedly appointed a consultant whose report was before the Commission at the time of the impugned Order being passed. It is the grievance of the generator that some of the aspects on which the consultant had made recommendations having either been glossed over or totally ignored without any proper justification. Though the learned counsel for the State Commission has his own answer to these contentions, we reserve any comment on this aspect at this stage. We would only say that while revisiting the question of tariff, the Commission will consider such report, assisted by the learned counsel for both sides, and take appropriate view thereupon, and if there is any recommendation not to be accepted, the Commission will give proper reasons for dissociation from such views.*
  - 6. *For the above reasons, the impugned order is set aside and the matter is remitted to the Commission for fresh adjudication. The provisional tariff as is being put in position in terms of above shall be subject to adjustment after the Commission has rendered its final decision afresh.”*
13. The Commission in terms of above direction of the Hon'ble APTEL, conducted fresh hearing of the case after giving notice to all the proper parties and passed Order dated 06.01.2023 giving adequate reasons for deferring from certain recommendations of the Technical Consultant. At that point of time, the actual generation data for about 2 years was available with the Commission. GRIDCO had also placed IIT report before the Commission and the Commission had the opportunity of examining the issue

concerning the CUF in a right perspective with reference to all the materials, made available at that stage and considering all the above facts and figures, the Commission had to ignore the report of the Technical Consultant inasmuch as it was related to the issue of determination of CUF and as such, decided to determine the CUF of the said SHEP at par with the observations of the TEC issued by STC, Government of Odisha basing on which the PPA was signed by GRIDCO for purchase of entire power from the said SHEP for the State consumers. Accordingly, on the issue of CUF, the views of the Commission, as a whole, was indicated at para 11 of the Order dated 06.01.2023 which is quoted below again for the sake of clarity incorporating the rectifications made vide Commission's order dated 13.01.2023, on some typographical errors, occurred due to clerical inadvertence.

- “11. Now we shall discuss about CUF to be accepted for tariff determination. From the pleading of the parties, the Commission observes that the Techno Economic Clearance (TEC) which is referred to in the revised PPA states that “The total annual gross energy from the project at 75% dependable year, as estimated by the developer will be taken as 101 MU (saleable energy of 99.99 MU) for arriving the tariff structure for sale of power.” This results in a CUF of about 47.55%. It has also been observed that the Actual CUF for FY 2021-22 comes out to be about 53.32% (with actual energy of 112.10 MUs procured) whereas the actual CUF of the project since date of commissioning till October 2022 is about 48.57% (with actual energy of 221.31 MUs procured). Moreover, the report of IIT, Bhubaneswar considering the actual data of 1972-73 till 2014-15 from CWC states that “... the available annual energy during first two decades is below 100 MU whereas during the latter two decades there are above 100 MU with a long term average of 43 years is 101 MU.” The expected generation as mentioned by IIT in their report and actual generation for complete FY 2021-22 are more than what had been determined by the TEC of STC. Therefore, it would be prudent to accept the recommendation of TEC which had prompted GRIDCO to sign PPA with the Petitioner BPPPL. The procurer GRIDCO has given its commitment to procure the power on the basis of those clearances. Moreover, the actual generation data corroborates with the average generation data provided by IIT Bhubaneswar i.e. 101 MU. Therefore, in line with the provisions of TEC as well as considering the facts of actual generation, the Commission considers 100 MUs as the total annual gross generation with saleable energy of 99.00 MUs from the project for 75% dependable year. Accordingly, the CUF considered for calculation of Tariff comes to 47.55%.”*
14. In pursuance of the above, the Hon'ble APTEL in its remand order dated 30.05.2023 passed in I.A No.168 of 2023 arising out of Appeal No.172 of 2023 has issued the directions as stated hereunder:
- “38. Therefore, we consider it most appropriate to set aside the determination of CUF made by the State Commission at 47.55% in the order dated 13.01.202 and direct that the State Commission will re-determine the CUF considering all submissions of the Appellate as well as of the GRIDCO and the observations*

*made by us in this order, having all the powers under the law, we expect the State Commission to deal with the detailed submissions of the parties made before it.”*

While setting aside the impugned Order on determination of CUF, the Hon’ble APTEL has made *inter-alia* the following observations regarding determination of CUF:

- “30. It cannot be denied that while fixing a long-term parameter for 35/40 years, the State Commission cannot decide on the basis of specific period of higher inflow of water.*
- 34. We are inclined to accept the contentions of the appellant, the State Commission being a technical and adjudicatory body, having all the support of technical experts and technical consultants, which it had realised and appointed a Technical Consultant, must scientifically arrive at the CUF after considering the submissions of all parties, the state Commission is expected to deal with the submissions by passing a speaking order.*
- 35. It cannot be disputed that as a matter of principle, the CUF determination by all regulatory bodies in the country is based on design energy and 90% dependability and so is by the Central Electricity authority, the Apex Technical statutory Organisation vested with the powers to accord Concurrence to Hydro Electric Projects with specified cost and capacity under the Electricity Act, 2003, however, even if the State Commission adopted 75% dependability based on the DPR, there cannot be any justification for the State Commission to take the dependability at 50% and therefore, cannot be agreed to.*
- 36. Secondly, the plant availability at 100%, as considered by the State Commission, is deserved to be rejected outrightly, as any generating plant cannot achieve 100% availability during its entire life of 35/40 years and also the widely accepted norm for plant availability adopted by all regulatory bodies is 95% only.”*
- 37. Further, the plant efficiency would depend on the norms/parameters given by the equipment supplier and cannot be assumed arbitrarily x x x x x.”*
15. The Lower Baitarani Hydro Power Project was conceptualized as a Small Hydro Electric Power Project (SHEP) in the year 2005 across the river Baitarani near village Singanali in the District of Keonjhar of Odisha. The SHEP was designed as a Run-off the River (RoR) Scheme with a barrage for pondage & creation of the head for power generation utilizing the flows in the river Baitarani with installed capacity of 24 MW (3x8 MW). The Petitioner-M/s. BPPPL had signed MoU with Government of Odisha for construction of the SHEP on Baitarani River and accordingly, the DPR was prepared by the Petitioner and submitted to the State Technical Committee (STC). The STC in its 56<sup>th</sup> meeting approved the revised DPR on 08.11.2013 with project cost of Rs.239.19 Crs. The Revised TEC was issued by STC on 26.02.2014 without further enhancement of project cost. The revised TEC issued by the STC has considered annual gross energy of 101 MU (saleable energy of 99.99 MU) and levelized maximum tariff

of Rs.4.31/kwh for a period of 25 years. Accordingly, the Petitioner entered into the PPA with GRIDCO in 2014 to sell entire quantum of power from the SHEP, which was subsequently revised and approved by the Commission in its order dated 05.07.2016 in Case No.06 of 2016.

16. Thereafter, the Petitioner had filed a petition before this Commission for determination of project specific tariff with increased project cost of Rs.421.59 crore, and the Commission in its interim order dated 06.07.2021 had directed the Petitioner to submit its application before STC for approval of its enhanced project cost, and the EIC-cum-PCEI, the nodal agency, was also directed to submit report of the STC on the project cost of the said SHEP. The STC in their MoM dated 13.08.2021 had expressed that they did not have arrangements to determine the project completion cost of the SHEP. Therefore, the Commission on the request of both the parties had appointed the Technical Consultant (TC) for a detailed review of the capital cost of the said SHEP and to submit its recommendation on the project specific cost.
17. In the impugned order dated 06.01.2023 passed by the Commission in this case (Case No.88 of 2020), the Commission has considered the total annual gross generation of the said SHEP keeping in view the provisions of the TEC as well as the facts of actual generation. Accordingly, the CUF of 47.55% was computed and the project specific tariff was determined for the said SHEP.
18. Being aggrieved by the above Order, the petitioner had approached the Hon'ble APTEL in Appeal No.172 of 2023 and the Hon'ble APTEL, at para 39 of their order dated 30.05.2023 in IA No.168 of 2023 arising out of Appeal No.172 of 2023, has been pleased to set aside the impugned order and remand the matter for determination of the CUF afresh, which is reproduced below:

*“We note that the State Commission, being the court of first instance, it ought to have considered all submission and contentions made before it for determining proper CUF and after hearing both the parties herein, failing which we find it most just and reasonable to set aside the Impugned Order and remanding the matter back to the State Commission to determine the CUF afresh”*

19. Following are the basic two reasons highlighted in the remand order to call upon this Commission to reconsider the question of determination of the CUF of the subject SHEP:
  - (a) The Commission has ignored the findings contained in the report of Technical Consultant (TC) without giving proper reasons, thus violating/disregarding the

directions given vide the earlier Remand Judgment and has followed the provisions of Detailed Project Report (DPR) and TEC report.

- (b) The Commission has relied on IIT report dated 23.05.2022 with regard to Hydrological Assessment and Energy Study of Lower Baitarani SHEP wherein erroneous assumptions of 100% plant availability has been made, contrary to the prudent practice.

20. With regard to the issue of reliability of the report of the Technical Consultant, we may state that:

- (i) The DPR is a very important document of any HEP wherein the power potential & design energy are finalized for the useful life of the power plant, basing on which, Techno Economic Clearance (TEC) is granted to go ahead with the execution of a project. With regard to the instant SHEP, M/s Elen & Lite Consultants, Hyderabad was appointed for preparation of DPR in the year 2006 and subsequently, after approval by the State Technical Committee (STC), M/s Water & Power Consultants prepared the detailed DPR in 2007 covering detailed design & engineering for the project. Due to delay in acquisition of land, the project could not be taken up till 2013 and the DPR was revised by M/s Indo Canadian Consultants of LNJ Bhilwara Group. The power potential as well as the design energy was assessed on the basis of hydrological studies considering the river gauging data for a period of 10 years from 1988-89 to 1997-98. Based on the power potential and design energy/annual generation the TEC was accorded by the State Technical Committee, Government of Odisha, and accordingly the PPA was executed between the project developer-M/s. BPPPL and the power procurer-GRIDCO, who is entitled to draw entire quantum of power sent out from the SHEP. As per the DPR and the TEC, the gross annual generation is 101 MUs in a 75% dependable year with 95% machine availability and net energy available for sale after allowing internal consumption & losses is 99.99 MUs which translates to a CUF of about 48%. The net energy availability/CUF usually forms the basis for determination of tariff.
- (ii) The Petitioner-M/s BPPPL has also agreed in its submissions that the sanctity of PPA cannot be violated without consent of the contracting parties. Hence, the Commission in its wisdom does find it proper to rely on the revised DPR and revised TEC issued by STC on 26.02.2014 for determination of the CUF.

- (iii) On the request of the parties, the Commission had appointed the Technical Consultant (TC) for a detailed review of the capital cost of the subject SHEP and to submit its recommendation on the project specific cost. The main scope of work of the Technical Consultant was to independently review and ascertain the completed capital cost of the project based on the changing scenarios vis-à-vis the estimated cost and among others, variation, if any, on power generation potential and net head. In the work order, the Technical Consultant was never asked to determine the Capacity Utilisation Factor (CUF) of the SHEP or to embark upon any study regarding the performance of the machines. Moreover, the Technical Consultant has apparently not made any exercise of his own for determination of the CUF, rather, it has adopted the design energy, machine efficiency etc. as submitted by the Petitioner in its petition. Hence, the report of the Technical Consultant in so far as it relates to the CUF, is found to be bereft of reliability.
- (iv) It may be further noted here that the recommendations / suggestions of the Technical Consultant, may not have any binding effect on the Commission and his opinion cannot be treated as that of the Commission or as a substitute of the opinion of the Commission. The report of the Technical Consultant is advisory in nature so as to render assistance to the Commission in deciding an issue. Even in the matter of approval of the capital cost, the Commission has not considered all the recommendations / suggestions given by the Technical Consultant.

21. On the point of reliability of the report submitted by the IIT, Bhubaneswar, we do observe as stated hereinafter:

- i) In its rejoinder submission in this case, the Petitioner-M/s. BPPPL had proposed the CUF of its SHEP as 40.33% which was computed basing on the report of Jadavpur University engaged by the Petitioner for conducting the performance test of the generating units. The Technical Consultant, engaged by the Commission, had also indicated the same figure in its report and it is also indicated that they have considered the same basing on the petition of M/s. BPPPL. Since this was a new SHEP and at that time, the actual generation of the SHEP for a period of at least one year was not available, therefore, in its original Order dated 15.01.2022 passed in this case, the Commission had considered the same figure as was proposed by the Petitioner-M/s. BPPPL,

which was not supposed to be sustainable under law inasmuch as it was contrary to the observations of the TEC issued by the State Government, basing on which PPA was executed.

- ii) The IIT, Bhubaneswar has conducted the Hydrological Assessment and Energy study of 24 MW Lower Baitarani SHEP on Baitarani River on the request of the Respondent-GRIDCO. It has conducted a decadal analysis of the energy availability for the last 43 years from FY 1972-73 to 2014-15 basing on hydrological data of Central Water Commission (CWC). As per this report, the available annual energy during first two decades is below 100 MU, whereas during the latter two decades, the energy is more than 100 MU with a long-term average of 101 MU for the 43 years period.
- iii) The Technical Consultant in his report has arrived at design energy by considering hydrological data for 10 years starting from 2005-06 to 2014-15 whereas the IIT report has coned hydrological data provided by CWC from its gauge in Baitarani River at Anandapur for a period of 43 years starting from 1972-73 to 2014-15. This data undisputedly is sacrosanct and can be safely utilized for determination of design energy as well as CUF. However, in the present case, both the report of the IIT and the report of the TC differ *inter se* in respect of years of hydrological data. The longer the period of the hydrological data, better will be the accuracy of design energy in respect of Hydro Electric Projects. Therefore, the Commission in its order dated 06.01.2023 relied on the IIT report for determination of design energy, which is estimated as 101 MU based on analysis of 43 years of data. The Techno Economic Clearance (TEC) of the STC, Government of Odisha was also corroborated by IIT report and such techno economic clearance has put a condition that the design energy of the plant would be 101 MU with 95% plant availability (corresponding to 75% dependable year) and the same had been accepted by the Petitioner earlier also before implementing the project.

22. However, the Commission has not considered the report of IIT, rather the annual generation of the SHEP as stipulated in the TEC has been considered by the Commission. The evaluation of annual generation in the IIT report was indicated in the Commission's order for comparison purpose in respect of design energy of the SHEP, which was found to be more or less similar to the revised DPR approved by STC in



TEC. The Commission has relied on the DPR and the TEC for deciding the CUF which was worked out at 47.55%.

23. In the revised Techno Economic Clearance dated 26.02.2014, the Government of Odisha had stipulated that the total annual gross energy from the project corresponding to 75% dependable year, as estimated by the developer will be taken as 101 MU (saleable energy of 99.99 MU) for arriving at the tariff structure for sale of power. Similarly, the Clause 5.8 of Implementation Agreement between Government of Odisha and the Petitioner- M/s. BPPPL signed on 14.03.2014 states as follows:

*“It shall be the responsibility of the company to obtain the approval of Government/GRIDCO/for any revision and /or modification to project plan or schedule decided by the company before implementation subject to approval of such alteration /modification by the State Technical Committee. Such revisions and or modifications, if accepted approved by Government shall be carried out within no implication, subject to the provisions of the PPA.”*

24. Starting from the implementation stage uptil now, no evidence has been made available to us showing that the Petitioner has ever approached the Government of Odisha for the revision of design energy of the subject SHEP. It has only approached the Government of Odisha for extension of time for project implementation. Surprisingly, after lapse of around 3 years from COD, the Petitioner-M/s. BPPPL is raising the issue of revision of design energy and consequential calculation of the CUF. The Government of Odisha has also not come up with any submission on this matter during pendency of the proceeding.
25. As we feel, had all the above facts and circumstances indicated above been properly placed/appraised before the Hon’ble Tribunal by the parties concerned, the observations as made in the remand order would not have been occasioned, and the order would have been otherwise.
26. The small hydro electric project has been awarded to the Petitioner on the pre-identified site by the State Government and the salient features of Techno Economic Clearance clearly state that the design energy corresponding to 75% dependable year would be 101 MU basing on which the Implementation Agreement has been signed. On scrutiny of the approved PPA, we do find that the PPA between the Petitioner and GRIDCO has been signed on the basis of Techno Economic Clearance. In other words, the Techno Economic Clearance has merged with PPA and is inviolable at the instance of a single party.

The CUF, the project cost and other parameters mentioned in the Techno Economic Clearance have a bearing on the tariff at which GRIDCO would purchase power from the SHEP of the Petitioner. Section 61 (c) and (d) of the Electricity Act, 2003 state as follows:

While determining tariff the Commission shall be guided by:

- “(c) the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments.*
- “(d) safeguarding of consumers’ interest and at the same time, recovery of the cost of electricity in a reasonable manner”*

27. In view of the above, the Commission is required to determine the tariff safeguarding the interest of the consumers of the State as well as the prospect of recovery of the cost of the electricity in a reasonable manner. The CUF has direct impact on tariff of the SHEP. The CUF of 47.55% has been determined considering TEC issued by the STC, Government of Odisha, and accordingly, the GRIDCO has signed the PPA with the Petitioner to purchase power for State consumption and the same has been approved by the Commission. Further, the Commission does find that the actual generation is more than the stipulated/approved gross annual generation of SHEP during the period from its COD to October 2022. Hence, the Commission is of the considered opinion that the CUF determined in the impugned order dated 06.01.2023 is justifiable. However, the Petitioner is at liberty to approach the State Government for revision of the TEC with regard to the annual gross generation/design energy of its SHEP, if it is so advised. In case the TEC is revised by the State Government, the consequential changes may be incorporated in the PPA and placed before the Commission for approval.

28. The proceeding is accordingly disposed of.

Sd/-

**(S.K. Ray Mohapatra)**  
**Member**

Sd/-

**(G. Mohapatra)**  
**Member**

Sd/-

**(S.C. Mahapatra)**  
**Chairperson**