# ORDER

**ON**

**Approval of Tariff of 3.0 MW Chatten Hydro Electric Project for the period from COD**

**For**

**Sikkim Power Development Corporation Ltd**

**April, 2023**

**Sikkim State Electricity Regulatory Commission**
**Gangtok, Sikkim**

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# ABBREVIATIONS

| Abbreviation | Description |
|---|---|
| A&G | Administration & General |
| CERC | Central Electricity Regulatory Commission |
| Crs | Crore |
| CUF | Capacity Utilisation Factor |
| D/E | Debt Equity |
| PDS | Energy & Power Department, Govt. of Sikkim |
| EPC | Engineering, Procurement & Construction |
| ER | Eastern Region |
| FY | Financial Year |
| GFA | Gross Fixed Assets |
| GST | Goods & Services Tax |
| IDC | Interest During Construction |
| KV | Kilo Volt |
| KVA | Kilo Volt Ampere |
| kWH | kilo Watt Hour |
| MU | Million Units |
| MNRE | Ministry of New & Renewable Energy |
| MW | Mega Watt |
| O&M | Operation & Maintenance |
| PGCIL | Power Grid Corporation of India Limited |
| PLF | Plant Load Factor |
| PLR | Prime Lending Rate |
| R&M | Repairs and Maintenance |
| RoE | Return on Equity |
| Rs. | Rupees |
| ₹ | Rupees |
| SBI | State Bank of India |
| SERC | State Electricity Regulatory Commission |
| SSERC | Sikkim State Electricity Regulatory Commission |
| SPDCL | Sikkim Power Development Corporation Limited |

# Before the

# Sikkim State Electricity Regulatory Commission for the State of Sikkim, Gangtok

**Case No.: P-01/SPDC/2022.**

**In the matter of**

Petition for approval of tariff of 3.00 MW Chatten Small Hydro Electric Power Project for the period from Commercial Operation Date (COD).

**Coram**

**Shri K. B. Kunwar, Chairperson**

## ORDER

**Date of Order:13th April, 2023**

## 1. INTRODUCTION

This order relates to the Petition filed by Sikkim Power Development Corporation Limited (hereinafter referred to as "SPDCL"), a Government of Sikkim Enterprise, which was incorporated on the 11th December 1998 to plan, investigate, design, construct, generate, operate and maintain small Hydro power stations in the state of Sikkim. Further it is a 'Generating Company with four hydro Plants' with total installed capacity of 13 MW. The first three Plants were commissioned during 2008, 2009 and 2014. The petition is filed for Approval of Tariff of 2x1.5 MW Chatten HEP under Section 86 (I) (b) read with Sections 61, 62 and 64 of the Electricity Act, 2003, in terms of the Regulations 8 & 9 (1) of the CERC (Terms and Conditions of the Tariff) Regulations, 2019.

## 1.1 SIKKIM STATE ELECTRICITY REGULATORY COMMISSION

Sikkim State Electricity Regulatory Commission (hereinafter referred to as 'Commission') came into existence on 15th November, 2003 after the Notification constituting the Commission was issued by the Government of Sikkim in Sikkim Government Extraordinary Gazette Notification No. 28/P/GEN/97/524 dated 15.11.2003. The Commission however became operational from April, 2011.

Section 86 of the Electricity Act, 2003 (36 of 2003) lays down the functions of the State Commission. These functions include: determination of tariff for generation, transmission, distribution and wheeling of electricity - wholesale, bulk or retail, as the case may be within the State. Further, Section 62 (1) of the Act empowers the State Commission to determine tariffs, both in accordance with the provisions of the Act as also under the Regulations framed by the State Regulatory Commission, for supply of electricity by a generating company to a distribution licensee, for transmission of electricity, for wheeling of electricity and retail sale of electricity within the State.

In the discharge of its functions, the Commission is guided by National Electricity Plan, the National Tariff Policy and other Acts/Policies and guidelines issued by the Government of India and the State Government from time to time.

## 1.2 POWER DEPARTMENT, GOVERNMENT OF SIKKIM

Power Department, Government of Sikkim (PDS) is a State Government Department and is engaged in Distribution, Transmission and Generation & Retail Supply of Electricity in the State of Sikkim. PDS is the sole Distribution Licensee in the State and is a Deemed Distribution as per the provisions of the Electricity Act, 2003.

## 1.3 RENEWABLE TARIFF REGULATIONS

The Commission has notified the SSERC (Terms and Conditions for Determination of Tariff for Generation from Renewable Energy Sources) Regulation, 2012 on 28th June 2012 and was published in the State Government Gazette No. 512 dated 11th October 2012.

## 1.4 FILING OF PETITION BY SPDCL

SPDCL vide its letter No. SPDC/21-22/1061/5459 dated 30.11.2021 informed the Commission that it had executed a Power Purchase Agreement with the Power Department, Government of Sikkim for 3 MW Chatten HEP and that the State Government had approved an interim tariff of ₹ 4.00 per unit. The Commission vide its letter No. 387/SSERC/2021-22/290 dated 09.12.2021 directed SPDCL to file a petition before the Commission duly following the procedure laid out in SSERC (Conduct of Business) Regulations, 2012. Accordingly, SPDCL filed a Petition before the Commission for Approval of Tariff for 3 MW Chatten HEP on 22.09.2022, under Section 86 (I) (b) read with Sections 61, 62 and 64 of the Electricity Act, 2003 and in terms of the Regulations 8 & 9 (1) of the CERC (Terms and Conditions of Tariff) Regulations, 2019.

The Commission admitted the Petition on 26.09.2022 subject to the condition that the SPDCL shall provide additional data/information and clarifications as and when sought by the Commission. The Petition was registered as Case No. P-01/SPDC/2022.

## 1.5 INTERACTION WITH THE PETITIONER

After preliminary scrutiny and analysis of the Petition submitted by SPDCL, the Commission observed data gaps and felt the need for seeking additional data, information and clarifications from the SPDCL. The Commission through letters and emails sought additional information/data and clarifications from the SPDCL. The details of communications made by the Commission and the responses/replies given by the SPDCL are as given below:-

| **Communications made by the Commission** | | **Communications received from SPDCL** | |
|---|---|---|---|
| **Letter no. / E-mail** | **Date** | **Letter no. / E-mail** | **Dated** |
| 387/SSERC/2021-22/290 | 09.12.2021 | SPD/2021-22/1061/759 | 22.09.2022 |
| Email | 08.09.2022 | | |
| 400/SSERC/2021-22/263 | 28.09.2022 | Email | 07.11.2022 |
| 400/SSERC/2021-22/268 | 30.09.2022 | SPDC/21-22/1061/766 | 02.12.2022 |
| 400/SSERC/2021-22/313 | 17.11.2022 | SPDC/21-22/1061/765 | 23.11.2022 |
| Email | 07.02.2023 | SPDC/2021-22/1061/773 | 18.02.2023 |

In addition to the above communications, the Commission also had several rounds of interactions with the SPDCL wherein the different aspects of the Petition were taken up for discussion focusing on the basis and justifications for the estimations made in the Petition.

The Commission vide its letter No. 400/SSERC/2021-22/264 dated 29.09.2022 issued a Public Notice in its official website soliciting comments/views and objections of the public and stake holders on the Petition of SPDCL for approval of Tariff proposal for 3 MW Chatten HEP.

The Public Notice and the Tariff petition were also uploaded in the official website of the Commission (www.sserc.in) in downloadable format for the ease of the public and stake holders. The last date for filing of objections/suggestions was fixed on 28th October 2022, 4.30 PM. No written objections, comments or suggestions were received by the Commission from the consumers and public in response to the Public Notice issued by the SPDCL. The sole Respondent in the matter i.e., Power Department, Government of Sikkim, submitted a requisition to the Commission seeking extension of time till 14th November 2022 for filing of their objections/responses to the Tariff Petition of SPDCL. Considering the genuine grounds and reasons, the Commission extended time till 14th November 2022. Accordingly, the Power Department filed its objection on affidavit before the Commission on 14.11.2022.

## 1.6 HEARING OF THE PARTIES

In order to give opportunities to the parties, viz SPDCL and the Power Department, who are the Petitioner and the Respondent respectively in the matter, the Commission held hearings on the matter on two separate occasions i.e., on 17th January 2023 and 20th January 2023. During the said hearings, the submissions/pleadings were done by the SPDCL and the Power Department before the Commission. The Commission took note of the submissions made by both the parties.

The hearings were held in the Chamber of the Hon'ble Chairperson and the following persons attended the hearings: -

1. Mrs. Sherap Shenga, IAS – Secretary, SSERC.
2. Shri Ganesh Chettri- PCE cum Secretary, Power Department, Govt. of Sikkim
3. Shri Bikash Deokota- Chief Engineer, Power Department, Govt. of Sikkim
4. Shri Sonam Rinchen – Chief Engineer, Power Department, Govt. of Sikkim
5. Shri Kalyan Dewan – Director (Accounts), Power Department, Govt. of Sikkim
6. Shri P.D.Chaktha, Director (T&T),SSERC
7. Shri Lobzang T. Bhutia- DGM (Projects)- SPDCL
8. Shri Karma Lodro- Superintending Engineer, Power Department, Govt. of Sikkim
9. Ms. Sigrata Pradhan – Executive Engineer, Power Department, Govt. of Sikkim

## 2. SUMMARY OF CAPITAL COST AND TARIFF DETERMINATION FROM COD

### 2.1 Capital Cost

Hydropower plants are classified as large and small hydel projects based on their capacity. The hydro power plants of 25 MW or below capacity are classified as small hydro, which have further been classified into micro (100 kW or below), mini (101 kW-2 MW) and small hydro (2-25 MW). Chatten Hydro Power Project of Sikkim Power Development Corporation Limited is of (2 X 1.5 MW= 3MW) capacity and hence qualifies to be classified under small hydro. SPDCL has claimed the capital cost as on Dec 2021 as Rs. 55.92 crores based on estimated data in its Petition.

The Petitioner has provided the following break up of capital cost in its additional submission:

**Table 1: Breakup of Capital Cost filed** **Rs in Lakh**

| SI.No | Particular | Initial Project Cost (2008) | Revised Project Cost (2013) | Revised Project Cost (DEC 2021) |
|---|---|---|---|---|
| **I- Works** | | | | |
| 1 | A-preliminary | 25.00 | 25.00 | 25.00 |
| 2 | B-Land | 24.92 | 24.92 | 24.92 |
| 3 | **C- works** | | | |
| 3a | Environment/Preliminary | 20.50 | 20.50 | 20.50 |
| 3b | Diversion structure | 51.35 | 93.41 | 93.41 |
| 3c | Water conductor | 217.97 | 384.24 | 384.24 |
| 3d | Silt Trap / Desilting Tank / Spillway Channel | 82.47 | 178.61 | 178.61 |
| 3e | Surge shaft | 75.77 | 154.89 | 154.89 |
| 3f | Penstock | 324.21 | 348.57 | 348.57 |
| 3g | Power House & tail Race, Machine foundation | 168.59 | 352.07 | 352.07 |
| 3h | Jhora training works | 6.15 | 27.02 | 27.02 |
| | **Total of C Work** | **947.01** | **1,559.31** | **1,559.31** |
| 4 | K- Building | 66.18 | 88.10 | 88.10 |
| 5 | P-Maintenance | 30.00 | 39.00 | 39.00 |
| 6 | R-Communication | 72.82 | 143.88 | 143.88 |
| 7 | S- Power plant | 1,012.71 | 1,199.71 | 1,199.71 |
| 8 | Escalation | 300.00 | - | 500.00 |
| | **Total of I- Work** | **2,428.72** | **3,030.00** | **3,530.00** |
| II | Provision for Non-EPC Works | 40.86 | 150.08 | 215.08 |
| III | Taxes/ GST Provision | 102.81 | 280.00 | 340.00 |
| IV | IDC provision | 269.67 | 1,357.00 | 1,457.00 |
| | **Grand Total** | **2,891.98** | **4,867.00** | **5,592.00** |

Further, based on abovementioned capital cost of Rs 55.92 Crore, the levelized tariff claimed by the Petitioner is Rs 5.79/kWh.

The Petitioner submitted that the Power Department, Government of Sikkim, issued a tender for the project's EPC works in 2005 and on 21st May 2008, SPDCL and the contractor signed a Work Contract Agreement for the development of 3MW Chatten HEP on Turnkey basis.

However, the progress of the Project was halted until 2012 due to a number of factors, including financial issues. After receiving approval from the SPDCL Board, extensive discussions/negotiations with the EPC contractor were carried out in February 2013 for resumption of the works of the Project. On February 24, 2013, a Supplementary Agreement was signed by SPDCL and the Project Contractor, changing the overall EPC contract cost from Rs. 20.86 Crores (2008) to Rs. 30.30 Crores (2013) without consideration of IDC, GST provision and non-EPC works.

The Power Department accorded “Techno-Economic Clearance’ for the Project in April 2013 thereby allowing SPDCL to carry out the works of the Project at an estimated cost of Rs. 28.92 Crore (2008) with Interest During Construction (IDC), provisions for G.S.T and non-EPC works.

Further, the Petitioner submitted that a revised project completion schedule of 21 months from the date of signing of the supplementary agreement and revised terms and conditions for payments including some other revisions and alterations, duly retaining the majority of the original agreement's clauses were agreed upon by SPDCL and the EPC Contractor in the Supplementary Agreement. The contractor began working on the Project but owing to financial constraints, the progress of the Project was hampered and the Project could not be completed on schedule.

The Petitioner further submitted that the Project cost was revised to Rs 48.67 Crore in 2013. The Contractor and SPDCL both informed the Government of Sikkim about the funding shortfall in the Project and offered a number of suggestions. In February 2018, the Government of Sikkim approved and committed to invest Rs. 10.00 (Ten) Crores and Rs. 5 (Five) Crores in the Project as financial support in the form of Redeemable Preference Shares. By taking into account the overheads, interest accrued during construction (IDC), and other factors, the project's final cost was revised to a total of Rs. 55.92 Crores.

## 2.2 Project Funding & Subsidy Pattern

The Petitioner submitted that the expenditure on the Project has been met by SPDCL with debt equity ratio of 70:30.

Further, it is also observed that the Petitioner has received a capital subsidy of Rs. 5.40 Crores from Ministry of New and Renewable Energy (MNRE), Government of India, against the sanctioned subsidy of Rs 6.00 Crores, which has been considered for tariff determination.

## 2.3 Levelized Tariff

The Petitioner has considered CERC (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as '**CERC Tariff Regulation, 2019'**) for computation of levelized tariff for 3 MW Chatten HEP.

Further, the Petitioner submitted that the Capacity Utilisation Factor (CUF)/ Plant Load Factor (PLF) of 45% is considered as per the CERC Order of 2021, Section 39 of Annexure 1.

The table below summarizes the parameters used by the Petitioner for calculation of project specific levelized tariff: -

**Table 2: Parameters filed**

| S. No. | Assumption Head | Sub-Head | Sub-Head (2) | Unit | CERC Parameter |
|---|---|---|---|---|---|
| 1 | **Power Generation** | Capacity | Installed Power Generation Capacity | MW | 3.00 |
| | | | Capacity Utilization Factor | % | 45.00% |
| | | | Auxiliary Consumption | % | 1.00% |
| | | | Useful Life | Years | 40 |
| 2 | **Project Cost** | Capital Cost/MW | Power Plant Cost | Rs Lakh/MW | 1100 |
| | | | Power Plant Cost | Rs Lakh | 5,592.00 |
| | | Debt: Equity | Debt | % | 70% |
| | | | Equity | % | 30% |
| | | | Govt. Grant | Rs Lakh | 600 |
| | | | Total Debt Amount | Rs Lakh | 3,494.40 |
| | | | Total Equity Amount | Rs Lakh | 1,497.60 |
| 3 | **Sources of Fund** | Debt Component | Loan Amount | Rs Lakh | 3,494.40 |
| | | | Loan Outstanding as on 31.03.2022 | Rs Lakh | 869.01 |
| | | | Moratorium Period | years | 0 |
| | | | Repayment Period | years | 15 |
| | | | Interest Rate | % | 9% |
| | | Equity Component | Equity amount | Discount Rate | 1497.6 |
| | | | Return on Equity (upto 20/10 years) | % p.a | 16.96% |
| | | | Return on Equity (after 20/10 years) | % p.a | 21.52% |
| | | | Discount Rate | | 8.30% |
| 4 | **Financial Assumptions** | Fiscal Assumptions | Income Tax | % | 34.94% |
| | | | MAT Rate | % | 17.47% |
| | | Depreciation | Depreciation Rate (Power Plant) | % | 4.67% |
| | | | Depreciation Rate 16th /13th year onwards | % | 0.80% |
| | **Working Capital** | For Fixed Charges | O&M Charges | Months | 1.00 |
| | | | Maintenance Spares | (% of O&M expenses) | 15.00% |
| | | | Receivables for Debtors | Months | 1.50 |
| | | | Interest On Working Capital | % | 10.50% |
| 5 | **Operation & Maintenance** | | O&M Cost of power plant | Rs Lakh/MW | 45.05 |
| | | | Total O & M Expenses Escalation | % | 3.84% |
| 6 | **Generation & Sale of Energy** | | Total No .of hours | Hrs | 8,766.00 |

The Petitioner submitted that the Government of Sikkim has approved the general interim Tariff of ₹ 4.00 per kWH for 3 MW Chatten HEP on 15.12.2021 whereas the Generic Levelized Tariff determined by the Central Electricity Regulatory Commission (for FY 2021-2022) is Rs. 5.15 per kWH for Small Hydro Power Projects below 5MW capacity for N.E. states.

With the above submissions, facts and circumstances, the Petitioner has made the following prayers to the Commission: -

1. *To approve ₹ 5.79 per kWH levelized determined tariff for 2x1.5 MW Chatten HEP.*

2. *Approve the Project Capital Cost of Rs 55.92 crore as on anticipated station COD for determination of tariff for 3 MW Chatten HEP.*

3. *Approve the normative IDC & F.C of Rs. 14.57 crores in terms of Regulation 19(2)(b) of the CERC Tariff Regulations, 2019 which is included in the Project Capital Cost indicated above.*

4. *Allow the Petitioner to file revised petition on actual expenditure in the event of any revised financial package, if any, as per CERC regulations.*

5. *Approve the Accrued Finance Charges (AFC) for 3 MW Chatten HEP for the Tariff period from COD as claimed, along with the petition for sale of power generated from the plant.*

6. *Allow recovery of filing fees of this petition from the beneficiaries*

7. *Allow recovery of publication expenses from the beneficiaries incurred with regard to this petition.*

8. *Allow recovery from the beneficiaries any such tax, cess etc. levied on SPDCL in relation to generation and supply of electricity.*

9. *Allow modification/change in operational norms based on actual performance experienced by the generating station.*

## 2.4 Comments/ Objections Filed by Stakeholders

In order to obtain the views, suggestions and objections, if any, from the consumers/interested parties/persons and stake holders on the Tariff Petition for 3 MW Chatten HEP filed by SPDCL (Petitioner), the Commission issued a Public Notice via letter No. 400/SSERC/2021-22/264 dated 29.9.2022.

The Public Notice was uploaded in the official website of the Commission and also forwarded to the Power Department, Govt. of Sikkim, soliciting comments, suggestions and objections. The last date for receipt of the comments/suggestions and objection was fixed as 28th October 2022, 4.30 PM. The Respondents requested for extension of time till 14th November 2022 in view of Dusshera and Deepawali Holidays and visit of the Hon'ble President of India to Sikkim. Considering the valid reasons, the Commission granted time extension till 14th November 2022.

The Commission did not receive any suggestion, comment or objection from any consumer, persons or other stake holders in response to the Public Notice issued by it.

An affidavit objecting the proposed tariff was filed by the Respondent before the Commission on 14th November 2022. The Commission forwarded the objections so received to the Petitioner vide letter No. 400/SSERC/2021-22/313 dated 17.1.2022, directing it to furnish replies/responses to the objections raised by the Respondent within a period of 7 (seven) days from the date of issue of letter by the Commission.

The gist of the objections raised by the Respondent are as under: -

- The Respondent had surrendered high-cost thermal power from National Thermal Power Corporation due to excessive financial burden on the State exchequer.
- The tariff of ₹ 5.79 per unit prayed by the Petitioner is exorbitantly high compared to power being already purchased from similar small hydropower projects (8 MW Rongnichu Hydropower Project), whose tariff is only ₹ 2.93 per unit, as per tariff approved by the Commission.
- The Respondent is facing financial constraints and struggling to clear the dues for the power being already purchased from the other projects owned by the Petitioner.
- The Petitioner is using the transmission and distribution systems/infrastructures of the Respondent and till date the Respondent has neither claimed wheeling charges nor any other charges from the Petitioner.
- The financial burden due to exorbitant increase in the cost of the project should not be passed on to the Respondent.
- The Respondent is willing and ready to purchase power from the Project at ₹ 4.00 per unit till repayment of loan by the Petitioner and thereafter at ₹ 3.50 per unit as already approved by the State Government in Cabinet Memorandum No. 150/E&P/GOS/2017-18/5473 dated 10/12/202. The State Government vide the same Cabinet Memorandum has infused ₹ 5.00 crores in the Project in the form of Redeemable Preference Share and as such there is already extra financial burden and allowing the tariff of ₹ 5.79 per unit as prayed by the Petitioner will further increase the financial burden, thereby putting the sustenance of the Respondent at stake.

The Petitioner vide its communication No. SPDC/21-22/1061/765 dated 23.11.2022 furnished its replies/responses to the objections filed by the Respondent. The gist of the replies/responses filed by the Petitioner are as under: -

- ₹ 5.00 crores infused by the State Government as 0% Redeemable Preference Share in the Project is repayable by the Petitioner to the State Government.

- IDC paid to the lenders is ₹ 15.77 Crores, which is 28.20% of the total project cost. The IDC is a result of interruption/stoppage of construction works due to various reasons already submitted in the petition.

- Renewable Energy (Green Energy) benefits/credits from the Project will be availed by the Respondent and same will help in fulfilling the Renewable Purchase Obligations (RPO) of the Respondent.

- The Average Power Purchase Cost of the Respondent for F.Y 2022-23 is ₹ 4.17 per unit whereas the tariff of other projects of the Petitioner (2 MW Lachung, 5 MW Rongli and 2 MW Manglay Small HEP) is ₹ 4.00 per kWH and R.E. benefits of these old projects owned by the Petitioner are also being availed by the Respondent.

- The Respondent is buying power at more than ₹ 6.00 per kWH from some other sources. The Generic Tariff determined by the CERC for F.Y. 2022-23 for small hydro projects below 5 MW for N.E. States is ₹ 5.23 per kWH , considering Capital Cost of ₹ 11.00 crores per MW.

## 2.5 Determination of Capital Cost

**Introduction**

The Petitioner has filed Tariff Petition for 3MW (2x1.50MW) Chatten HEP. The Petition has been filed as per the provisions of CERC (Terms and Conditions of the Tariff) Regulations, 2019, for determination of Tariff for the Project from the Commercial Operation Date (COD). The COD of the Project is submitted as under:

**Table 3: Dates of Commercial Operation (COD)**

| Unit | COD |
|---|---|
| Unit – I (1.5 MW) | 13$^{th}$ June 2022 |
| Unit - II (1.5 MW) | 13$^{th}$ June 2022 |

The Petitioner has also submitted that the Government of Sikkim has approved the general interim Tariff of ₹ 4.00 per kWH for the Project on 15.12.2021. Further, the Petitioner has submitted that the Generic Levelized Tariff determined by the CERC (for FY 2021-2022) is Rs. 5.15 per kWH for Small Hydro Power Project below 5MW capacity for N.E. states.

Accordingly, the Petitioner has submitted the present Petition for Capital Cost approval and determination of tariff as per the terms and conditions laid out in the CERC (Terms and Conditions of Tariff) Regulations, 2019. However, the Commission in this Order has determined the Capital Cost and the Levelized Tariff as per the provisions of the SSERC (Terms and Conditions for Determination of Tariff for Generation from Renewable Energy Sources) Regulation, 2012 (hereinafter referred to as **'SSERC R.E. Regulations, 2012'**).

Regulations 12 and 16 of the SSERC R.E. Regulation, 2012, provide for determination of 'project specific tariff' on the basis of various information and determination of Capital Cost, which is reproduced hereunder: -

***"12. Petition and proceedings for determination of tariff***

***A petition for determination of project specific tariff shall be accompanied by such fee as may be determined by regulations and shall be accompanied by Information in Forms 1.1, 1.2, 2.1 and 2.2 as the case may be, and as appended to these regulations;***

***a) Detailed Project Report outlining technical and operational details, site specific aspects, premise for capital cost and financing plan, etc.***

***b) A Statement of all applicable terms and conditions and expected expenditure for the period for which tariff is to be determined.***

***c) A statement containing full details of calculation of any subsidy and incentive received, due or assumed to be due from the Central Government and/or State Government. This statement shall also include the proposed tariff calculated without consideration of the subsidy and incentive.***

***d) Any other information that the Commission requires the Petitioner to submit"***

***"16. Capital Cost***

***The norms for the Capital Cost as specified in the subsequent technology specific chapters shall be inclusive of all capital works like plant and machinery, civil works, erection & commissioning, financing, interest during construction and evacuation infrastructure up to inter-connection point.***

***Provided that the benchmark capital cost for Solar PV and Solar thermal projects may be renewed annually by the Commission.***

***Provided that for project specific tariff determination, the generating company shall submit the break-up of capital cost items along with its petition in the manner specified under Regulation 12"***.

In accordance with SSERC R.E. Regulations, 2012, the Commission has undertaken detailed analysis of the Capital Cost for the project, under various heads, based on assessment of documentary evidence including Project DPR, Certificates, Work Orders, loan, etc.

The Petitioner has filed estimated Capital Cost of Rs. 55.92 crores (including IDC) with Hard Cost of Rs.41.35 Crores plus IDC & FC amounting to Rs.14.57 crores and the Petitioner in its Petition has claimed the same Capital Cost. However, on scrutiny of the Financial Progress Report submitted in its additional submission, the Commission observed that total expenditure as on COD i.e. 13.06.2022 is Rs. 46.10 Crores.

In its petition, the Petitioner has claimed total revised project cost of Rs. 55.92 Crores. A comparison of the project cost claimed by the Petitioner and as per financial progress as on 13.6.2022 is as follows: -

**Table 4: Capital Cost filed and Actual as on 13.06.2022 (Rs in Lakh)**

| Sl.No | Particular | Initial Project Cost (2008) | Revised Project Cost (2013) | Revised Project Cost (December 2021) | Actual Expenditure as on 13.06.2022 |
|---|---|---|---|---|---|
| **I- Works** | | | | | |
| 1 | A-preliminary | 25.00 | 25.00 | 25.00 | 31.23 |
| 2 | B-Land | 24.92 | 24.92 | 24.92 | 22.66 |
| 3 | **C- works** | | | | |
| 3a | Environment/Preliminary | 20.50 | 20.50 | 20.50 | 20.5 |
| 3b | Diversion structure | 51.35 | 93.41 | 93.41 | 88.21 |
| 3c | Water conductor | 217.97 | 384.24 | 384.24 | 357.93 |
| 3d | Silt Trap / Desilting Tank / Spillway Channel | 82.47 | 178.61 | 178.61 | 173.28 |
| 3e | Surge shaft | 75.77 | 154.89 | 154.89 | 115.26 |
| 3f | Penstock | 324.21 | 348.57 | 348.57 | 339.8 |

| | | | | | |
|---|---|---|---|---|---|
| 3g | Power House & Tail Race, Machine Foundation | 168.59 | 352.07 | 352.07 | 276.33 |
| 3h | Jhora Training works | 6.15 | 27.02 | 27.02 | 26.92 |
| | **Total of C Work** | **947.01** | **1,559.31** | **1,559.31** | 1398.23 |
| 4 | K- Building | 66.18 | 88.10 | 88.10 | 80.49 |
| 5 | P-Maintenance | 30.00 | 39.00 | 39.00 | 0 |
| 6 | R-Communication | 72.82 | 143.88 | 143.88 | 141.94 |
| 7 | S- Power plant | 1,012.71 | 1,199.71 | 1,199.71 | 1075.02 |
| 8 | Escalation | 300.00 | - | 500.00 | |
| | **Total of I- Work** | **2,428.72** | **3,030.00** | **3,530.00** | 2695.68 |
| II | Provision for Non-EPC Works | 40.86 | 150.08 | 215.08 | 142.51 |
| III | Taxes/ GST Provision | 102.81 | 280.00 | 340.00 | 171.06 |
| IV | IDC provision | 269.67 | 1,357.00 | 1,457.00 | 1547.18 |
| | **Grand Total** | **2,891.98** | **4,867.00** | **5,592.00** | **4610.32** |

The Commission has undertaken detailed prudence check and adequate assumptions, wherever required, for approving the Capital Cost of the Project. The scrutiny and prudence checks undertaken by the Commission have been discussed in the following paragraphs: -

## 2.6 Preliminary Expenses

Expenditure towards Preliminary Expenses was estimated as Rs 0.25 Crore in the Revised Project Cost of Rs 55.92 Crores. Further the cost as per Financial Progress Report as on 13.6.2022 provided by Petitioner is Rs 0.31 Crores.

The Commission directed the Petitioner to clarify the nature of these Preliminary Expenses. The Petitioner in its submissions clarified that expenditures claimed towards Preliminary Expenses involved initial works undertaken before the DPR formulation amounting to Rs 0.09 Crore, detailed topographical survey and geological survey, detailed survey for location and investigation for foundation, etc during construction of Rs 0.10 Crore, consultancy fees of Rs 0.02 Crore, preparation of detailed design during construction of Rs 0.04 Crore, which totals the Preliminary Expenses to Rs 0.25 Lakh. However, the actual expenditure upto 13.6.2022 towards Preliminary Expenses is shown as Rs 0.31 Lakhs.

Considering the insignificant nature of these expenses, the Commission has allowed the amount of Rs. 0.31 Crores as Preliminary Expenses, as stated under the Financial Progress Report as on 13.6.2022, provided by the Petitioner which shows total project cost of Rs 46.10 Crores.

## 2.7 Land

The expenditure towards land was estimated as Rs 0.25 Crores in the project estimate and Petitioner has claimed the same in the petition. Further, the land cost as per financial progress report as on 13.6.2022 provided by the Petitioner is Rs. 0.23 Crores.

The Commission requested the Petitioner to furnish documentary evidence for the land cost incurred. Based on the analysis of submissions made by the Petitioner, the Commission observed that considering all documentary evidence provided by the Petitioner, the value of private land of 5.766 Ha is added up to Rs. 0.25 Crores. The Petitioner confirmed that it has completed the acquisition of the land.

However, the Commission has considered the actual expenditure/payment of Rs 0.23 Crores towards land shown in financial progress report provided by the Petitioner.

## 2.8 Civil Works

The expenditure towards Civil Works was estimated as Rs 16.47 Crores as per Project Estimate and the Petitioner has claimed the same in the Petition. Further, the cost of Civil Works as per the Financial Progress Report as on 13.6.2022 provided by the Petitioner is Rs 14.78 Crores. The Commission has analysed the expenses towards Civil Works as per the claim of the Petitioner.

Accordingly, the Commission has approved total expenditure of Rs 14.78 Crores towards Civil Works according to the expenditure provided in actual financial progress report provided by the Petitioner.

## 2.9 Electrical and Maintenance Works (E&M)

In the Revised Project Cost estimate, the cost of E&M Works estimated is Rs. 13.83 Crores and the Petitioner has claimed the same in the Petition. However, the Financial Progress Report indicates the cost of E&M Works as Rs. 12.17 Crores as on 13.6.2022.

Based on analysis of the submissions made by the Petitioner, the Commission, allows Rs. 12.17 Crores of actual expenditure towards E&M Works as stated in the Financial Progress Report as on 13.6.2022 provided by the Petitioner.

## 2.10 Additional Cost

As per the Revised Project Cost Estimate, the cost of Additional/Miscellaneous Works is Rs. 5.00 Crores and the Petitioner has claimed the same in the petition. The Financial Progress Report as on 13.6.2022 states nil cost towards Additional Works.

Since, no cost has been incurred towards Additional Works as stated in the Financial Progress Report dated 13.6.2022, no cost has been allowed towards it in this Order.

## 2.11 Establishment Charges & Others

The Petitioner has claimed Rs. 2.15 Crores as Establishment Charges in the Petition, which is estimated in the Revised Project Cost Estimate as well. The Financial Progress Report has stated actual expenditure of Rs 1.42 Crores towards Establishment & Other Charges and has not provided a separate line item towards Establishment Charges.

The Commission observes that the Establishment Cost is the cost incurred towards staff and office infrastructure during the construction stage of the Project and is estimated in the Revised Project Cost as 3.86% of the Hard Cost less Land Cost.

Based on the scrutiny of the details submitted by the Petitioner, the Commission allows the actual expenditure of Rs 1.42 Crores towards Establishment and Other Charges as stated in the Financial Progress Report dated 13.6.2022 provided by the Petitioner.

## 2.12 GST Provision

In the Revised Project Cost Estimate of Rs 55.92 Crore, the cost of GST provision is estimated as Rs. 3.40 Crores and the Petitioner has claimed the same in the Petition. However, the Financial Progress Report states the cost towards GST provision as Rs. 1.71 Crores as on 13.6.2022.

Based on analysis of the submissions made by the Petitioner, the Commission allows Rs. 1.71 Crores of actual expenditure towards GST provision as stated in Financial Progress Report as on 13.6.2022 provided by the Petitioner.

## 2.13 Capital Cost approved (excluding IDC)

In line with the various cost heads discussed in this Chapter, the total Capital Cost, excluding IDC, approved by the Commission is as follows: -

**Table 5: Hard Cost provisionally allowed as on 13.06.2022 (Rs in Lakh)**

| Sl.No | Particular | Capital Cost allowed as on 13.06.2022 |
|---|---|---|
| **I- Works** | | |
| 1 | A-preliminary | 31.23 |
| 2 | B-Land | 22.66 |
| 3 | **C- works** | |
| 3a | Environment/Preliminary | 20.5 |
| 3b | Diversion structure | 88.21 |
| 3c | Water conductor | 357.93 |
| 3d | Silt Trap / Desilting Tank / Spillway Channel | 173.28 |
| 3e | Surge shaft | 115.26 |
| 3f | Penstock | 339.8 |
| 3g | Power House & tail Race, Machine foundation | 276.33 |
| 3h | Jhora training works | 26.92 |
| | **Total of C Work** | 1398.23 |
| 4 | K- Building | 80.49 |
| 5 | P-Maintenance | 0 |
| 6 | R-Communication | 141.94 |
| 7 | S- Power plant | 1075.02 |
| 8 | Escalation | |
| | **Total of I- Work** | 2695.68 |
| II | Provision for Non-EPC Works | 142.51 |
| III | Taxes/ GST Provision | 171.06 |
| | **Capital Cost (Grand Total)** | **3063.14** |

**In the absences of Audited Account for F.Y. 2022-23, the Commission has provisionally determined the above Capital Cost for determination of provisional levelized tariff.**

## 2.14 Time Over Run

### Project timelines and delays during construction period

The Petitioner submitted the following history of events regarding COD of 3 MW Chatten HEP in its petition: -

1. The Implementation Agreement was signed on 21st May, 2008 between SPDCL and the State Government.

2. The Supplementary Agreement dated 23th February 2013, was signed between SPDCL and the EPC Contractor.
3. The major earthquake of 18th September 2011 measuring 6.9 on Richter Scale caused major damages to the roads, bridges etc. leading to the Project site, as the epicentre of the said earth quake was North Sikkim, due to which the Project sites remained inaccessible for a considerable period of time.
4. The Project work was further delayed and stopped for almost 4 (four) years due to paucity of funds and extreme weather condition like snow fall and landslides in monsoon period which cut off the accessibility to the site, as the Project site is located in remote corner near International Border with China.
5. The Project work was re-started w.e.f. 10.08.2018. No major progress of the works could be achieved due to landslides during rainy season and heavy snow fall during the year 2018 and 2019. The Project site is located in the restricted border zone, and man power deployment is cumbersome. Massive land slide occurred during June 2019 near the Intake site location due to which major portion of Head Race Pipe and De-silting Tank were damaged. The construction works were initially halted and later came to complete standstill due to lock down and restriction for movement of manpower, material and equipments from March 2020, due to COVID 19 pandemic. As a result, the Project could not be commissioned within the scheduled time of April 2020.

6. The Project Implementation Agreement was executed in the year 2008. However, based on the actual dates of Commercial Operation of the generating units, there has been a time overrun of 9 (nine) years. It is noted that the major constraints during construction which had affected the implementation of the Project, as submitted by the Petitioner in its reply dated 2nd December, 2022 is as under: -

***The EPC cost of Rs. 20.86 crores was accepted and approved during May 2008 and because of time overrun and due to natural calamity and other reasons, the Contractor had approached for cost revision of the EPC contract works on 27th Nov. 2012. After thorough cost analysis and negotiations, the revised cost of Rs. 30.30 Crores was agreed upon and in order to ensure the Project works was completed as per the revised schedule and to incorporate some payment terms and conditions, a supplementary agreement was signed. The details of calculation of revised EPC cost of Rs. 30.30 crore is placed at page no. 15.***

***The major reasons for time over run are as below: -***

***(i)*** ***Earth quake measuring 6.9 in Richter which occurred on 18th Sept. 2011***
***(ii)*** ***Major land slide near intake area***
***(iii)*** ***COVID -19 pandemic***
***(iv)*** ***Due to harsh weather condition only 06 to 07 months are favourable time for execution of work.***
***(v)*** ***Harsh weather condition like snow fall and landslides in monsoon period which cuts off the accessibility to the site and also due to frequent damages of road leading to the project site and collapse of bridges.***

***C. The bar chart showing the component wise analysis of the time over run are placed at page no. 262.***

***The major reasons for the time over run are mainly due to the natural calamities and unfavourable weather condition. The epicentre of the earth quake that had occurred on 18th September 2011 was near to the Project site location. Major landslides had occurred near the Intake area of the Project during 17th June 2019 along with ffrequent damages of road leading to the project site and collapse of bridges.***

***The representation made by the EPC Contractor informing about the incident and claims made are submitted in the Petition.***

***The supporting documents qualifying for the Force Majeure are submitted in the Petition. The increase in IDC is mainly due to time over run to complete the Project due to reasons as mentioned above. The breakup details of IDC along with its supporting documents and details of increase/decrease in rate of interest are also submitted.***

The Petitioner also submitted the following as the major reasons that affected the Hard Cost of the Project: -

***The EPC cost of the Project was approved during May 2008 and due to time over run and jump in inflation, the material cost and labour cost also increased drastically. During the award of work order to the EPC Contractor for the works in 2008, VAT and CESS @ 5% was applicable, However, after July 2017, GST was implemented and the GST slab ranges from 18% to 28% depending on the items.***

During the hearings on the matter held by the Commission, the Petitioner submitted the following reasons for delay/time over run and the justifications for tariff of ₹ 5.79 per kWH determined for the Project: -

i. That 3.00 MW Chatten HEP was initially conceived/designed and planned by the then Energy & Power Department, Govt. of Sikkim (Respondent) during the years preceding 2005 and the project was initially owned by the Respondent. Later in the year 2005, the Project was transferred to the Petitioner with the approval of the State Government. The works of the Project with original cost of ₹ 28.91 Crores was tendered by the Respondent in the year 2005 and the 1st EPC contract was executed between the Petitioner and the EPC Contractor on 21st May 2008 for development of the project on turnkey basis.

ii. That the works of the Project were severely hampered and couldn't progress as planned during the year 2008-2011 and 2019 onwards primarily due to the following reasons:

- Contractual issues (mainly on cost escalation)
- Natural calamities (earthquake of 18th September 2011, landslides and collapse of bridge and roads connecting the project site)
- Project located in high altitude and only 6 to 7 months working period available due to harsh weather conditions.
- Lack/paucity of funds and decision of the State Government for stoppage of the project works.
- Differences with the EPC contractor as regards to Project cost escalation.

iii. That attempt was made by the Petitioner to restart the project works in the year 2013 with the approval of the Board of Directors of SPDCL and negotiations were done for arriving at a reasonable and mutually acceptable cost escalation. After detailed negotiations, a Supplementary Agreement was signed with the Contractor by the Petitioner on 24th February 2013, thereby raising the EPC contract value to ₹ 30.30 crores from original cost of ₹ 20.86 crores.

iv. That after signing of the Supplementary Agreement on 24th February 2013, the works of the Project were resumed with a time line of 21 months for completion/commissioning of the Project by the Contractor based on milestones agreed by the parties. However, shortly after resumption of the works, the works of the Project were again held up due to fund paucity and later due to other reasons like landslides, excessive rainfall and Covid 19 pandemic.

v. That the State Government provided a sum of ₹ 10.00 crores in the form of 0 % redeemable Preferential Shares for the Project in February 2018. Thereafter, the State Government constituted a Committee on 19th August 2021 to solve the issues related to the Project and for submission of a report within 45 days by the Committee, to ensure completion of the Project. Based on the report/recommendations submitted by the Committee, the State Government further infused a sum of ₹ 5.00 crores in the Project and approved the final completed cost of the Project at ₹ 55.92 crores (with IDC of ₹ 14.57 crores). Further, the State Government approved an interim tariff of ₹ 4.00 per kWH till the repayment of loan and thereafter ₹ 3.50 per kWH for purchase of power from the Project by the Respondent.

vi. That the Petitioner has made infusion of around ₹ 20.00 Crores equity in the Project from its own sources and the balance cost of the Project has been met from the MNRE subsidy, ₹ 15.00 crores of interest free Redeemable Preferential Shares infused by the State Government and loan from lenders. The delay in Project construction has impacted the completion cost of the project and the IDC.

vii. That the Petitioner has not charged IDC on the ₹ 15.00 crores infused by the State Government and the subsidy amount of ₹ 6.00 crores while working out the tariff. However, the Petitioner has to pay ₹ 15.00 crores to the State Government in the future and as such the repayment will have to be done from the sale of power from the Project only.

viii. That despite all hardships and constraints, the Petitioner has successfully commissioned the Project in June 2022 and the Renewable Energy credits/benefits including RPO benefits from the Project are being availed by the Respondent.

ix. That as on date, due to power evacuation constraints only around 2.5 MW of power from the Project is being evacuated and it will take some time before the full capacity can be injected into the State Grid. As per the PPA signed the responsibility of providing the power evacuation facility rests with the Respondent. However, the Petitioner has kept options open and is exploring alternate ways to evacuate power without taxing the Respondent.

x. That, if the Petitioner is exempted from repayment of ₹ 15.00 crores infused in the project by the State Government, the completion cost of the Project will come down significantly and so will the tariff. In such a scenario, the Petitioner is ready to accept the interim tariff of ₹ 4.00 per kWH and ₹ 3.50 per kWH approved by the State Government. However, as per the present status, the Petitioner has to not only repay ₹ 15.00 crores but also provide dividends to the State Government. Therefore, the interim tariff provided by the State Government will adversely impact the financial state of the Petitioner vis-à-vis the operation of the Project.

xi. That the Petitioner being an undertaking of the State Government, policy decisions of the State Government with regard to local employment, rehabilitation and resettlement, employment to locals etc. are binding on it and as such the Petitioner has engaged members of the project affected families in the Project. In addition, the Petitioner is also liable to pay Cess, Taxes and other applicable charges to the State Government, which further increased the Project cost.

xii. The Petitioner is a State Government owned entity and therefore, it has its own limitations as compared to Private Power Developers. The past financial legacies of 3 MW Chatten HEP was transferred to the Petitioner along with the Project and as such the Petitioner was bound to absorb the financial burden and other complex issues related to the Project. Therefore, the completion cost of the Project and levelized tariff are bound to be higher than those of Private Power Developers.

xiii. That the Petitioner is planning development of some more projects in the future and once the projects are commissioned, it will bring benefits to both the Petitioner and the State by way of sharing of profits/dividends. Therefore, the Petitioner seeks the support of the State Government and the Respondent for providing a business/investment attractive arena with good returns by way of agreeing to cost reflective tariff.

xiv. That the Petitioner has worked out a levelized tariff of ₹ 5.79 per kWH and prays/pleads before the Commission for approval of the same on the following grounds: -

a. The delay in Project completion were due to various contractual issues/disputes with the Contractor and also due to natural calamities beyond the control of the Petitioner.

b. The delay is also attributed to the decision of the State Government to stop the works of the Project at certain intervals.

c. The major reason for increase in the Project cost is due to IDC

d. The Average Power Purchase Cost of the Respondent during 2021-22 is around ₹ 4.17 per kWH and tariffs of thermal power being procured by the Respondent are much higher than the tariff prayed (₹ 5.79 per kWH) by the Petitioner.

e. The CERC generic tariff for the F.Y. 2021-22 is ₹ 5.15 per kWH for small hydro projects below 5 MW for N.E. States and same is more for the F.Y 2022-23 and therefore the tariff proposed by the Petitioner is reasonable and justifiable.

The representatives of the Respondents made the following counter submissions and pleadings before the Commission in the hearings: -

i. The Respondent is facing tremendous financial problems related to power purchase related issues. The Respondent is not able to pay the cost of power purchased and as such frequent notices for power regulation are being received by the Respondent. The Respondent has huge liability towards power purchased especially high-cost thermal power. Taking into account the said financial difficulties, the Respondent has surrendered almost all thermal power purchase and as such it is not possible for the Respondent to buy power from 3 MW Chatten HEP at ₹ 5.79 per kWH as proposed by the Petitioner.

ii. The Respondent is buying power from other three projects of the Petitioner (3 MW Lachung, 2 MW Mangley and 5 MW Rongli HEP) at a uniform rate of ₹ 4.00 per kWH. Therefore, the Department is at the most ready to buy power from 3 MW Chatten HEP at a tariff of ₹ 4.00 per kWH till loan repayment and thereafter at a tariff of ₹ 3.50 per kWH as approved by the State Government.

iii. The tariffs of hydropower being purchased by the Respondent are below ₹ 3.00 per kWH and it is financially not viable for the Respondent to purchase power from 3 MW Chatten HEP at high tariff as proposed by the Petitioner. The tariff for power from other similar hydropower projects (Projects of M/s Hanuman Ganga Pvt Ltd and NEC Power Pvt Ltd) in the State are much lower than that is proposed/prayed by the Petitioner.

iv. The Average Power Purchase Cost of the Respondent of ₹ 4.17 per kWH for F.Y 2021-22 mentioned by the Petitioner includes cost of high-cost thermal power and thermal power is being purchased by the Respondent to meet the base load. Therefore, it is unreasonable for the Petitioner to claim high tariff for 3 MW Chatten HEP.

v. The Petitioner is a State-owned entity and the State Government has provided financial assistance to it to bail it out from financial issues related to the Project. The decision to infuse ₹ 15.00 crores in the Project was to ensure that the Project gets commissioned without further delay due to financial constraints. Therefore, it is not justifiable for the Petitioner to financially tax the State Government by claiming high tariff from the Project. The Respondent is a State Government Department and ultimately the payment for power to be purchased from the Petitioner has to come from the State Government only.

vi. The capital cost of small hydropower project is around ₹ 11.0 to 12.00 crores per MW at present but per MW cost of 3 MW Chatten HEP is more than ₹ 18.00 crores mainly due to delay in completion and increase in IDC. As such it is highly unreasonable for the Petitioner to claim high tariff for the Project. The Petitioner should claim tariff by taking into account its actual investment and the loan component and without considering the investment made by the State Government, which will bring down the Project cost significantly and the tariff will also come down.

vii. The Respondent is dealing with major litigations including the matter related to Arbitration with M/s ATPIL and there is severe financial burden on the State Government. As a consequence, the survival/sustenance of the Respondent is at stake, which will indirectly affect the sustenance of the Petitioner as well. Therefore, the Petitioner should consider not only its own the long-term sustenance but also of the Respondent and proceed in manner that is ultimately beneficial to both, rather than looking for short-term benefits.

viii. The decision either to waive off ₹ 15.00 crores infused in the Project by the State Government or not is a policy decision and same may take considerable time before any decision is taken. The Petitioner and the Respondent may consider jointly approaching the State Government in this regard.

ix. Despite all difficulties and financial constraints, the Respondent has been making efforts to solve the power evacuation constraints related to 3 MW Chatten HEP and provision of some fund has been made in the ensuing financial year for resolving the power evacuation issues.

x. The Respondent has already filed its objections to the tariff proposed by the Petitioner vide its affidavit filed before the Hon'ble Commission on 14.11.2022, vide para 8 of the said affidavit, the Petitioner has already submitted its willingness/ readiness to buy power from the Project at ₹ 4.00 per kWH till loan repayment and thereafter at ₹ 3.50 per kWH as per Cabinet Memorandum No. 150/E&P/GOS/207-18/5473 dated 10.12.2021. Therefore, the Respondent pleads that the tariff so agreed should be adhered to by the Petitioner, duly considering the financial burden on the Respondent/State Government due to ₹ 15.00 crores already infused in the Project.

**Observations/Comments of the Commission on the pleadings/submissions of the Petitioner/Respondent during the hearing held on 17th and 20th January 2023 and on the Objections filed by the Respondent and Responses/Replies furnished by the Petitioner:**

1. The project was transferred to the Petitioner in the year 2005 by the State Government/Power Department and the EPC contract was executed on 21st May 2008. After signing of the Contract, as stated by the Petitioner, the construction works of the project were not taken up as planned mainly due to financial and contractual issues. The Petitioner has stated on record that the Project works resumed only in February 2013, after negotiations with the Contractor and signing of the Supplementary Agreement on 24th February 2013. The value of EPC contract was revised to ₹ 30.30 crores as against the original cost of ₹ 20.86 cores, a hike of ₹ 9.44 crores, which implies that EPC contract value was hiked by 45.25% over a period of 4 years and 10 months.

2. As observed above, the Project works were held up from May 2008 to February 2013 i.e., for over 4 (four) years mainly due financial and contractual issues, which indicates the lack of financial management and planning on the part of the Petitioner and also delay in taking timely action, which led to avoidable time and cost overrun. It is observed that that between the period May 2008 to February 2013, the works of the Project were totally halted and the works resumed only in February 2013 after signing of the Supplementary Agreement for the EPC contract.

3. The Petitioner's pleas and submissions that natural calamity (earthquake of 18th September 2011) caused delay in project implementation is not acceptable. The works of the Project were almost totally halted from May 2008 to February 2013 and therefore attributing the delay on earthquake of September 2011 is not acceptable.
   It is further observed that no tangible efforts were made by the Petitioner to resolve the financial and contractual issues till February 2013 thereby leading to cost and time over run. Although the works of the Project resumed in February 2013, once again the works were halted due to financial constraints and the works remained stalled till 2018. It was only in 2018 when finally, the State Government came to rescue the Project by providing ₹ 10.00 Crores in the form of Redeemable Preferential Shares that resulted in the resumption of the works of the Project.

4. The other reasons cited by the Petitioner are landslides, Covid 19 pandemic, harsh weather conditions and limited working season (6 to 7 months), damages to roads and bridge leading to the project side during rainy season in the year 2019. The Commission observes that even if the delays due to natural calamities are taken into consideration, the total time taken for Project completion (more than 16 years from the date of signing of the first EPC contract in May 2005 to Project COD in June 2022) for a project of small capacity of 3 MW is not justifiable.

   As submitted by the Petitioner, the time over run led not only to drastic increase in the IDC but also inflation in cost of materials/labours etc, apart from increase in VAT, GST and Cess. Due to poor planning and management of finance, delay in taking timely decisions by the

Management/Board of SPDCL (Petitioner) and time over run, the Project invited penal interest and interest on interest from the lenders, which further added to the project cost. Had the Petitioner made proper planning of the funds and had initiated timely actions in anticipation of clearly foreseeable issues, the exorbitant increase in the project completion cost could have been surely avoided.

5. The Petitioner has prayed for approving the levelized tariff for the Project at ₹ 5.79 per kWH and submitted that the CERC Generic Tariffs notified for small hydropower projects below 5 MW for N.E. States are ₹ 5.17 and ₹ 5.23 per kWH for F.Y. 2021-22 and 2022- 2023 respectively.
   The Commission observes that the Capital Cost specified by the CERC for both F.Y 2021-22 and F.Y 2022-23 for arriving at generic tariff of ₹ 5.17 and 5.23 per kWH respectively is ₹ 11.00 crores per MW whereas the Capital Cost incurred by the Petitioner for 3 MW Chatten HEP works out excessively high compared to the CERC norms. Further, the instant project was under implementation since the year 2005 and project should have been commissioned within a reasonable time even after taking into account the Force Majeure conditions claimed by the Petitioner. The time and cost overrun are mainly attributable to lack of proper financial/resource planning and delay in taking timely decisions by the Management/Board of the Petitioner.

   Further, the Petitioner is required to follow the provisions of the standing regulations notified by the Commission i.e. the SSERC (Terms and Conditions for Determination of Tariff for Generation from Renewable Energy Sources) Regulations, 2012 for determining the tariff for the Project. However, the levelized tariff of ₹ 5.79 per kWH has been determined by the Petitioner based on CERC Tariff Regulations, 2019. Further, the Petitioner has tried to justify the tariff of ₹ 5.79 per kWH referring to the CERC generic levelized tariff for F.Y 2021-22 and F.Y 2022-23, which is totally incorrect. The Regulations notified by the Commission is binding on all projects developed in the State and accordingly the Petitioner ought to have based its tariff determination on the standing regulations of the Commission.

6. The poor financial health of Respondent and its failure to make payment for the power being purchased from outside the State is a fact well-known to all. The Respondent being a State Government Department is solely dependent on the State Government for meeting its expenses and therefore ultimately the burden of the expenses will come to the State Government. The submissions of the Respondent that it has surrendered high-cost thermal power and the need for doing so (to lessen the financial burden on the State Exchequer) are facts on record and the prayer/pleading/submission of the Respondent that it is purchasing power from 8 MW Rongnichu HEP at ₹ 2.93 per unit as approved by the Commission is a also fact on record.

7. The interim tariff of ₹ 4.00 per kWH till repayment and thereafter ₹ 3.50 per kWH, approved by the State Government in the Cabinet Memorandum No. 150/E&P/GOS/2017-18/5473 dated 10.12.2021 based on the recommendation made by the Committee constituted by State

Government is only an interim arrangement. The Electricity Act, 2003 (Section 62) has mandated and vested the powers in the State Electricity Regulatory Commission for determining the tariff of electricity for generation, transmission and distribution/supply of electricity.

Further, as per the regulations notified by the Commission as mandated by Electricity Act, 2003, tariff determination for all projects including approval of any Power Purchase Agreement entered between a Generating Licensee and or a Distribution Licensee, in the present case, the Petitioner and the Respondent respectively, has to be approved by the Commission. As such, fixation/determination of electricity tariff is a matter that is within the exclusive jurisdiction of the State Electricity Regulatory Commission.

The Power Purchase Agreement (PPA) entered between the Petitioner and the Respondent on 3rd July 2013 for the instant Project at Clause 6.2 (2) provides that the ***"tariff to be charged & its associated Terms and Conditions for the Net Saleable Energy to be supplied by the Corporation from the State shall be as per the tariff notifications/orders/directions issued/to be issued by Appropriate Commission from time to time".***

Further, the Clause 6.2 (2) of the PPA dated 3rd July 2013 provides that ***"tariff shall be determined by applying the formula/norms provided in the tariff regulations notified by the Appropriate Commission from time to time for hydro project/renewable energy projects as the case may be".*** Clause 6.2 (3) of the PPA further adds that ***"the tariff would be determined based on tariff regulations issued by the State Electricity Regulatory Commission as amended from time to time. In case of absence of any such regulations, tariff regulations issued by the Central Electricity Regulatory Commission is applicable as amended from time to time shall prevail".***

Since, the Commission had already notified the regulations for determination of tariff for generation from renewable energy sources on 11th October 2012 vide State Government Gazette Notification No. 512 and as per Clause 6 of the PPA dated 3rd July 2013, the Commission is the sole authority mandated to determine and approve the tariff for the instant Project. The interim tariff approved by the State Government is only a temporary arrangement and the tariff fixed/approved by the Commission shall be binding on both the Petitioner and the Respondent.

**In view of the above analysis of the Commission, it is noted that**: -

The reasons/justifications submitted by the Petitioner for delay in achieving commercial operation of the Project were not beyond the control of Petitioner and such constraints/obstructions are envisaged/considered while arriving at the Scheduled COD. The total cost overrun on account of all such reasons cannot be considered or allowed to be passed on to the beneficiaries/end consumers of electricity generated and supplied from 3.00 MW Chatten HEP. On the matter of increase in Capital Cost due to delay in achieving COD, Hon'ble Appellate Tribunal for Electricity (APTEL) in its Judgment in Appeal No. 72 of 2010 has held the following:

***"7.4. The delay in execution of a generating project could occur due to following reasons:***

***i)*** ***due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors/suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/suppliers as per the terms of contract, mismanagement of finances, slackness in project management like improper co-ordination between the various contractors, etc.***

***ii)*** ***due to factors beyond the control of the generating company e.g.delay caused due to force majeure like natural calamity or any other reasons which clearly establish, beyond any doubt, that there has been no imprudence on the part of the generating company in executing the project.***

***iii)*** ***situation not covered by (i) & (ii) above. In our opinion in the first case the entire cost due to time over run has to be borne by the generating company. However, the Liquidated Damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company. In the second case the generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/suppliers of the generating company and the insurance proceeds, if any, to reduce the capital cost. In the third case the additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the consumer. It would also be prudent to consider the delay with respect to some benchmarks rather than depending on the provisions of the contract between the generating company and its contractors/suppliers. If the time schedule is taken as per the terms of the contract, this may result in imprudent time schedule not in accordance with good industry practices."***

In the light of the principles laid down by Hon'ble APTEL as reproduced above, the Commission has analyzed the controllable or uncontrollable nature of the reasons for delay submitted by the Petitioner as discussed in the above paragraphs.

Therefore, the reasons for delay are a mix of controllable and uncontrollable factors. In the event of the overlapping period of reasons for delay, the actual delay could not be attributed separately to controllable and uncontrollable factors. The Hon'ble Appellate Tribunal for Electricity (APTEL) in its Judgment dated 27.04.2011 in Appeal

No. 72 of 2010 ruled as under with regards to sharing of impact on account of time overrun due to a mix of controllable and uncontrollable factors: -

***"7.12 In view of above, we feel that this case falls under category (iii) described in para 7.4. Accordingly, following the principles of prudence check laid down by us, the cost of time over run has to be shared equally between the generating company and the consumers. Admittedly, there is no enhancement in cost of the contract price of the equipment as no price variation escalation was permissible to BHEL beyond the schedule date of completion of the Project according to the terms of the agreement. The impact of time over run beyond the contractual schedule is only on IDC and overhead costs. Accordingly, the same have to be shared between the generating company and the consumers. Excess IDC and overhead costs for time overrun from scheduled date of commissioning to actual date of commissioning has to be worked out on pro-rata basis with respect to total actual time taken in commissioning of the unit. 50% of the excess IDC and overhead costs will have to be disallowed. Deduction on account of 50% of the Liquidity Damages received by the Appellant from its suppliers/contractors has also to be allowed from the capital cost, to give due credit for LDs to the consumers. This issue is answered accordingly."***

As discussed above, the reasons for delay in Project are partly controllable and party uncontrollable. However, the exact impact of delay due to controllable and uncontrollable factors is not directly established. Hence, in accordance with the above APTEL Judgment, the Commission has decided to allow 50% increase in IDC on account of delay.

The IDC on accrual date of COD is Rs. 15.47 Crores, which is higher than the total estimated IDC of Rs. 14.57 Crores. Further the actual IDC is inclusive of Rs 44.00 Lakhs towards interest on interest and penal interest of Rs 4.00 lakh up to 2018-19. The Commission cannot allow the burden of poor planning to be passed on to the consumers and therefore the amount of interest on interest and penal interest cannot be considered. Further, the Petitioner is directed to file the actual interest on interest and penal interest up to the COD i.e. 13.06.2022 in the final petition.

Accordingly, in this Order, the Commission has considered 50 % of IDC costs increased from the Scheduled Cost of Rs 2.69 Crores to actual IDC of Rs 15.00 Crores as on COD (13$^{th}$ June, 2022) of the Project i.e. Rs. 6.15 Crores.

**Hence, the IDC allowed in this Order is Rs 8.85 Crore.**

## 2.15 Summary of approved Capital Cost

In line with the various elements of Hard Cost, IDC, Establishment Cost and other charges approved in preceding sections, the approved project cost for 3.00 MW Chatten HEP as on COD vis-à-vis the project cost claimed by the Petitioner is summarized in the following table: -

**Table 6: Capital Cost claimed and Provisionally Approved (Rs. in Lakh)**

| Sl.No | Particular | Claimed Revised Project Cost (December 2021) | Allowed Expenditure as on 13.06.2022 |
|---|---|---|---|
| **I- Works** | | | |
| 1 | A-preliminary | 25.00 | 31.23 |
| 2 | B-Land | 24.92 | 22.66 |
| 3 | **C- works** | | |
| 3a | Environment/Preliminary | 20.50 | 20.50 |
| 3b | Diversion structure | 93.41 | 88.21 |
| 3c | Water conductor | 384.24 | 357.93 |
| 3d | Silt Trap / Desilting Tank / Spillway Channel | 178.61 | 173.28 |
| 3e | Surge shaft | 154.89 | 115.26 |
| 3f | Penstock | 348.57 | 339.8 |
| 3g | Power House & tail Race, Machine foundation | 352.07 | 276.33 |
| 3h | Jhora Training works | 27.02 | 26.92 |
| | **Total of C Work** | **1,559.31** | **1398.23** |
| 4 | K- Building | 88.10 | 80.49 |
| 5 | P-Maintenance | 39.00 | 0.00 |
| 6 | R-Communication | 143.88 | 141.94 |
| 7 | S- Power plant | 1,199.71 | 1075.02 |
| 8 | Escalation | 500.00 | 0.00 |
| | **Total of I- Work** | **3,530.00** | **2695.68** |
| II | Provision for Non-EPC Works | 215.08 | 142.51 |
| III | Taxes/ GST Provision | 340.00 | 171.06 |
| IV | IDC provision | 1,457.00 | 884.79 |
| | **Grand Total** | **5,592.00** | **3947.93** |

## 2.16 Norms for tariff determination

It is observed that the tariff claimed by SPDCL is based on the actual financial and technical parameters of its hydro power plant and also as per the provisions of CERC (Terms and Conditions of the Tariff) Regulations, 2019.

The Commission has specified the principles and methodologies for determination of tariff for small hydel power plants. Therefore, the Commission has determined the tariff considering the prudent norms, in accordance with the provisions of Sikkim State Electricity Regulatory Commission (Terms and Conditions for determination of Tariff for Generation from Renewable Energy Sources) Regulations, 2012.

## 2.17 Means of Finance:

The Petitioner submitted that the expenditure on the Project is to be met by SPDCL with debt equity ratio of 70:30.

The Commission accepts the normative Debt Equity ratio of 70:30. The Commission has considered 30% of Equity after MNRE subsidy and Preference shares.

## 2.18 Normative Operating Parameters:

The Petitioner has submitted the tariff proposal which is based on the following operational norms: -

**Table: Normative Operating Parameters of the Project**

| Description | Units | Normative Parameters |
|---|---|---|
| Target NAPAF for recovery of fixed charges and for incentive | % | 85 |
| Auxiliary Energy Consumption | % | 1 |

**Commission's Analysis:**

The Auxiliary Consumption as per the SSERC R.E. Regulations, 2012 is 1 (one) %. The Commission accepts the Normative Auxiliary Consumption of 1 (one) % as claimed by SPDCL.

## 2.19 Tariff components

The tariff for a small hydel power plant comprises of the following components: -

a) Return on Equity

b) Interest on loan

c) Depreciation;

d) Operation and Maintenance expenses

e) Interest on working capital

f) Other expenses

## 2.20 Return on Equity (RoE)

Regarding Return on Equity, the Petitioner has submitted that:

> *"As per the Regulation 30 of the CERC Tariff Regulations, 2019, Return on Equity shall be computed at the base rate of 16.96% for thermal generating stations, transmission system including communication system and Run of the River Hydro generating station. The Chatten Hydro Electric Project being a Run-of-the-River (ROR) without pondage scheme, the base rate of 16.96% has been taken for computation of return on equity."*

**Commission's Analysis:**
The Commission has computed Return on Equity in accordance with the Regulation 20 of SSERC R.E. Regulations, 2012.

## 2.21 Interest on Loan Capital:

With regards to Interest on Loan Capital, the Petitioner submitted the following:

*Regulation 32 of the CERC Tariff Regulations,2019 provides as under: -*

*"The rate of interest on loan shall be the weighted average Rate of Interest (ROI) calculated on the basis of actual loan portfolio after providing appropriate accounting adjustment for interest capitalized;*
*The Interest on loan shall be calculated on the average normative loan of the year by applying aforesaid weighted average rate of interest.*
*The Petitioner submits that it is liable to pay Interest at the Interest Rate applicable as per the Loan agreement.*
*Depreciation amount for respective period/financial year has been considered as the annual repayment of normative loan for the year."*

**Commission's Analysis:**
The Commission has computed Interest on Loan Capital in accordance with the Regulation 18 of SSERC R.E. Regulations, 2012.

## 2.22 Depreciation

With regards to depreciation, the Petitioner submitted the following: -
*4.3.3 Depreciation*
*The base value for the purpose of computation of Depreciation is the estimated Project Capital cost of Rs. 55.92crore as on anticipated station COD.*
*Depreciation on estimated cost of assets has been calculated based on straight line method over the useful life of the asset, at the rates prescribed under Appendix I- Schedule of depreciation of CERC Tariff Regulations, 2019*

**Commission's Analysis:**

The Commission has computed Depreciation in accordance with the Regulation 19 of SSERC R.E. 2012.

## 2.23 Interest on Working Capital:

With regards to Interest on Working Capital, the Petitioner submitted the following**:**

*4.3.4 Interest on Working Capital:*
*The interest on working capital has been worked out as per the norms prescribed in regulation 34 (c) of the CERC Tariff Regulations, 2019. The following have been considered for determining the base for working capital in a year:*

*Maintenance Spares: This is based on @ 15% of Operation and Maintenance expenses specified in regulation 35(2)(b) of the Tariff Regulations,2019.*

**Commission's Analysis:**

The Commission has computed Interest on Working Capital in accordance with the Regulation 21 of SSERC Renewable Regulations, 2012, as mentioned below:

- Operation & Maintenance expenses for one month is considered.
- Receivables equivalent to 2 (Two) months of energy charges for sale of electricity calculated on the normative Capacity Utilisation Factor (CUF).
- Maintenance spare @ 15% of operation and maintenance expenses is considered.

## 2.24 Operation & Maintenance Expenses:

The Commission has considered the Operation & Maintenance expenses in accordance with the Regulation 22 of SSERC R.E. Regulations, 2012.

## 2.25 Other Miscellaneous Expenses:

- Allow recovery of filing fees of this Petition from the beneficiaries.
- Allow recovery of publication expenses from the beneficiaries incurred with regard to this Petition.
- Allow recovery from the beneficiaries any such tax, cess etc. levied on SPDCL in relation to generation and supply of electricity.

**Commission's Analysis:**

The Commission has considered the Other Miscellaneous Expenses and the same have been included in the O&M expenses on normative basis as per SSERC R.E. Regulations, 2012.

## 2.26 Levelized Tariff

Based on the approved Capital Cost of the Project as discussed above and various operational/ financial parameters as detailed in this Order, the Commission has calculated the tariff for each year of the useful life of the plant i.e. 35 (Thirty Five) years.

The parameters considered by the Commission to determine the levelized tariff for power generated from 3.00 MW Chatten HEP have been summarized in the table below: -

## Table 7: Parameters considered for determination of Provisional Tariff

| S. No. | Assumption Head | Sub-Head | Sub-Head (2) | Unit | Parameter |
|---|---|---|---|---|---|
| 1 | **Power Generation** | Capacity | Installed Power Generation Capacity | MW | 3.00 |
| | | | Capacity Utilization Factor | % | 45.00% |
| | | | Auxiliary Consumption | % | 1.00% |
| | | | Useful Life | Years | 35 |
| 2 | **Project Cost** | Capital Cost/MW | Power Plant Cost | Rs Lakh/MW | 770 |
| | | | Power Plant Cost | Rs Lakh | 3,948.00 |
| | | Debt: Equity | Debt | % | 70% |
| | | | Equity | % | 30% |
| | | | Govt. Grant | Rs Lakh | 540.00 |
| | | | Total Debt Amount | Rs Lakh | 1,510.60 |
| | | | Total Equity Amount | Rs Lakh | 647.40 |
| 3 | **Sources of Fund** | Debt Component | Loan Amount | Rs Lakh | 1,510.60 |
| | | | Loan Outstanding as on 31.03.2022 | Rs Lakh | 869.01 |
| | | | Moratorium Period | years | 0.00 |
| | | | Repayment Period | years | as per dep. |
| | | | Interest Rate | % | 8.95% |
| | | Equity Component | Equity amount | Discount Rate | 647.40 |
| | | | Return on Equity (upto 20/10 years) | % p.a | 20.00% |
| | | | Return on Equity (after 20/10 years) | % p.a | 24.00% |
| | | | Discount Rate | | 12.27% |
| 4 | **Financial Assumptions** | Fiscal Assumptions | Income Tax | % | 20.00% |
| | | | MAT Rate | % | |
| | | Depreciation | Depreciation Rate (Power Plant) | % | 5.83% |
| | | | Depreciation Rate 16th/13 th year onwards | % | 0.87% |
| | **Working Capital** | For Fixed Charges | O&M Charges | Months | 1.00 |
| | | | Maintenance Spare | (% of O&M expenses) | 15.00% |
| | | | Receivables for Debtors | Months | - |
| | | | Interest On Working Capital | % | 10.95% |
| 5 | **Operation & Maintenance** | | O&M Cost of power plant | Rs Lakh/MW | 43.60 |
| | | | Total O & M Expenses Escalation | % | 5.72% |
| 6 | **Generation & Sale of Energy** | | Total No .Of Hours | Hrs | 8,760.00 |

## 2.27 Provisional Levelized Tariff Approved by the Commission

In the absence of audited account for F.Y. 2022-23, based on above approved provisional Capital Cost of Rs. 39.48 Crore as on COD and on the basis of approach/ assumptions discussed in this Order, the Commission determines a **Provisional Levelized Tariff of Rs. 4.90 per kWH** for 3.00 MW Chatten HEP, to be made applicable from the date of COD.

**The Petitioner is required to submit the statement of annual expenditure incurred under various heads of the Project from the date of start of the Project, year wise amount of debt and equity separately infused for the Project from the date of start of the project and the amount of IDC payable from date of start of the project to 31.03.2023 after finalization of accounts and audit of F.Y. 2022-23.**

**The Commission directs the Petitioner to submit the following information along with its Petition for approval of final tariff based on actual audited Capital Cost till COD of Project and as on 31.03.2023.**

- Activity wise Original Schedule agreed with the EPC Contractor.
- Activity wise Actual Schedule.
- Steps taken by the Petitioner to mitigate the delay with supporting documents.
- Complete detailed reasons for package wise delay in completion clearly identifying the impact of delay in completion of the Project on account of each reason.
- Bifurcation of the impact of each reason whether the same is attributable to the Contractor or the Petitioner or due to uncontrollable factor. Whether each reason for delay was within or beyond the control of the Petitioner with supporting documents.
- The Petitioner should also furnish the copies of the correspondence exchanged between the Contractor /Agency and the Petitioner in support of the reasons for delay.
- The Petitioner should also furnish details of Liquidated Damages collected from the EPC Contractor on account of delay, if any.

The Petitioner submitted that it has not charged IDC on ₹ 15.00 crores shares infused by the State Government and the subsidy amount of ₹ 6.00 crores while working out the tariff. However, the Petitioner has to repay ₹ 15.00 crores to the State Government in future and as such the repayment will have to be done from the sale of power from the project only.

Further the Respondent submitted that the decision either to waive off ₹ 15.00 crores infused in the Project or not is a policy decision to be taken by the State Government and same may take considerable time before any decision is taken. In view of the above, the Commission observes that if the State Government provides the aforesaid Rs. 15.00 (Rupees Fifteen) Crores as grant or subsidy or in any other form, which is not repayable by the Petitioner, it will bring down the tariff significantly. Accordingly, the Commission directs the Petitioner and the Respondent to jointly approach the State Government for taking timely decision on the matter.

This Order shall come into force from **13.06.2022** and shall remain effective till revised/ amended by the Commission. The Order shall be uploaded in the official website of Commission and copies to be forwarded to the State Government, the Petitioner and the Respondent.

**Accordingly, the Case No P-01/SPDC/2022 stands disposed off.**

Sd/-

**(K. B. Kunwar)**

**Chairperson**

**Place: Gangtok**

**Date: 13th April 2023**