

Ref: No.

Dated....

The Secretary,
Arunachal Pradesh State Electricity Regulatory Commission
O.T Building, 2nd Floor,
NitiVihar Market, T.T. Marg,
ITANAGAR – 791111

Sub: Petition for Determination of Aggregate Revenue Requirement (ARR) and Tariff / Transmission Charges for 132 kV Transmission System for power evacuation from 24 MW M/s DEVI ENERGIES Private Ltd -DIKSHI Small Hydroelectric Project and Transmission of Electricity during the year 2018-19 & 2019-20 as per Multiyear Tariff Regulations-2013 notified vide APERC/NOTIFICATION/14/2013dated 18th October, 2013.

Dear Sir,

Kindly find enclosed herewith the Petition for Determination of Aggregate Revenue Requirement (ARR) and Tariff / Transmission Charges for 132 kV Transmission System for power evacuation from 24 MW M/s DEVI ENERGIES Private Ltd -DIKSHI Small Hydroelectric Project and Transmission of Electricity during the financial year 2018-19 for 3 months & 2019-20 as per Multiyear Tariff Regulations -2013 notified vide APERC/NOTIFICATION/14/2013dated 18th October, 2013

The petition consists of the following documents: -

- 1) Affidavit verifying the application
- 2) Petition for Determination of Aggregate Revenue Requirement (ARR) and Tariff / Transmission Charges for 132 kV Transmission System for power evacuation and Transmission of Electricity from 24 MW Dikshi Small Hydro Electric Project
- 3) Draft Number..... dated..... amounting to Rs.....
(.....) towards fee for Petition.

Encl: as above For Devi Energies Pvt. Ltd.

A. L. Nagaraju
Managing Director

APPLICATION
FOR
AGGREGATE REVENUE REQUIREMENT
&
DETERMINATION OF TRANSMISSION CHARGES
FOR
TRANSMISSION OF ELECTRICITY
DURING THE YEAR 2018-19 & 2019-20
TO
ARUNACHALPRADESH STATE ELECTRICITY
REGULATORY COMMISSION
(APSERC)
FOR
132 kV TRANSMISSION SYSTEM FOR POWER
EVACUATION
FROM
24 MW DIKSHI SMALL HYDROELECTRIC PROJECT
AND FUTURE PROJECTS

PETITIONER

M/s DEVI ENERGIES PVT LTD.
351, Rupa Village & Town PO & PS Rupa,
West Kameng District,
ARUNACHAL PRADESH

**BEFORE THE HON'BLE COMMISSION
ARUNACHAL PRADESH STATE ELECTRICITY REGULATORY COMMISSION
O.T Building, 2nd Floor,
NitiVihar Market, T.T. Marg,
ITANAGAR – 791111**

FILE No.

CASE No.....

IN THE MATTER OF:

Petition for Determination of Aggregate Revenue Requirement (ARR) and Tariff / Transmission Charges for 132 kV Transmission System for power evacuation from 24 MW M/s DEVI ENERGIES PRIVATE LTD -DIKSHI Small Hydroelectric Project and Transmission of Electricity during the financial year 2018-19 & 2019-20 as per Multiyear Tariff Regulations-2013 notified vide APSSERC/NOTIFICATION/14/2013 dated 18th October, 2013.

Petitioner / Applicant

M/s DEVI ENERGIES PVT LTD.
351, Rupa Village & Town PO & PS Rupa,
West Kameng District,
ARUNACHAL PRADESH

Respondent:

1. The Commissioner (Power)
Government of Arunachal Pradesh,
Itanagar
2. DEPARTMENT OF POWER
Government of Arunachal Pradesh
Itanagar
3. In charge State Load Dispatch Centre,
Department of Power,
Government of Arunachal Pradesh
Itanagar

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A. L. Nagaraju
Managing Director
Devi Energies Pvt. Ltd.

**BEFORE THE HON'BLE COMMISSION
ARUNACHALPRADESH STATE ELECTRICITY REGULATORY COMMISSION
O.T Building, 2nd Floor, Niti Vihar Market, T.T. Marg, ITANAGAR – 791111**

IN THE MATTER OF:

Petition for Determination of Aggregate Revenue Requirement (ARR) and Tariff / Transmission Charges for 132 kV Transmission System for power evacuation from 24 MW M/s DEVI ENERGIES PRIVATE LTD -DIKSHI Small Hydroelectric Project and Transmission of Electricity during the financial uyear 2018-19 & 2019-20 as per APSERC/NOTIFICATION/14/2013 dated 18th October, 2013.

AFFIDAVIT

I, A L Nagaraju, son of Shri A K L Rao, aged 45 years residing at Sri Tulasi Homes, Aurora Colony, Road No.3, Banjara Hills, Hyderabad – 500034do solemnly affirm and say as follows:

1. I am the Managing Director of Devi Energies Pvt. Ltd. petitioner in the above matter and am duly authorized by the said petitioner to make this affidavit for and on its behalf.

2. The Statements made in petition herein are true to my knowledge and belief and nothing has been concealed from the statements so made, or documents or supporting data, etc. attached.

Solemnly affirmed aton thisday of2018 that the contents of this affidavit are true to my knowledge, no part of it is false or nothing material has been concealed there from and misleading material included therein.

A L Nagaraju
Managing Director
Devi Energies Pvt Ltd

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INTRODUCTION

1. GENERAL

India's installed capacity in the hydropower sector is presently estimated at around 36498 MW out of total installed capacity of 146753 MW. Only about 20% of the economically feasible hydropower potential has been exploited. The economic development in the country in this decade has resulted in widening of the gap between the demand and the supply of power. In order to make power available to all by 2012, the total installed capacity is planned to be increased to about 210000 MW.

The development of hydropower potential can significantly help to bridge the gap between power demand and supply. The central and state governments have taken significant initiatives for the development of power projects in both public as well as private sectors. Special emphasis is being made for development of hydropower potential of the country to keep a balanced mix of the small and hydropower generation.

Arunachal Pradesh, with an area of 83743 km is the largest state in the north-east region in terms of land area. The State is endowed with mighty rivers with an estimated feasible hydropower potential of about 57,000 MW, out of the total hydro power potential of about 66,000 MW in the Brahmaputra basin. Development of hydropower potential in Arunachal Pradesh has been identified by both the Govt. of India and the Government of Arunachal Pradesh as one of the key areas for meeting the country's increasing energy requirements, while at the same time developing and improving the infrastructure within the State.

The development of hydro power potential in the region will lead to better infrastructure and is expected to allow the region to integrate better with rest of the country. Therefore, fast track development of hydropower potential in the state both in public and private sector is being pursued by Government of Arunachal Pradesh (GoAP). The State government has signed Memorandum of Agreement (MoA) with many developers for exploiting the hydropower potential in the state.

In continuation of its policy, the GoAP has signed Memorandum of Agreement (MOA) with Devi Energies Pvt Ltd for the development of Hydro Power Project with capacity to generate 24 MW power over Phudung River in West Kameng District, Arunachal Pradesh known as Dikshi Hydro-electric Power Project. The project shall be designed as a run-of-the river scheme and would be governed by Small Hydro Power policy 2007 of the state.

2. 24 MW DIKSHI HEP

2.1. PROJECT SYNOPSIS

Dikshi Hydro Electric Project is located in West Kameng district of Arunachal Pradesh, envisages utilization of waters of the river Phudung. The project envisages construction of a diversion structure near Mukhuthing village, a head race tunnel, a surface power house. Installed capacity of the project proposed is 24 MW. The diversion structure and the proposed reservoir are designed suitably to avoid

submergence. There are no monuments of archaeological or national importance which would be affected by project activities directly or indirectly. The entire catchments of Dikshi as well as the tailrace discharge point in Phudung are within Arunachal Pradesh and, therefore, there are no interstate aspects involved.

2.2. PROJECT APPROVAL

M/s. DEVI ENERGIES PVT LTD (DEP) has signed Memorandum of Agreement with Government of Arunachal Pradesh on 17th March 2011, copy attached at **Annexure-A**, which envisages:

The State Govt. hereby grants permission to the Company Devi Energies Pvt. Ltd. to undertake preliminary investigation for preparation of the Pre-Feasibility Report, detailed investigation for DPR preparation, financing and subsequent development, commissioning, implementation, operation and maintenance of Dikshi Hydro Electric Project (24 MW) in West Kameng District, Arunachal Pradesh.

The project shall be implemented by Devi Energies Pvt. Ltd. on BOOT (Build, own, Operate and Transfer) basis for a lease period of 50 years from the Commercial Operation Date (COD). The project shall be reverted to the State Govt. on expiry of above lease period, free of cost, in good working condition.

The entire cost of investigation, DPR preparation, project implementation and subsequent operation and maintenance of the project will be borne by Devi Energies Pvt. Ltd.

The project shall be developed as run-off-the-river (ROR) Scheme in tune with the State Govt. policy to develop the project in the most environment, eco, and people friendly manner

As per clause no 5.3 of MOA dated 7th March, 2011,"in case the power generated from the project is purchased by the state Government, the state Govt. shall be responsible for evacuation of power from the bus bar onward at its own cost." As the entire transmission system is constructed by the petitioner at its own cost the petitioner is entitled to claim annual transmission charges from the Department of Power as a transmission licensee.

3. POWER PURCHASE AGREEMENT

Arunachal Pradesh State Cabinet approved for Power Purchase Agreement (PPA) and accorded the willingness of the State to buy power from Dikshi Hydro Electric Project 24 MW in West Kameng District vide UO No.CAB/M/-16/2017/40-56 dated 05.02.2018. Petition for approval of Draft PPA has been vetted and approved vide Petition No.TP 05 of 2018, dated 25.09.2018. A copy of the same is attached as **Annexure-B** Power Purchase Agreement with Department of Power, Govt. Of Arunachal Pradesh has been signed on 16.10.2018. Copy of the same is attached at **Annexure-C**

4. TRANSMISSION SCHEME

Initially the power evacuation was planned by connecting the project with 132 KV single circuit line from DIKSHI HEP to Wanghoo Grid substation. A Bay at sub-station Wanghoo, near Bomdila connecting proposed 132 kV transmission line (being developed by Department of Power, Govt of Arunachal Pradesh) from Khuppi to Tawang was allotted to this project for evacuation of power.

In due course it was observed that 132 kV transmission line work from Khuppi – Tawang is not going on as per the expected time lines, which affects the project execution and thereby the Company will not be in a position to evacuate power after achieving commercial operation.

To avoid the bottleneck with the above said situation, the company has obtained Letter of Comfort / permission for Connectivity to connect to the existing 132 kV line from Bhalipara – Khuppi at an intermediate location close to transmission line alignment for Dikshi HEP. The total length of proposed transmission line from Nechipu (i.e., intermediate location) to Dikshi Power House is about 32 km i.e. 10.5 KM of single circuit line from Dikshi HEP to 132 KV switching station at Tenga and 21.5 KM of double circuit line from Tenga substation to Nechipu on 132 kV line from Bhalipara – Khuppi as LILO.

DEP has also received letter of comfort for transmission connectivity from Chief Engineer (Power) TP&M Zone, Department of Power, Government of Arunachal Pradesh vide letter number CE(P) /TPM2/W-37/2015-16/3313-28 Dated 22nd February 2016. Copy attached at **Annexure-D**. Further, the approval for the same was notified by the Department of Power Development, Government of Arunachal Pradesh vide No. PWS/W.2803/2016(pt) dated 2nd June, 2016. Copy attached at **Annexure-E**. M/s. DEVI ENERGIES PVT LTD (DEP) has also filed an application for Transmission License with Hon'ble Commission on 10th February, 2018 under sub-section (2) of Section 15 of the Electricity Act, 2003. Necessary Notification was also published in News Papers the Arunachal Pioneer dated 24th April, 2018 & ECHO of Arunachal on 25th April, 2018. Copy of the same is attached at **Annexure-F** and **Annexure-G**. Hon'ble Commission has granted Transmission License No. 1 dated 12.07.2018, copy of the same is attached at **Annexure-H**

The single line diagram showing the 132 KV single circuit line from Dikshi HEP to Tenga Switching substation and 132 KV double circuit line from Tenga S/s to the to Nechipu on 132 kV line from Bhalipara – Khuppi as LILO is attached at **Annexure-I**.

4.1. Transmission System Cost

It is to mention here that with the change in the transmission line alignment, the length of transmission line was increased from about 10.5 kms to 32 kms along with development of 132 KV Switching Station at Tenga. The total estimated cost of 32 kms transmission line was increased from Rs. 12.29 Crore as originally estimated for 10.5 kms to Rs. 61.70 Crore which includes Rs. 7.79 Crore of Interest During Construction (IDC) & financial charges for 32 km of transmission line along with 132 KV Switching Station.

The company has got estimated cost evaluated by **Apex Body on transmission lines in India**, "Power Grid Corporation of India Ltd" (PGCIL) (A Govt. of India Enterprise) and Detailed Project Report has also been vetted with a total estimated cost of Rs.50.97Crore considering cost of transmission system as on 31.12.2016 excluding Financing Charges (FC) and Interest During Construction (IDC), copy attached at **Annexure-J**.As the prices of construction materials witnessed steep hike in the year 2017-18and taxation regime changed to GST, the estimated cost of transmission project has increased to Rs. 52.18Crore excluding FC & IDC and total of Rs. 59.19Crore including FC & IDC.

As explained above the estimated capital cost of the project for tariff determination is considered as Rs 61.70 Crore. The details of the original cost and revised cost are as mentioned hereunder:

Table

(Amount in Rs. Lakh)

Sl. No.	Items	As per initial DPR	DPR Estimated Cost / Approved by lfs	Revised Estimate Cost	Variation
(1)	(2)	(3)	(4)	(5)	6 = (4-3)
A.	TRANSMISSION LINE				
1	Preliminary works	275.60	491.43	491.43	215.83
2	Transmission Lines material	695.81	2,315.18	2,315.18	1,619.37
A.	Total - Transmission lines	971.41	2,806.61	2,806.61	1,835.20
B.	SUBSTATIONS				
1	Preliminary works & land	-	51.00	51.00	51.00
2	Civil Works&Building	-	566.35	566.35	566.35
3	Substation Equipment	-	1,090.00	1,090.00	1,090.00
B.	Totalsubstation equipment	-	1,707.35	1,707.35	1,707.35
C.	Communication System				
1	Preliminary Works	-	20.00	20.00	20.00
2	Communication System equipment's	-	140.68	140.68	140.68
C.	Total – Communication System	-	160.68	160.68	160.68

Sl. No.	Items	As per initial DPR	DPR Estimated Cost / Approved by lfs	Revised Estimate Cost	Variation
(1)	(2)	(3)	(4)	(5)	6 = (4-3)
D.	TAXES & DUTIES*				
1.	Transmission line	76.92	252.63	252.63	175.71
2.	Sub-Station	-	131.96	131.96	131.96
3.	Communication System	-	25.32	25.32	25.32
D.	Total Taxes & Duties*	76.92	409.91	409.91	332.99
E.	Construction and Pre-commissioning	-	156.35	156.35	156.35
F.	Overheads	-	150.00	150.00	150.00
G.	Capital Cost without IDC, FC Cost(A to F)	1048.33	5,390.90	5,390.90	4,342.57
H.	IDC and FC				
1	Interest During Construction (IDC)	165.03	755.86	755.86	590.83
2	Financing Charges (FC)	8.86	23.31	23.31	14.45
I.	Total Capital cost including IDC & FC	1,222.22	6,170.07	6,170.07	4,947.85

The capital cost of the project has been worked out with detailed studies and detailed project report of PGCIL annexed at **Annexure-J**.

Reasons for high capital cost / increase in cost of Transmission System.

The following issues have factored in for higher capital cost and increase in the cost while execution of 132 KV Transmission system in Arunachal Pradesh.

4.1.1. Transmission System

Initially a 132 KV Bay at sub-station at Wanghoo, near Bomdila connecting proposed 132 kV transmission line (being developed by Department of Power, Govt. of Arunachal Pradesh) from Khuppi to Tawang was allotted to this project for evacuation of power. It is learnt that 132 kV transmission line work from Khuppi – Tawang was abandoned due to various issues, which affects the project execution and thereby the Company will not be in a position to evacuate power after achieving commercial operation.

To avoid the bottleneck with the above said situation, the company has obtained Letter of Comfort / permission for Connectivity to connect to the existing 132 kV line from Bhalipara – Khuppi at an intermediate location close to transmission line

alignment for DIKSHI HEP. The total length of proposed transmission line from Nechipu (i.e., intermediate location) to Dikshi Power House is about 32 km. Govt. of Arunachal Pradesh has accorded permission/ Letter of Comfort for Transmission connectivity to construct 132 KV line from Dikshi HEP to Nechipu to connect existing 132 KV Balipara- Khuppi transmission line. Copy of the letter No. CE (P) TPMZ/W-37/2-15-16/3313-28, dated 22.02.2016 and Govt. of Arunachal Pradesh, Dept of Power Development Notification dated 02.06.2016 enclosed as **Annexure-D** and **Annexure-E**.

It is to mention here that with the change in the transmission line alignment, the length of transmission line is increased from about 10.5 kms S/C to total of 32 kms (10.5 Kms S/C and 21.5 Kms D/C, a total of 53.5 circuit kms.) along with development of 132 KV Switching Station at Tenga. The total estimated cost of transmission system has increased. This 132 KV system developed by Devi Energies Pvt. Ltd. shall be useful for other projects as well as for the development of transmission/ distribution system in the state of AP.

4.1.2. Other Factors

- A.** Given the leads for sourcing construction materials, transportation cost worked out to be 16% of cost of materials which is high. Roads from foot hills to site can only allow about 9 T per truck and requires transshipment. The details of nearest supply centre's is given below:
- a) For items like Cement nearest supply center is Shillong which is about 450 kms from project site
 - b) For items like TMT steel nearest supply center is SAIL Steel Plant, Durgapur, which is about 1350 kms from project site
 - c) For items like Special class of steel nearest supply center is SAIL steel plant, Rourkela which is about 1650 kms from project site.
 - d) Sand & Aggregate too had to be purchased from outside Arunachal Pradesh as the quantities available locally are not sufficient which pushed the cost of Sand & Aggregate
- B.** As no machinery, construction materials except few quantities of Sand & Aggregate are available in the state of Arunachal Pradesh, almost all construction materials, construction machinery, their spares had to be imported from other states which attracted additional Central Sales Tax(CST) besides entry tax.
- C.** Being remote hilly state, hire charges for construction machinery are more than the double that of the same in other states.
- D.** As no manpower whether skilled or semi-skilled is available in the state, manpower had to be imported from other parts of India & Nepal who demand higher wages.

- E. Post implementation of GST regime, there is overall increase of 2% only on account of Taxes on Steel & 3% increase in service tax (Service tax increased from 12% in 2013 to 18% in 2017 GST).
- F. Due to closure of Iron ore mines and imposition of Anti-Dumping Duty on import on steel, steel prices have increased abnormally from May'17 till date. The price hike is about 50-60% vis-a-vis the prices of May'17.
- G. High Speed Diesel Price is very high (present Rs 65/ per litre) which has a direct cost impact on transportation, machinery hire charges and construction power.
- H. Higher Cost is influenced by the following implementation parameters:
- TRANSPORTATION – Transportation up to foot hills in 35 Ton trucks and from there on till store yard, transportation by 9 Ton trucks on hilly terrain.
 - MATERIAL SHIFTING COST – Materials to be shifted either manually or by mules from store yard to individual tower locations. (Cement, Aggregate, Sand, Tower materials & conductors)
 - ERECTION COST – Given the terrain and remoteness of the towers, erection of towers can only be done by specialized skilled manpower.
 - STRINGING COST – Given undulations on terrain, crops in between, span between the towers (in some locations span is as high as 800 m), stringing of conductors can only be done specialized manpower under strict ground control & monitoring
 - OPGW STRINGING COST - Same as above
 - Added to this, post June 2017, there witnessed steep hike in prices of materials and labour rates.
- I. Due to incessant rainfall and inclement weather, several massive landslides have blocked BCT Road (Balipara – Charidwar – Tawang Road) at multiple locations which forced District Administration to close the road on several instances. This kind of access restrictions suffered movement of construction materials and Diesel and attributed to delay and higher cost of working. Orders issued by the Deputy Commissioner, Bomdila are attached at **Annexure-K**.

5. METHODOLOGY OF PLACEMENT OF ORDERS

Enquiry for the work of transmission line & Switching Station was issued to leading EPC contractors of the country and also through company web site. The names of the EPC companies are as below:

- (i) Sterlite Technologies Ltd
4th Floor, Godrej Millenium, 9, K G Road, Pune, Maharashtra, 411001.
- (ii) Powerlinks Transmission Ltd
10th Floor, DLF Tower A, District Centre Jasola, New Delhi, 110025.

- (iii) KEC International Ltd.,
RPG House, 463, Dr. Annie Besant Road, Worli, Mumbai - 400 030.
- (iv) Kalpataru Power Transmission Ltd
101, Kalpataru Synergy, Opp. Grand Hyatt, Vakola,Santacruz (E), Mumbai,
400055.
- (v) Jyoti Structures Ltd.
6th Floor, Valecha Chambers, New Link Road, Andheri (W), Mumbai –
400053,Maharashtra.
- (vi) BS Ltd.
504, Trendset towers, Road no.2, Banjara hills, Hyderabad, Andhra Pradesh.
- (vii) Alstom T & D India Ltd
601-B, 6th Floor, Tower -1, KonnectusBhavbhuti Marg, New Delhi 110001.
- (viii) Shyama Power India Ltd
4th floor, Plot no. 49, Sector 44 Gurugram– 122002.
- (ix) PK Thungam Brothers Pvt. Ltd.
E-251, Rupa Village, Rupa,West Kemang, Arunachal Pradesh – 790003.
- (x) Eaton Technologies Pvt. Ltd
Unit A1 and B1 3rd Floor TDI Centre Plot No. 7 City: Jasola
- (xi) Godrej & Boyce Manufacturing Company Ltd
Pirojshanagar, Vikhroli, Mumbai-400079, India.
- (xii) EMC Limited
Constantia Office Complex, 11, Dr. U. N. Brahmachari Street, 8th Floor, (South
Block), Kolkata – 700017.

However, no EPC company participated except M/s PK Thungan Builders Pvt. Ltd. Rupa. This might be firstly due to smaller length of line and secondly due to working in difficult and far-flung areas. After techno-commercial evaluation and negotiation M/s PK Thungan Builders Pvt. Ltd., Rupa was selected as contractor for supply and erection of part of 132 kV line and switching station. However, a contract was given only for a part of 132 kV line for a value of Rs. 2669.94 lakhs. Copy of the Contract Agreement dated 05.06.2016 is attached at **Annexure-L**.

Further, an Agreement for Rs.2336.00 Lakh was signed for supply of balance materials for transmission line & switching station on M/s PK Thungan Builders Pvt. Ltd on 1st July, 2017 keeping balance erection works in the scope of Devi Energies Pvt Ltd to mitigate GST incidence and copy of the same is attached at **Annexure-M**.

Land for the Switching substation is arranged from Village Society and copy of Land Lease Agreement signed between Secretary, RDGMM Village Society, PO & PS- Rupa, & DEVI Energies Pvt.Ltd dated 2nd April, 2017 for Tenga Switching substation for Rs 41.0

Lakh Lump sum and Rs 1.00 Lakh lease rental per Annum for 50 years is attached at **Annexure-N**.

In addition, the company has spent Rs. 461.93 Lakh towards cost of Right of Way (ROW) for the transmission line by way of land Use/ Access Permit Agreement No.1 & 2 signed between Secretary, RDGMM Village Society, PO & PS- Rupa for Rs. 342.88 Lakh & Rs 119.05 Lakh totaling to Rs. 461.93 Lakh. The copies of these agreements dated 15th July, 2016 are attached at **Annexure-O** and **Annexure-P**.

6. SALIENT FEATURES OF TRANSMISSION SYSTEM

132 KV Single circuit Line	10.5 KM
132 KV Double circuit Line	21.5 KM
Number of Bays at 132 KV Switching Substation Tenga	4 Nos.

7. STATUS OF PROJECT

7.1. Capital Expenditure Incurred till 31.08.2018.

The table below shows the expenditure incurred till 31st August 2018 and liabilities.

Table

(Amount in Rs Lakh)

Sl. No.	Items	Revised Estimated Cost / approved by lfs	Expenditure incurred Till 31.08.2018	Liabilities / Provisions
(1)	(2)	(3)	(4)	5 = (4 - 3)
A.	TRANSMISSION LINE			
1	Preliminary works	491.43	491.84	0.41
2	Transmission Lines material	2,315.18	2,197.88	(117.30)
A.	Total - Transmission lines	2,806.61	2,689.72	(116.89)
B.	SUBSTATIONS			
1	Preliminary works & land	51.00	51.00	-
2.	Civil Works & Building	566.35	548.00	(18.35)
3.	Substation Equipment	1,090.00	904.73	(185.27)
B.	Total substation equipment	1,707.35	1,503.73	(203.62)

Sl. No.	Items	Revised Estimated Cost / approved by lfs	Expenditure incurred Till 31.08.2018	Liabilities / Provisions
C.	Communication System			
1	Preliminary Works	20.00	20.00	-
2	Communication System equipment's	140.68	140.68	-
C.	Total – Communication System	160.68	160.68	-
D.	TAXES & DUTIES*			
1.	Transmission line	252.63	365.54	44.37
2.	Sub-Station	131.96		
3.	Communication System	25.32		
D.	Total Taxes & Duties*	409.91	365.54	(44.37)
E.	Construction and pre-commissioning	156.35	221.38	65.03
F.	Overheads	150.00	237.60	87.60
G.	Capital Cost without IDC, FC Cost (A to F)	5,390.90	5,168.65	(212.25)
H.	IDC & FC			
1	Interest During Construction (IDC)	755.86	558.32	(197.54)
2	Financing Charges (FC)	23.31	26.40	3.09
H	Total IDC & FC	779.17	584.72	(194.45)
I.	Total Capital cost including IDC & FC	6,170.07	5,753.37	(406.70)

The certificate issued by A.M. REDDY & D.R. REDDY, Chartered Accounts, Hyderabad dated 10th September, 2018 for the expenditure incurred till 31.08.2018 as per books of accounts is attached at **Annexure-Q**.

7.2. Project Implementation Status

Sr. No.	Description	Status /Time Frame (in months)
1	Survey & Investigations	Completed

Sr. No.	Description	Status /Time Frame (in months)
2	132 KV S/C Line works	
i	Excavation	100% Completed
ii	Foundation / Stub setting	100% Completed
iii	Erection of Towers	50% Completed
iv	Stringing work	2.5 KM Completed
v	Final finishing, tightening, etc.	In Progress
3	132 KV D/C Line works	
i	Excavation	100% Completed
ii	Foundation / Stub setting	80% Completed
iii	Erection of Towers	60% Completed
iv	Stringing work	10 KM Completed
v	Final finishing, tightening, etc.	In Progress
4	Switching Substation Works	
i	Excavation	Completed
ii	Control Room	Work in Progress
iii	Structure erection	Completed
iv	Equipment Installation	Installation work in progress; All Material Received at site
v	Testing & Pre-commissioning	Not yet commenced
4	License for Transmission	Received; Transmission License no 1 dated 12.07.2018
5	Financial Closure of the Project	In place, Additional loan sanction in process
6	Implementation of the Project	On going. To be completed by December, 2018

8. CSR (Corporate Social Responsibility) ACTIVITIES:

While executing Dikshi HEP, following works/ activities have been carried out towards CSR:

1. Approach Roads were formed to facilitate villager's access roads to send their agricultural/ horticultural produce besides improving their commuting facilities.
2. Communication facilities for both Voice & data for adjoining villages around project site
3. Provided an Ambulance to PHC, Shergaon, WestKameng District.
4. Provided an Ambulance & Medical Equipment to Community Health Centre, Rupa, WestKameng District.

5. Provided R.O water filters to schools in and around Rupa.
6. Donated for state level foot ball tournament in Rupa.
7. Donated for Buddha Mahotsava 2016.
8. Provided electrical infrastructure for smart class system for Government Higher Secondary School, Rupa
9. Contributed to Law Awareness Camp organized by NGOs
10. Contributed to village council to celebrate their cultures & traditions.
11. Constructed couple of homes with all facilities to couple of very senior citizens in Dikshi Village.
12. Local Youth are encouraged to carry out specific works in Hydro & transmission line works

9. DETERMINATION OF ARR & TARIFF

As per Arunachal Pradesh State Electricity Regulatory Commission (APSERC) Multiyear Tariff Regulations-2013 notified vide APSERC/NOTIFICATION/14/2013 dated 18th October, 2013 the following components to be considered for Aggregate Revenue Requirement of Transmission Licensee and determination of transmission tariff:

- (1) Capital Cost and capital structure
- (2) Debt- Equity Ratio
- (3) Return on Equity
- (4) Interest & Finance Charges on Loan capital
- (5) Operation and Maintenance expenses
- (6) Interest on Working Capital
- (7) Depreciation
- (8) Tax on Income
- (9) Annual License Fees

The details of all the above components have been worked out as per Multiyear Tariff Regulations-2013 notified vide APSERC/NOTIFICATION/14/2013 dated 18th October, 2013 and are enumerated below.

10. CAPITAL COST

In accordance of Regulations 33 of APSERC Multiyear Tariff Regulations 2013 the capital expenditure considered on date of commercial operation is Rs. 6170.07 Lakh. Details are given in the Table at Para 4.1 above.

The capital cost of the project has been worked out with detailed studies using costing prepared by PGCIL as benchmark.

Debt: Equity Ratio

The Debt Equity Ratio considered is 70:30 as per Regulation 32 of APERC Regulations 2013. Actually, the investment of promoter as equity is slightly more than 30% amounting to Rs.1897.90 Lakh and Debt is also lower than 70% amounting to Rs.4272.17 Lakh. However, for tariff calculation the same is considered as per the norms mentioned in the Regulations i.e. 70: 30.

The amount of Debt and Equity considered for calculation is shown in table below:

Total transmission system cost	6170.07 Lakh
Debt70%	4319.05 Lakh
Equity 30%	1851.02 Lakh

11. RETURN ON EQUITY

In accordance with Regulation 36 of APERC Regulations 2013, the Return on Equity is considered @14% of normal Equity of 30% of the project cost and not on the actually invested. The same is as per Form – T12 and as given in table below:

Particulars	Rs. In Lakh	
	FY 2018-19 (3 Months)	FY 2019-20
Equity at the beginning of the year	-	1851.02
Equity on the date of commercial operation (30%)	1851.02	-
Equity at the end of the year	1851.02	1851.02
Average Equity during the year	1851.02	1851.02
Rate of Interest	14%	14%
Return on Equity claimed	64.79	259.14

12. INTEREST & FINANCE CHARGES ON LOAN CAPITAL

In accordance with Regulation-37 of APERC Regulations 2013 Debt has been considered as 70% of the capital cost.

The Debt (70%) for Rs.4319.05 Lakh has been financed by three financial institutions:

- (a) IREDA @ 67.42% of loan amount
- (b) IIFCL @ 28.65% of the loan amount

(c) SBI (Formerly SBH) @ 3.93% of the loan amount

The details of loan amount sanctioned and letter reference is given in the table below:

Rs. in Lakh

Name of FII	S No	Ref Document	Amount Rs. Crore	Loan for Trans	Rate of Interest
IREDA	i	221/2918/SHP/2014/IREDA/753 dated 04.08.2014	120.00	28.80	11.75%
	ii	221/2918/SHP/2014/IREDA/1075 dated 24.05.2017	24.92		
	iii	221/2918/SHP/2014/IREDA/3723 dated 25.09.2018	33.42		
		Total	178.34		
IIFCL	i	Letter Ref No. IIFCL/Credit/2014-15/7035 dated 19/02/2015	51.00	12.24	11.75%
	ii	Letter Ref No. IIFCL/DEPL/2016-17/33421 dated 16/03/2018	10.59		
	iii	Loan under process of Sanction	14.20		
		Total	75.79		
SBH / SBI	i	F/DEPL/ dated 03/02/2015	7.00	1.68	11.75%
	ii	Dated 10/01/2018	1.45		
	iii	Loan under process of Sanction	1.95		
		Total	10.40		
Grand Total			264.53	42.72	11.75%

The loan has been sanctioned combined for 24 MW Dikshi HEP & 132 KV Transmission system. We have considered the loan amount in proportion to the total cost of HEP & transmission. The total loan amount works out to be Rs. 4319.05Lakh for transmission system.

The sanction letters of the loan from above mentioned financial Institutions are attached at **Annexure-R, Annexure-S, Annexure-T, Annexure-U, Annexure-V, Annexure-W and Annexure-X**, the application for the third tranche of loan from IIFCL & SBI is in process and likely to be sanctioned shortly. The copies will be submitted as soon as received.

The interest on loan has been considered for 70% of the capital cost i.e. Rs 4319.05 Lakh at weighted average of 11.75%p.a.as per regulations 37.5 of APSECRRegulations 2013. The repayment has been considered equal to the depreciation claimed during the financial year as per regulation 37.4 of APSECR Regulations 2013. The interest amount works out to Rs. 124.57 Lakh for 3 months of FY 2018-19 and Rs. 489.05 Lakh for FY 2019-20 as given in Form-10.1 & 10.2.

13. OPERATION & MAINTENANCE EXPENSES

As per APSERC Regulation 2013 doesn't specify any normative Operation & Maintenance Expenses. As per clause 69.3 of APSERC Regulation 2013 the licensee has to submit the proposed norms for O&M expenses. We have considered the following norms for Operation & Maintenance Expenses for FY 2018-19, which are in accordance with CERC Tariff Regulation 2014-19. For FY 2019-20 O&M expenses have been considered with annual escalation @ 5.72%. The norms considered are shown in Form-T3 and details are shown hereunder:

Rs. In Lakh

Particulars	Unit	FY18-19	FY19-20
Single Circuit Single Conductor	Rs.Lakh/ Km.	0.230	0.243
Double Circuit Single Conductor	Rs.Lakh/ Km.	0.346	0.366
132 kV Bay	Rs.Lakh / Bay	34.36	36.325

The annual escalation has been taken as 5.72%.

Based on this the Operation & Maintenance expenses works out to Rs.36.32Lakh for 3 months (January- March, 2019) for financial year 2018-19 and Rs.155.72Lakh for financial year 2019-20 respectively as per table given below:

Table

Rs. In Lakh

Particulars	Length	Normative Charges FY 2018-19	FY18-19 (3 months)	Normative Charges FY 19-20	FY19-20
Single Circuit Single Conductor	10.5 Km.	Rs. 0.230 Lakh/ Km.	0.60	0.243Lakh h/Km	2.551
Double Circuit Single Conductor	21.5 Km.	Rs. 0.346 Lakh/ Km.	1.83	0.366Lakh h/Km	7.869
132 kV Bay	4 Nos.	Rs.34.36 Lakh / Bay	33.89	36.325Lakh/Bay	145.30
Total			36.32		155.72

14. INTEREST ON WORKING CAPITAL

Interest on working capital has been claimed on normative basis based on Regulation 39.2 of APSERC Regulations 2013 as per details given in table below: -

Rs. In Lakh

Sl. No.	Particulars	FY 18-19	FY 19-20
1	2	3	4
1	O&M expenses for one month	12.11	12.98
2	Maintenance Spares (@1% of Capital Cost with annual escalation of 6%)	61.70	65.40
3	Receivables equivalent to 1 months of fixed cost i.e. Transmission charges	103.36	103.52
5	Total Working Capital	177.17	181.90
6	Interest Rate	13.45%	13.45%
7	Interest on Working Capital	5.96	24.47

As per Regulation 39.2 the interest on working capital has to be taken as per State Bank Advance Rate (SBAR) of SBI. As now the bank has renamed the same as Benchmark Prime Lending Rate (BPLR) we have considered the rate of interest as 13.45% presently prevailing rate of SBI as on 01.04.2018. The details are attached as per Form – T11.

15. DEPRECIATION

The details of assets on which depreciation has been claimed as per straight line method are shown in Form– T9.1& T9.2 and as given in Table below for FY 2018-19& FY 2019-20

The transmission system cost is Rs. 6170.07 Lakh and depreciation is claimed as per the APSC Regulation clause 38 Annexure-1, for first 13 years or till the assets achieved depreciable value. Salvage value has been considered as 10 %.

Table

Rs. In Lakh

Particulars	Total Assets	Rate of Depreciation	Depreciation charges	
			FY 2018-19 (3 months)	FY 2019-20
Transmission System	6170.07	As per Regulations	78.46	313.85

16. INCOME TAX

In accordance with APSC Regulation 2013 clause no 40, Income Tax as per actual payment made will be recovered from the beneficiary(s).

17. ANNUAL LICENSING FEE

The annual license fee paid will be recovered from the beneficiary(s).

17.1. Summary of Aggregate Revenue Requirement (ARR) for Transmission

All the expenses as mentioned above is attached at Form-T7 and also given in table below:

Rs. In Lakh

S. No.	Particulars	Current Year 2018-19 (3 months) (Estimated)	Ensuing Year 2019-20 (Projected)
1	Normative Annual O & M Cost	36.32	155.72
2	Depreciation	78.46	313.85
3	Interest and Finance Charges	124.57	489.05
4	Interest on Working Capital	5.96	24.47
5	Return on Equity	64.79	259.14
6	Income Tax	0.00	0.00
7	Total Fixed Costs	310.09	1242.23
8	Less: Expenses Capitalized	0.00	0.00
9	Less: Any other Income	0.00	0.00
10	Net Annual Transmission Charges	310.09	1242.23

17.2. Calculation of Fixed Transmission Charges

The details are shown in Form – T8 and given in table below:

Particulars	Current Year 2018-19 (3 months) (Estimated)	Ensuing Year 2019-20 (Projected)
Annual Transmission Charges (Rs. Lakh)	310.09	1242.23
Total MW Allocation (MW)	24.00	24.00
Transmission Tariff (Rs./MW/Day)	3539.87	14180.69
Energy Transferred (MU)	93.66	93.66
Transmission Tariff (Paisa/Unit)	33.11	132.63
Monthly Payment (Rs. Lakh)	77.52	103.52

18. PRAYER

The Hon'ble Commission is hereby requested to kindly

- (1) Approve the capital cost of Transmission System.
- (2) Approve the Aggregate Revenue Requirement (ARR) for 3 months of FY 2018-19&FY2019-20.
- (3) Approve the Transmission Chargesfor FY 2018-19&FY 2019-20
- (4) Allow furnishing of any additional data / information and / or to modify the information already submitted.

- (5) And pass such other and further orders as are deemed fit and proper in the facts and circumstances of the case by the Commission.

Enclosure

Clause No.	Annexure Name	Annexure No.
2.2	Memorandum of Agreement with Government of Arunachal Pradesh on 17th March 2011	Annexure-A
3	Copy of the Order dated 25th September 2018 against Petition No. TP 05 in which PPA is approved.	Annexure-B
3	Copy of the Power Purchase Agreement (PPA) with Department of Power Development, Government of Arunachal Pradesh signed on 16th October, 2018	Annexure-C
4	Letter of comfort for transmission connectivity from Chief Engineer (Power) TP&M Zone department of power Government of Arunachal Pradesh vide letter number CE(P) /TPM2/W-37/2015-16/3313-28 Dated 22nd February 2016	Annexure-D
4	The approval of transmission connectivity by the Department of Power Development, Government of Arunachal Pradesh vide No. PWRS/W.2803/2016(pt) dated 2nd June, 2016	Annexure-E
4	Copy of the Arunachal Pioneer Newspaper cutting for Grant of Transmission License, notice published on 24th April, 2018.	Annexure-F
4	Copy of the ECHO of Arunachal Newspaper cutting for Grant of Transmission License, notice published on 25th April, 2018.	Annexure-G
4	Copy of Transmission License No. 1 dated 12th July 2018 granted by the Hon'ble Commission	Annexure-H
4	The single line diagram showing the 132 KV single circuit line from Dikshi HEP to Tenga Switching substation and 132 KV double circuit line from Tenga S/s to the to Nechipu on 132 kV line from Bhalipara – Khuppi as LILO	Annexure-I
4.1	Power Grid Corporation of India Ltd (PGCIL) Report for estimated capital cost of the Transmission System	Annexure-J
4.1.2 I	Various Orders issued by the Deputy Commissioner, Bomdila during June, July & August 2018 for closure of Road	Annexure-K
5	Copy of the Contract Agreement dated 5th June, 2016.	Annexure-L
5	Copy of the Work order issued for supply of additional material to M/s PK Thungon Builders Pvt. Ltd. on 1st July, 2017	Annexure-M
5	Copy of Land Lease Agreement signed between Secretary, RDGMM Village Society, PO & PS - Rupa, & DEVI Energies Pvt. Ltd dated 2nd April, 2017	Annexure-N
5	The copy of Agreement No.1 signed between Secretary, RDGMM Village Society, PO& PS- Rupa dated 15th July, 2016 for Use / Access Permit of Land.	Annexure-O
5	The copy of Agreement No. 2 signed between Secretary, RDGMM Village Society, PO& PS- Rupa dated 15th July, 2016 for Use / Access Permit of Land.	Annexure-P

Clause No.	Annexure Name	Annexure No.
7.1	The certificate issued by A.M. REDDY & D.R. REDDY, Chartered Accounts, Hyderabad dated 23rd May, 2018.	Annexure-Q
13	IREDA letter for Sanction of Term Loan Letter No. 221/2918/SHP/2014/IREDA/753 dated 04.08.2014	Annexure-R
13	Sanction of Additional Term Loan IREDA letter No. - 221/2918/SHP/2014/IREDA/1075 dated 24.05.2017	Annexure-S
13	Sanction of Additional Term Loan IREDA letter No. - 221/2918/SHP/2014/IREDA/3723 dated 25.09.2018	Annexure-T
13	IIFCL Letter for Modification in terms of Sanction of Term loan Letter Ref No. IIFCL/Credit/2014-15/ 7035 dated 19/02/2015	Annexure-U
13	IIFCL, Sanction of Additional Term Loan Letter Ref No. IIFCL/DEPL/2016-17/ 33421 dated 16/03/2018	Annexure-V
13	State Bank of Hyderabad - Commercial branch, Secunderabad - Sanction of Term Letter No. F/DEPL/ dated 03/02/2015	Annexure-W
13	State Bank of India, Commercial Branch, Secunderabad- SME Advances: Sanction of (Fund based Limit) of Additional Term Loan Dated 10/01/2018	Annexure-X

ABBREVIATIONS

Amp	Ampere
AP	Arunachal Pradesh
APPWD	Arunachal Pradesh Public Work Department
APSERC	Arunachal Pradesh State Electricity Regulatory Commission
ARR	Annual Revenue Requirement
BIL	Basic Insulation Level
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
cfm	Cubic Feet per minute
CGS	Central Generating Station
COD	Commissioning Date of Project
CTs	Current Transformers
CUF	Capacity Utilization Factor
cum	Cubic meter
Cumec	Cubic Meter per second
d/s	Downstream
DEM	Digital Elevation Model
DEPL	Devi Energies Pvt. Ltd.
DPR	Detailed Project Report
EHV	Extra High Voltage
EI	Elevation
EOT	Electric Overhead Travelling
EPS	Electric Power Survey
FRL	Full Reservoir Level
FRP	Financial Restructuring Plan
FY	Financial Year
FY 19	Financial Year 2018-2019
FY 20	Financial Year 2019-2020
GFA	Gross Fixed Assets
GIS	Geographical Information System

GoAP	Government of Arunachal Pradesh
GOI	Government of India
GSI	Geological Survey of India
GSS	Grid Sub Station
Ha-m	Hectare Meter
HEP	Hydro Electric Project
HFL	Highest Flood Level
HRT	Head Race Tunnel
HT	High Tension
HV	High Voltage
Hz	Hertz
ID	Internal Diameter
IDC	Interest During Construction
IRR	Internal Rate of Return
KM	Kilometer
kWh	Kilo Watt Hour
LAVT	Lightning Arrestor and Voltage Transformers
LD/SLDC	State Load Dispatch Centre
LT	Low Tension
LU	Lakh Units
m	Meter
MCLR	Marginal Cost Lending Rate of State Bank of India (SBI)
MDDL	Minimum Draw Down Level
MKW	Metric Kilowatt
MU	Million Units
MVA	Mega Volt Ampere
MVAR	Mega Volt Ampere Reactive
MW	Mega Watt
MWL	Maximum Water Level
MYT	Multi Year Tariff
NFA	Net Fixed Assets

NSL	Natural Surface Level
O&M	Operation & Maintenance
OA	Open Access
OD	Outer Diameter
OPU	Oil Pressure Unit
PCC	Plain Cement Concrete
PCD	Pitch Circle Diameter
PFR	Pre-Feasibility Report
PGCIL	Power Grid Corporation of India Limited
PLCC	Power Line Carrier Communication
PLF	Plant Load Factor
PPA	Power Purchase Agreement
PTs	Potential Transformers
Pu	Per Unit
PX	Power Exchange
R&M	Repairs and Maintenance
RD	Reduced Distance
RES	Renewable Energy Sources
RoE	Return on Equity
ROI	Rate of Interest
RPM	Revolution per Minute
Rs. / INR	Indian Rupees
Sqm	Square Meter
TWL	Tail Water Level
u/s	Upstream
UCB	Unit Control Board
XLPE	Cross Linked Polyethylene