

**ARUNACHAL PRADESH STATE ELECTRICITY REGULATORY COMMISSION
(APSERC)**

**Determination of Aggregate Revenue Requirement for FY 2019-2020, FY
2020-21 & FY 2021-22**

&

Transmission Charges for FY 2019-2020, FY 2020-21 & FY 2021-22

For

Devi Energies Private Limited

351, Rupa Village & Town PO & PS Rupa, West Kameng District,

Arunachal Pradesh

Issued on 20.12.2019

Arunachal Pradesh State Electricity Regulatory Commission

अरुणाचल प्रदेश राज्य विद्युत नियामकआयोग

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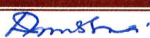
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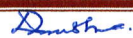

Secretary

Abbreviations

Abbreviation	Description
ACT	Electricity Act, 2003
APSERC	Arunachal Pradesh State Electricity Regulatory Commission
ARR	Annual Revenue Requirement
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
Cr./ Crs	Crore/ Crores
D/E	Debt Equity
DEPL	Devi Energies Private Limited
DPR	Detailed Project Report
DOP, AP	Department of Power, Govt. of Arunachal Pradesh
EPC	Engineering Procurement & Construction
E&M	Electro-Mechanical
FC	Financial Charges
FY	Financial Year
HEP	Hydroelectric Project
IDC	Interest During Construction
kV	Kilovolt
kVA	Kilo Volt Amps
kwh	Kilo Watt Hour
MU	Million Units
MVA	Million Volt Amps
MW	Mega Watt
MYT	Multi Year Tariff


Secretary

O&M	Operation & Maintenance
PGCIL	Power Grid Corporation of India Limited
ROE	Return on Equity
Rs.	Rupees
SS	Sub Station
SBI	State Bank of India
SBI-PLR	State Bank of India- Prime Lending Rate (Short Term)
SBI-MCLR	State Bank of India- Marginal Cost Lending Rate
SERC	State Electricity Regulatory Commission


Secretary

Before

The Arunachal Pradesh State Electricity Regulatory Commission (APSERC)

Itanagar, Arunachal Pradesh

Petition No. TP – 7 of 2018

In the matter of:

Approval of Aggregate Revenue Requirement (ARR) and Transmission Charges for 132 kV Transmission System for power evacuation from 24 MW M/s Devi Energies Private Limited- Dikshi Small Hydro Electric Project during the FY 2019-2020, 2020-2021 and 2021-2022 as per APSERC Multi Year Tariff Regulation- 2018 notified by APSERC/NOTIFICATION/2018 dated 4th October 2018.

AND

M/s Devi Energies Pvt. Ltd. (DEPL)

351, Rupa Village & Town PO & PS Rupa, West Kameng District,

Arunachal Pradesh-----Petitioner

VS

Department of Power (DOP),

Govt. of Arunachal Pradesh, Itanagar -----Respondent

Present:

R. P. Singh, Chairman

ORDER

(Passed on 20/12/2019)

The Commission in exercise of the powers vested in it under section 62 (1) (a) read with Section 62 (3) and Section 64 (3) (a) of the Electricity Act, 2003 and Arunachal Pradesh State Electricity Regulatory Commission (APSERC) Multi Year Tariff Regulations, 2018 and other enabling provisions in this behalf, hereby issues this order, Approval of capital cost of the 132

kV transmission system and determination of Aggregate Revenue Requirement (ARR) and transmission charges for 132 KV Transmission system for power evacuation from 24 MW M/s Devi Energies Private Limited- Dikshi Small Hydro Electric Project to Department of Power, Govt. of Arunachal Pradesh for distribution in the State of Arunachal Pradesh. The relevant Regulation of the Commission requires that the transmission licensee shall file tariff with the Commission for approval of capital cost and fixation of tariff complete in all respects, along with requisite fee as prescribed in the Commission's Fee, Regulations, (1st amendments) 2017. Accordingly, the tariff petition have been filed by the DEPL (the deemed generating company) on 02.12.2018.

This order consists of four chapters, which include detailed analysis of the capital cost, approved transmission charges for FY 2019-2020, 2020-2021 and 2021-2022.

This order shall be effective from COD of 24 MW Dikshi generating plant i.e. 19.09.2019 and shall remain in force for FY 2019-2020, 2020-2021 and 2021-2022.

Date: 20/12/2019

Place: Itanagar



(R. P. SINGH)

Chairperson

1. INTRODUCTION

1.1 ARUNACHAL PRADESH STATE ELECTRICITY REGULATORY COMMISSION

In exercise of the powers conferred by the Electricity Act, 2003, (hereinafter referred to as Act) the Government of Arunachal Pradesh constituted the Electricity Regulatory Commission for the State of Arunachal Pradesh to be known as "Arunachal Pradesh State Electricity Regulatory Commission" (APSERC) as notified on 07.05.2010 (hereinafter referred to as Commission). The Commission so constituted is a one-member body to function as an autonomous authority responsible for regulation of the power sector in the State of Arunachal Pradesh. The powers and functions of the Commission are such as prescribed in the Act. The office of the Commission is presently located at Itanagar, Arunachal Pradesh. The Commission started functioning with effect from 02.03.2011 with the objectives and purposes for which it has been established.

1. In accordance with the provisions of the Act, the Commission discharges the following functions:
 - a) Determines the Tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk, or retail, as the case may be, within the State; provided that where open access has been permitted to a category of consumers under Section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers.
 - b) Regulates Electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State.
 - c) Facilitates Intra-State transmission and wheeling of electricity.
 - d) Issues licenses to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State.
 - e) Promotes co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee.

- f) Adjudicates upon the disputes between the licensees and generating companies; and to refer any dispute for arbitration.
 - g) Levies fee for the purpose of the Act.
 - h) Specifies State Grid Code consistent with the Indian Electricity Grid Code (IEGC) standards specified under clause (h) of sub-section (1) section 79 of EA-2003.
 - i) Specifies and enforce standards with respect to quality, continuity, and reliability of services by licensees.
 - j) Fixes the trading margin in the Intra-State trading of electricity, if considered, necessary.
 - k) Discharges such other functions as may be assigned to it under the EA-2003.
 - l) Under takes promotion of energy efficiency.
- (1) **Further, the Commission also advises the State Government on all or any of the following matters namely:**
- a) Promotion of competition, efficiency, and economy in activities of the electricity industry.
 - b) Promotion of investment in electricity industry.
 - c) Reorganization and restructuring of electricity industry in the State.
 - d) Matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by the State Government.
- (2) **The Commission ensures transparency while exercising its powers and discharging its functions.**
- (3) **In discharge of its functions, the Commission is guided by the National Tariff Policy (NTP) brought out by GOI in compliance with Section 3 of the Act. The objectives of the NTP are to:**
- a) Ensure availability of electricity to consumers at reasonable and competitive rates.
 - b) Ensure financial viability of the sector and attract investments.
 - c) Promote transparency, consistency, and predictability in regulatory approaches across jurisdictions and minimize perceptions of regulatory risks.
 - d) Promote competition, efficiency in operation and improvement in quality of supply.
- (4) **The Commission has so far notified the following Regulations to facilitate its functioning.**
- 1. State Advisory Committee (SAC) Notification – 2011.
 - 2. Conduct of Business Regulations- 2011.

3. Redressal of Grievances and Ombudsman Regulations – 2011.
4. Fee Regulations-2011.
5. Grant of Intra State Trading License Regulations-2011.
6. Terms and Conditions for Determining of Tariff and Formats for Tariff Filing Regulations – 2011.
7. Renewable Power Purchase Obligations and its Compliance Regulations 2012.(Repealed).
8. Renewable Power Purchase Obligation And Its Compliance Regulations – 2012.
9. Redressal of Grievances & Ombudsman Regulation (1st Amendment) – 2012.
10. State Grid Code Regulations – 2012.
11. Terms and Conditions of Intra-State Open Access Regulations-2012.
12. Electricity Supply Code Regulation-2013.
13. Reconstitution of the State Advisory Committee-2013.
14. Multi Year Tariff Regulation – 2013.
15. Service Conditions of Staff Regulations-2015.
16. Consumer Grievances Redressal Forum and Ombudsman Regulation,2015.
17. Standards of Performance for the Distribution Licensee Regulation-2016.
18. Renewable Power Purchase Obligation and its Compliance Regulation (1stAmendment) 2016.
19. Renewable Power Purchase Obligation and its Compliance Regulation (2ndAmendment) 2016.
20. Rooftop Solar Grid Interactive Based on Net Metering Regulation -2016.
21. Appointment of Consultants Regulations-2017.
22. Terms and Conditions for Tariff Determination from Renewable Energy Sources Regulation - 2012 (1stAmendment) 2017(Repealed).
23. Payment of Fees Regulation (1st Amendment) 2017.
24. Procedure, Terms and Conditions for grant of Transmission Licence and other related matters Regulations,2017.
25. Terms and Conditions for Tariff Determination from Renewable Energy Sources Regulations-2018.
26. Appointment of Consultants Regulations, 2018.
27. State Grid Code Regulations, 2018.

28. Service Conditions of Staff Regulations, 2018.
29. Consumer Grievances Redressal Forum and Ombudsman Regulations (First Amendment)-2018.
30. Multi Year Tariff Regulations-2018.

1.2 ARUNACHAL PRADESH - GEOGRAPHICAL REALITY

The total area of the State of Arunachal Pradesh is 83573 sq.kms. The State is having a population of around 13.82 Lakhs (2011 Census). The State of Arunachal Pradesh is bounded by Assam in South, Bhutan in West, China in North, and Nagaland and Myanmar in East. It's Capital, Itanagar is about 380 kms. from Guwahati.

1.3 DEVI ENERGIES PRIVATE LIMITED (DEPL)

Devi Energies Private Limited is a company having registered office at Rupa village & Town PO & PS Rupa, West Kameng District, Arunachal Pradesh is specialized in development of Hydroelectric Power projects.

Devi Energies Private Limited entered into Memorandum of Agreement (MoA) with Government of Arunachal Pradesh on 11.03.2011 for execution of Dikshi SHEP (24MW) on BOOT basis. Dikshi Small Hydro Electric Project (24 MW) located in West Kameng district of Arunachal Pradesh, envisages utilization of waters of the river Phudung, a tributary of Tenga river. The project envisages utilization of 24.16 cumec discharge and maximum gross head of 121 m (Net head 113.53 m) corresponding to an installed capacity of 24 MW.

Initially the power evacuation was planned by connecting the project with 132 kV sub-station at Bomdila, but in due course, due to state's inability to provide connectivity near Bomdila, the developer had to look for other available options. The existing 132 kV line from Balipara to Khupi was the only available option. The petitioner therefore obtain the Letter of Comfort for transmission connectivity on 22.02.2016 to connect to the existing 132 kV line from Bhalipara - Khuppi at an intermediate location close to transmission line alignment for Dikshi SHEP. The transmission license was awarded to DEPL on 12.07.2018 for 132 kV transmission system.

Devi Energies Private Limited has successfully Commissioned 24 MW Dikshi SHEP on 19.09.2019.

1.4 TARIFF PETITION: FILING

Devi Energies Private Limited has filed the tariff Petition dated 02.12.2018 for 132 kV Transmission system for power evacuation from 24 MW M/s Devi Energies Private Limited- Dikshi Small Hydro Electric Project during the FY 2019-2020, 2020-2021 and 2021-2022 as per Multi Year Tariff Regulation- 2018 notified by APSERC/NOTIFICATION/2018 dated 04.10.2018.

In the petition, DEPL has proposed following as Annual transmission charges as Rs. 795.13 Lakhs, Rs 1465.43 Lakhs and Rs 1429.10 Lakhs for FY 2019-2020, 2020-2021 and 2021-2022 based on cost of project of Rs 6170.07 Lakhs and net energy transfer 93.66 MUs.

1.5 ADMISSION OF PETITION AND PUBLIC HEARING PROCESS

The Commission observed that:

- (1) The Petition was submitted in line with APSERC Multi Year Tariff Regulation -2018 dated 04.10.2018.
- (2) The Petitioner has deposited the requisite Petition fee in line with Schedule of the Fees prescribed under the Commission's Fee Regulations 1st Amendment 2017, No. APSERC/NOTIFICATION/24/2017 dated 31.03.2017.
- (3) The Petition filed by the Petitioner lacked in many requisite data. The Commission however admitted the Petition on 18.12.2018 and numbered it as Petition no 7 of 2018 in line with Regulation 16(13) "Presentation, Scrutiny and Admission of the Petitions" of the Arunachal Pradesh State Electricity Regulatory Commission (Conduct of Business Regulations 2011).

2. PETITION'S SUMMARY FOR APPROVAL OF CAPITAL COST & TARIFF DETERMINATION

2.1 BACKGROUND

The DEPL has filed the tariff petition for 132 kV Transmission system for power evacuation from 24 MW M/s Devi Energies Private Limited- Dikshi Small Hydro Electric Project during the FY 2019-2020, 2020-2021 and 2021-2022 as per Multi Year Tariff Regulation- 2018 along with it has submitted the details of various expenses that constitute the fixed cost for determination of Annual transmission charges. The details are given in the following paras in this chapter.

2.2 CAPITAL COST - PETITIONER'S SUBMISSION

The Petitioner submitted the Capital cost of the 132 kV transmission system as per regulation 4.3 of APSERC Multi Year Tariff Regulations, 2018.

The Petitioner has submitted capital cost of Rs 7521.77 Lakhs including Interest during construction and financing charges till Date of Commercial Operation (COD).

2.3 INTEREST ON LOAN-PETITIONER'S SUBMISSION

The Petitioner submitted Project cost of the transmission system has been funded by the Financial Institutes. The loan sanctioned was combined for 24 MW Dikshi SHEP and 132 kV transmission system. The total amount works out to be Rs. 4319.05 Lakhs for transmission system. In view of the above, interest on loan has been claimed. DEPL submits that it will claim interest on loan in accordance with the regulation 4.8 of APSERC Multi Year Regulation, 2018.

The following parameters are considered.

1. Loan amount: - 70 % of the project cost
2. Rate of interest:- 11.75 %

The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the licensee.

Table 1: Interest on loan

Particular	FY 2019-20	FY 2020-21	FY 2021-22

Interest on Loan (Rs Lakhs)	321.59	572.23	527.15
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2.4 DEPRECIATION- PETITIONER'S SUBMISSION

The Petitioner has submitted that depreciation for the project has been calculated annually based on Straight Line Method and at rates specified in Appendix- I of APERC Multi Year Tariff Regulations, 2018. Salvage value has been considered as 10%.

Table 2: Depreciation

Particular	Total assets	FY 19-20	FY 20-21	FY 21-22
Transmission system (Rs Lakhs)	5918.93	203.36	383.66	383.66

2.5 RETURN ON EQUITY (ROE) - PETITIONER'S SUBMISSION

The Petitioner submitted ROE as per provision under Regulation 4.6 of APERC Multi Year Tariff Regulations, 2018 considered @ 14% per annum.

The equity for the purpose of calculation of ROE has been computed as per Regulation 4.2 of APERC RE Regulations, 2018.

Table 3: Return of Equity

(Rs in Lakhs)

S.No.	Particulars	FY 19-20	FY 20-21	FY 21-22
1	Actual return on equity at the beginning of the year (COD)	0.00	2256.53	2256.53
2	Net capitalization	7521.77	0	0
3	Equity portion of capitalization @ 30%	2256.53	0	0
4	Equity at the end of year	2256.53	2256.53	2256.53
5	Average Equity	1196.08	2256.53	2256.53
6	Normative equity @ 30%	1196.08	2256.53	2256.53

7	Return on equity at the beginning of the year	0.00	315.91	315.91
8	Return on equity portion of capitalization	167.45	0	0
9	Total Return on equity	167.45	315.91	315.91

Accordingly, Debt-Equity ratio of 70:30 has been considered as per Regulation 4.2 of APSERC Multi Year Tariff Regulations, 2018 for determination of tariff.

2.6 O&M EXPENSES – PETITIONER’S SUBMISSION

The Petitioner submitted O&M expenses as per regulation 4.10 of APSERC Multi Year Tariff Regulations, 2018. As regulation does not specify any normative O&M expenses, petitioner has considered the O&M expense for FY 2018-2019 according to CERC Tariff Regulation 2019 with annual escalation @ 5.72%.

Table 4: O&M Expenses

(Rs in Lakhs)

Particular	Length	FY 19-20	FY 20-21	FY 21-22
Single circuit single conductor	10.5 Km	1.36	2.70	2.85
Double circuit single conductor	21.5 Km	4.18	8.31	8.79
132 kV Bay	4 Nos.	77.23	153.61	162.40
Total		82.77	164.63	174.04

2.7 INTEREST ON WORKING CAPITAL - PETITIONER’S SUBMISSION

The Petitioner submitted interest on Working Capital as per regulation 4.11 of APSERC Multi Year Tariff Regulations, 2018. Interest @ 13.45 % per annum on working capital has been considered with SBI’s benchmark prime lending rate (BPLR) as basis.

1. Operation & Maintenance expenses for one month.
2. Receivables equivalent to 1 months of fixed cost.
3. Maintenance spares @ 1% of capital cost with @ 6% annual escalation.

Table 5: Interest on Working Capital

(Rs in Lakhs)

Particular	FY 19-20	FY 20-21	FY 21-22
Operation & Maintenance expenses for one month.	6.90	13.72	14.50

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Secretary

Receivables equivalent to 1 months of fixed cost.	75.22	79.73	84.51
Maintenance spares @ 1% of capital cost with @ 6% annual escalation.	66.26	122.12	119.09
Interest rate	13.45%	13.45%	13.45%
Interest on working capital	19.96	28.99	29.34

2.8 ANNUAL REVENUE REQUIREMENT CLAIMED - PETITIONER'S SUBMISSION

Summary of Petitioner claim is provided in Annexure-A

2.9 INDICATIVE ANNUAL TRANSMISSION CHARGES - PETITIONER'S SUBMISSION

Table 6: Annual Transmission Charges

	FY19-20	FY 21-21	FY21-22
Net Annual Transmission Charges (Rs Lakhs)	795.13	1465.43	1429.10

*For 1st year part tariff is claimed.

2.10 PETITIONER'S PRAYER

The Petitioner requested the Commission to:

1. Approve the capital cost of the transmission system.
2. Approve the proposed Annual Revenue Requirement (ARR) for FY 2019-20, FY 2020-21 and FY 2021-22.
3. Approve the proposed transmission charges for FY 2019-20, FY 2020-21 and FY 2021-22.

3. COMMISSION ANALYSIS: APPROVAL OF CAPITAL COST & TARIFF

3.1 GENERAL

DEPL has filed the petition dated 02.12.2018 for determination of Aggregate Revenue Requirement and Annual transmission charges of 132 kV Transmission system for power evacuation from 24 MW M/s Devi Energies Private Limited- Dikshi Small Hydro Electric Project during the FY 2019-20, FY 2020-21 and FY 2021-22 as per Multi Year Tariff Regulation- 2018.

The petition was published in abridged form on dated 23.03.2019 in local newspapers and also placed on Commission's website for public response and suggestions. The Commission did not receive any comments/suggestions so far.

The Commission has found discrepancies in the data provided and asked for the clarification and additional documents during the scrutiny for approval of capital cost and Annual determination.

In the meantime, the petitioner had requested the Commission for the grant of provisional tariff till all the documents/ information are furnished. The Commission has granted provisional tariff vide order dated 04.10.2019 based on records/ information available with it. The Commission has allowed 70% of the first year claimed annual charges from the date of commercial operation i.e. 19.09.2019.

The petitioner has submitted additional data and confirmed the commercial date of operation to be 19.09.2019 vide letter DELP/SERC-D/2019-20/17 dated 04.10.2019.

On 19.11.2019 hearing was held in the Commission court room where members of Devi Energies were present.

The respondent, Department of power Vide letter no. CEP/WEZ/ COM3(4)/2019-20/7092-96 dated 15.11.2019 has requested Commission to extend the date of hearing due to absence of documents with them.

As per the request made by respondent, the Commission has decided for next hearing and fixed the next date of hearing on 11.12.2019. The Commission also directed

Respondent that no further extension of dates shall be allowed and suo-motu order will be issued.

The Commission has approved capital cost and determined Aggregate Revenue Requirement & Annual transmission charges as per APSERC Multi Year Tariff Regulation, 2018 as amended time to time after detailed scrutiny and considering reasonable, logical, acceptable facts presented by petitioner.

3.2 ASSUMPTIONS FOR TARIFF PETITION ANALYSIS.

The Commission considered the following assumption for tariff analysis.

Table 7: The Assumptions considered for Tariff Petition Analysis

S.No.	Particulars	Unit	Value	Remarks
1	Salvage value	%	10	As per APSERC MYT Regulation 2018
2	RoE	%	14	As per APSERC MYT Regulation 2018 and gross up post tax @ 20.46%
3	Interest on working capital	%	11.91	350 base point above SBI MCLR As per APSERC MYT Regulation 2018
4	Interest on Loan	%	11.75	Weighted average rate of interest as per APSERC MYT Regulation 2018
5	Spares (% of capital cost with annual escalation 6%)	%	15	As per APSERC MYT Regulation 2018
6	O&M expenses	Months	1	As per APSERC MYT Regulation 2018
7	Receivables	Months	2	As per APSERC MYT Regulation 2018
8	Debt	%	70	As per APSERC MYT Regulation 2018
9	Equity	%	30	As per APSERC MYT Regulation 2018

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Secretary

3.3 CAPITAL COST – COMMISSION ANALYSIS

The Petitioner has taken the capital expenditure on the project as Rs. 75.21 Crores on the date of commercial operation, i.e., 19.09.2019 which has been supported by the certificate of the Chartered Accountant dated 28.10.2019 for audited actual expenditure.

The details of capital expenditure is as follows:

Table 8 : Detailed Capital Expenditure Claimed

Sl. No.	Items	COD Cost (Rs Crores)
A.	TRANSMISSION LINE	
1	Preliminary works (ROW compensation)	4.83
2	Transmission Line works	34.19
		-
B.	SUBSTATIONS	-
1	Preliminary works - land	0.41
2	Civil Works, Buildings, Roads etc.,	5.72
3	Substation Equipment	7.02
		-
C.	Communication System	-
1	Preliminary Works	-
2	Communication System equipment's	1.25
		-
D.	TAXES & DUTIES*	-
1	Transmission line	2.52
2	Sub-Station	1.31
3	Communication System	0.25
		-
E.	Construction and Pre-Commissioning	1.49
F.	Overheads	4.59
	Total Cost without IDC and FC	63.58
H.	IDC and FC	-
1	Interest During Construction (IDC)	11.36
2	Financing Charges (FC)	0.23
I.	Total Capital Cost including IDC & FC	75.21

The Commission before going for detail scrutiny has noted and found appropriate to highlight that the carrying capacity of the said 132 kV transmission system is substantially

underutilized which is presently only used to evacuate 24MW power of Dikshi HEP. Hence, the balance capacity of the said constructed 132kV Transmission system can further be utilized for any upcoming power projects in the vicinity and also for transmission and distribution of power in that region (Bomdila, Dirang and Tawang etc.) of Arunachal Pradesh for an efficient optimum use of the line.

M/s Devi Energies private limited has submitted technical data (Other than PGCIL DPR) for approval and got it approved on 22.09.2017. M/s Devi Energies Private Limited has not submitted cost estimates for the approval. There was no such direction in the letter of comfort for transmission line or in the permission from Commissioner (power) Government of Arunachal Pradesh. D/C tower design for S/c line (10.5 km) is approved by Chief Engineer DOP, Arunachal Pradesh. The system was constructed as DOP was not able to provide evacuation system for the 24 MW Dikshi SHEP on time. Project was monitored by Chief Engineer (Monitoring) through AE, Civil- DHPD and work was stated satisfactory. Route alignment report is not included in petition only topo sheet has been provided. A solar system (25 kW as per Purchase order) for back up is setup. There will be cost benefit in operating expense because of this system of which details are not submitted. Actual payment rates have been increased even though basic rates in the tender awarded was firm. Also BOQ quantities of excavation and local transportation has huge increase.

Petitioner during the hearing and through his letters for clarification on comments raised by the Commission, informed that the interconnection facilities were in his scope as per the MOA with GoAP on 11.03.2011. The developer as per the MOA, said that initially a 132 kV bay substation near Bomdila connecting proposed 132 kV line being developed by APDOP from Khupi to Tawang was allotted to this project for evacuation of power. The development of this transmission line by APDOP was subsequently abandoned due to various issues, which came as a major bottleneck in development of power evacuation system. To overcome this bottleneck i.e non-availability of evacuation system the company obtained a letter of comfort /permission for connectivity at the existing 132 kV line from Balipara to Khupi at a suitable intermediate location close to the existing transmission line. The total length of this proposed line from the Dikshi power house was 32km and necessary letter of comfort was issued to the developer by DOP in June 2016

a 32 km line out of which 10.5 km of single circuit and 21.5 km double circuit along with a switching station at Tenga. The developer stressed the capacity of the proposed transmission was certainly above his requirement but was built to cater to the future requirements of the state (for having the larger perspective and not restricted to the specific project) and with the consent of Department of Power. Therefore, the petitioner submitted that the ARR, tariff determination must not be linked with the requirement of the project alone, and the developer's plea in the petition should be allowed. The developer elaborated the reasons for high cost compared to the average of the other regions to the difficulties of Northeast and Arunachal Pradesh in particular to following factors:

1. Sourcing cost of transmission material and transportation cost;
2. Since most of the material were brought from outside they incurred additional duties and taxes. He further added that there was a delay of 17 months (originally the line were to be Commissioned in March 2018) in Commissioning of line was because of following reasons:
 - i. Force Majeure events viz., flash floods during October 2016, May 2017 and June 2017 & major landslide at switchyard area during April 2018 and frequent closure of roads due to landslides by District Administration.
 - ii. However, floods did not directly hit schedules, the heavy & incessant rains causing landslides and interruptions are the reasons for delay in transmission line.
 - iii. Delay in grant of clearance from NEEPCO to DOP for allowing connectivity for 132-kV Dikshi-Tenga-Nechipu line to connect to NEEPCO line. Though transmission line and switching station were ready for synchronization and Commissioning by 1st week of May 2019, permission for connectivity to NEEPCO line has been accorded in last week of Aug'19.

The CE/Transmission DoP during the hearing submitted that the charges sought by the developer are very high and they would be willing to accept the charges as are applicable on the transmission of power from PGCIL.

SE/Transmission raised the issue of Letter of Comfort dt 13.12.2013 which placed the construction of transmission line upto the switching station i.e. 10.5 km from power house to Tenga in the scope of project development and not in the transmission system.

The developer however clarified that the Letter of Comfort dt.22.02.2016 modified the scope as mentioned at Clause 10.This implies the entire line shall be in the scope of transmission facility.

The Commission after considering the petitioner's submissions, briefing during hearing and respondent's submissions has approved the capital cost of the 132 kV transmission system as Rs 50.7 Crores without IDC and FC on following basis:

1. The acceptable payment for 132 kV transmission line are based on lowest of the three, namely, the contract rate, the rate accessed by PGCIL in their DPR and the actual executed rates as submitted by the petitioner subjected to the same being reasonable in our assessment.
2. Expenditure claimed by the petitioner on benching and transportation cost for erection of tower were found high and have been restricted based on a reasonable assessment (both of quantities and rates).
3. In switching station, cost of solar power claimed (Rs 57 Lacs) is more than the cost mentioned in the EPC order (Rs 31 Lacs). EPC ordered cost has been accepted.
4. Commission found all other expenses claimed by petitioner for switching station reasonable and acceptable.

The detailed costing of 132 kV transmission line is tabulated at Annexure-B.

3.3.1 TIME OVERRUN- COMMISSION ANALYSIS

As per documents submitted construction activity started in May 2016 (Pre-construction) but zero date has been accepted as the date of agreement i.e. June 2016. However the petitioner has submitted vide his petition dated 02.12.2018 the scheduled completion as March 2018 i.e. 22 months as construction period. This construction period is acceptable.

But actual completion took place in 1st week of May 2019. Thus, a delay of 13 months occurred in construction. Additional delay of 4 months has been claimed for obtaining connectivity approval.

After considering the reasons given during the scrutiny of petition and hearing dated 11.12.2019, Commission finds the reasons given as justified and acceptable for gross time overrun of 17 months. These reasons given are:

1. Work stoppage in 2016 monsoon season- A period of 3 months is allowed considering road blocks, landslides etc.
2. Work stoppage in 2017 monsoon season- A period of 3 months is allowed considering road blocks, landslides etc.
3. Work stoppage in 2018 Land slide in switchyard area- A period of 1 months is allowed.
4. Work stoppage in 2018 monsoon season- A period of 3 months is allowed considering road blocks, landslide etc.
5. Delay in connectivity approval- A period of 4 months is allowed.
6. Construction of towers on hill slopes away from the road due to social and defence movement concerns (on construction of towers along the road) - A period of 3 months is allowed.
7. Thus, Commission does not find any ground for penalizing developer on ground of time over run.

3.3.2 FINANCING CHARGES (FC) - COMMISSION ANALYSIS

Combined loan was taken for HEP and Transmission system. FC charges for entire loan is Rs. 186.29 Lakhs or Rs 1.86 Crores. Thus Rs 1.86 Crores is apportion between HEP & Transmission. The FC for the transmission system of Rs 0.23 Crores as claimed by petitioner is accepted.

3.3.3 INTEREST DURING CONSTRUCTION- COMMISSION ANALYSIS


1. Actual IDC is calculated on prorata basis as combined loan is disbursed for the HEP and transmission.
2. IDC claimed till March 2018- Rs 1.65 Crores.
3. IDC claimed from April 2018 to Dec 2018- Rs 5.90 Crores.
4. IDC claimed from Jan 2019 till COD- Rs 3.81 Crores.
5. Total IDC is Rs 11.36 Crores.
6. IDC acceptable is Rs 9.05 Crores (79.4% of IDC claimed- percentage of the hard cost Rs 50.7 Crores accepted).

7. The IDC accepted by Commission has been restricted to the hard cost admitted and not as claimed.

3.3.4 DETAIL OF CAPITAL EXPENDITURE APPROVED IS AS FOLLOWS:

Table 9: Detail of Capital Expenditure Approved

Sl. No.	Items	COD Cost (Rs Crores)	Cost allowed to petitioner (Rs Crores)	Remarks
A.	TRANSMISSION LINE			
1	Preliminary works (ROW compensation)	4.83	4.83	As per Actual records submitted
2	Transmission Line works	34.19	26.91	As per Annexure B
B.	SUBSTATIONS	-		
1	Preliminary works - land	0.41	0.41	As per Actual records submitted
2	Civil Works, Buildings, Roads etc.,	5.72	5.72	Actual
3	Substation Equipment	7.02	6.75	Solar cost is allowed as per Purchase order and not as claimed. Considering tax as cost claimed in BOQ (including taxes) comes out approximately to the claimed cost of Rs.7.02 after considering cost overheads and construction & Pre-Commission cost claimed in separate heads. Further cost cannot be allowed as as cost claimed lacks details.
C.	Communication System	-		
1	Preliminary Works	-		
2	Communication System equipment's	1.25	-	Included at A2
D.	TAXES & DUTIES*	-		
1	Transmission line	2.52	-	Included at A2
2	Sub-Station	1.31	-	Included at B2
3	Communication System	0.25	-	Included at A2
E.	Construction and Pre-Commissioning	1.49	1.49	Actual
F.	Overheads	4.59	4.59	Actual
	Total Cost without IDC and FC	63.58	50.7	
H.	IDC and FC	-		
1	Interest During Construction (IDC)	11.36	9.05	As per para 11.4
2	Financing Charges (FC)	0.23	0.23	Actual
I.	Total Capital cost including IDC & FC	75.21	59.98	


Secretary

3.4 DEPRECIATION - COMMISSION ANALYSIS

The Commission has considered depreciation as per straight-line method described in the APSERC MYT Regulation, 2018. Salvage value is considered as 10 %. Depreciation amount is calculated on pro-rata basis of the amount claimed by the petitioner with the view of capital cost accepted by Commission against the capital cost claimed. The seven months has been considered in the first year for calculation of depreciation amount. The depreciation allowed for FY 19-20, FY 20-21 & FY 21-22 is as follows:

Table 10 : Depreciation- Commission Analysis

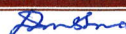
Depreciation(In Crores)	1.76	3.02	3.02
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3.5 O&M EXPENSES – COMMISSION ANALYSIS

Transmission asset's Operation and Maintenance expenses are considered as per CERC Tariff Regulation 2019-2024 as APSERC MYT Regulation, 2018 does not specify any normative O&M expense. For FY 2019-20 only 7 months are considered. The O&M expenses allowed for FY 2019-20, FY 2020-21 & FY 2021-22 is as follows:

Table 11: O & M Expense-Commission Analysis

Sl. No.	Particular	MYT Control Period (Rs Crores)		
		FY 2019-20	FY 2020-21	FY 2021-22
		Opening	Opening	Opening
1	Ckt. Km. Basis			
a	Ckt km length			
	132 KV S/C-10.5 Km	0.00147	0.00260	0.00270
	132 KV D/C-21.5 Km	0.002199167	0.00391	0.00404
	Total	0.062717083	0.111365	0.11521
A	Sub-total	0.0627171	0.111365	0.11521
2	Bay basis			
d	Number of Bays			
	-132 kV- 4 bays	0.0938	0.1664	0.1723
	Total	0.3752	0.67	0.69
B	Sub-total	0.3752	0.67	0.69
C	Total (A+B) (In Crores)	0.438	0.777	0.804


Secretary

3.6 RETURN ON EQUITY – COMMISSION ANALYSIS

DEPL has submitted the ROE considering normative capital cost and Debt: Equity ratio as 70:30, that comes out to be:

Total Project Cost (Rs Crores)	75.21
Equity @ 30% (Rs Crores)	22.56
Debt @ 70% (Rs Crores)	52.65

The Commission however allowed the ROE as per the capital cost allowed i.e Rs 59.98 Crores, that comes out to be:

Total Project Cost (Rs Crores)	59.98
Equity @ 30% (Rs Crores)	17.99
Debt @ 70% (Rs Crores)	41.98

The Commission has not considered any addition of equity for capitalized works, and therefore, approved the Return on Equity in accordance with MYT Regulation, 2018 @ 17.60% (considering MAT as on 1st April 2018). The seven months has been considered in the first year for calculation of ROE amount. The ROE expenses allowed for FY 19-20, FY 20-21 & FY 21-22 is as follows:

Table 12: ROE- Commission Analysis

SL. No.	Particulars	Legend	MYT Control Period (Rs Crores)		
			FY 19-20 Projected	FY 20-21 Projected	FY 21-22 Projected
1	Regulatory Equity at the beginning of the year	A	17.994	17.994	17.994
2	Capitalisation during the year	B	0	0	0
3	Equity portion of capitalisation during the year	C	0	0	0
4	Reduction in Equity Capital on account of retirement / replacement of assets	D	0	0	0
5	Regulatory Equity at the end of the year	E=A+C-D	17.994	17.994	17.994
	Return on Equity Computation				

6	Return on Regulatory Equity at the beginning of the year	F	3.17	3.17	3.17
7	Return on Regulatory Equity addition during the year	$G=(C-D)/2$	0	0	0
8	Total Return on Equity (In Crores)		1.85	3.17	3.17

3.7 INTEREST ON LOAN CAPITAL – COMMISSION ANALYSIS

The Commission has considered following norms as per the APSERC RE regulation 2018 for computation of interest on loan capital:

1. Loan amount: 70% of the project cost
2. Rate of Interest : 11.75 %

The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the licensee.

The seven months has been considered in the first year for calculation of Interest on loan amount. The interest on loan expenses allowed for FY 2019-20, FY 2020-21 & FY 2021-22 is as follows:

Table 13: Interest on Loan- Commission Analysis

Sl. No.	Source of Loan	MYT Control Period (Rs Crores)		
		FY 2019-20	FY 2020-21	FY 2021-22
		Projected	Projected	Projected
1	Opening Balance of Normative Loan	41.986	40.102	36.872
2	Less: Reduction of Normative Loan due to retirement or replacement of assets	0	0	0
3	Addition of Normative Loan due to capitalisation during the year	0	0	0
4	Repayment of Normative loan during the year	1.884	3.230	3.230
5	Closing Balance of Normative Loan	40.102	36.872	33.643
6	Average Balance of Normative Loan	41.04	38.49	35.26
7	Weighted average Rate of Interest on actual Loans (%)	11.75%	11.75%	11.75%
8	Interest Expenses	2.81	4.52	4.14


Secretary

9	Finance Charges (taken in capital cost)	0	0	0
10	Total Interest & Finance Charges (In Crores)	2.81	4.52	4.14

3.8 INTEREST ON WORKING CAPITAL – COMMISSION ANALYSIS

The Commission has computed Interest on working capital as per APSERC MYT Regulations, 2018 according to which the working capital for SHPs would be sum total of

1. Operation & Maintenance expenses for one month.
2. Receivables equivalent to 2 months of fixed cost.
3. Maintenance spares @ 1% of capital cost with @ 6% annual escalation.

Interest on Working Capital shall be at interest rate equivalent to the normative interest rate of three hundred (350) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months for the determination of tariff.

The seven months has been considered in the first year for calculation of Interest on working capital amount. The interest on working capital allowed for FY 2019-20, FY 2020-21 & FY 2021-22 is as follows:

Table 14: Interest on Working Capital - Commission Analysis

Sr. No.	Particulars	Norms	MYT Control Period (Rs Crores)		
			FY 2019-20	FY 2020-21	FY 2021-22
1	O&M expenses - 1 Month		0.0365	0.0647	0.0670
2	Maintenance Spares - 1 % @ 6% escalation		0.5998	0.6358	0.6739
3	Receivables- 2 months		1.1646	1.9680	1.9090
4	Less: Amount of Security Deposit from Transmission System Users		0	0	0
5	Total Working Capital requirement		1.8009	2.6686	2.6500
6	Computation of working capital interest				
7	Interest Rate (%)	11.91%			
8	Interest on Working Capital (In Crores)		0.125	0.318	0.316

4. AGGREGATE REVENUE REQUIREMENT (ARR) - COMMISSION'S ANALYSIS

The detailed aggregate revenue requirement (ARR) accepted by Commission is attached as Annexure C.

4.1. ANNUAL TRANSMISSION CHARGES- COMMISSION'S ANALYSIS

After considering all the parameters ARR for Transmission System Commission allowed following Annual Transmission Charges for FY 2019-20, FY 2020-21 & FY 2021-22

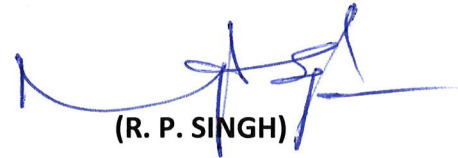
Table 15: Annual Transmission Charges- Commission Analysis

Sl. No	Particulars	MYT Control Period (Rs Crores)		
		FY 2019-20	FY 2020-21	FY 2021-22
		Projected	Projected	Projected
1	Annual Transmission Charges (In Crores)	6.99	11.81	11.45

- The charges allowed in this order shall be applicable from the date of commercial operations of the transmission system.
- The charges allowed in the provisional order shall be subject to adjustment.
- This order disposed of petition no 7 of 2018

Date: 20/12/2019

Place: Itanagar


(R. P. SINGH)

Chairperson

5. Annexures

Annexure A

Rs in Lakh

Sl. No.	Particulars	FY 19-20	FY 20-21	FY 21-22
1	Employee cost	Included in S.No. 4	Included in S.No. 4	Included in S.No. 4
2	Repair & maintenance			
3	Admin & General Expense			
4	Normative annual O & M cost	82.77	164.63	174.04
5	Depreciation	203.3 6	383.66	383.66
6	Interest and financing charges	321.5 9	572.23	527.15
7	Interest on working capital	19.96	28.99	29.34
8	Return on equity	167.4 5	315.91	315.91
9	Income tax	0	0	0
10	Others (including ULDC charges)	0	0	0
11	Total Fixed costs	795.1 3	1465.4 3	1430.1 0
12	Less: Expenses capitalized	0	0	0
13	Total transmission charges	795.1 3	1465.4 3	1429.1 0
14	Less: other income	0	0	0
15	Net annual transmission charges	795.13	1465.4 3	1429.1 0

D. S. Datta
Secretary

Annexure B

DEVI ENERGIES PRIVATE LIMITED
132kv line from Dikshi HEP to LILO point of 132kv Khuppi -Baipara line at Netchipu village
Item-wise cost for final executed quantities

Sl No	Description of Items	Unit	Final executed quantity	Quantities recommended by APSPERC		Unit Rate claimed by petitioner in Rs.		Unit Rate in contract in Rs.		Unit Rate as per PCCIL DPR in Rs.		Amount Recommended by APSPERC Rs.		Amount claimed by petitioner in Rs.	
				Supply	Erection	Supply	Erection	Supply	Erection	Supply	Erection	Supply	Erection	Supply	Erection
1	Survey & Investigation														
1.1	BENCHING & EXCAVATION WORKS														
	1.1.2	Fisured Rock with mixed soil	37230		20000		460.00	600.00	282.00			5640000.00		17125800.00	
	1.1.3	Hard Soil with Fisured Rock													
	1.1.4	Hard Rock	3151		3151		5850.00	7000.00	1325.00			4175075.00		18433350.00	
1.2	Compensation														
	1.2.1	Cost of crop Compensation													
	1.2.2	Cost of PTCC Compensation													
	1.2.3	Cost of Compensator Afforestation on Double graded forest					1400000.00	1400000.00							
	1.2.4	NPV (Net Present Value) for Forest area diverted					10430000.00	10430000.00							
	1.2.5	Land compensation for payment Occupation					110.00	110.00							
2	Supply & Erection of Transmission line Materials														
2.1	SURVEY WORKS														
	2.1.1	Detailed survey including route alignment profiling, tower spotting & Final Peg marking	32		32		28000.00	28000.00	20751.00			896000.00		896000.00	
	2.1.2	Check Survey	32		32		12000.00	12000.00	7498.00			384000.00		384000.00	
2.2	SOIL INVESTIGATION														
	2.2.2	Fisured Rock with mixed soil					48909.00	48909.00							
	2.2.3	Hard Soil with Fisured Rock					60162.00	60162.00							
	2.2.4	Hard Rock					84837.00	84837.00							
	2.2.5	River Crossing (Both Banks)					128856.00	128856.00							
2.3	GALVANISED IRON & STEEL ITEMS														
	2.3.1	Galvanised Towers steel Members HT	780		780		94175.00	84425.00	90310.5			65851500.00		73456500.00	
	2.3.2	Galvanised Towers steel Members MS	140		140		91815.00	81177.00	86836.88			11364780.00		12854100.00	
	2.3.3	Bolts of various towers	74		74		119840.00	95430.00	102080.76			7061320.00		8868160.00	
2.4	EARTHING OF TOWERS														
	2.4.1	Pipe type G.I Earthing with G.I Strips	126		126		5782.50	5705.00	6100			718630.00		728595.00	
	2.4.2	Counter poise type (120M)	20		20		9394.20	9392.00	10017.46			187640.00		187884.00	
2.5	TOWER ACCESSORIES														
	2.5.1	Danger Plates	110		110		382.60	310.00	307.66			33842.60		42086.00	
	2.5.2	Number Plates	110		110		382.60	310.00	307.66			33842.60		42086.00	
	2.5.3	Phase plates (set of three)	110		110		382.60	310.00	297.447			32719.17		42086.00	
	2.5.4	Anti Climbing devices	110		110		12325.00	10000.00				1100000.00		1355750.00	

Annexure C

Sr. No	Particulars	MYT Control Period (Rs crores)		
		FY 2019-20	FY 2020-21	FY 2021-22
		Projected	Projected	Projected
1	Operation & Maintenance Expenses	0.44	0.78	0.80
2	Depreciation	1.76	3.02	3.02
3	Interest and Finance Charges	2.81	4.52	4.14
4	Interest on Working Capital and deposits from TSUs	0.13	0.32	0.32
5	Contribution to Contingency reserves	0	0	0
6	Total Revenue Expenditure	5.14	8.64	8.29
7	Return on Equity Capital	1.85	3.17	3.17
8	Aggregate Revenue Requirement	6.99	11.81	11.45
9	Less: Non-Tariff Income	0.00	0.00	0.00
10	Less: Income from Other Business	0.00	0.00	0.00
11	Less: Revenue from short-term transmission charges	0.00	0.00	0.00
12	Aggregate Revenue Requirement from Transmission Tariff (In crores)	6.99	11.81	11.45



Secretary

State Electricity Regulatory Commission
Arunachal Pradesh

Annexure D

Attendance for the hearing on dated 11/12/2019 at APSERC, Court Room

Sl.no	Name	Department/Designation	Email id	Mobile no.	Signature
01	S. ELANGOVAJAN	DEPL / DIRECTOR	BHAGAWAN.SUBRAMANIAM@GMAIL.COM	8939896262	[Signature]
02	D.K. THONGDOK	DEPL / DIRECTOR		9436258742	[Signature]
03	V.K. GUPTA	DEPL / consultant		9823216464	[Signature]
04	C.M. JAIN	consultant / PEC	infopowerandenergysolutions.in	9312262799	[Signature]
05	A.K. MAGGU	Advisor M/S DEPL	akmaggu@gmail.com	9650995995	[Signature]
06	AL Naga RAJU	Managing Director Devi Energies	mdl@devienergies.com	9008122229	[Signature]
07	N.N. Pande	CBIP / consultant	nnpande@yahoo.com	9958555357	[Signature]
08	T. MURUGAN	CEO TOMZ DEP	takalmurugan@gmail.com	9436229825	[Signature]
09	Hage Mima	SE, Disang	mimahage@yahoo.com	9436041574	[Signature]
10	D. Mishra	Secretary APSERC	secy-apserc-aren@gmail.com	9428820335	[Signature]
11	Rahul	Staff Consultant APSERC			[Signature]
12	D. Sengupta	Staff Consultant APSERC			
13	Shubham Pant	CBIP / consultant	shbhmpnt@gmail.com	8755963807	[Signature]
14	T. K. TARA	SE (E), TRANSMISSION	tktaras@hotmail.com	9436045003	[Signature]
15	Karbi	LA			[Signature]
16	Ruman Raha	SC			[Signature]