## U.P. Power Transmission Corporation Limited उ० प्र० पावरट्रान्सिमशनकार्पोरेशनलिमिटेड

(उ० प्र० सरकारका उपकम)

कार्यालय :: निदेशक (नियोजनएवंवाणिज्य) 5वांतल, शक्तिभवन, 14—अशोक मार्ग, लखनऊ—226001 रैक्स—8511फोन नं0—0522 2288530



CIN No.- U40101UP2004SGC028687 GSTIN- 09AAACU8823£1Z9 Office of the
Director (Planning&Commercial)
5<sup>th</sup> floor, Shakti Bhawan,
14- Ashok Marg, Lucknow-226001
Phone- 0522 2218511
Email- Director\_comm @upptcl.org

Date: 19th Novmber, 2022

No. 205 Dir(P&C)/UPPTCL/2022

To,

The Secretary

Central Electricity Regulatory Commission 3<sup>rd</sup>& 4<sup>th</sup> Floor, Chanderlok Building 36, Janpath, New Delhi- 110001.

Sub: Petition for Truing up Tariff for 2014-19 tariff block and for determination of transmission tariff for 2019-24 tariff block in respect of Uttar Pradesh Power Transmission Corporation Limited (UPPTCL) owned Transmission Lines/System conveying electricity to other States.

Sir.

This application is filed under Regulation-86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations'1999 and Regulation-8 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations'2014 for determination of Truing up Tariff for 2014-19 tariff block and Regulation-9 of Central Electricity Regulatory Commission (Term and Condition of Tariff) Regulation' 2019 for determination of transmission tariff for 2019-24 tariff block may please be registered. The applicable filing fee is already submitted to the Hon'ble Commission and details of the same are provided in the attached Form I.

Submitted for kind consideration of Hon'ble Commission please.

Thanking you,

Encl:- As Above (1+2 Copies)

Yours Faithfully,

Manoj Singh Superintending Engineer,

Attach to

Director (Planning & Commercial),

CC:

1- PS to Managing Director, UPPTCL.

2- Director (P&C), UPPTCL, Lucknow.

## BEFORE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION NEW DELHI PETITION NO. ...../TT/2022

#### **Petition For:**

Approval under Regulation-86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations'1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2014 for Truing up Transmission Tariff for 2014-19 Tariff Block and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2019 for determination of Transmission Tariff for 2019-24 Tariff Block for in respect of Uttar Pradesh Power Transmission Corporation Limited (UPPTCL) owned Transmission Lines/System conveying electricity to other States.

TRUING UP TARIFF FOR CONTROL PERIOD 2014–2019 AND
TARIFF FOR CONTROL PERIOD 2019-24

Uttar Pradesh Power Transmission Corporation Limited

<u>Registered Office:</u>

5<sup>th</sup> Floor, Shakti Bhawan, 14 Ashok Marg, Lucknow – 226001 (Uttar Pradesh)

1

(मनोज सिंह) अधीक्षण अभियन्ता सम्बद्ध निवेशक (भियोजन एवं वाणिज्य) उ०प्र०पा०द्वाटका०लि०

Judin

## BEFORE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION NEW DELHI PETITION NO. ...../TT/2022

### **Petition For:**

Approval under Regulation-86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations'1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2014 for Truing up Transmission Tariff for 2014-19 Tariff Block and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2019 for determination of Transmission Tariff for 2019-24 Tariff Block for in respect of Uttar Pradesh Power Transmission Corporation Limited (UPPTCL) owned Transmission Lines/System conveying electricity to other States.

### Uttar Pradesh Power Transmission Corporation Limited,

5th Floor, Shakti Bhawan, 14 Ashok Marg, Lucknow – 226001 (Uttar Pradesh)

Petitioner

#### Power Grid Corporation of India Ltd.,

Saudamini, Plot No.2. Sector-29, Near IFFCO Chowk, Gurgaon (Haryana)- I 2200 I and Others

Respondent

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## FILED BY Uttar Pradesh Power Transmission Corporation Limited

Represented by

Manoj Singh Superintending Engineer, Attach to

Director (Planning & Commercial)

(मनोज सिंह) अधीक्षण अभियन्ता सम्बद्ध निदेशक (नियोजन एवं वार्णण्य) सञ्ज्ञपाठ्याठ्याठकाठलिठ

Place: Lucknow

Dated: 19th November 2022

## U.P. Power Transmission Corporation Limited उ० प्र० पावरट्रान्सिमशनकार्पोरेशनलिमिटेड

(७० प्र० सरकारका उपकम)

कार्यालय = निदेशक (नियोजनएवंवाणिज्य) 5वांतल, शवितभवन, 14—अशोक मार्ग, लखनऊ—226001 रैक्स—8511फोन नं0—0522 2288530



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Director (Planning&Commercial)
5<sup>th</sup> floor, Shakti Bhawan,
14- Ashok Marg, Lucknow-226001
Phone- 0522 2218511
Email- Director\_comm @upptcl.org

Date: 19th Novmber, 2022

No. 805 Dir(P&C)/UPPTCL/2022

To,
The Secretary
Central Electricity Regulatory Commission
3<sup>rd</sup>& 4<sup>th</sup> Floor, Chanderlok Building
36, Janpath, New Delhi- 110001.

Sub: Petition for Truing up Tariff for 2014-19 tariff block and for determination of transmission tariff for 2019-24 tariff block in respect of Uttar Pradesh Power Transmission Corporation Limited (UPPTCL) owned Transmission Lines/System conveying electricity to other States.

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Submitted for kind consideration of Hon'ble Commission please.

Thanking you,

Encl:- As Above (1+2 Copies)

Yours Faithfully,

Manoj Singh Superintending Engineer, Attach to

Director (Planning & Commercial),

CC:

1- PS to Managing Director, UPPTCL.

2- Director (P&C), UPPTCL, Lucknow.

# BEFORE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION NEW DELHI PETITION NO. ...../TT/2022

#### **Petition For:**

Approval under Regulation-86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations'1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2014 for Truing up Transmission Tariff for 2014-19 Tariff Block and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2019 for determination of Transmission Tariff for 2019-24 Tariff Block for in respect of Uttar Pradesh Power Transmission Corporation Limited (UPPTCL) owned Transmission Lines/System conveying electricity to other States.

Uttar Pradesh Power Transmission Corporation Limited,

5th Floor, Shakti Bhawan, 14 Ashok Marg, Lucknow – 226001 (Uttar Pradesh)

Petitioner

Vs

- Power Grid Corporation of India Ltd., Saudamini, Plot No.2. Sector-29, Near IFFCO Chowk, Gurgaon (Haryana)- I 2200 I
- U.P. Power Corporation Limited (UPPCL)
   Shakti Bhawan, 14 Ashok Marg, Lucknow- 226001
   Represented by Managing Director
- Noida Power Company Ltd., (NPCL)
   Commercial Complex, H Block, Alpha -II Sector
   Greater Noida City- 201308
- Delhi Transco Ltd.
   Shakti Sadan, Kotla Road, New Delhi- 110002

(मगोज लिए) उम्मान व व व व सम्बद्ध निदेशक (च्यान प्रमाण उ०प्र0पाठहावकाठलिठ

Lugar

5. Power Transmission Corporation of Uttarakhand Ltd.
Basant Vihar Enclave, Dehradun-248002

- Rajsthan Rajya Vidyut Pareshan Nigam Ltd Vidyut Bhawan, Vidyut Marg, Jaipur- 302005
- Bihar State Power Transmission Company Ltd.
   Vidyut Bhawan, Bailey Road, Patna -1- 800001
- 8. MP Power Transmission Company Limited
  Block No.2, Shakti Bhawan, Rampur, Jabalpur 482 008 (M.P.)

\_\_ Respondents

(मनोज सिंह) अवीक्षण अनिमन्ता सम्बद्ध निदेशक (निदोनन एवं बाजा)

उ०प्रवपावद्गवकावनिव

Sunjung



उत्तर प्रदेश UTTAR PRADESH

65AE 192725

Affidavit on behalf of Uttar Pradesh Power Transmission Corporation Limited

I, Shri Manoj Singh S/o Dr. U. B. Singh, aged 56 years, having my office at 5th Floor, Shakti Bhayyan, 14 Ashok Marg, Lucknow – 226001 (Uttar Pradesh) do solemnly affirm and say as follows: -

- I am the Superintending Engineer, (Planning & Commercial) of the Uttar Pradesh Power Transmission Corporation Limited and the Petitioner in the above matter and I am duly authorized by the said petitioner to make this affidavit.
- I submit that an enclosed Petition is being filed for Determination of tariff in respect of UPPTCL owned Transmission Lines/System conveying electricity to other States for the period from 1<sup>st</sup> April, 2019 to 31<sup>st</sup> March, 2024 in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019. Further, it is also filed for True-Up tariff for Tariff period 2014-19,
- I submit that no other Petition except this Petition has been filed directly or indirectly for approval of tariff in respect of UPPTCL owned Transmission Lines/System conveying electricity to other States for the period from 1st April, 2019 to 31st March, 2024 and True-Up tariff for Tariff period 2014-19.

The statements made in the enclosed submission are based on the information from the concerned officers of the organization and I believe them to be true.

R.C. VERAVIA Adv. & NOFARY Lucknow U.P. INDIA Lucknow U.P. INDIA Lucknow U.P. INDIA Lucknow U.P. INDIA

Appnent/Executed/Se

Sworn and Before me

> (मनोज सिंह) अधीक्षण अभियन्ता सम्बद्ध निदेशक (नियाजन एवं वाणिज्य)

उ०प्र०पा०द्रा०का०लि०

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5. I say that there are no proceedings pending in any court of law tribunal or arbitrator or any other authority, wherein the Petitioners are a party and where issues arising and/or reliefs sought are identical or similar to the issues arising in the matter pending before the Hon'ble Commission.

I solemnly affirm at Lucknow on this 28<sup>th</sup> day of September 2022 that the contents of the above affidavit are true to my knowledge, no part of it is false, and nothing material has been concealed there from.

(मनोज सिंह) अधीक्षण अनियन्ता सम्बद्ध निवेशक (नियोजन एवं वाणिज्य)

उ०प्र०पा०ट्रा०का०लि०

Identified before me:

Superintending Engineer, (Planning & Commercial)

**UPPTCL**, Lucknow

Date: 28 September 2022

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R.C. VERISORD

Adv. & MOTA CY
Collectors of Fubia
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28/9/2022 fujur

# BEFORE HON'BLE CENTRAL ELECTRICITY REGULATORY COMMISSION NEW DELHI PETITION NO. ...../TT/2022

### Petition For:

Approval under Regulation-86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations'1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2014 for Truing up Transmission Tariff for 2014-19 Tariff Block and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2019 for determination of Transmission Tariff for 2019-24 Tariff Block for in respect of Uttar Pradesh Power Transmission Corporation Limited (UPPTCL) owned Transmission Lines/System conveying electricity to other States.

Uttar Pradesh Power Transmission Corporation Limited,

5th Floor, Shakti Bhawan, 14 Ashok Marg,

Lucknow - 226001 (Uttar Pradesh)

Petitioner

Power Grid Corporation of India Ltd.,

Saudamini, Plot No.2. Sector-29, Near IFFCO Chowk,

Gurgaon (Haryana)- 122001 and Others

Respondent

#### MOST RESPECTFULLY SHOWETH:

- The Petitioner, Uttar Pradesh Power Transmission Corporation Limited, incorporated in 2006 under the Companies Act 1956, having its registered office at Shakti Bhawan, 14 Ashok Marg, Lucknow - 226001 (Uttar Pradesh)
- UPPTCL is also a State Transmission Utility in the State of Uttar Pradesh with a dedicated responsibility of planning, developing, operating and maintaining the State Transmission System to facilitate transmission of electricity from its source to load centers.
- 3. In pursuance of the reforms and restructuring, Uttar Pradesh Power Corporation Limited (UPPCL) was formed as a successor entity of the erstwhile Uttar Pradesh State Electricity

अधीवाग अनियन्ता सम्बद्ध निदेशक (नियाजन एवं वाणिज्य) उठप्रणाठारा कार्लिक

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Board (UPSEB) through the first statutory transfer scheme notified by the State Government of Uttar Pradesh on 14.01.2000 to manage the transmission and distribution business within the state. Subsequently, the State Government notified the second transfer scheme on 12.08.2003 wherein UPPCL retained the transmission, SLDC and Bulk Supply business of the state with itself, while transferring the distribution and retails supply of the state to the four distribution companies.

- 4. Under this scheme, the role of UPPCL was specified as "Bulk Supply Licensee" as per the license granted by the Uttar Pradesh Electricity Regulatory Commission (UPERC) and as "State Transmission Utility". Subsequently, the Uttar Pradesh Power Transmission Corporation Limited (UPPTCL), was incorporated under the Companies Act, 1956. Further, Government of Uttar Pradesh vide notification dated 18.07.2007 notified UPPTCL as STU of Uttar Pradesh. Subsequently, on 23.12.2010, the Government of Uttar Pradesh notified the Uttar Pradesh Electricity Reforms Scheme, 2010 which provided for the transfer of assets and Liabilities from UPPCL to UPPTCL. The UPPTCL is entrusted with the business of transmission of electricity energy to various utilities within the state of Uttar Pradesh.
- 5. The Hon'ble Commission in its order dated 14.03.2012 in Petition No. 15/SM/2012 had identified 11 (eleven) regional transmission lines and three (3) inter-regional lines as mentioned below, for inclusion in the PoC transmission charges computation and directed UPPTCL to file petition accordingly:

S. No.	Name of Line	Connecting States	CERC Rei
1	400KV line from Roorkee- Muzaffarnagar	Uttarakhand-Uttar Pradesh	NR-1
2	220 KV line from Khodri-Saharanpur-1	Uttarakhand-Uttar Pradesh	NR-2
3	220 KV line from Khodri-Saharanpur-2	Uttarakhand-Uttar Pradesh	NR-3
4	400KV line from Kashipur-Moradabad	Uttarakhand-Uttar Pradesh	NR-4
<del></del> -	220KV line from Pantnagar-Barcilly	Uttarakhand-Uttar Pradesh	NR-5
6	220KV line from Patarganj-Sahibabad	Delhi-Uttar Pradesh	NR-6
7	220KV line from Gazipur-Noida Sec	Delhi-Uttar Pradesh	NR-7
8	220KV line from Bharatpur-Agra	Rajasthan-Uttar Pradesh	NR-8
9	220KV line from Noida-Gazipur-BTPS	Uttar Pradesh- Delhi	NR-20
10	400KV line from Manduala-Bawana-i	Uttar Pradesh- Delhi	NR-24
11	400KV line from Manduala-Bawana-2	Uttar Pradesh- Delhi	NR-25

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अधीक्षण अभियन्ता सम्बद्ध निदेशक (निद्यालन एवं वाणिच्य) उठप्रठपाठट्राठकाठहरू

S. No.	Name of Line	Connecting States	CERC Ref No.
12	220KV line from Pusauli-Sahupuri	Power Grid (ER)-Uttar Pradesh	IR-9
13	220KV line from Malanpur-Auraiya	Madhya Pradesh - Uttar Pradesh	IR-10
14	220KV line from Meghgaon-Auraiya	Madhya Pradesh - Uttar Pradesh	ΠR-11

6. Excluding Line No. NR-24, NR-25, IR-10 & IR-11 since not owned and maintained by UPPTCL, for remaining lines UPPTCL had filed Petition No.286/TT/2013 for determination of tariff for inclusion in PoC charges as noted below:

S. No.	CERC Ref. No.	Asset	Type of line	S/C or D/C	Voltage(KV)	No. of Bay maintained by UPPTCL	Line Length(ckm.)	Remarks (Ownership with UPPTCL)
1	NR-I	400KV Roorkee-Muzaffamagar	AC	S/C	400	1	70.80	
2	NR-2	220KV SC Khodri-Saharanpur-1 Line	AC	S/C_	220	1	83.33	83.33km
3	NR-3	220KV SC Khodri-Saharanpur-2 Line	AC	S/C	220	1	81.05	81.05km
4	NR-4	400KV Moradabad-Kashipur Line	AC	S/C	400	1	110.89	
5	NR-5	220KV SC Bareilly-Pantnagar Line	AC	S/C	220	1	5.50	5.501km
6	NR-6	220KV DC Sahibabad-Patarganj Line	AC	D/C	220	2	7.00	7.002km
7	NR-7	220KV SC Noida Sec 62- Ghazipur Line	AC	S/C	220	1 00	3.00	3.00km
8	NR-8	220KV Bharatpur-Agra Line	AC	S/C	220	1	49.00	
9	NR-20	220KV SC Noida Sec 20- Ghazipur Line	AC	S/C	220	-	4.35_	4.354km
10	NR-20	220KV SC Noida Sec 20-BTPS Line	AC	S/C	220	1	13.30	13,303km
11	IR-9	220KV SC Sahupuri Pasuali Line	AC	S/C	220	1 = =	72.00	36.70km

7. Subsequently, Hon'ble Commission, vide order dated 15.02.2016 in Petition No. 286/TT/2013 determined and allowed the annual transmission charges to be considered in YTC as per Sharing of inter-State Transmission Charges and Losses Regulation, 2010 for following lines:

(गनील सिंह) अवीक्षण अनियन्ता स्मृद्ध स्टिशन (जिल्हेस

सम्बद्ध निर्देशक (निर्वालम एव वाणिका) स्वकृतमात्रहावकावित

S. No.	CERC Ref. No.	Asset	Type of line	S/C or D/C	Voltage(KV)	No. of Bay maintained by UPPTCL	Line Length (ckm.)	Remarks (Ownership with UPPTCL)
1	NR-2	220KV SC Khodri- Saharanpur-1 Line	AC	S/C	220	1	83.33	83,33 km
2	NR-3	220KV SC Khodri- Saharanpur-2 Line	AC	S/C	220	1	81.05	81.05 km
3	NR-5	220KV SC Bareilly-Pantnagar Line	AC	S/C	220	1	5.50	5.501 km
4	NR-6	220KV DC Sahibabad- Patarganj Line	AC	D/C	220	2	7.00	7.002 km
5	NR-7	220KV SC Noida Sec 62- Ghazipur Line	AC	S/C	220	1	3.00	3.00 km
6	NR-20	220KV SC Noida Sec 20- Ghazipur Line	AC	S/C	220	-	4.35	4.354 km
7	NR-20	220KV SC Noida Sec 20 BTPS Line	AC	S/C	220	1	13.30	13.303 km
8	IR-9	220KV SC Sahupuri-Pasauli Line	AC	S/C	220	1	72.00	36.70 km

- 8. Further, the 220 kV Muzaffarnagar (Nara)-Roorkee line was identified and certified by the NRPC as assets of non ISTS licensees being used for inter-State transmission in accordance with Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulation, 2010. NRPC vide letter no. NRPC/SE(C)/Implementation Committee/2010 dated 22.10.2010 issued the record of discussion of meeting held on 13.10.2010 at NRPC, New Delhi regarding identification of assets of non-ISTS licensees being used for inter-state transmission. The copy of the NRPC minutes is provided in the Annexure 1.
- Subsequently, the Petitioner had sought approval of tariff for the 220 kV Muzaffarnagar (Nara)-Roorkee line in the Petition No. 168/TT/2016, in compliance of the Commission's order dated 15.02.2016 in Petition No. 286/TT/2013.
- 10. Accordingly, the Hon'ble Commission vide order dated 19.12.2017 in Petition No. 168/TT/2016 had approved the tariff for the following 9 ISTS lines:

S. No.	Name of Line	СОР	Line length (in Ckt-km)
1	220 kV Roorkee - Muzaffarnagar Line	17.9.1979	58.000

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अधीवण अनियन्ता सम्बद्ध निवंशक (भिगोद्धन एवं क्रिणिच्य) उठप्रवमावद्रावकाशील

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S. No.	Name of Line	COD	Line length (in Ckt-km)
2	220 kV SC Khodri-Saharanpur-1 Line	12.4.1972	83.330
3	220 kV SC Khodri-Saharanpur-2 Line	31.3.1980	81.050
4	220 kV SC Bareilly-Pantnagar Line	4.3.2003	5.501
5	220 kV DC Sahibabad-Patparrganj Line	31.3.1983	7.002
6	220 kV SC Noida Sec 62-Gazipur Line	26.3.2009	3.000
7	220 kV SC Noida Sec 20-Gazipur Line	31.3.1983	4.354
8	220 kV SC Noida Sec 20 BTPS Line	30.9.1985	13.303
9	220 kV SC Sahupuri-Pasauli Line	26.4.1979	36.700

11. Further, during the 34<sup>th</sup> Meeting of Technical Coordination Sub-Committee & 38<sup>th</sup> Meeting of Northern Regional Power Committee, the following lines were identified as natural Interestate lines and which are not required to be certified as ISTS:

S. No.	Name of the Transmission Line	Owner STU
1	220kV S/C Chirawa - Hissar Line	RVPN
2	132KV S/C Sadalpur (Rajgarh)-Hissar line	RVPN
3	132KV S/C Khandar-Sheopur line	RVPN
4	132KV S/C Amrapura-Sirsa Line	RVPN
5	220 KV Muzaffarnagr(Nara)-Roorkee	UPPTCL
6	132 KV SAHUPURI-KARMNASHA	UPPTCL
7	132 KV CHANDAULI- KARMNASHA	UPPTCL
8	132 KV Kiratpur-Manglore	UPPTCL
9	132 KV Chandak-Luksar	UPPTCL
10	132 KV Afzalgarh-Kalagarh	UPPTCL
11	132 KV Dhampur-Kalagarh	UPPTCL
12	132 KV LALITPUR-RAJGHAT	UPPTCL
13	132 KV ANPARA-MORWA	UPPTCL
14	132 KV BINA-MORWA	UPPTCL
15	220 kV Sarna-Udhampur	PSTCL
16	132 kV HPSEB TAP (Kangra-Kangra PS)	PSTCL

12. A copy of the 34<sup>th</sup> Meeting of Technical Coordination Sub-Committee & 38<sup>th</sup> Meeting of Northern Regional Power Committee agenda and minutes are provided in the Annexure 2 & 3 respectively.

अः चात्रः काः। सन्दद्धं निद्रायः (वात्रः एवं चात्रः) उ०४०५१०द्राठमः वर्षः

मनाज रिह

- 13. However, the above lines (S. No. 6 to 14) were not considered by the Hon'ble Commission while approving the tariff for the ISTS lines of UPPTCL in the order dated 19.12.2017 in Petition No. 168/TT/2016.
- 14. The Petitioner in the current petition has considered the above lines of UPPTCL and is seeking Truing up Tariff for 2014-19 tariff block and determination of transmission tariff for 2019-24 tariff block for the following 18 (eighteen) ISTS lines:

Asset No.	росо	Line Name	Voltage Level (kV)	Line Length (Ckt kms)
Asset I	17-Sep-79	220 kV Muzaffarnagar (Nara)- Roorkee line	220	58.00
Asset II	12-Apr-72	220 kV SC Khodri-Saharanpur- 1 Line	220	83.33
Asset III	31-Mar-80	220 kV SC Khodri-Saharanpur- 2 Line	220	81.05
Asset IV	4-Mar-03	220 kV SC Bareilly - Pantnagar Line	220	5.50
Asset V	31-Mar-83	220 kV DC Sahibabad- Patparganj Line	220	7.00
Asset VI	26-Mar-09	220 kV SC Noida Sec 62- Gazipur Line	220	3.00
Asset VII	31-Mar-83	220 kV SC Noida Sec 20- Gazipur Line	220	4.35
Asset VIII	30-Sep-85	220 kV SC Noida Sec 20-BTPS Line	220	13.30
Asset IX	26-Apr-79	220 kV SC Sahupuri-Pasauli Line	220	36.70
Asset X	1-Jan-1962	132 KV SAHUPURI- KARMNASHA	132	38.40
Asset XI	1-Jan-1992	132 KV CHANDAULI- KARMNASHA	132	17.70
Asset XII	1-Jan-1964	132 KV Kiratpur-Manglore	132	72.00
Asset XIII	1-Jan-1964	132 KV Chandak-Luksar	132	32.00
Asset XIV	1-Jan-1975	132 KV Afzalgarh-Kalagarh	132	6.09
Asset XV	1-Jan-1975	132 KV Dhampur-Kalagarh	132	45.00
Asset XVI	1-Jan-1995	132 KV LALITPUR-RAJGHAT	132	25.00
Asset XVII	1-Jan-1985	132 KV ANPARA-MORWA	132	11.50
Asset XVIII	1-Jan-1978	132 KV BINA-MORWA	132	11.50

## Capital Cost of Lines:

15. All the natural ISTS lines of UPPTCL were constructed at different time prior to 2011. Hence, the cost of these lines are not identifiable in the books of UPPTCL account

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(मर्गाज सिंह) अधीराण अभियना सम्बद्ध निदेशना (नियोजन एवं वाणिच्च) उठप्रवागतावकावनिव separately. These lines are maintained by UPPTCL to keep them active and with 100% availability to transmit the power at their rated capacity. The Hon'ble Commission in its order dated 19.12.2017 in petition No. 168/TT/2016 has also observed the difficulty faced by other state petitioners also in case of the ISTS lines as below:

"13. Commission has, in general, observed that petitioner States have been submitting the necessary information, required for determining the annual transmission charges of their inter-state transmission lines, in contrasting manner thereby causing divergence in working out the tariff. In some cases it was observed that the data related to funding and depreciation was not available and in other cases the assets have already completed, or nearing, their useful life. In most of the petitions, the states have expressed their inability in furnishing the audited capital cost of transmission lines where the lines are older. In such a scenario, tariff workings for older assets are believed to be ending in skewed results. It has been observed that the YTC figures emerging out by the existing methodology are on the higher side.

16. Accordingly, the Hon'ble Commission in the said order has designed a methodology for allowing the tariff of the ISTS lines as indicated below:

Considering these facts, Commission has conceptualized a modified methodology for determining the tariff of States' Interestate transmission lines.

14. The methodology is broadly based on the following:

...."

- (a) PGCIL's Annual Report data has been used as the reference data; based on which, year wise benchmark cost has been derived.
- (b) Useful life of TL shall be considered as 25 years. Thus, if life is more than or equal to 25 years as on 01.04.2014, only O & M and Interest on Working Capital (IWC) shall be allowed as per the existing Tariff Regulations, in lieu of complete tariff.
- (c) It is expected that the States do have the audited financial data of recently commissioned (i.e. on or after 01.04.2014) lines."
- 17. Further, for estimating the capital cost of the ISTS lines the Hon'ble Commission in the order dated 19.12.2017 in Petition No. 168/TT/2016 has observed the following methodology:

अधीरण अभयंना सम्बद्ध निवेशक (निभाजन एउं वाशिस) उठप्रवागवलावकावांसव

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"15. As per the petitions filed by the states, their ISTS lines generally have the configuration of 132 kV, 220 kV or 400 kV. In the absence of an established tariff data base, in order to develop this methodology Annual Reports of PGCIL from 1989-90 to 2013-14 have been referred to. The Annual Reports depict, inter alia, the information pertaining to year wise total transmission lines' length in ckt-lon and corresponding Gross Block. This pan-India data represents all the five transmission regions and is a composite mix of parameters like terrains, wind-zones, tower and conductor type etc. +/- 500 kV HVDC and 765 kV & above voltage level AC lines too have come up in between and the data also includes those lines. Voltage level-wise data as on 30th April 2017, obtained from PGCIL indicates that the percentage of 220 kV, 132 kV and 66 kV TL taken together makes it around 8.3 % of the total line length owned by PGCIL. Further, 132 kV TLs were established in NER prior to 1990, and Transmission Lines of 220 kV voltage levels were last commissioned in around the year 2004 in NR. Majority of the transmission lines consist of 400 kV which corresponds to 66% of the total transmission line lengths. Thus, the 400 kV and lesser voltage levels account for approximately 75% of the transmission lines. Assuming the above referred spread of voltage wise percentages for earlier years too, it can be said that the year wise average TL cost figures derived from PGCIL data, when further reduced by 25%, fairly represent the average transmission line capital cost corresponding to a 400 kV S/C line. Considering 400 kV S/C transmission line cost as reference cost, Analysis of PGCIL's indicative cost data (P/L Feb 2017) suggests the following:

S. No.	Reference cost of 400 kV S/C TL	Rs X lakh/km
1	400 kV D/C TL	1.39 X
2	220 kV D/C TL	0.57 X
3	220 kV S/C TL	0.36 X
4	132 kV D/C TI.	0.43 X
5	132 kV S/C TL	0.31 X

Therefore, for arriving at the costs of transmission lines of other voltage levels and circuit configurations, the average TL cost data shall be multiplied by the factors illustrated in the above table. Lower voltage levels can be treated as part of 132 kV. The above table contemplates Twin Moose conductor which is widely used in States' transmission lines.

16. Based on respective year end data, average transmission line length during the year has been worked out. Difference between a particular year's average TL length figures and that for the immediate preceding year provides us the transmission line length added during that year. Average gross block corresponding to transmission lines has been divided by the average TL length to arrive at the Average Cost of TL (in Rs lakh per ckt-km) during the year. Thus, considering the year of COD of a state's ISTS line and its ckt-km, its cost would be worked out by relating it to PGCIL's TL cost during that year. Although the Commission has relied on PGCIL's Annual Reports there are

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अविकार जना सम्बद्ध निवेशक (१नवजन एवं वाधिच्य) उपप्रणामामामामामा certain deviations in the cost data worked out. The year 1989-90 was the year of incorporation for PGCIL, and the transmission assets of NTPC, NHPC, NEEPCO etc were taken over by PGCIL by mid-1991-92. Thus, as the base data for these years was not available, the corresponding average cost of TL could not be worked out. The average cost from 1992-93 onwards up to 2013-14 shows an increasing trend at a CAGR of 5.17%. Therefore, for the years 1989-90, 1990-91 and 1991-92, the average cost of TL has been back derived considering the 1992-93 average cost. Similarly, abnormal dip/spikes in the TL cost for the years 1996-97, 2001-02 and 2004-05 has been corrected by considering the average values of the TL costs in the immediate preceding and succeeding years."

- 18. Out of the 18 ISTS lines for which the tariff is claimed under this petition, the Petitioner has claimed the O&M expenses and O & M and Interest on Working Capital (IoWC) expenses only for the 16 lines which have competed their useful life, in line with the methodology devised in the Para 14 of the order dated 19.12.2017 in Petition No. 168/TT/2016 as quoted above.
- 19. Further, for the ISTS lines 220 kV SC Bareilly Pantnagar Line and 220 kV SC Noida Sec 62-Gazipur Line as mentioned in the table above are yet to complete their useful life and their capital cost is derived based on the factor as discussed by the Hon'ble Commission in Para 15 & 16 of the order dated 19.12.2017 in Petition No. 168/TT/2016 as quoted above for computation of the Depreciation, Interest on Loan and Return on Equity. Accordingly, the capital cost of the lines is estimated as follows:

Asset No.	Asset IV	Asset IV
	220 kV SC Bareilly -	220 kV SC Noida Sec 62-
Line Name	Pantnagar Line	Gazipur Line
COD	4-Mar-03	26-Mar-09
Age as on 31.3.2014	11.08	5.02
Balance Life	13.92	19.98
Age as on 31.3.2019	16.08	10.02
Balance Life	8.92	14.98
Line Length (ckm)	5.50	3,00
Capital Cost Factor (K)	12.24	17.11
Capital Cost in Rs. Lakh	67.33	51.34
Debt: Equity	70:30	70:30
Debt	47.13	35.94
Equity	20.20	15.40
Cumulative. Depreciation upto 31.3.2014	39.11	13,55
Opening Loan as on 31.3,2014	8.03	22.39

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## Other Key Consideration of the Tariff Methodology:

- 20. The Hon'ble Commission in the order dated 19.12.2017 in Petition No. 168/TT/2016 has made the following considerations for approving the tariff of ISTS lines:
  - "(i) Useful life of the transmission line shall be deemed to be 25 years.
  - (ii) Prevailing depreciation rates as per the CERC (Terms & Conditions of Tariff) Regulations, 2014 shall be considered uniformly for all the previous tariff periods so as to do away with the Advance Against Depreciation which was in vogue during earlier tariff periods. Notwithstanding the depreciation considered as recovered earlier, for the purpose of these tariff calculations, remaining depreciable value shall be spread over the remaining useful life of the transmission line, where the elapsed life is more than or equal to 12 years.
  - (iii) Normative Debt-Equity ratio shall be 70:30.
  - (iv) Normative loan repayment during a year shall be deemed to be equal to the depreciation allowed for that year.
  - (v) Rate of Interest on normative loan shall be the weighted average rate of interest as derived on the basis of PGCIL's Balance Sheet.
  - (vi) In order to avoid complexity, grossing up of rate of Return on Equity with tax rate is being dispensed with.
  - (vii) Bank rate [as defined in CERC (Terms & Conditions of Tariff) Regulations, 2014] as on 1.4.2014 shall be applied for calculating the rate of interest on working capital on normative basis.
  - (viii) O & M expenses as per the CERC (Terms & Conditions of Tariff) Regulations, 2014 shall be considered.
  - (ix) Where the life of TL is more than or equal to 25 years as on 01.04.2014, only O & M expenses and IWC shall be allowed in lieu of complete tariff."
  - 21. The Petitioner, while claiming the tariff for the 18 ISTS lines (Asset I to Asset XVIII) for the tariff period from FY 2014-15 to FY 2023-24 has followed the above methodology of the Hon'ble Commission as per the order dated 19.12.2017 in Petition No. 168/TT/2016. The key assumptions and considerations in the current petition are as follows:
    - a. The Petitioner has not claimed any additional capitalization towards the 18 lines (Asset I to Asset XVIII) for the tariff period from FY 2014-15 to FY 2023-24.
    - b. Assets where the useful life is complete (i.e. Asset I to III, V, VII to XVIII), the Petitioner has claimed the O&M and IoWC expenses in line with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff)

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अधीक्षण अभिवन्ता रामाद्व निदेशक (निर्योजन एवं वाणिज्य) उठावणाकरूगकावित Regulations' 2014 for 2014-19 Tariff period and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2019 for 2019-24 Tariff Period.

- c. Capital cost of the Asset IV & VI as discussed in the Para 19 above.
- d. Return on Equity @ 15.50%
- e. Rate of Interest on loan has been considered as per the actual weighted average rate of interest on long-term loan portfolio of UPPTCL for the period form FY 2014-15 to FY 2020-21. Further, the weighted average rate of interest on long-term loans has been considered for FY 2021-22 to FY 2022-23 as per the weighted average rate applicable for the FY 2020-21. Computation of the year-wise weighted average rate of interest is provided in the Annexure 4.
- f. Depreciation is claimed in line with the applicable tariff regulations.

## 22. The Tariff for the tariff period from FY 2014-15 to FY 2023-24 is summarized as below:

## True-up Tariff for Asset I to XVIII for the period from FY 2014-15 to FY 2018-19:

Amount in Rs. Lakh)

Asset I: 220 kV Muzaffarnagar (Nara)-Roorkee line						
	2015-16	2016-17	2017-18	2018-19		
	0.00	0.00	0.00	0.00		
_	0.00	0.00	0,00	0.00		
		0.00	0.00	0.00		
		12.53	12.93	13.34		
		0.69	0.71	0.74		
			13.65	14.08		
	2014-15 0.00 0.00 0.00 11.72 0.65 12,36	2014-15         2015-16           0.00         0.00           0.00         0.00           0.00         0.00           11.72         12.12           0.65         0.67	2014-15         2015-16         2016-17           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           11.72         12.12         12.53           0.65         0.67         0.69	2014-15         2015-16         2016-17         2017-18           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           11.72         12.12         12.53         12.93           0.65         0.67         0.69         0.71		

Amount in Rs. Lakh)

Asset FY	Asset II: 220 kV SC Khodri-Saharanpur-1 Line					
	2014-15	2015-16	2016-17	2017-18	2018-19	
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0,00	
Depreciation	0.00	0.00	0.00	0.00	0,00	
Interest on Loan (IoL)	0.00	0.00	0,00	0.00	0.00	
Operation and Maintenance (O&M)	16.83	17.42	18.00	18.58	19.17	
Interest on Working Capital (IoWC)	0.93	0.96	0.99	1.03	1.06	
Total AFC	17.76	18.38	18.99	19.61	20.22	

Amount in Rs. Lakh)

Asset	Asset III: 220 kV SC Khodri-Saharanpur-2 Line						
	2014-15	2015-16	2016-17	2017-18	2018-19		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	16.37	16.94	17.51	18.07	18.64		
Operation and Maintenance (Occivi)	10.37	10171		W			

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	0.00	0.94	0.97	1.00	1,03
Interest on Working Capital (IoWC)	0.90	0.54	18.47	19.07	19.67
Total AFC	17.28	17.88	10.47	17.01	

Asset	Asset IV: 220 kV SC Bareilly - Pantnagar Line						
	2014-15	2015-16	2016-17	2017-18	2018-19		
P I	3.13	3.13	3.13	3.13	3.13		
Return on Equity (RoE)	3,56	1.38	1.38	1.38	1.38		
Depreciation (L.I.)	0.79	0.47	0.31	0.11	0.02		
Interest on Loan (IoL)	1,11	1.15	1.19	1.23	1.27		
Operation and Maintenance (O&M)	0.23	0.18	0.18	0.17	0.17		
Interest on Working Capital (IoWC)		6.31	6.18	6.03	5.97		
Total AFC	8.82	0.01	0.10	0.00			

Amount in Rs. Lakh)

Accel	Asset V: 220 kV DC Sahibabad-Patparganj Line						
Asset	2014-15	2015-16	2016-17	2017-18	2018-19		
FY (D-F)	0.00	0.00	0.00	0.00	0.00		
Return on Equity (RoE)	0.00	0,00	0.00	0.00	0.00		
Depreciation	0.00	0,00	0.00	0.00	0.00		
Interest on Loan (IoL)	2.12	2.19	2.27	2,34	2.42		
Operation and Maintenance (O&M)		0.12	0.13	0.13	0.13		
Interest on Working Capital (IoWC)	0.12		2.39	2.47	2.56		
Total AFC	2.24	2.31	2,37	44-17			

Amount in Rs. Lakh)

	Asset VI: 220 kV SC Noida Sec 62-Gazipur Line						
Asset	2014-15	2015-16	2016-17	2017-18	2018-19		
FY	2.39	2.39	2.39	2.39	2,39		
Return on Equity (RoE)	2.71	2.71	2.71	2.71	2,71		
Depreciation	2.66	2.29	1.99	1,44	1.09		
Interest on Loan (IoL)		0.63	0.65	0.67	0.69		
Operation and Maintenance (O&M)	0.61	0.03	0.20	0.19	0.18		
Interest on Working Capital (IoWC)	0.21		7.94	7.39	7.06		
Total AFC	8.58	8.22	/134	1,00	24		

Amount in Rs. Lakh)

A	Asset VII: 220 kV SC Noida Sec 20-Gazipur Line						
Asset	2014-15	2015-16	2016-17	2017-18	2018-19		
FY (P.F)	0.00	0.00	0.00	0.00	0.00		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)		0.91	0.94	0.97	1.00		
Operation and Maintenance (O&M)	0.88		0.05	0.05	0.06		
Interest on Working Capital (IoWC)	0.05	0.05	0.99	1.02	1.06		
Total AFC	0.93	0.96	0.99	1.02			

Amount in Rs. Lakh)

Asset VIII: 220 kV SC Noida Sec 20-BTPS Line						
		2016-17	2017-18	2018-19		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
		2.87	2.97	3.06		
	0.15	0.16	0.16	0.17		
	2.93	3.03	,3,13	3.23		
	2014-15 0.00 0.00 0.00 2.69 0.15 2.84	2014-15         2015-16           0.00         0.00           0.00         0.00           0.00         0.00           2.69         2.78           0.15         0.15	2014-15         2015-16         2016-17           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           2.69         2.78         2.87           0.15         0.15         0.16	2014-15         2015-16         2016-17         2017-18           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           2.69         2.78         2.87         2.97           0.15         0.15         0.16         0.16           0.20         0.16         0.16         0.16		

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Asset IX: 220 kV SC Sahupuri-Pasauli Line						
2014-15	2015-16	2016-17	2017-18	2018-19		
	0,00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
+	0.00	0.00	0.00	0.00		
	<del></del>	7.93	8.18	8.44		
		0.44	0.45	0.47		
		8.37	8.64	8.91		
	2014-15 0.00 0.00 0.00 7.41 0.41 7.82	2014-15         2015-16           0.00         0.00           0.00         0.00           0.00         0.00           7.41         7.67	2014-15         2015-16         2016-17           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           7.41         7.67         7.93           0.41         0.42         0.44	2014-15         2015-16         2016-17         2017-18           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           7.41         7.67         7.93         8.18           0.41         0.42         0.44         0.45		

Amount in Rs. Lakh)

Asset	Asset X: 132 KV SAHUPURI-KARMNASHA					
FY	2014-15	2015-16	2016-17	2017-18	2018-19	
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00	
Depreciation	0.00	0.00	0.00	0.00	0.00_	
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00	
Operation and Maintenance (O&M)	7,76	8.03	8.29	8.56	8.83	
Interest on Working Capital (IoWC)	0.43	0.44	0.46	0.47	0.49	
Total AFC	8.19	8.47	8.75	9.04	9.32	

Amount in Rs. Lakh)

Asset XI: 132 KV CHANDAULI- KARMNASHA						
	2015-16	2016-17	2017-18	2018-19		
	0.00	0.00	0.00	0.00		
+	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00		
		3.82	3.95	4.07		
		+	0.22	0.22		
				4.30		
	2014-15 0.00 0.00 0.00 3.58 0.20 3.77	2014-15         2015-16           0,00         0.00           0,00         0.00           0,00         0.00           3.58         3.70           0,20         0.20	2014-15         2015-16         2016-17           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           3.58         3.70         3.82           0.20         0.20         0.21	2014-15         2015-16         2016-17         2017-18           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           3.58         3.70         3.82         3.95           0.20         0.21         0.22		

Amount in Rs. Lakh)

Asset FY	Asset XII: 132 KV Kiratpur-Manglore						
	2014-15	2015-16	2016-17	2017-18	2018-19		
Return on Equity (RoE)	0.00	0,00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	14.54	15.05	15.55	16.06	16,56		
Interest on Working Capital (IoWC)	0.80	0.83	0.86	0.89	0.91		
Total AFC	15.35	15.88	16.41	16.94	17,47		

Amount in Rs. Lakh)

Asset XIII: 132 KV Chandak-Luksar						
2014-15	2015-16	2016-17	2017-18	2018-19		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
		6.91	7.14	7.36		
		0.38	0.39	0.41		
			7,53	7.77		
	2014-15 0.00 0.00 0.00 6.46 0.36 6.82	2014-15         2015-16           0.00         0.00           0.00         0.00           0.00         0.00           6.46         6.69           0.36         0.37	2014-15         2015-16         2016-17           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           6.46         6.69         6.91           0.36         0.37         0.38	2014-15         2015-16         2016-17         2017-18           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           6.46         6.69         6.91         7.14           0.36         0.37         0.38         0.39		

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Asset XIV: 132 KV Afzalgarh-Kalagarh						
2014-15	2015-16	2016-17	2017-18	2018-19		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00		
		1.32	1.36	1.40		
		0.07	0.07	0.08		
				1.48		
	2014-15 0.00 0.00 0.00 1.23 0.07 1.30	2014-15         2015-16           0.00         0.00           0.00         0.00           0.00         0.00           1.23         1.27           0.07         0.07	2014-15         2015-16         2016-17           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           1.23         1.27         1.32           0.07         0.07         0.07	2014-15         2015-16         2016-17         2017-18           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           1.23         1.27         1.32         1.36           0.07         0.07         0.07         0.07		

Amount in Rs. Lakh)

Asset FY	Asset XV: 132 KV Dhampur-Kalagarh						
	2014-15	2015-16	2016-17	2017-18	2018-19		
Return on Equity (RoE)	0.00	. 0.00	0.00	0.00	_0.00_		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	9.09	9,41	9.72	10.04	10.35		
Interest on Working Capital (IoWC)	0.50	0.52	0.54	0.55	0,57		
Total AFC	9.59	9.92	10.26	10.59	10.92		

Amount in Rs. Lakh)

Asset XVI: 132 KV LALITPUR-RAJGHAT						
2014-15	2015-16	2016-17	2017-18	2018-19_		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
		5.40	5.58	5.75		
			0.31	0.32		
			5.88	6.07		
	2014-15 0.00 0.00 0.00 5.05 0.28 5.33	2014-15         2015-16           0.00         0.00           0.00         0.00           0.00         0.00           5.05         5.23           0.28         0.29	2014-15         2015-16         2016-17           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           5.05         5.23         5.40           0.28         0.29         0.30	2014-15         2015-16         2016-17         2017-18           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           5.05         5.23         5.40         5.58           0.28         0.29         0.30         0.31		

Amount in Rs. Lakh)

Asset	Asset XVII: 132 KV ANPARA-MORWA						
	2014-15	2015-16	2016-17	2017-18	2018-19		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	2,32	2.40	2.48	2.56	2.65		
Interest on Working Capital (IoWC)	0,13	0.13	0.14	0.14	0.15		
Total AFC	2,45	2.54	2.62	2.71	2.79		

Amount in Rs. Lakh)

Asset FY	Asset XVIII: 132 KV BINA-MORWA						
	2014-15	2015-16	2016-17	2017-18	2018-19		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	2.32	2.40	2.48	2.56	2.65		
Interest on Working Capital (IoWC)	0.13	0.13	0.14	0.14	0.15		
	2,45	2.54	2.62	2.71	2,79		
Total AFC	2,47	Essi	2102	14			

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(गनीज सिंह) अधीरण अनियन्ता सम्बद्ध निवंशक (नियोजन एवं वाणिज्य) उठप्रठमाठद्राठकाठलिठ

## Tariff for Asset I to XVIII for the period from FY 2019-20 to FY 2023-24:

Amount in Rs. Lakh)

Asset FY	Asset I: 220 kV Muzaffarnagar (Nara)-Roorkee line						
	2019-20	2020-21	2021-22	2022-23	2023-24		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0,00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	14.62	15.08	15.66	16.18	16.76		
Interest on Working Capital (IoWC)	0.64	0.66	0.68	0.71	0.73		
Total AFC	15.25	15.74	16.34	16.89	17.49		

Amount in Rs. Lakh)

Asset FY	Asset II: 220 kV SC Khodri-Saharanpur-1 Line						
	2019-20	2020-21	2021-22	2022-23	2023-24		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	21.00	21.67	22,50	23.25	24.08		
Interest on Working Capital (IoWC)	0.92	0.95	0.98	1.01	1.05		
Total AFC	21.91	22.61	23.48	24.26	25.13		

Amount in Rs. Lakh)

Asset	Asset III: 220 kV SC Khodri-Saharanpur-2 Line						
	2019-20	2020-21	2021-22	2022-23	2023-24		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	20,42	21.07	21.88	22.61	23.42		
Interest on Working Capital (IoWC)	0.89	0.92	0.95	0.99	1.02		
Total AFC	21.31	21.99	22.84	23.60	24.44		

Amount in Rs. Lakh)

Asset IV: 220 kV SC Bareilly - Pantnagar Line						
2019-20	2020-21	2021-22	2022-23	2023-24		
	3.13	3.13	3.13	3.13		
	1.38	1.38	1,38	1.38		
		0.00	0.00	0.00		
		1.49	1.53	1.59		
		0.13	0.13	0.14		
		6.13	6.18	6.24		
	2019-20 3.13 1.38 0.00 1.39 0.13 6.03	2019-20         2020-21           3.13         3.13           1.38         1.38           0.00         0.00           1.39         1.43           0.13         0.13	2019-20         2020-21         2021-22           3.13         3.13         3.13           1.38         1.38         1.38           0.00         0.00         0.00           1.39         1.43         1.49           0.13         0.13         0.13	2019-20         2020-21         2021-22         2022-23           3.13         3.13         3.13         3.13           1.38         1.38         1.38         1.38           0.00         0.00         0.00         0.00           1.39         1.43         1.49         1.53           0.13         0.13         0.13         0.13		

Amount in Rs. Lakh)

Asset FY	Asset V: 220 kV DC Sahibabad-Patparganj Line						
	2019-20	2020-21	2021-22	2022-23	2023-24		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	2.64	2,74	2.83	2.93	3.03		
Interest on Working Capital (IoWC)	0.12	0,12	0.12	0.13	0.13		
Total AFC	2.75	2.86	2.95	3,06	3.16		

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अर्थक्षण अभिगन्ता राम्बद्ध निदेशक (निवासन एवं वाणिज्य) उ०प्रक्षणाव्हावकावतिव

Asset	Asset VI: 220 kV SC Noida Sec 62-Gazipur Line						
	2019-20	2020-21	2021-22	2022-23	2023-24		
	2.39	2.39	2.39	2.39	2.39_		
Return on Equity (RoE)	2.71	2.71	2.71	0.84	0.84		
Depreciation (IoI)	0.82	0.56	0.24	0.04	0.00		
Interest on Loan (IoL)	0.76	0.78	0.81	0.84	0.87		
Operation and Maintenance (O&M)	0.12	0.12	0.12	0.09	0.09		
Interest on Working Capital (IoWC)	6.79	6.56	6.27	4,20	4.18		
Total AFC	0.79	0.50	0.27	4120			

Amount in Rs. Lakh)

Asset FY	Asset VII: 220 kV SC Noida Sec 20-Gazipur Line						
	2019-20	2020-21	2021-22	2022-23	2023-24		
	0.00	0.00	0.00	0.00	0.00		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation (IoI)	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	1.10	1.13	1.18	1.21	1.26		
Operation and Maintenance (O&M)	0.05	0.05	0.05	0.05	0,05		
Interest on Working Capital (IoWC)	1.15	1.18	1.23	1.27	1.31		
Total AFC	1,15	1.10	3,44	2421			

Amount in Rs. Lakh)

Asset	Asset VIII: 220 kV SC Noida Sec 20-BTPS Line						
	2019-20	2020-21	2021-22	2022-23	2023-24		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00	0.00		
Depreciation Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	3.35	3,46	3.59	3.71	3.84		
Interest on Working Capital (IoWC)	0.15	0.15	0.16	0.16	0.17		
Total AFC	3.50	3.61	3.75	3.87	4.01		

Amount in Rs. Lakh)

Asset	Asset IX: 220 kV SC Sahupuri-Pasauli Line						
	2019-20	2020-21	2021-22	2022-23	2023-24		
P. town on Equity (PoE)	0.00	0.00	0.00	0.00	0.00		
Return on Equity (RoE)	0.00	0.00	0,00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	9.25	9,54	9.91	10.24	10.61		
Operation and Maintenance (O&M)		0.42	0.43	0.45	0.46		
Interest on Working Capital (IoWC)	0.40		10.34	10.69	11.07		
Total AFC	9.65	9.96	10,34	10.07	11101		

Amount in Rs. Lakh)

Asset X: 132 KV SAHUPURI-KARMNASHA						
2019-20		2021-22	2022-23	2023-24		
		0.00	0.00	0.00		
		0.00	0.00	0.00		
		0.00	0.00	0.00		
		10.37	10.71	11.10		
		0.45	0.47	0.48		
			11.18	11.58		
	2019-20 0.00 0.00 0.00 9.68 0.42 10.10	2019-20         2020-21           0.00         0.00           0.00         0.00           0.00         0.00           9.68         9.98           0.42         0.44	2019-20         2020-21         2021-22           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           9.68         9.98         10.37           0.42         0.44         0.45	2019-20         2020-21         2021-22         2022-23           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           9.68         9.98         10.37         10.71           0.42         0.44         0.45         0.47		

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अधीक्षण अनियन्ता सम्बद्ध निवेशक (निवोजन एवं व्याणिज्य) उ०प्राणगाठ्रहाठकाठलिठ

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Asset XI: 132 KV CHANDAULI- KARMNASHA						
	2020-21	2021-22	2022-23	2023-24		
	0.00	0.00	0.00	_0,00		
	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00		
		4.78	4.94	5.12		
			0.22	0.22		
			5.15	5.34		
	2019-20 0.00 0.00 0.00 4.46 0.19 4.65	2019-20         2020-21           0.00         0.00           0.00         0.00           0.00         0.00           4.46         4.60           0.19         0.20	2019-20         2020-21         2021-22           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           4.46         4.60         4.78           0.19         0.20         0.21	2019-20         2020-21         2021-22         2022-23           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           4.46         4.60         4.78         4.94           0.19         0.20         0.21         0.22		

Amount in Rs. Lakh)

Asset XII: 132 KV Kiratpur-Manglore						
2019-20	2020-21	2021-22	2022-23	2023-24		
		0.00	0.00	0.00		
		0.00	0.00	0.00		
	-	0.00	0.00	0,00		
			20.09	20.81		
			0.88	0.91		
	<del> </del>		20.96	21.71		
	2019-20 0.00 0.00 0.00 18.14 0.79 18.93	2019-20         2020-21           0.00         0.00           0.00         0.00           0.00         0.00           18.14         18.72	2019-20         2020-21         2021-22           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           18.14         18.72         19.44           0.79         0.82         0.85	2019-20         2020-21         2021-22         2022-23           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           18.14         18.72         19.44         20.09           0.79         0.82         0.85         0.88		

Amount in Rs. Lakh)

Asset FY	Asset XIII: 132 KV Chandak-Luksar						
	2019-20	2020-21	2021-22	2022-23	2023-24		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	8.06	8.32	8.64	8.93	9.25		
Interest on Working Capital (IoWC)	0.35	0.36	0.38	0.39	0.40		
	8,42	8.68	9.02	9.32	9.65		
Total AFC	0.42	0.00	7.0-		10		

Amount in Rs. Lakh)

Asset XIV: 132 KV Afzalgarh-Kalagarh						
2019-20	2020-21	2021-22	2022-23	2023-24		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00		
		1.64	1.70	1.76		
			0.07	0.08		
			1,77	1.84		
	2019-20 0,00 0.00 0.00 1.53 0.07	2019-20         2020-21           0.00         0.00           0.00         0.00           0.00         0.00           1.53         1.58           0.07         0.07	2019-20         2020-21         2021-22           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           1.53         1.58         1.64           0.07         0.07         0.07	2019-20         2020-21         2021-22         2022-23           0,00         0.00         0.00         0.00           0,00         0.00         0.00         0.00           0,00         0.00         0.00         0.00           1,53         1,58         1,64         1,70           0,07         0.07         0.07         0.07		

Amount in Rs. Lakh)

Asset	Asset XV: 132 KV Dhampur-Kalagarh						
	2019-20	2020-21	2021-22	2022-23	2023-24		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0.00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	11.34	11.70	12.15	12.56	13.01		
Interest on Working Capital (IoWC)	0.49	0.51	0.53	0.55	0.57		
Total AFC	11.83	12.21	12.68	13.10	13.57		

(गर्नाज सिंह) अभीतम् ४-नेयन्ता सम्बद्ध नियंशक (नियंग्रजन एवं वाधिज्य) उठप्रतमात्रहातकातनित

Asset XVI: 132 KV LALITPUR-RAJGHAT						
2019-20	2020-21	2021-22	2022-23	2023-24		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
	0.00	0.00	0.00	0.00		
			6.98	7.23		
			0.30	0.31		
			7.28	7.54		
	2019-20 0.00 0.00 0.00 6.30 0.27 6.57	2019-20         2020-21           0.00         0.00           0.00         0.00           0.00         0.00           6.30         6.50           0.27         0.28	2019-20         2020-21         2021-22           0.00         0.00         0.00           0.00         0.00         0.00           0.00         0.00         0.00           6.30         6.50         6.75           0.27         0.28         0.29	2019-20         2020-21         2021-22         2022-23           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           6.30         6.50         6.75         6.98           0.27         0.28         0.29         0.30		

Amount in Rs. Lakh)

Asset	Asset XVII: 132 KV ANPARA-MORWA						
	2019-20	2020-21	2021-22	2022-23	2023-24		
Return on Equity (RoE)	0.00	0.00	0.00	0.00	0.00		
Depreciation	0.00	0.00	0.00	0.00	0.00		
Interest on Loan (IoL)	0.00	0,00	0.00	0.00	0.00		
Operation and Maintenance (O&M)	2.90	2,99	3,11	3.21	3.32		
Interest on Working Capital (IoWC)	0.13	0.13	0.14	0.14	0,14		
Total AFC	3.02	3.12	3.24	3.35	3.47		

Amount in Rs. Lakh)

2019-20	3020 21			
	2020-21	2021-22	2022-23	2023-24
	0.00	0.00	0,00	0.00
		0.00	0.00	0.00
	0.00	0.00	0.00	0.00
		3.11	3.21	3.32
		0.14	0.14	0.14
		3.24	3.35	3.47
	0.00 0.00 0.00 2.90 0.13 3.02	0.00         0.00           0.00         0.00           2.90         2.99           0.13         0.13	0.00         0.00         0.00           0.00         0.00         0.00           2.90         2.99         3.11           0.13         0.13         0.14	0.00         0.00         0.00         0.00           0.00         0.00         0.00         0.00           2.90         2.99         3.11         3.21           0.13         0.13         0.14         0.14

- 23. It is prayed to Hon'ble Commission to allow the tariff as claimed above.
- 24. Under the CGST Act, 2017 implemented w.e.f. 01.07.2017, the Govt. of India vide notification no. 12/2017 Central Tax (Rate) dated 28.06.2017 at serial no. 25 under the heading 9969 "Transmission or distribution of electricity by an electric transmission or distribution utility" has exempted the charges of transmission of electricity. Hence, the Transmission Charges as indicated at Para 16 above is exclusive of GST. Further, if GST is levied at any rate and at any point of time in future on Charges of Transmission of Electricity, the same shall be borne and additionally paid by the respondent(s) to UPPTCL and the same shall be charged & billed separately by UPPTCL. Further additional taxes, if any, are to be paid by the UPPTCL on account of demand from Govt. / Statutory authorities, the same may be allowed to be recovered from the beneficiaries.

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- 25. That as per regulation 35(3)(c) of Tariff Regulation 2019, the Security Expenses and Capital Spares for transmission system shall be allowed separately after prudence check. In this regard, it is submitted that as of now UPPTCL is not claiming any such expenditure in this petition. However, UPPTCL may claim the same at the time of truing up based on actual expenditure incurred for the Tariff period 2019-24.
- 26. The application filing fee, expenses incurred on publication of Notices in Newspapers and License fee may be allowed to be recovered separately from the respondents in terms of Regulation 70(1) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019. The fees and charges to be paid by UPPTCL as ISTS licensee (deemed ISTS licensee) under Central Electricity Regulatory Commission (Fees and Charges of RLDC and other matters) Regulations as amended from time to time shall also be recoverable from the Designated ISTS Customers'(DICs) as provided under clause 70(3) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019.
- 27. The Transmission Charges and other related Charges indicated above, is exclusive of incentive, late payment surcharge, FERV, any statutory taxes, levies, duties, cess, filing fees, license fee, RLDC fees and charges or any other kind of imposition (s) and/ or other surcharges etc. whatsoever imposed / charged by any Government (Central/State) and / or any other local bodies/authorities/regulatory authorities in relation to transmission of electricity, environmental protection, and/or in respect of any of its installation associated with the Transmission System and the same shall be borne and additionally paid by the beneficiaries(s) to UPPTCL and the same shall be charged, billed separately by UPPTCL on the beneficiaries.

## **Sharing of Transmission Charges**

28. The transmission charges for the 2014-19 period shall be recovered on monthly basis in accordance with Regulation 42 and shall be shared by the beneficiaries in accordance with regulation 43 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 and shall be shared by the beneficiaries and long term transmission customers in Central Electricity Regulatory Commission (Sharing of Inter-

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े अधीक्षण अनियन्ता सम्बद्ध निदेशक (निर्माजन एवं वाणिज्य) उठप्रकाठद्वाकाठतिक State Transmission Charges and Losses) Regulation, 2010 dated 15.06.2010 or as amended/repealed from time to time.

29. Tariff for Transmission of Electricity (Annual Fixed Cost) for 2019-24 as above shall be recovered on monthly basis in accordance with Regulation 57 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 and shall be shared by the beneficiaries and long term transmission customers in Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2010 and Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 as applicable.

### Prayers

- 30. It is respectfully prayed that the Hon'ble Commission may be pleased to
  - a. Admit the instant petition and approve the Trued up Transmission Tariff for the tariff period 2014-19 and the transmission tariff for tariff period 2019-24 for the Asset I to XVIII covered under this petition.
  - b. Allow UPPTCL to recover the shortfall or refund the excess Annual Fixed Charges after Truing-up exercise as specified under Regulation 8 of Tariff Regulation 2014.
  - c. Approve the reimbursement of expenditure by the beneficiaries towards petition filing fee, and expenditure on the publishing of notices in newspapers in terms of Regulation 70(1) Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019, and other expenditure (if any) in relation to the filing of the petition.
  - d. Allow UPPTCL to bill and recover Licensee fee and RLDC fees and charges, separately from the respondents in terms of Regulation 70(3) and (4) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019.
  - e. Allow UPPTCL to claim the capital spares & security expenses at the time of truing up for tariff period 2019-24 as per actuals.
  - f. Allow UPPTCL to bill and recover GST on Transmission Charges separately from the beneficiaries, if GST on the transmission is levied, at any rate in future. Further, any taxes including GST and duties including cess, etc. imposed by any statutory/Govt. municipal authorities shall be allowed to be recovered from the beneficiaries.

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अधीक्षण कवियन्ता सम्बद्ध निवेशक (नियोजन एवं वाधिच्य) उ०प्रक्षणकारहाकारतिक

- g. Condone any shortcomings/deficiencies and allow UPPTCL to submit additional information/data at a later stage as may be required,
- h. Pass other such relief as the Hon'ble commission deems fit and appropriate under the circumstances of the case and in the interest of justice.

A my

FILED BY Uttar Pradesh Power Transmission Corporation Limited

Represented by

Manoj Singh Superintending Engineer,

Attach to

Director (Planning & Commercial)

(मनोज सिंह) अधीक्षण अभियन

रान्यः निवेशक (नियोजन उ०प्र-ाज्याणका०लि०

Place: Lucknow

Dated: 19th November 2022

Ph.: 26513265 Fax: 26567341 e-mail: <u>nrebops@yahoo.com</u> Websita: www.nrpc.gov.in

## Government of India भारत सरकार

## Northern Regional Power Committee उत्तर क्षेत्रीय विद्युत समिति

18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016 18-ए शहीद जीत सिंह मार्ग, कटबारिया सराय, नई दिल्ली- 110016

No: NRPC/SE(C)/Implementation Committee/2010/

दिनांक 22.10.2010

To,

- 1. CMD, Delhi Transco Ltd., New Delhi.
- 2. Managing Director, Haryana Vidyut Prasaran Nigam Ltd., Panchkula
- 3. CMD, HPSEB Ltd, Shimla
- 4. CMD, Punjab State Transmission Corporation Ltd., Patiala
- 5. Principal Secretary (Power), Civil Secretariat, Jammu/Srinagar
- Chairman & Managing Director
   Rajasthan Rajya Vidyut Prasaran Nigam Ltd. Jaipur.
- 7. Managing Director, U.P. Power Transmission Corporation Ltd., Lucknow
- 8. Managing Director, Power Transmission Corporation of Uttarakhand Limited (PTCUL), Dehradun
- 9. Chief Engineer, Electricity Department, UT of Chandigarh

Subject:- Record of the discussions held in the meeting held on 13.10.2010 at NRPC, New Delhi regarding identification of assets of non-ISTS licensees being used for inter-State Transmission

Sir.

A meeting was held at NRPC, New Delhi on 13.10.2010 to identify the assets of non-ISTS licensees being used for inter-State Transmission. The record of discussions held in the aforesaid meeting is enclosed. As discussed in the meeting, a list of 132 kV lines connecting two contiguous States, which form part of meshed network and are normally kept under closed condition should be submitted to NRPC Secretariat at the earliest. It is also requested that the list of identified transmission lines at 220 kV and

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अधीरण अभियता सम्बद्ध निवेशक (नियोदान एवं वाधीरव) उठप्रणाठहाठकाठहाठ

मनाज सिंह

above enclosed as Annex-II to the record of discussions may be examined and discrepancy, if any, along with additional information about these transmission lines such as length, part/full ownership etc may also be conveyed to NRPC Secretariat.

Yours faithfully,

(Ajay Talegaonkar)

SE(O),NRPC

### Copy to:

- 1. Development Commissioner (Power), Jammu & Kashmir, Bemina, Srinagar (J&K).
- 2. Director (Technical), HPSEB Ltd., Vidyut Bhawan, Kumar House Complex, Block II, SHIMLA 171 004.
- 3. Director (Operations), Delhi Transco Limited, Shakti Sadan, Kotia Road, NEW DELHI-110 002
- 4. Director (Technical), Haryana Vidyut Prasaran Nigam Ltd., Shakti Bhawan, Sector-6, PANCHKULA 134 109.
- 5. Director (Tech.), PSTCL, The Mall, PATIALA-147 001.
- 6. Director (Technical), Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Vidyut Bhawan, Jyoti Nagar, Janpath, JAIPUR-302 005
- 7. Executive Director, Power Transmission Corporation of Uttarakhand Ltd. (PTCUL), 7-B, Lane No-1, Vasant Vihar Enclave, DEHRADUN 248 001.
- 8. Chief Engineer (Transmission), U.P. Power Transmission Corporation Limited, Shakti Bhawan, 14 Ashok Marg, LUCKNOW-226 001.
- 9. Executive Director, National Load Dispatch Centre, B-9, Qutub Institutional Are, New Delhi 110 016
- 10. General Manager, N.R.L.D.C. 18-A, Shaheed Jit Singh Marg, Katwaria Sarai, NEW DELHI 110 016

#### Copy for information to:

- 1. Member Secretary, WRPC, Mumbai
- 2. Member Secretary, SRPC, Bangaluru
- 3. Member Secretary, ERPC, Kolkata
- 4. Member Secretary, NERPC, Shillong

(मनीज सिंह) अधीक्षण अनियन्ता सम्बद्ध निदेशक (नितीजन एवं वाणिच्य) उ०५०५०५,०००काली

## Record of the discussions held in the meeting held on 13.10.2010 at NRPC, New Delhi regarding identification of assets of non-ISTS licensees being used for inter-State Transmission

List of Participants is enclosed as Annex-I.

- 1. Member Secretary, NRPC welcomed the participants to the meeting. Explaining the purpose of the meeting, he stated that in accordance with Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010, RPCs are required to certify assets of non-ISTS Licensees which are being used for inter-state transmission. This meeting has been called so as to evolve criteria for identification of such assets and also to identify such assets by applying the agreed criteria. He informed that in the meeting of the Implementation Committee held on 12.10.2010, the issue was discussed in the context of uniformity in approach in various regions, but it was decided that since Southern Region constituents have agreed for a particular approach, the issue may be left to respective RPCs as prescribed in the CERC regulations.
- 2. Member Secretary, NRPC informed that CERC regulations already preserve the existing arrangement for evacuation of power from Central generating Stations using STU lines such as evacuation system for Narora Atomic Power Station in U.P. SE(O), NRPC read relevant part of the CERC Regulations namely last sentence of regulation 7 (1)(t) (vii) as reproduced below:

"Long term beneficiaries of ISGS connected to STU network shall continue to pay the transmission charges for the STU network as per the existing mechanisms."

- 3. Detailed deliberation took place regarding criteria to be adopted for identification of assets of non-ISTS Licensees which are being used for inter-state transmission. It was agreed that since it is first time the mechanism is being implemented and also since there is hardly any time left for furnishing list of such lines to the Implementing Agency (IA), a criteria, which is simple to implement can be adopted. Since this exercise is to be repeated every year, elaborate and scientific criteria, perhaps based on system studies can be adopted later. It was agreed that generally, transmission lines operating at 220 kV and above and connecting two contiguous States need to be included since such lines can contribute substantially towards regional grid operation. As regards 132 kV lines, there was general agreement that lines connecting two contiguous States, which are being used in radial mode should not be included in ISTS lines for the purpose of implementation of CERC regulation since such lines hardly make any impact at regional level.
- 4. After detailed deliberation, there was consensus for adopting following criteria for identification of assets of non-ISTS Licensees which are being used for inter-state transmission:

(i) All lines owned by non-ISTS licensees with voltage level of 220 kV and above and connecting two contiguous States would be certified as assets being used for inter-State transmission.

असाक्षण अनियन्ता गर्नेड निदेशक (नियोजन एवं क्राणिज्य) उ०प्र0470210कावदिक

However, following transmission lines shall be excluded from the above category:

(a) Transmission lines which are dedicated in nature

(b) Transmission lines emanating from sub-station of an ISTS licensee, if transmission line of no other non-ISTS licensee emanates from this sub-station.

(ii) A transmission line connecting two contiguous States and operating at 132 kV level would be certified as ISTS only if it forms part of meshed network and is normally kept under closed condition.

(iii) Lines below 132 kV level, even if they connecting two contiguous States

would not be treated as ISTS for this purpose.

- (iv) In addition, list of transmission lines which form part of STU network and are used for evacuation of power generated at ISGS, shall also be intimated to IA, even though transmission charges for such lines will be continued to be paid as per existing mechanism.
- 5. Based on the above criteria, most of the transmission lines fulfilling the above criteria were identified in the meeting. However, in respect of few 132 kV lines, there was lack of information as to whether these lines are normally closed and also whether or not they form part of meshed network. It was decided that list of such lines duly certified by respective SLDC will be sent to NRPC Secretariat by 18.10.2010. A list of lines, which can be clearly identified based on the above criteria, is enclosed as Annex-II. Also, enclosed as Annex-III is list of STU owned transmission lines, which are being used for evacuation of power from ISGS and sharing of charges for these transmission lines shall continue to be governed as per existing practice. Member Secretary, NRPC clarified that since in accordance with CERC regulations, these lines are to be certified by NRPC, the list of lines being forwarded to IA will be put up to NRPC for ratification in the upcoming meeting.
- 6. Member Secretary, NRPC stated that non-ISTS licensees are also required to furnish information regarding Yearly Transmission Charges (YTC). It was pointed out that generally SERCs work out ARR for the entire transmission network in the State and furnishing of YTC for individual line may be an issue. Member Secretary, NRPC stated that even though ARR is worked out for entire transmission system, historical cost may be available in submissions made to SERC. States were advised to get the details regarding date of commercial operation and historical cost of such lines so that YTC for such lines can be worked out. Participants from the States were of the opinion that a common methodology for working out YTC for such lines may be evolved by NRPC Secretariat. SE(O), NRPC pointed out that the CERC regulation requires YTC to have regulatory approval. After deliberation, it was decided that Member Secretary, NRPC may take up the issue regarding submission of YTC in the next meeting of Implementation Committee, so that a common approach to obviate the above mentioned difficulties may be found out.

The meeting ended with vote of thanks to the Chair.

(भनोज सिंह) अधीक्षण अभियन्ता

वधायण आमयन्ता सम्बद्ध निर्देशक (नियोजन एवं वाणिल्य)

उ०प्रथपाठट्राठकाठलिठ

## Annex-I

## List of Participants

Shri A.K. Aggarwal, Member Secretary, NRPC

..... in Chair

SI.	Name	Organistation	Designation	Mobile	E-Mail
No.					
1,	Suman Guchh	UPPTCL	EE	9415005397	sumang@721.ac.in
2.	Davindra Singh	UPPTCL	EE	9415220565	singh.davindra@gmail.com
3.	Dharam Pal Thakur	HPSEB Ltd.	AE	9418497105	thakurdp.thakur3@ gmail.com
4.	C.N. Pal	HPSEB Ltd.	AE	9418310587	<u> </u>
5.	N.K. Makkar	HVPN	EE	9466219042	hvpncecomi@yahoo.com
6.	AK Matharu	PSTCL	Dy. CE	9646118004	
7.	Vardeep S.	PSTCL	EE	9646118011	ddpc_pseb@rediffmail.com
8.	A.K.Kaul	DTL	Director (T)	9818100692	ashokk_kaul@yahoo.com
9.	V.Venugopal	DTL	DGM (SO)	9871093902	dttdate@yahoo.com
10.	Sanjeev kumar	DTL	AM (SO)	9540040917	sanjeevkumar2474@gmail.com
11.	D.K.Jain	NRLDC	DGM	9910344127	dk 2009@yahoo.co.in
12.	U.K. Tyagi	POWERGRID	GM	9910344118	umesh@powergridindia.com
13.	V.K. Aggarwal	NRLDC	GM	9818933799	vka1996@gmail.com
14.	Rajiv Porwal	NRLDC	Ch. Manager	9871581133	Rajivporwal@gmail.com
15.	Ajay Talegaoпkar	NRPC	SE(O)	9910728144	ajay.talegaonkar@gmail.com
16.	P.S. Mhaske	NRPC	SE(C)	9968667741	psmhaske@yahoo.com

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(मनीज सिंह) अधीवण अनियन्ता सम्बद्ध निदेशक (भियोजन एवं वाणिच्य) उठप्रक्षाक्ट्राक्रकालिक

## Annex-II

## <u>List of transmission lines (220 kV and above) of non-ISTS licensees being used</u> for inter-State transmission: Identified based on criteria agreed in the meeting

S.No.	Name of the line		Voltage Level (kV)	
1	Bamnauli-Bailabgarh ckt-l	DTL	400	
2	Bamnauli-Ballabgarh ckt-li	DTL	400	
3.	Sahupuri-Pasauli	UPPTCL/BSEB	220	
4.	Sahibabad-Patparganj	UPPTCL	220	
5.	Noida sec 62- Gazipur	UPPTCL	220	
6.	Noida sec 20- BTPS	UPPTCL	220	
7.	Noida sec 20- Gazipur	UPPTCL	220	
8.	Muzaffarnagar (Nara)- Roorkee	UPPTCL/PTCUL	220	
9.	Bareilly-Pantnagar	UPPTCL/PTCUL	220	
10.	Saharanpur-Khodri ckt-l	UPPTCL/PTCUL	220	
11.	Saharanpur-Khodri ckt-II	UPPTCL/PTCUL	220	
12.	Kashipur-Moradabd	UPPTCL/PTCUL	400	
13.	Muzaffamagar-Roorkee	UPPTCL/PTCUL	400	
14.	Bareilly-Pantnagar	UPPTCL/PTCUL	220	
15.	Kunihar-Panchkula	HPSEB Ltd/HVPNL	220	
16.	Baddi-Panchkula	HPSEB Ltd/HVPNL	220	
17.	Alwar- Badarpur	RRVPNL	220	
18.	Bharatpur –Agra(sikandra)	RRVPNL	220	
19.	Khetri -Hissar	RRVPNL	220	
20.	Khetri -Dadri- Ckt-I	RRVPNL	220	
21.	Khetri- Dadri- Ckt-II	RRVPNL	220	
22	Kota -Badod	RRVPNL/MPPTCL	220	
23	Morak-Badod	RRVPNL/MPPTCL	220	
24	Udhampur-Sarna	PDD J&K	220	
25	RSD-Jessore	Punjab/HPSEB Ltd	220	
26	220 kV Bhiwadi-Rewari	HVPNL	220	
27	220 kV Bhiwadi-Badshahpur	HVPNL	220	

Surjung

(पनोज सिंह) अधीक्षण अनियन्ता सम्बद्ध निदेशक (निगोजन एवं वाणिज्य) उ०त्र०पा०द्रा०व्या०लि०

#### Annex-III

# <u>List of STU owned lines being used for evacuation of power from ISGS and being paid for as per existing practice</u>

S.No.	Name of the line	Name of non-ISTS licensee	Voltage Level (kV)	
1.	NAPP-Sambhal	UPPTCL	220	
2.	NAPP-Atrauli	-do-	220	
3.	NAPP-Simbholi	-do-	220	
4.	NAPP-Khurja-I	-do-	220	
5.	NAPP-Khurja-II	-do-	220	
6.	Unchahar-Raibareillyl	-do-	220	
7.	Unchahar-Raibareilly -I!	-do-	220	
8.	Unchahar-Fatehpur-I	-do-	220	
9.	Unchahar-Fatehpur-II	-do-	220	
10.	Pampore-Kishanpur -I	PDD, J&K	220	
11.	Pampore-Kishanpur -II	PDD, J&K	220	
12.	Anta-Kota	RRVPNL	220	
13	RAPP(B)-Kota	-do-	220	
14	RAPP (B)-RAPP (A)	-do-	220	

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(मनोज शिंह) अधीकण अभियन्ता सन्दद्ध निदेशक (मियोजन एवं वाणिज्य) उ०२०५००द्वा०का०ति०

#### Annexure 2

फोन -011-26511211 फेला Fax :011-26865206 1 मेल e- mail: ms-nrpc@nic.in केलाईz Website : www.nrpc.gov.in

भारत सरकार विद्युत मंत्रालय उत्तर क्षेत्रीय विद्युत समिति 18-ए, श.जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016 Government of India Ministry of Power Northern Regional Power Committee 18-A, S. Jeet Singh Marg, Katwaria Sarai, New Delhi-110016

सं. उक्षेविस/वाणिज्यिक/209/आरपीसी (38वीं)/2016/ 9535 -9622 No. NRPC/Comml/209/RPC (38<sup>th</sup>)/2016/ दिनाँक : 17 अक्तूबर, 2016 Dated: 17<sup>th</sup> October, 2016

सेवा में / To,

उ.क्षे.वि.स. के सभी सदस्य Members of NRPC/TCC

विषय: उत्तरी क्षेत्रीय विद्युत समिति की 38 वीं तथा तकनीकी समंवय उप-समिति की 34 वीं बैठक की कार्यस्ची

Subject: 38<sup>th</sup> meeting of Northern Regional Power Committee and 38<sup>th</sup> meeting of TCC–Agenda.

महोदय / Sir,

उत्तर क्षेत्रीय विद्युत समिति की 38 वीं बैठक दिनांक 25 अक्तूबर, 2016 को 1000 बजे टीएचडीसी इंडिया लिमिटेड, बाईपास रोड़, ऋषिकेश में आयोजित की जाएगी। एन आर पी सी कि बैठक से पहले तकनीकी समन्वय उप-समिति की 34 वीं बैठक दिनांक 24 अक्तूबर, 2016 को पूर्वाह्न 10 बजे उसी स्थान पर आयोजित होगी। बैठकों की कार्यसूची संलग्न है।

The 38<sup>th</sup> meeting of Northern Regional Power Committee (NRPC) will be held at 10 AM on 25<sup>th</sup> October, 2016 at THDC India Limited Campus, Bypass Road, Rishikesh. NRPC meeting shall be preceded by 34<sup>th</sup> meeting of Technical Coordination Sub-committee (TCC) at 10 AM on 24<sup>th</sup> October, 2016 at the same venue. Agenda for the meetings is attached herewith.

भवदीय/Yours faithfully,

प्रकाश मस्के 17 10 2016

(पी.एस. मस्के/P.S. Mhaske)

सदस्य सचिव/Member Secretary

(मनोज सिंह) अधीक्षण अभियन्ता

सम्बद्ध निर्देशक (निर्देशन एवं वाणिव्य) उ०प्रणातमात्रकात्रक

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(मनोज सिंह) अधीक्षण अभियन्ता सम्बद्ध निदेशया (नियोजन एवं तालिज्य) उ०प्रकार्याठ्टाठकाठाँगेठ

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(मनोज सिंह) अधीतम् अभिकातः सम्बद्धः निवेशकः (मिशानः अभिका) उठारणस्य १९८४/५०००

#### <u>उत्तर क्षेत्रीय विद्युत समिति</u> NORTHERN REGIONAL POWER COMMITTEE

#### AGENDA FOR

# 34th MEETING OF TECHNICAL COORDINATION SUB-COMMITTEE &

#### 38th MEETING OF NORTHERN REGIONAL POWER COMMITTEE

Time & Date of TCC meeting : 10:00 Hrs. on 24.10.2016
Time & Date of NRPC meeting: 10.00 Hrs. on 25.10.2016
Venue: THDC India Limited Campus, Bypass Road, Rishikesh.

#### CONFIRMATION OF MINUTES (TCC)

#### A.1 Minutes of 33rd meeting of TCC

Minutes of 33<sup>rd</sup> meeting of TCC & 37<sup>th</sup> meeting of NRPC held on 21<sup>st</sup> and 22<sup>nd</sup> March, 2016 respectively, were circulated vide letter No. NRPC/Comml/209/RPC(37<sup>th</sup>)/2016/5417-5505 dated 13<sup>th</sup> June, 2016. No comments have been received on the minutes.

TCC may confirm the minutes.

#### CONFIRMATION OF MINUTES (NRPC)

#### A.2 Minutes of 37th meeting of NRPC

Minutes of 33<sup>rd</sup> meeting of TCC & 37<sup>th</sup> meeting of NRPC held on 21<sup>st</sup> and 22<sup>rd</sup> March, 2016 respectively, were circulated vide letter No. NRPC/Comml/209/RPC(37<sup>th</sup>)/2016/5417-5505 dated 13<sup>th</sup> June, 2016. No comments have been received on the minutes.

NRPC may confirm the minutes.

#### OPERATIONAL ISSUES

#### B.1 New Special Protection Scheme(SPSs) for Northern Region

Section 5.2 (o) of Indian Electricity Grid Code requires System Protection (SPS) Schemes to be finalized by RPCs. Accordingly, based on requirements,

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वर्षीक्षण अनियन्ता सम्बद्ध निवेशक (नियोजन एवं वाणिव्य) उठप्रवणाठावकाविक

various SPSs are recommended by Operation Coordination Sub-Committee or Protection Coordination Sub-Committee and are put up to TCC and NRPC for approval.

Subsequent to last TCC/NRPC meetings held in March 2016, following SPSs have been recommended by OCC for approval of NRPC:

- A. SPS for Kawai-Kalisindh-Chhabra generation complex recommended in 122<sup>nd</sup> OCC meeting held on 22<sup>nd</sup> April, 2016.
- B. SPS for Anpara generation Complex recommended in 122<sup>nd</sup> OCC meeting held on 22<sup>nd</sup> April, 2016.
- C. SPS for the Tehri complex for the contingency of any of the circuit of 400 kV Koteshwar-Merrut line recommended in 127<sup>th</sup> OCC meeting held on 23<sup>rd</sup> Sept., 2016

The logic for these SPSs is enclosed as Annex-I. RVPNL, vide email dated 26.07.2016 has confirmed that the SPS for Kawai-Kalisindh-Chhabra generation complex has been put into operation. However, it is understood that the automatic load shedding recommended in part (c) of the scheme has not been implemented by RRVPNL.

UPPTCL has intimated that SPSs for Tripping of either one or both ICT(s) (1000MVA, 765/400kV ICT at Unnao) or tripping of 765kV Anpara-Unnao line would be implemented by 31.12.2016.

In the 127<sup>th</sup> OCC meeting, THDC had requested that till the time SPS is implemented, there should be staggering of peaking power from Tehri HEP and Koteshwar HEP so as to keep combined output within 1100-1150 MW. Representative of UP -SLDC had stated that staggering can be done provided that SPS is implemented expeditiously and in a time bound manner. THDC had assured that SPS for Tehri complex would be implemented by 30.11.2016. Other states had requested for some more time to submit their views. After deliberations it was agreed that members of OCC would submit their view on staggering positively by 30.09.2016. It was decided in the OCC that if no comments are received from the states by 30.09.2016, then it would be presumed that they are agreeable to the proposal of staggering of peaking power from Tehri Complex up to 30.11.2016. However, till date none of the NRPC constituent has submitted any comment on this issue.

In view of foregoing discussions, following is proposed:

TCC and NRPC may grant post fact approval to the SPSs for Kawai-Kalisindh-Chhabra generation complex and Anpara generation complex.
 TCC/NRPC may seek from RVPNL the time frame for implementation of automatic load shedding of 750 MW envisaged in part (c) of the SPS for Kawai-Kalisindh-Chhabra generation complex.

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Members may deliberate and approve.

# B.2 Report of the Group Constituted for suggesting measures for the improvement in protection system among the utilities of Northern Region

Power system protection plays a vital role to ensure reliable and secure operation of the Grid. Several issues related to power system protection were observed after the twin grid disturbances in July 2012. These issues also featured prominently in the meetings of Protection Sub-Committee from time to time. It has been observed that many of these issues/tripping could have been avoided by ensuring well-functioning protection system. Therefore, need was felt to explore ways and means to bring about improvement in the field of Power System Protection among the utilities in Northern Region.

In an effort to ensure improvement in the protection system among the utilities of Northern Region, a g roup was constituted to suggest measures for improvement in protection system among the utilities of Northern Region. The group has submitted its report (copy of report enclosed at Annex-II). The report was deliberated in the 30<sup>th</sup> meeting of Protection Subcommittee held in September 2015 and the sub-committee had recommended that the report may be placed before TCC/NRPC for approval.

A summary of recommendations by the group are as under:

(i) Capacity Building:

 The group recommended three levels of training modules for three different target faculties of engineers.

Basic Training on Protection System for Substation Engineers (Level 0).

Advanced Training on Protection System for Protection System Engineers (level 2).

Advanced Training on Protection System for Protection System Engineers (level 2):

#### (ii) Resource Deployment

- Due to manpower constraints and limited resources protection group may be deployed at Circle/Zone level. The guidelines for minimum manpower to be deployed are:
  - > 400 kV Substations: One executive, One Junior Engineer and Two Technicians for 20 bays.
  - > 220 kV Substations: One executive, One Junior Engineer and Two Technicians for 30 bays.

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- > 132kV Substations: One executive, One Junior Engineer and Two Technicians for 40 bays
- Minimum requirement of Tools and plants The list of indicative tools and plants is provided in the report.

#### (iii) Protection System Maintenance

Protection systems need periodic monitoring and maintenance to ensure reliable and healthy operation. Indicative list of activities for Monthly Maintenance and Annual maintenance is provided in report.

#### (iv) Event Reporting & Monitoring

- A mechanism may be developed by the Utility for analysis of tripping by identifying nodal officer at Circle/Zone with an assigned responsibility to file an initial trip report with DR and EL details to the management, NRLDC and NRPC within 24hrs of the incident.
- A detailed report with analysis, defects observed and rectifications carried out should follow within 15 days.
- Feasibility may be envisaged to develop a web based event reporting system at NRPC/NRLDC website. The entities may log in and upload the Report, DR and EL.

#### (v) Talent Recognition Mechanism.

- The protection engineers have to often work in odd hours and under short response times. The efforts of the protection engineers need to be acknowledged by the management and rewarded as well. The reward may not necessarily be monetary. Utilities may develop mechanism of annually identifying and rewarding "Protection Circle" and "Protection Engineer" for their significant contribution towards healthy protection system.
- Similarly, at regional level, NRPC may also institute award for best performing utility and best protection engineer. Such recognitions help to boost the morale of the protection engineers and encourage them to continue excellent work.

Members may deliberate and approve the recommendations of the Group.

### B.3 System Study for Capacitor Requirement in Northern Region for the year 2016-17 and 2017-18

In the 37<sup>th</sup> NRPC meeting held in March 2016, it was decided that the task of System Studies for assessment of Capacitor requirements in Northern Region would be entrusted to CPRI. It was also decided that Member Secretary would proceed further in the matter with the approval of Chairperson, NRPC. This

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decision was taken as states of Haryana, Punjab, J&K and U.P. (MVVNL) had submitted the scheme for installation of capacitor in their respective state to the Appraisal Committee of PSDF for its funding through PSDF. Based on the decision of the Techno-Economic sub-group of PSDF, the schemes had been forwarded to NRPC for assessment.

Accordingly, Letter of Award was issued to CPRI for carrying out the studies with consultancy charges of Rs 20 Lakh plus Service tax after due approval from Chairperson, NRPC. To carry out capacitor studies, CPRI had submitted format for submission of data which were circulated to the SLDCs vide letter dated 13.07.2016. The formats were also circulated in 125th OCC meeting held on 22nd July, 2016. Further a separate letter dated 19.08.2016 was written by Member Secretary, NRPC to TCC members of STUs with a request for submission of data. The issue of non-submission of data was discussed in the 127th OCC meeting held on 23rd September, 2016 wherein it was highlighted that without the availability of the data, capacitor requirement studies cannot be carried out. OCC was concerned about the non-submission of data even though some of the state has submitted the proposal for installation of capacitor in their states through PSDF. It was decided that all utilities would submit the data for capacitor studies by 30.09.2016. It was also decided that in case data is not submitted, it would be informed to PSDF nodal agency that Capacitor studies could not be carried out due to non- availability of the data for finalisation of capacitor requirement . However, only HPSEB Ltd, RRVPNL and PSTCL have submitted that data whereas partial data has also been received from HVPNL.

It may be mentioned that under Section 2.4.2(g) of Indian Electricity Grid Code, one of the functions of RPC is to review the reactive power compensation requirement and monitor installation of capacitors. Therefore, non-submission of data for carrying out the aforesaid study constitutes non-compliance to IEGC.

in view of the foregoing, following is proposed for approval of TCC/NRPC:

- To Inform Hon'ble CERC and P SDF nodal agency that capacitor requirement could not be finalized due to non-availability of the data.
- To cancel the Letter of Award issued to CPRI for carrying out capacitor studies for 2016-17 and 2017-18.

Members may deliberate

#### B.4 Maintenance / Replacement of RTUs installed under ULDC Phase-I Project

Remote Terminal Units (RTUs) are primary source of data acquisition, which is further communicated to various Control Centres to facilitate supervision / control of the grid by the RLDC. Most of the presently working RTUs (AREVA make S900) were installed at the EHV sub-stations/switchyards of state and

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It needs no emphasis that without properly functioning RTUs, the system operators at SLDCs and N RLDC would not be a ble to visualize system parameters, line flows etc., which can be catastrophic for present day complex system. It may be mentioned that under the Indian Electricity Grid Code (Clause 4.6.2), it is the responsibility of the Users, STU and CTU to provide Systems to telemeter power system parameter such as flow, voltage and status of switches/ transformer taps etc. in line with interface requirements and other quideline made available by RLDC.

These issues were highlighted by Member Secretary, NRPC vide letter dated 17.08.2016 addressed to members of TCC representing transmission utilities, and generating companies.

In view of the facts that less than a year's time is available for replacement of these RTUs and no support services will be available from OEM, following is proposed:

- a) A time bound action plan may please be prepared immediately for replacement of above mentioned RTUs to ensure uninterrupted telemetry to respective SLDC and NRLDC.
- b) As a contingency measure, options for maintenance of these RTUs till they get replaced may also be explored.

Members may deliberate

- B.5 Compliance to recommendations of Task Force on 'Power System Analysis under Contingencies'
- B.5.1 As a follow up of one of the recommendations of Enquiry Committee headed by Chairperson, CEA on grid disturbances that took place on 30th and 31st July 2012, Ministry of Power had constituted a Task Force on Power System Analysis under Contingencies' in December 2012. The Task Force

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had submitted its report in August 2013. In a meeting taken by Secretary (Power), Goi on 11.03.2014, it was decided that the report be given wide circulation and its recommendations be implemented in a time bound manner. The report of the Task Force as also Guidelines for Protection settings recommended by the Task force had been uploaded on NRPC website (links http://www.nrpc.gov.in/reports/other/taskforce\_analysis.pdf and http://www.nrpc.gov.in /reports/other/ps\_guidelines.pdf ). Member Secretary, NRPC vide letter dated 31st July 2014 had requested members of NRPC to initiate action for implementation of recommendations of the Task Force.

The issue was also deliberated in the 33rd NRPC meeting held on 11th November, 2015 wherein it emerged that some of the recommendations had been complied with and some of them had been implemented partially. Some of the decisions taken in the above mentioned meeting, which have not yet been fully implemented and the status thereof are as under:

(i) Decision: "Concerted efforts should be made to operationalize EMS application under recently commissioned ULDC phase-II. Further, Pradhan Committee's recommendation in regard to deployment of manpower and their emoluments, incentives in SLDCs be implemented."

Status: EMS package procured under ULDC phase —II is meant to carry out state estimation, contingency analysis and security enhancement. NRLDC has been able to run EMS at 400 kV level network. However, SLDCs have not been able to run EMS at voltage levels below 400 kV due to poor telemetry.

Manpower deployed at most of the SLDCs is far below the strength recommended by the Pradhan Committee.

(ii) Decision: "Transformer Tap Position adjustment should be done on seasonal basis. Provision of adequate reactors, study of impact of 220 kV lightly loaded lines & their compensation and absorption of reactive power by generating units etc would help in controlling voltages."

Status: The tap positions of transformers in ISTS network are changed on the advice of NRLDC. NRLDC had enumerated a methodology for arriving at optimal tap position for transformers and STUs were requested to give feedback on transformers tap changed in intra-state system. However, feedback from states is not forthcoming.

Generating stations are helping in absorption of reactive power but there appears to be further scope for improvement.

(iii) Decision: POWERGRID had informed that exercise of tuning of HVDC and TCSC controllers is done regularly. POWERGRID was to inform periodicity of such tuning.

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Status: No response has been received from POWERGRID in this regard.TCC/NRPC may impress upon utilities concerned to implement above mentioned decisions of NRPC.

B.5.2 One of the recommendations of the above mentioned Task Force was related to maintaining protection related database which is reproduced as under:

"There is also a need for creating and maintaining data base of relay settings. Data regarding settings of relays in their network should be compiled by the CTU and STUs and furnished to the RLDC and SLDC respectively and a copy should also be submitted to RPC for maintaining the data base."

This issue was deliberated in the Protection Sub-committee (PSC) meetings and it was decided that data regarding settings of relays shall be compiled by the CTU and STUs for their respective network and furnished to RLDC and SLDC respectively with a copy to RPC for maintaining the database. The database was to be k ept updated and v erified during the audit. Accordingly, a format for submission of protection related database was prepared and same was agreed in 30th PSC meeting held on 21.09.2015. The format is available on NRPC website. However, none of the utilities have submitted the database of the protection relays setting. The issue of protection data base is being regularly discussed in National Power Committee (NPC) meeting wherein emphasis was laid to maintain the database.

TCC/NRPC may impress upon the utilities to submit the protection related database so that same can be maintained as per the recommendation of the Task Force.

B.6 Renovation and up-gradation of Protection System of various Substations and Power Houses of Bhakra Beas Management Board.

BBMB has submitted a proposal for funding from Power System Development Fund (PSDF) for Renovation and up-gradation of Protection System of various Sub-stations and Power Houses. Appraisal committee of the PSDF has requested BBMB to get the proposal appraised from NRPC. Accordingly, the proposal was submitted by BBMB to NRPC for appraisal. The salient points of the proposal are:

- In line with the observations of protection audit, it is proposed to provide
  Bus Bar Protection at two 220 kV sub-stations namely

  Delhi &

  Kurukshetra.
- At 220 kV Ganguwal s/s, 220 kV Switchyard of Bhakra Right Bank, Dehar Power House & Pong Power House, existing old Electromechanical realys

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- The old electromechanical Unit Protections provided at Bhakra right & Pong Power Houses are also being proposed to be replaced.
- Redundant DC sources are required to be provided at 220KV substations of BBMB to ensure reliable grid operation.
- · At some of the substations, existing CTs are required to be replaced because of High Tan Delta. Also some of the CTs, which are quite old and have oil leakage, are also proposed to be replaced.
- PTs/CVTs at some of the substations are required to be replaced in view of providing synchronizing facility and ageing.
- Synchronising trolleys at 220kV GSS Dhulkote and Sangrur are to be provided to ensure trouble free operation during restoration of the Grid.
- · Replacement of existing old and obsolete PLC terminals along with protection couplers have been proposed for smooth operation of PLCC equipment.

The scheme is slated for discussions in 128th OCC meeting to be held on 17th October, 2016. TCC/NRPC will be apprised about deliberations in the OCC meeting.

Members may deliberate.

#### B.7 Certification of Non-ISTS line for inclusion in PoC Charges

Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) (Third Amendment) Regulations, 2015 provides as under:

"Certification of non-ISTS lines carrying inter-State power, which were not approved by the RPCs on the date of notification of the Central Electricity Regulatory Commission (Sharing of Transmission Charges and Losses) Regulations, 2009, shall be done on the basis of load flow studies. For this purpose, STU shall put up proposal to the respective RPC Secretariat for approval. RPC Secretariat, in consultation with RLDC, using WebNet Software would examine the proposal. The results of the load flow studies and participation factor indicating flow of Inter State power on these lines shall be used to compute the percentage of usage of these lines as inter State transmission. The software in the considered scenario will give percentage of usage of these lines by home State and other than home State. For testing the usage, tariff of similar ISTS line may be used. The tariff of the line will also be allocated by software to the home State and other than home State. Based on percentage usage of ISTS in base case, RPC will approve whether the particular State line is being used as ISTS or not. Concerned STU will submit asset-

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Accordingly, it was decided in 31st TCC/ 35th NRPC meeting held on 08th /09th July, 2015 to constitute a group to recommend a methodology for the study to be conducted by NRPC Secretariat, in consultation with RLDC. Based on the methodology suggested by the group, the study was carried out for certification of the non-ISTS lines submitted by UP, Punjab and Rajasthan.

The transmission lines, which fulfil the criteria recommended by the group and are recommended for certification as ISTS for the current Financial Year by NRPC Secretariat are listed below:

S.No.	Name of Transmission Line	Owner STU
1.	400 kV S/C Jodhpur – Merta Line-I	RVPN
2	400 kV S/C Jodhpur – Merta Line-II	RVPN
3	400kV S/C Merta-Ratangarh Line	RVPN
4	400kV S/C Merta-Heerapura Line	RVPN
5	220kV D/C Aau – Baithwasia Line	RVPN
6	220kV D/C Baithwasia - BhawadLine	RVPN
7	220kV D/C Gajner – Bikaner(400kV GSS)Line	RVPN
8	220 KV Nahtaur-Matore (PG) UPPTCL	
9	400 KV Sultanpur- KURSI RD( PGCIL) UPPTCL	

The complete list of transmission lines submitted by STU can be sub-divided in following categories:

- (i) Transmission lines, which fulfil the criteria recommended by the Group and hence are recommended to be certified as ISTS
- (ii) Transmission lines, which do not fulfil the criteria recommended by the Group and hence may not be certified as ISTS
- The lines, which were claimed to be used for inter-state transmission by STUs but were not modelled in the PoC transmission charge calculation and hence exercise to see whether or not these lines carry inter-state power could not be carried out. It may be mentioned that the responsibility to submit the requisite details for modelling the lines in PoC transmission charge study rests with STU concerned.

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The complete category wise list of transmission lines submitted by STUs is enclosed at Annex- III.

Fresh claims for certification of non-ISTS lines being used for inter-state power will have to be submitted by end of December 2016. The result of the study would be shared with member utilities in 128<sup>th</sup> OCC meeting to be held on 17<sup>th</sup> October, 2016 and TCC/NRPC will be briefed about deliberations therein.

TCC/NRPC may approve proposal to certify the transmission lines in table above.

#### **B.8 Overview of Grid Operation**

NRLDC shall brief members about highlights of grid operation during July, 2016-September, 2016

The actual Power Supply Position (PSP) for July, 2016 & August, 2016 and Provisional Power Supply Position for September, 2016 are enclosed at Annex-IV. Northern Region had a peak power shortage in the range of 0 to 1.3% and energy shortage in the range of 0 to 1%. J&K faced higher peak power as well as energy shortage (of the order of 18%).

The anticipated Power Supply Position (PSP) for the period November-December, 2016 as per LGBR is enclosed at Annex-V.

### B.9 Important Regulation/ Orders from Hon'ble CERC (Agenda by POWERGRID)

Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Fourth Amendment) Regulations, 2016 came into force with effect from date of publication in Official Gazette i.e. from 29.04.2016.

Following new provisions (Clause 4(iii)) have been included w.r.t. transmission

"Where the transmission system executed by a transmission licensee is required to be connected to the transmission system executed by any other transmission licensee and both transmission systems are executed in a manner other than through tariff based competitive bidding, the transmission licensee shall endeavor to match the commissioning of its transmission system with the transmission system of the other licensee as far as practicable and shall ensure the same through an appropriate Implementation Agreement(IA)".

Members may note.

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### B.10 Establishment of new 400/220kV substations in Northern Region (Agenda by POWERGRID):

Following new substations were planned under various transmission schemes & are under implementation:

S.No	Name of Substation	MVA Capacity	Expected Schedule	
1	400/220kV Kurukshetra S/Stn. (GIS)	2x500	440kV bay and 1no. ICT are ready for commissioning. 2nd ICT expected by Dec'17.	
2	400/220kV Bagpat Gas Insulated Stn.	2x500	Commissioned	
3	400/220 kV Saharanpur Sub station	2x315	Commissioned	
4	400/220kV S/s at Patran	2x500	Commissioned	
5	400/220kV Parbati Pooling Station	2x315	Feb'17	
6	400/220kV Dehradun Sub station	2x315	Dec'16	
7	400/220kV Rajghat Sub station (GIS)	4x500	Land yet to be transferred	
8	400/220kV Papankalan -I Sub station (GIS)	4x500	July'17	
9	400/220kV Tughlakabad Sub station (GIS)	4x500	July'17	
10	220/66kV GIS S/s at Sector 47,Chandigarh	2x160	24 months from investment approval (planned in Feb'17)	
11	400/220kV S/s at Kala Amb	7x105	July'17	
12	400/220kV S/s at Amargarh	7x105	Oct.'18(Sterlite Grid planning to prepone)	
13	400/220kV Kadarpur S/s in Gurgaon area (GIS)	2x500	May'19	
14	400/220kV Sohna Road S/s in Gurgaon area (GIS)	2x500	Sep'19	
15	400/220kV Prithala S/s in Palwal area (GIS)	2x500	May'19	
16	400/220kV Baram(Jauljivi) S/s	2x315	33 months from IA IA planned in Mar'17	

For the above 400/220kV substations, implementation of down below 220kV system needs to be commissioned for utilization of the system. Accordingly, CTU requests the states to implement the 220kV system in matching time frame and inform the status of planned 220kV system from these substations to CTU.

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# B.11 Augmentation of transformation capacity in existing sub-stations (Agenda by POWERGRID)

In addition to the new sub-stations under implementation/ planned at various locations in Northern Region, augmentation of transformation capacity has also been planned in various existing sub-stations along with bays for downstream network. A List of ICTs along with associated bays of such existing sub-stations is given below.

Sr No.	Substation	Transformation Capacity (MVA)	Commissioning Schedule
1	Shahajanpur 400/220 kV Sub-station	2x 315 MVA	Commissioned (Sep'14)
2	Hamirpur 400/220 kV Sub-station	3x 105 MVA	Feb'17
3	Jalandhar 400/220 kV Sub-station	1x 500 MVA	Commissioned (Jun'16)
4	Kaithal 400/220 kV Sub-station	1x 315 MVA	July'17 ( Best effort by Mar/Apr'17)

States are requested to implement the 220kV system for proper utilization of the bays and inform the status of planned 220kV system identified with the augmentation of transformation capacity in the above sub-stations.

#### B.12 Follow up of Major Decisions of NRPC.

SI.No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Present Status
1	Automatic Meter Reading (AMR) for SEMs	13 <sup>th</sup> NRPC meeting held on 24 <sup>th</sup> June 2009.	In the last NRPC meeting POWERGRID had assured that data from all locations would be made available through AMR by 31st January 2016. As confirmed from NRLDC, as on 13.10.2016 data was being received from about 950 meters and Site Acceptance Test has been conducted for 650 meters. Based

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SI.No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Present Status
			on decision taken in Commercial and Operation Coordination sub-committees, POWERGRID and NRLDC were to submit monthly joint reports. However, no report has been received so far.
2	Provision of Bus Reactors in Northern Region to Control Over Voltages	Approved in 15 <sup>th</sup> NRPC meeting on 24th December, 2009	Out of 17 no. reactors at 15 locations, 11 no. reactors at 10 locations, 11 no. reactors at 10 locations have been commissioned. The status of remaining 05 locations is as under;  Nathpa Jhakri (1x80 MVAr): In the last NRPC meeting, SJVN had informed that LOA would be placed by April 2016. The present status as obtained from SJVN is that the reactor is likely to be commissioned by December 2017.  Chamera-I (1x125 MVAr): In the last NRPC meeting, NHPC had informed that Commissioning was expected by October 2016.  Parbati-II (1x125 MVAr) and Parbati-III (1x80 MVAr): There is no space at Parbati-III and as such reactors will be installed at Parbati- II. Reactors at Parbati-II will be commissioned along with the commissioning of the project in 2018-19.  Dehar (2X 63 MVAR) Included in item 4 (below) of this table.

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SI.No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Present Status
3.	400 kV Reactors	29 <sup>th</sup> NRPC meeting held in September 2013	The status of reactors approved at 400 kV sub-stations is as under: POWERGRID: Reactors at PANCHKULA, MANESAR, KAITHAL, JAIPUR(S) and BASSI likely to be commissioned by October 2016. Reactors at Kanpur and Sonepat likely to be commissioned by November and December 2016 respectively. RVPNL: Reactors at Hindaun and Merta are likely to be commissioned by November 2016.
4	2X63 MVAR Bus reactor and replacement of 250 MVA Trf. with 315 MVA Trf. at Dehar Power House by POWERGRID.	30th Standing Committee of Power System Planning of	In the 37 <sup>th</sup> NRPC meeting held in March 2016, POWERGRID had informed that reactor was expected to be commissioned by May 2016. Further, ICT was expected to be commissioned by July 2016. POWERGRID may update the status.
5	Unified Real Time Dynamic State Measurement (URTDSM) Scheme.	Approved in	In the 8 <sup>th</sup> meeting of TeST sub- committee held in July 2016 POWERGRID had informed tha PMUs and associated materials fo
6	Power Evacuation	28 <sup>th</sup> Standing	In the 37 <sup>th</sup> NRPC meeting held i

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SI.No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Present Status
	from Dulhasti Power Station, Kishtwar (J&K) – Construction of 2 <sup>nd</sup> 400 kV line	Committee	March 2016, POWERGRID had informed that the project was likely to be commissioned by October 2016.  POWERGRID may update the status.
7	Transmission system associated with RAPP-7&8.		The status in the 37 <sup>th</sup> NRPC meeting held in March 2016 is as under:  POWERGRID had informed that commissioning of RAPP-Kota section was expected by December 2016.  400 kV D/C line from RAPP-Sujalpur (MP) had been awarded to M/s Sterlite under TBCB with completion target of February, 2016.  POWERGID was requested to expeditiously provide to NPCIL, PLCC and associated equipment for the bays at RAPP-D.  In a r elevant development, Hon'ble CERC vide order dated 21.09.2016 has directed that transmission charges for the RAPP- Shujalpur 400 kV D/C transmission line w.e.f from scheduled date of commercial operation ("SCOD") i.e. 01.03.2016 till bays are commissioned shall be paid by NPCIL.  POWERGRID/NPCIL may update

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SI.No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Present Status
9	Transmission system associated with Kishenganga HEP. Kishenganga — Amargarh 220 kV D/c Kishenganga — Wagoora 220 kV D/c Fiber Optic based communication system in NR and Additional OPGW connectivity in Northern Region under fiber optic expansion project	33rd Standing Committee Meeting held on 23/12/2013  18th NRPC meeting held on 27 <sup>th</sup> November, 2010 and 28 <sup>th</sup> NRPC meeting held in 22 <sup>nd</sup> March, 2013	the status.  POWERGRID have informed that completion schedule of transmission system associated with Kishenganga HEP has been delayed due to unrest in Kashmir. The revised schedule is:  Kishenganga – Wagoora 220kV D/c line - (Mar.'18)  Kishenganga – Amargarh 220kV D/c line – (July'17)  In 08th TeST committee meeting held on 26th July, 2016, POWERGRID had informed that out of 5120 kms of OPGW under central sector, 4957 Kms have been completed and balance 163 kms of OPGW was on under construction lines for which progress depends on completion of transmission lines. For state sector, work has awarded in 3 pac kages of 5293 kms out of which installation of 726 kms have been completed. Work on all packages was expected to be completed progressively by Mar/April'2017.
10	Rectification of deficiencies coming out of Basic Protection Audit carried out by CPRI in association with	meeting held in November 2013	been completed. As per the status

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SI.No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Present Status
	POWERGRID		
11	Third party Protection audit of intra-state system / balance system not covered in Basic Protection Audit	27 <sup>th</sup> NRPC meeting held on 30 <sup>th</sup> November, 2012.	TPPA has been carried out either by CPRI or by team of protection expert under the aegis of NRPC at 163 sub-stations. UPPTCL and PSTCL have to submit the action plan for rectification of deficiencies observed.
12.	Planning, procurement and deployment of Emergency Restoration System.	In the 34 <sup>th</sup> NRPC meetings 20 <sup>th</sup> March, 2015	In the 34 <sup>th</sup> NRPC meetings held or 20 <sup>th</sup> March, 2015, it was also decided that those states, which had not taken any substantive action so far with regard to procurement of ERS, should do so by June 2015.
			Status as updated in 127th OCC meeting is as under:
			DTL:-Order has been place for 02 nos. of ERS. Supply expected by May,2017
		==	PSTCL:- Tenders are under evaluation of the legal cell. Order is expected to be placed by 31.12.2016
		-	UPPTCL:-Order for 04 nos. of ERS has been placed.
			RRVPNL:-Proposal was being prepared to be put up to management.
			HVPNL:-In the process of putting procurement of ERS in MY proposal to the SERC.

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SI.No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Present Status
	3.		HPSEBL and PTCUL:-HPSEB Ltd/HPPTCL stated that they were exploring the possibility of procuring the ERS in hilly region. Some of the vendors have been called for the suitability. PTCUL informed that issue was under consideration.
			BBMB:-Partner states have agreed to provide the ERS as and when required by BBMB.

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#### COMMERCIAL ISSUES

C.1 Mechanism for Compensation for Degradation of Heat Rate, Aux Consumption and Secondary Fuel Oil Consumption, due to Part Load Operation and Multiple Start/Stop of Units(AG)

Central Electricity Regulatory Commission notified on 6 th April 2016 C entral Electricity Regulatory Commission (IEGC) (Fourth Amendment) Regulations, 2016, which inter-alia contains provisions relating to Technical Minimum Schedule for operation of Central Generating Stations and Inter-State Generating Stations, whose tariff is determined or adopted by the Central Commission. These Regulations further provide for compensation to Generating Stations for degradation of Heat Rate, Auxiliary Consumption and Secondary Fuel Oil consumption due to part load operation and multiple startups of units. Sub-regulation 7 of Regulation 6.3 B of IEGC mandates RPCs to work out a mechanism for compensation for station heat rate and auxiliary energy consumption for low unit loading and for secondary fuel oil consumption for additional start-ups in excess of 7 start-ups.

In accordance with the (IEGC) (Fourth Amendment) Regulations, 2016, NRPC Secretariat had prepared draft mechanism for compensation to Generating Stations for degradation of Heat Rate, Auxiliary Consumption and Secondary Fuel Oil consumption due to part load operation and multiple start-ups of units.

The said draft was brought in the 31<sup>st</sup> Commercial Sub-Committee (CSC) meeting held on 04<sup>th</sup> July, 2016 and 125<sup>th</sup> OCC meeting held on 22<sup>nd</sup> July, 2016 for detailed discussion and deliberation among the stakeholders. Accordingly, the draft was modified by incorporating the views of stakeholders. Subsequently, a meeting was held among the officials of CERC and NRPC Sectt. on 01.09.2016 at NRPC Sectt., New Delhi and based on these deliberations, the draft has been modified and was enclosed as Annex - VII.

Further, in 127<sup>th</sup> OCC meeting held on 23.09.2016, representative of NTPC sought time for offering comment on revised draft. Other members had no comment to offer on revised draft. It was decided that all the members including NTPC may submit comment to NRPC secretariat within a week. Subsequently, NTPC has submitted their comments and the matter is slated for discussions in the 128<sup>th</sup> OCC meeting scheduled on 17.10.2016. TCC/NRPC will be briefed about the deliberations in OCC.

Members may deliberate.

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# C.2 Default in payment of outstanding dues and surcharge by beneficiaries (Agenda by NHPC)

The details of outstanding dues for more than 60 days as on 30.09.2016 in respect of defaulting beneficiaries of NHPC are as given below:

SI. No.	Beneficiary	Principal Outstanding Dues(more than 60 days)	Surcharge up to 30.09.2016	Outstanding dues including surcharge	
1.	PDD, J&K	486.74	614.66	1101.40	
2.	UPPCL	164.77	7.83	172.60	
3.	BYPL	266.31	94.07	360.38	
4.	PSPCL	0	12.05	12.05	
5.	JVVNL	21.61	15.08	36.69	
6.	AVVNL	14.64	11.75	26.39	
7.	JdVVNL	36.34	12.78	49.12	
Rajasthan Total		91.62	39.62	131.24	

PDD, J&K is irregular in making payment of dues and is the major defaulter of NHPC. It is given to understand that the outstanding dues considered under UDAY scheme amounting to Rs 690.27 Crs is to be released in this Financial Year. However total dues needs to be released on priority by PDD, J&K.

Due to non-payment of dues by BYPL, it was under Power Regulation w.e.f. 00:00 hrs of 28.03.2015 upto 31.08.2016. However, regulation of BYPL has been lifted and entire share of BYPL has been reallocated to BRPL up to 31.03.2018. The total dues against BYPL has risen to ₹ 360.38 Crs. BYPL needs to liquidate the total dues before 31.03.2018 for which a liquidation plan is to be submitted by BYPL immediately.

Rajasthan discoms are releasing only small part payments against principal dues due to which surcharge is increasing day by day. Rajasthan discoms need to release full payment against principal dues as well as surcharge on priority.

PSPCL is also requested to release payment against surcharge at the earliest possible.

The above beneficiaries may kindly be impressed upon to liquidate the outstanding dues and surcharge on priority.

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#### C.3 Opening of Letter of Credit (LC) (Agenda by NHPC)

- (i) <u>BRPL:</u> LC opened by BRPL expired on 31.03.15. BRPL did not open LC of requisite amount of ₹ 26.58 Crs. till date.
- (ii) <u>UPPCL:</u> LC of ₹ 18 Crs opened by UPPCL expired on 30.04.2016. As on date LC of only ₹ 100 Crs is available against requisite value of ₹ 115.77 Crs. LC of balance amount is to be opened.

These beneficiaries may kindly be impressed upon to open LC for the requisite amounts in favour of NHPC Ltd.

#### C.4 Issues of Reconciliation (Agenda by NHPC)

HPPC, Haryana and UPCL have not signed the reconciliation statements of energy accounts since 1<sup>st</sup> quarter of FY 2015-16 and 3<sup>rd</sup> quarter of FY 2015-16 respectively.

These beneficiaries may kindly be impressed upon to sign the reconciliation at the earliest.

#### C.5 Signing of PPA of Tawang HE Projects Stage-i & II (Agenda by NHPC)

The beneficiaries have been requested to convey their consent for signing of PPA of Tawang HE Project, Stage I (600 MW) & Stage II (800MW). A II beneficiaries of Northern Region except UPCL have not sent their consent for signing the PPA.

These beneficiaries may kindly convey the consent for signing the PPA at the earliest.

#### C.6 Extension of PPAs/BPSAs (Agenda by NHPC)

All the beneficiaries are being requested to convey their consent for extension of PPA/BPSA on the existing terms and conditions for a period of 35 years from the date of COD of the respective project.

The beneficiaries along with the due PPAs/BPSAs for extension are given below:

S. No.	Beneficiary Name	Power Station due for extension of PPA/BPSA				
1.	UT Chandigarh	Salal, Uri-I, Tanakpur, Chamera-I,				
	_	Sewa-II, Chamera-III, Uri-II & Parbati-III				
2.	Rajasthan	Chamera-III, Uri-II, Parbati-III & Sewa-II				
	Discoms					
3.	PDD,J&K	Salal, Uri-I, Tanakpur, Chamera-I, Sewa-II,				

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		Dulhasti, Chamera-II, Chamera-III,
		Uri-II & Parbati-III
4.	HPPC, Haryana	Uri-II & Parbati-III
5.	PSPCL, Punjab	Sewa-II, Chamera-III, Uri-II & Parbati-III
6.	UPCL, Uttarakhand	Uri-II & Parbati-III
7.	UPPCL, Uttar Pradesh	Salal, Uri-I, Tanakpur, Chamera-I, Sewa-II, Chamera-II, Chamera-III, Uri-II & Parbati-III

These beneficiaries may kindly be impressed upon to convey the consent for early signing the PPAs/ BPSA for above NHPC power stations mentioned against them at the earliest.

#### C.7 Surrender of power from selected power stations (Agenda by NHPC)

Some beneficiaries have intimated to surrender the share of Power from a few selected power stations in spite of having PPAs on the pretext of being surplus in power.

NHPC stand on the subject is very clear that beneficiaries should not selectively accept or reject power from any power station as they should see the weighted average rate of power from all the power stations of NHPC which is very much reasonable and even lower than the overall average tariff of power purchase of the beneficiary.

Allocation of power to any state by "Ministry of Power" is done based upon long term requirement of the states and therefore duration of PPAs does not have any bearing on the allocation of power by MoP.

### C.8 Request for immediate release of THDCIL's payments by its beneficiaries (Agenda by THDCIL)

THDCIL India Limited (THDCIL) has been supplying quality energy from its presently operating Tehri HPP (1000MW) and K oteshwar HEP (400MW) generating stations to all the beneficiaries of Northern Region. Despite vigorous efforts, BSES Delhi Discoms, UPPCL (UP), PDD (J&K) have been making payments very slowly & much beyond the due dates. BSES Yamuna Power Ltd. has not made any payment after 07.10.2015, when they had paid only Rs.7.0 cr PDD, J&K has also not made any payment after 27.08.2015. Due to inordinately delayed payment, the outstanding is rapidly accumulating resulting into severe financial hardships for THDCIL to the extent of forcing it to avail short term loans bearing heavy interest to meet day to day working capital needs. As on date, a total amount of Rs. 2728.81Cr. is pending for payment,

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SI No.	Beneficiaries/ Discoms	Total Outstanding (Rs. in Cr.)	Outstanding due for more than 60 days (Rs. in Cr.)	Payment due since the supply month
1	BRPL, Delhi	293.71	257.11	Feb'15
2	BYPL, Delhi	273.22	266.91	Aug'13
3	UPPCL, UP	1830.84	1530.80	April'15
4	PPD, J&K	133.99	89.45	Nov'15
5	HPSEBL, Himachal Pradesh	1.79	1.79	Jun'15
6	JVVNL, Rajasthan	29.01	9.29	Jun'16
7	AJVVNL, Rajasthan	22.90	9.18	May'16
8	JdVVNL, Rajasthan	26.71	10.95	May'16

THDCIL has been earnestly requesting bilaterally as well as through this forum to release the payments, there has not been much headway in the case of Delhi Discoms and J&K, as the outstanding amount has been steadily increasing.

The above beneficiaries should immediately release the outstanding amount, mentioned there against, which is due for more than 60 days otherwise must inform a time bound payment plan to liquidate the old outstanding dues.

PDD, J&K has not opened the LC till date even after repeated requests. PDD, J&K may kindly be impressed upon for opening of LC on priority. The required amount of LC for FY 2016-17 is ` 12.00 Cr.

#### C.9 Intimation for Payment of Energy and other bills (Agenda by THDCIL)

In 33<sup>rd</sup> TCC and 37<sup>th</sup> NRPC Meeting, the issue was agreed, but still, the beneficiaries except TPDDL, releases the payments without informing the details such as the bill against which the payments has been released etc. The beneficiaries are once again requested to intimate the details immediately after release of any payment as the same is necessary for reconciling the amount received. This will help in eliminating any dispute in mutual business interest.

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#### C.10 Payments through RTGS (Agenda by THDCIL)

Despite of regular follow-up for payments through RTGS only, HPPC, Haryana is still making payments through cheques. HPPC, Haryana may kindly arrange payment of bills through RTGS only henceforth.

# C.11 Delay in release of payment of SJVN bills by the beneficiaries of NJHPS & RHPS (Agenda by SJVN Ltd)

As on 3.10.2016, an amount of Rs. 1401.81 Crore is outstanding for a period more than sixty (60) days from some of the beneficiaries of NJHPS & RHPS. The beneficiaries, who have not cleared their outstanding dues are Govt. of HP, HPSEB, PDD J&K, UPPCL, BRPL, BYPL, UPPCL, Rajasthan Discoms and DTL as per detail given below:

Sr. No	Name of Beneficiary	Overdue Outstanding including LPS in Rs Crore
1	GOHP	797.75
2	J&K	211.67
3.	UPPCL	172.13
4.	BYPL	125.42
5.	BRPL	11.47
6.	Ajmer VVNL	
7	Jodhpur VVNL Raja	esthan Discoms 56.85
8	Jaipur VVNL	
9	HPSEB	16.44
10.	DTL	10.07
	Total	1401.81

a.) GOHP and HPSEB: The outstanding of HPSEB and GoHP is Rs 16.44 Crore and Rs 797.75 Crore respectively. As per the direction of GoHP, the power of NJHPS & RHPS had been assigned to HPSEB since Dec 2013 & April 2015 respectively. As on 31.03.2016, the outstanding of GOHP was Rs 613.74 Cr. Thereafter, an amount of Rs 325.01 Crores had been billed to HPSEB on ac count of assigned power of GOHP. Against the total outstanding amount of Rs 938.75 Crores till 03.10.2016, HPSEB/GoHP had released only Rs 141.00 Crores during 2016-17. GOHP/HPSEB may be impressed upon to clear this huge outstanding at the earliest.

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- b.) PDD J & K: The power of PDD, J &K for NJHPS was regulated on 01.12.2015. Upon receipt of payment of Rs 161.31 Cr. in NJHPS account & on assurance to release further amount of Rs 95.00 Cr in due course of time, power was deregulated on 10.04.2016. The J&K had paid only Rs 62.46 Crores after power deregulation. An amount of Rs 211.67 Crore (combined outstanding of NJHPS & RHPS) is overdue from Power Development Department (PDD) J&K.
  - PDD J&K is requested to release the outstanding immediately.
- c.) BYPL: Due to continuous default by BYPL for liquidating their dues and non-submission of LC, their share of power from NJHPS was regulated since September 2013. The outstanding of BYPL has now accumulated to Rs 125.42 Crore.
- **d.) UPPCL:** The outstanding of UPPCL has accumulated to Rs 172.13 Crores. UPPCL is requested to release the outstanding at the earliest.
- e.) Rajasthan Discoms: The combined accumulated dues of Rajasthan Discoms has reached Rs 56.85 Crore. During the meeting with the senior officials of Rajasthan Discoms, it was assured to liquidate the outstanding at the earliest. Only a part payment has been received and large outstanding is still overdue.

it is requested that the NRPC committee may intervene in liquidation of outstanding dues from the above defaulting entities as it is affecting the cash flow of SJVN and jeopardising the growth of the organisation.

### C.12 Non Opening of Letter of Credit by certain beneficiaries for power supplied from NJHPS (Agenda by SJVN Ltd)

As per provisions of CERC regulations and terms and conditions of power purchase agreement, beneficiaries are required to submit a Letter of Credit (LC) before start of the relevant financial year, but the following beneficiaries are yet to submit their LC. Request letters for submission of LC for 2016-17 were sent to all Beneficiaries to open the LCs on priority. The following beneficiaries are yet to open the LCs:-

#### a) Power Development Deptt. of J&K:

Inspite of numerous reminders Power Development Department (PDD), J&K has not yet opened Letter of Credit since May 2011 whereas as per the Power Purchase Agreement they have to submit a confirmed, revolving, irrevocable Letter of Credit in favour of SJVN for an amount equivalent to 105% of their average monthly billing of preceding 12 months with appropriate bank as mutually acceptable to parties. The LC shall be kept valid at all the time during the validity of the Power Purchase

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#### b) M/s BYPL and M/S BRPL:

BRPL and B YPL have not opened a confirmed, revolving, irrevocable Letter of Credit in favour of SJVN for an amount equivalent to 105% of their average monthly billing of preceding 12 months with appropriate bank as mutually acceptable to parties for 2015-16 & 2016-17.

#### c) GOHP:

Since Dec 2013, GOHP has assigned their power of NJHPS to HPSEB. Despite the instruction from Principal Secretary Power, Government of Himachal Pradesh, HPSEB is yet to open the Letter of Credit against the power assigned to them by GoHP.

### C.13 Non Opening of Letter of Credit by certain beneficiaries for power supplied from RHPS (Agenda by SJVN Ltd)

In terms of Power Purchase agreement and relevant provisions of CERC regulations, the following beneficiaries have yet to open the Letter of credit for the FY 2016-17.

- a. GoHP
- b. HPSEB
- c. PDD.J&K
- d. UPPCL
- e. Uttar Haryana Bijli Vitaran Nigam Ltd, Panchkula

The Beneficiaries of RHPS may be impressed upon to open the LC as per CERC regulation and as per PPA terms.

### C.14 Payment of energy bills of NJHPS and RHPS through electronic modes (Agenda by SJVN Ltd)

In 33<sup>rd</sup> TCC & 37<sup>th</sup> NRPC meeting of NRPC, the matter regarding releasing of payment through electronic modes by the beneficiaries to generating companies was discussed. In the meeting it was decided that all the payments by the beneficiaries will be made through electronic modes i.e. RTGS/NEFT.

Further, representative of Dakshin Haryana Bijli Vitran Nigam agreed to convey the decision of TCC to HPPC which makes payment on the behalf of Haryana discoms.

Presently, all the beneficiaries of SJVN are making payment through electronic modes except HPPC (Haryana Power Purchase Centre). HPPC may be

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impress to follow the decision taken in last TCC / NRPC meeting by making the payment of energy bills through electronic modes.

# C.15 Consent for purchase of power from Naitwar Mori Hydro Electric Project (NMHEP), 60 MW (2X30 MW) in Uttarakhand (Agenda by SJVN Ltd)

SJVN Limited, a joint venture of the Government of India (GOI) and the Government of Himachal Pradesh (GOHP) is operating and maintaining Nathpa Jhakri Hydro Power Station (1500 MW) and Rampur Hydro Power Station (412 MW) in the downstream of NJHPS since May, 2004 & December, 2014.

Further, Government of Uttarakhand (GoUK) has allotted Naitwar Mori Hydro Electric Project (2X30 MW) on River Tons (a tributary of river Yamuna) in district Uttarkashi in the state of Uttarakhand to SJVN Ltd.. A Memorandum of Understanding (MoU) for execution of Naitwar Mori HEP was signed with the GoUK on 21st November, 2005.

The Techno Economics Clearance based on Detailed Project Report of Naitwar Mori Hydro Electric Project (2X30 MW) has been accorded by the Government of Uttarakhand on 02.03.2010. Further, the Environment and Forest Clearances has also been accorded from Ministry of Environment, Forest and Climate Change, Govt. of India. The power from the project shall be evacuated through 220 KV D/c line from NMHEP to Mori 220/132 KV S/s of PTCUL and the PIB note submitted to Ministry of Power on June, 2016 for its clearance.

The Naitwar Mori Hydro Electric Project (2X30 MW) is a run-of- river type scheme and is designed to generate Annually 265.50 MUs in 90 % dependable year and the commissioning of the project is expected in August, 2020.

As per the condition of Memorandum of Understanding (MoU), 12% of the net energy shall be given to Government of Uttarakhand (GoUK) free of cost. SJVN would be in a position to offer the balance power being generated from project to interested states / UTs of the Northern Region as per the prevalent policies of Govt. of India issued from time to time.

The Project is planned to be financed on 70: 30 debt equity ratio. The estimated project cost is Rs 624.11 Cr at April, 2016 price level. The levelized tariff of the generated power is Rs 6.14 per Kwh based on above mentioned project cost and the final tariff shall be c alculated by the appropriate Regulatory Commission.

It is, therefore, requested to convey the consent of constituent's members for purchase of power, indicating the quantum of power required from this Hydro project.

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रान्यद्व निवेशक (निश्तीतन एवं वाधिज्य) उध्यक्षणावद्वावकालिक

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#### D. ITEMS FOR NRPC ONLY

# D.1 Transmission proposals as agreed in 38<sup>th</sup> Standing Committee Meeting on Power System Planning of Northern Region held on 30/05/2016

#### D.1.1 WR- NR 765kV Inter-regional corridor

The total power transfer requirement to NR is likely to increase to 26500-27000 MW in next 4-5 years. Since power from generation projects in WR (particularly in Chhattisgarh) and in Odisha flows through WR-NR corridor and therefore WR — NR corridor gets stressed. Accordingly, an additional transmission corridor was planned in NR and WR Standing Committee meetings, which comprise of:

- 765kV Vindhyachal Pooling Station Varanasi D/c Line
- > 330 MVAr line reactor in both lines at Varanasi end

#### D.1.2 400kV bays at Bhinmal and Sikar substations under ISTS

For integration of transmission system of RVPN associated with renewable projects, 2 nos. of 400kV bays each at Bhinmal and Sikar substations were agreed under ISTS in 30th Standing Committee Meeting of NR for termination of 400kV D/c lines being constructed by RRVPNL. However, time frame for completion of bays was not firmed up. Subsequently, RRVPNL vide letter dated 13/04/2016 intimated the time frame for bays. The matter was again discussed in 38th SCM held on 30/05/2016, wherein following was agreed under ISTS:

- > 2 nos. of 400kV line bays at Bhinmal (PG) Substation
- 2 nos. of 400kV line bays at Sikar (PG) Substation along with 2 nos. of 50 MVAr line reactors

# D.1.3 <u>Transmission system for Ultra Mega Solar Parks in Fatehgart, Distt.</u> <u>Jaisalmer Rajasthan</u>

M/s Adani Renewable Energy Park Rajasthan (AREPL) Ltd. has applied for connectivity (1000 MW) and Long Term Access (1000 MW) in ISTS with commissioning schedule of Dec'17 for its Ultra Mega Solar Power Park at Fatehgarh with target region as NR. To evacuate power from the Fatehgarh UMSPP, following transmission system was agreed in the 38th NR SCM:

> 765kV Fatehgarh Pooling Sub Station – Bhadla (PG) D/c line (initially to be operated at 400kV)

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अधीक्षण अभिवन्ता राम्बद्ध निदेशकः (भियोजन १मं वाणिक्य) उठावणावद्वावकावतिव

- ➤ Establishment of 400kV Pooling Station at Fatehgarh (with a provision to upgrade at 765kV level)
- 2 nos. of 400kV line bays at Fatehgarh Pooling Station
- > 1X125 MVAr Bus Reactor at 400kV Fatehgarh Pooling Substation

As agreed in the 36th Empowered committee meeting on transmission held on 26.07.16, it was decided that scheme shall be implemented through TBCB route. Further, it was also decided that POWERGRID shall provide 2 nos. of 400kV line bays at Bhadla Pooling Station under above scheme.

# D.1.4 Provision of 2 nos. of 765 kV bays at Ajmer (POWERGRID) and 2 nos. of 400 kV bays at Bikaner (POWERGRID) under ISTS for new intrastate interconnections to ISTS

Bhuj – Banaskantha – Chittorgarh – Ajmer – Bikaner – Moga 765 kV D/c line alongwith 765/400kV substations at Chittorgarh, Ajmer and Bikaner are being implemented under Green Energy Corridor. For interconnection of this Green Energy Corridor with the intra-state system of Rajasthan, RRVPNL has proposed 765 kV D/c line from RVPN's 765/400kV Korna substation to Ajmer 765/400kV (PG) substation with 2x240 MVAR, 765kV switchable line reactors at Ajmer (PG) and Korna (RVPN) substations. The two nos. of 765 kV bays at Ajmer along with 2x240 MVAR, 765 kV switchable line reactors are agreed to be provided under ISTS.

In earlier Standing Committee Meeting of transmission planning of NR, LILO of one circuit of Bhadla(RRVPNL) – Bikaner(PG) 400kV D/c (Quad) line at Bikaner(PG) was agreed and is under implementation. Considering the unbalanced loadings, LILO of the second circuit of Bhadla (RRVPNL) – Bikaner 400 kV D/c (Quad) line at Bikaner (PG) was agreed in 37th NR SCM. For LILO of second circuit, 2 nos. of 400 kV line bays at 765/400kV Bikaner S/s are also agreed to be provided under ISTS.

Accordingly following works are to be carried out under ISTS:

- 2 nos. of 765 kV bays at 765/400kV Ajmer S/s along with 2x240 MVAR, 765 kV switchable line reactors
- > 2 nos. of 400 kV line bays at 765/400kV Bikaner (POWERGRID)

As agreed in the 36th Empowered committee meeting on transmission held on 26.07.16, it was decided that scheme shall be implemented through regulated tariff mechanism

D.1.5 Augmentation of Transformation Capacity at Raebareli & Sitargani 220/132 kV substations

अंबीक्षण अनियन्ता सम्बद्ध निदेशक (निजीजन एवं वाणिज्य)

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Replacement of two nos. of 100MVA, 220/132kV ICTs by two nos. of 200MVA 220/132kV ICTs at 220/132kV Raebareli(PG) substation was agreed inprincipally during the 37th Standing Committee meeting of Transmission Planning of NR held on 20/01/2016. Further, it was also agreed that out of the two replaced transformers, one ICT may be installed at Sitarganj(PG) S/s and other may be used as a regional spare unit.

Accordingly, the scheme "Augmentation of Transformation Capacity at Raebareli & Sitarganj 220/132 kV substations" is proposed to be implemented with following scope:

- ➤ Two nos. of 100 MVA, 220/132 kV ICTs at Raebareli S/s to be replaced by two nos. of 200 MVA ICTs 220/132 kV ICTs.
- One out of the two replaced 100 MVA, 220/132 kV ICTs at Raebareli S/s may be installed at Sitarganj S/s and the other may be used as regional spare.

# D.1.6 Provision of 2 nos. of 220 kV bays at Fatehpur and 1 220 kV bays at Roorkee under ISTS

During the 37th Standing committee meeting on Power System Planning of NR held on 20/01/2016, 2 nos. of 220kV bays at 765/400kV Fatehpur (PG) S/s under ISTS were agreed upon UPPTCL request for Fatehpur(PG)— Sarh (Kanpur) 220kV D/c line.

Similarly, during the 35th Standing committee meeting on P ower System Planning of NR, 1 no. of 220kV bays at 400/220kV Roorkee (PG) S/s under ISTS was agreed upon PTCUL request for drawing power from Roorkee(PG) substation.

Members may discuss and agree to the above proposals.

#### D.1.7 Transmission System associated with Kishenganga HEP

The scheme "Transmission System associated with Kishenganga HEP was agreed in 33<sup>rd</sup> Standing Committee on Power system Planning for Northern Region held on 23/12/2013 with following scope:

- Kiahenganga Wagoora 220kV D/c line
- Kishenganga Amargarh 220kV D/c line

During 37th meeting of Northern Regional Power Committee on Power System held on 22/03/2016, NHPC informed that commissioning schedule of Kishenganga HEP is November 2016. Due to ongoing disturbances in the

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(मनाज सिंह) अधीकण अनियन्ता सम्बद्ध निवेशक (मिरोजन एवं वाणिज्य) उवप्रवणवद्गावकावनिव 70 valley and bad w eather conditions, the completion of Kishenganga HEP is likely to be delayed from Nov'16 to March'17.

Further it is to inform that completion schedule of transmission system associated with Kishenganga HEP has been delayed due to unrest in Kashmir. The revised schedule is:

- Kishenganga Wagoora 220kV D/c line (Mar.'18)
- Kishenganga Amargarh 220kV D/c line (July'17) Members may note.
- D.1.8 Following LTA/CON applications have been granted LTA/Connectivity in the recent past by CTU as per the Detailed Procedures of Central Transmission Utility of the CERC (Grant of Connectivity, Long-term Access and Mediumterm Open Access in inter-State Transmission and related matters) Regulations, 2009.

		Details o	of Con	nectivity	<b>Applications</b>	granted by C	TU
S N o.	Name of the Applicant	Location	Regi on	Installed Capacity (MW)	Connectivity Granted for (MW)	Connectivity Granted from	Transmission System identified for Connectivity
1	THDC India Ltd. (Tehri PSP)	Uttarakhand	NR	1000	1000	3-Nov-2017	Through Bus Bar extension at Tehri Bus
2	Adani Renewable Energy Park Rajasthan Limited	Bhadla, Rajasthan	NR	250	250	15-Dec-2016 or availability of Tr. System whichever Is later	Adani Gen. Switchyard - Bhadla (PG) Pooling Station 220kV D/c line
3	Saurya Urja Company of Rajasthan Ltd	Jodhpur, Rajasthan	NR	500	500	01-Jan-2017 or availability of Tr. System whichever is later	Saurya Urja generation switchyard - Bhadla (PG) Pooling Station 220 kV D/c (Twin Zebra) line
4	L&T Uttaranchal Hydropower Limited	Uttarakhand	NR	99	99	15-Nov-2017	LILO of one circuit of Srinagar-Baramwari 220 kV D/C line at Singoli Bhatwar Generation switchyard
5	Adani Renewable Energy Park	Jaisalmer, Rajasthan	NR	1500	1000	30-Dec-2017 or availability of Tr. System	· ·



	Rajasthan	I				under ISTS	Station 400kV D/c
	Limited					whichever is	line (by applicant), ii)
						later	Fatehgarh PS -
							Bhadla (PG) 765kV
'							D/c line alongwith
							Fatehgarh PS (under
							ISTS)
6	Indian Oil	U.P	NR	100	100	31-Dec-2018	IOCL Refinery-Math
	Corporation						(UPPTCL) 220 kV
	Ltd.						D/c line

		Details of L	.ong T	erm Access	Applicati	ons granted by	СТИ
SI. No.	Name of the Applicant	Location	Regi	LTOA/LTA granted for (MW)	Point or points of Injection	Tr. System Requ	irement
						Dedicated / Connectivity Tr. System	Common
1	THDC India Ltd. (Tehri PSP)	Tehri, Uttarakhand	NR	1000	Tehri PSP, Uttarakh and	Through Bus Bar extension at Tehri Bus	Tehri Generation — Koteshwar Pooling Stn. 400 kV S/c (Quad Conductor), Establishment of 765/400 kV GIS substation at Koteshwar Pig. Stn., Aug. of 765/400 transformation capacity by 1x1500 MVA at Meerut, Charging of Tehri Pooling ~ Meerut line at 765 kV level.
2	Himachal Pradesh Power Corporation Limited (Shongtong)	Himachal Pradesh	NR	450	Shongton g Karcham HEP, Himachal Pradesh	Shongtong Generation Switchyard	Shongtong Karcham  - Wangtoo 400 k V D/c Line (Quad HTLS Conductor Equivalent to about 3000MW) - 18 km (ISTS) Establishment of 220/400kV GIS Pooling Station at Wangtoo along with LILO of both circuits of 400 k V Karcham Wangtoo-Abdullapur

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_			<u>1</u> 4	1			D/c line at Wangtoo S/s
		W				.5\	×
3	Solar Energy Corporation of India (Rajasthan to Punjab)	RVPN-STU interconnecti on with ISTS in Rajasthan	NR	30	RVPN- STU interconn ection with ISTS in Rajastha n	Not Applicable	Existing Transmission System
4	Saurya Urja Company of Rajasthan Ltd. (U-I)	Badla, Rajasthan	NR	250	765/400/ 220 kV Bhadla Pooling Station	Saurya Urja generation switchyard - Bhadla (PG) Plg. Stn. 220 kV D/c (Twin Zebra) line	Transmission System for Solar Power Parks at Bhadla, Rajasthan
5	Adani Renewable Energy Park Rajasthan Limited	Bhadla, Rajasthan	NR	250	765/400/ 220 kV Bhadla Pooling Station	Adani generation switchyard - Bhadia (PG) Pooling Station 220 kV D/c line	
6	Saurya Urja Company of Rajasthan Ltd. (U-II)	Badia, Rajasthan	NR	250	765/400/ 220 kV Bhadla Pooling Station	Saurya Urja generation switchyard - Bhadla (PG) Pooling Station 220 kV D/c (Twin Zebra) line	for Solar Power Parks at Bhadla, Rajasthan
7	Himachal Baspa Power Company Ltd. (earlier Jaiprakash Power Ventures Ltd)	Himachal Pradesh	NR	264	Karcham Wangtoo generatio n	NIL	Existing Transmission System

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(मगोज सिंह) अधीतम् अनियन्ता सम्बद्ध निदशक् (निर्धाजन एवं वाणिज्य) उठ्यक्षाकट्राठकाठलिठ

8	NSL Tidong Power Generation Private Limited	Himachal Pradesh	NR	88	NSL Tidong Power Gen. Pvt. Ltd., Himachal Pradesh	a) Tidong- Jangl Pooling Station 220 kV D/c line - by HPPTCL b) 2x315 MVA, 220/400 kV GIS Jangi PS	Transmission System for transfer of power to Southern Region ie.: a) Angul – Srikakulam – Vemagiri (PG) 765 kV D/c line b) Wardha – Nizamabad 765 kV D/c line c) Nizamabad – Hyderabad (Maheshwaram) 765kV D/c line
9	Adani Renewable Energy Park Rajasthan Ltd.	Jaisalmer, Rajasthan	NR	250	400kV Fatehgar h Pooling Station	Adani Generation Swtitchyard - Fatehgarh Pooling Station 400kV D/c line	Existing and under construction Transmission System of Green Energy
10	Adani Renewable Energy Park Rajasthan Ltd.	Jaisalmer, Rajasthan	NR	750	400kV Fatehgar h Pooling Station	Adanl Generation Swtitchyard - Fatehgarh Pooling Station 400kV D/c line	Existing and under construction Transmission System of Green Energy Corridor

# D.2 Status of UI charges:

As per the information received from NRLDC, the status of payment of UI charges payable/Receivable by the utilities as on 30.09.2016 is as given below:

Rs. In Lakh

		Principal UI Charges	Interest on UI charges	Principal + Interest
S.No	Utility Name	Net UI Payable(+) or Receivable(-)	Net UI Interest Payable(+) or Receivable(-)	Net Amount Payable (+) or Receivable(-)
-		1	2	3=1+2
1	Jammu and Kashmir	0.30296	0.00000	0.30296
2	Uttar Pradesh	33593.6208	3531.85195	37125.47275
3	Uttarakhand	0.00000	0.03544	0.03544

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(ममोल सिंह) अवीक्षण अनियम्ता सम्बद्ध निवंशक (नियोजन एवं वाणिज्य) जंक्यात्रपाठद्राट वाप्रदेश

I	4	EPPL	0.00000	1.14146	1.14146
	5	Greenko Budhil	0.00000	0.00343	0.00343

#1 The differential amount of Rs. 16039.76272 Lakh is there due to different UI ceiling rate as per CERC Regulation on UI Charges and High Court of Allahabad, Lucknow bench order dated 2.5.2008 and CERC order dated 29.5.2008 for implementation of High Court order which is subject to review based on the conclusion of the proceeding in the matter presently pending in High Court

#2 The additional UI charges of UP for the FY 2009-10 and up t o week 5 of FY 2010-11 are Rs. 21085.71003 Lakh as per CERC Regulation on UI Charges which UPPCL was not required to pay in pursuance of High Court of Allahabad, Lucknow bench order dated 12.11.2009 and CERC order dated03.12.2010

#3 Accordingly the UI charges Payable by UP is Rs. 0.00000 Lakh (Including interest)

On commencement of Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations 2014 (w.e.f. 17th February 2014), Central Electricity Regulatory Commission (Unscheduled Interchange charges and related matters) Regulation, 2009 stand repealed.

In these Regulations, it is provided that the "Regional Unscheduled Interchange Pool Account Funds" shall continue to operate till the UI accounts settlement for the period prior to commencement of these Regulations is completed and balance if any, in UI Pool account shall be transferred to the Power System Development Fund.

Accordingly, the above status would be presented until UI charges upto the period 16.02.2014 and any revisions thereof are paid fully.

Utilities that have to pay the UI charges and interest charges are requested to release the outstanding amount at the earliest.

# D.3 Status of Deviation Settlement Charges

As per the information received from NRLDC, the status of payment of Deviation charges payable/Receivable by the utilities as on 30.09.2016 is as given below:

(Rs. In Lakh)

		Principal DS Charges	Interest on DS charges	Principal + Interest
S.No	Utility Name	Net DSC Payable(+) or Receivable(-)	Net DSC Interest Payable(+) or Receivable(-)	Net Amount Payable(+) or Receivable(-)
		1	2	3=1+2
1	CHANDIGARH	38.9182	0	38.9182
2	DELHI	0	0	
3	HARYANA	0	0	

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अधीक्षण अभियन्ता सम्बद्ध निर्देशक (नियोजन एवं वाधिज्य) **७०५०५१०ट्रा०का०ति०** 

4	HIMACHAL	184.17765	0	184.17765
5	JAMMU AND	7135.2356	0	7135.2356
6	NEPAL	14.15746	D	14.15746
7	POWERGRID_NR	2.79654	0	2.79654
8	PUNJAB	0	0	0
9	RAILWAYS	-44.74192	0	-44.74192
10	RAJASTHAN	0	0	0
11	UTTAR PRADESH	17682.01002	0	17682.01002
12	UTTARAKHAND	147.72046	0	147.72046
13	APCPL	0	0	0
14	NHPC	0	0	0
15	NTPC	0	0	0
16	NTPC SOLAR	0	0	0
17	NVLS	53.19211	0	53.19211
18	THDC	127.98533	0	127.98533
19	ADHPL	-1.74341	0	-1.74341
20	EPPL	76.33215	0	76.33215
21	GREENKO BUDHIL	105.52343	32.26023	137.78366
22	HBPCL	-14.15746	0	-14.15746
23	HIMACHAL SORANG	1.20094	0	1.20094
24	SCL	0	0	0
25	ER-NR	605.8326	0	605.8326
26	NER-NR	0	0	0
27	WR-NR	0	0	0
28	Pool Balance	-30662.196	-32.26023	-30694.45623

Utilities that have to pay the deviation charges are requested to release the outstanding amount at the earliest.

# D.4 Status of Reactive Energy (RE) Charges

As per the information received from NRLDC, the status of payment of Reactive Energy charges payable/Receivable by the utilities as on 13.10.2016 is as given below:

(मनोज सिंह) अवीक्षण अभियन्ता सम्बद्ध निदेशक (नियोजन एवं वाणिल्य) उ०प्रण्याण्ड्राण्याणलेल

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All Figures in Rupees Lakh

SI. No	Constituent	NET RE Charges Balance Upto 31st Mar. 2016	RE Charges Payable/ Receivable During 2016- 2017 (upto 13.10.2016)	NET RE Charges Balance as on 13.10.2016	Interest on delayed payment of RE charges Upto Qtr 4 of 2015-	Net Balance
1	CHANDIGARH	-265.16	-20.44	-285.6	-85.18	-370.78
2	DELHI	437.07	79.61	516.68	-97.02	419.66
3	HIMACHAL PRADESH	-512.13	21.65	-490.48	-132.39	-622.87
4	HARYANA	-6841.64	-486.12	-7327.76	-1569.9	-8897.66
5	JAMMU AND KASHMIR	24061.02	1980.66	26041.68	5312.9	31354.58
6	PUNJAB	964.94	455.62	1420.56	-28.93	1391.63
7	RAJASTHAN	-3800.59	-379.86	-4180.45	-902.06	-5082.51
8	UTTARAKHAND	-30.57	57.11	26.54	-9.7	16.84
9	UTTAR PRADESH	-12735.03	-1516.69	-14251.72	-2487.72	-16739.44

As on 13.10.2016, total outstanding of Reactive Energy Charges against PDD J & K is Rs. 313.55 Cr.

All Payable constituents are requested to release outstanding RE charges payments at the earliest.

# D.5 Reimbursement of Expenditure of NRPC Sectt. for the year 2016-17 by the members of NRPC

Keeping in view the budget estimates approved by Gol for the financial year 2016-17 and expenditure likely to be incurred towards outsourcing of staff, conduct of various meetings, leasing of vehicle etc through NRPC fund and balance amount available in the NRPC Fund, the per member contribution for the year 2016-17 would be Rs. 7 lakhs.

Members may like to discuss and approve for remitting the above annual contribution.

# D.6 Reimbursement of Expenditure of NRPC Sectt. for the year 2015-16 by the members of NRPC

In the 35<sup>th</sup> NRPC meeting held on 09.07.2015, it was decided to contribute the amount of Rs.11 Lakh per member for the year 2015-16 toward reimbursing NRPC expenditure to GoI for the year 2015-16, for meeting the expenditure for meetings at Secretariat and other expenditure as approved by Chairperson, NRPC. List of members from which contribution is still awaited is given below.

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(मनीज सिंह) अमीकण अभियना सम्बद्ध निर्देशक (निर्योजन एवं वाशिक्य) उठप्रवसाद्रातकातीला

SI. No.	Constituent Member		
1,	J & K State Power Development Corp. Ltd., J&K		
2. Punjab State Power Corp. Ltd.,			
3.	Paschimanchal Vidyut Vitran Nigam Ltd., Meerut, UP		
4.	Power Transmission Corp. of Uttarakhand Ltd.		
5.	GMR Energy Trading Limited, New Delhi		

Since the financial year 2015-16 is already over, Members are requested to expedite the contribution.

# D.7 Reimbursement of Expenditure of NRPC Sectt. by the members of NRPC for the previous years

For reimbursing NRPC expenditure to GoI and meeting the expenditure for meetings at Secretariat and other expenditure as approved by Chairperson, NRPC, constituent members are to pay annual contribution as decided at NRPC meetings from time to time.

The contribution is awaited from following members:

S.No.	Constituent Member	Amount
Financial	Year 2014-2015	
1	J&K State PDC Ltd ,J&K	
2	Dakshinanchal VUNL, Agra	Do 44 ( -14
3	JdVVNL, Jaipur	Rs. 11 Lakh
4	Bajaj Energy Pvt Ltd.	
Financial	Year 2012-2013	
1	Purvanchal Vidyut Vitaran	Rs.10 Lakh
	Nigam Ltd.	

#### **HOSTING OF NEXT MEETINGS OF NRPC / TCC**

Taking into account the agreed roster for hosting of meetings, the next meetings of TCC (35<sup>th</sup>) & NRPC (39<sup>th</sup>), which would become due in Feb./March 2017 are to be hosted by J&K.

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(मर्नीज सिंह) अधीक्षण अनियन्ता सन्यद्ध निर्देशक (निर्धोजन एवं याणिज्य) उठप्रवमावटावकावलिव

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#### Annex-

# 1. Logic for SPS for Kawai-Kalisindh-Chhabra generation complex

#### a.) For Chhabra TPS:

Contingency: N-1-1 contingency of 400 kV Chhabra-Kawai and Chhabra-Hindaun or N-1-1 contingency of 400 kV Chhabra-Kawai and Chhabra-Bhilwara.

Action: Restricting generation within 750 MW would be safe. Thus, SPS will trip at least one unit at Chhabra along with fast reduction in generation at Chhabra. Though tripping of two units at Chhabra may also be considered by RRVUNL.

(This logic will be reviewed after commissioning of 400 kV Chhabra-Anta line)

# b.) For Chhabra and Kawai TPS Complex:

Contingency: N-1-1 contingency of 400 kV Kawai-Anta 1 & 2.

Action: Restricting generation of this complex within 1500 MW would be safe. At least one unit at Kawai and one unit at Chhabra will be tripped through SPS.

# c.) For Chhabra, Kawai and Kalisindh TPS Complex:

Contingency: N-1-1 contingency of [765 kV Anta-Phagi 1 & 2] or [765/400 kV ICTs at Anta (till only two ICTs in service)].

Action: Restricting generation of this complex within 1500 MW would be safe. Thus, at least one generating unit each at Kawai, Kalisindh and two units at Chhabra will be tripped through SPS. In addition to the above further backing down of around 10% of the installed capacity of the running generators (about 150-200 MW) in this complex will be required (within few seconds)

In this case, there will be loss of generation of about 1800 MW in the complex and therefore equivalent load shedding should take place in Rajasthan state control area to avoid overloading on WR-NR corridor as well as avoiding overdrawal by Rajasthan. However, considering logistics etc. approx 750 MW automatic load shedding in Rajasthan Control area shall be done automatically and rest of load shedding would be done manually.

(मनीज सिंह) अधीक्षण अभियन्ता सम्बद्ध निदेशक (निगोजन एवं वाणिल्य) उण्डाण्याण्डालकात्रिक -

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 Logic for SPS for tripping of either one or both ICT(s) (1000MVA, 765/400kV ICT at Unnao) or tripping of 765kV Anpara-Unnao line for Kawai-Kalisindh-Chhabra generation complex

ŞI.	Real time flow on 765 kV	Action to be taken through SPS
No.	Anpara-Unnao Line (X) (MW) prior to tripping	
1	1200 <x 1350<="" td="" ≤=""><td>Backing down of 200 MW each from Anpara-C and Anpara-D to be achieved within 25 seconds.</td></x>	Backing down of 200 MW each from Anpara-C and Anpara-D to be achieved within 25 seconds.
2	1350 <x 1500<="" td="" ≤=""><td>Tripping of one unit at Anpara-C or Anpara-D shall be carried out through SPS. (The logic shall be build such that in one such event tripping of unit shall take place at Anpara-C and in next such event at Anpara-D and so on) Further, backing down of 150 MW shall be carried out in each of the running units at Anpara-C and Anpara-D and shall be achieved within 25 seconds.</td></x>	Tripping of one unit at Anpara-C or Anpara-D shall be carried out through SPS. (The logic shall be build such that in one such event tripping of unit shall take place at Anpara-C and in next such event at Anpara-D and so on) Further, backing down of 150 MW shall be carried out in each of the running units at Anpara-C and Anpara-D and shall be achieved within 25 seconds.
3	1500 <x≤1600< td=""><td>One unit each shall be tripped simultaneously at Anpara C and Anpara D.  Further, automatic load shedding of 600 MW shall be carried out in U.P. system.</td></x≤1600<>	One unit each shall be tripped simultaneously at Anpara C and Anpara D.  Further, automatic load shedding of 600 MW shall be carried out in U.P. system.
4	X > 1575	SLDC, UP shall be vigilant and if loading on 765 kV Anpara-Unnao Line is more than 1575 MW it shall issue immediate instruction to backing down of all the running units of Anpara-C and Anpara-D so as to bring flow on the line below 1500 MW.

3. SPS for the Tehri complex for the contingency of any of the circuit of 400 kV Koteshwar-Merrut line

When all the four machines (i.e. Tehri HPS (4 × 250 MW) and Koteshwar HPS (4×100 MW)) are running and any one of the 400 kV Koteshwar-Merrut circuit trips, one unit of 250 MW of Tehri HPS should be tripped instantaneously".

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#### Annex-II

Report of the Group Constituted for suggesting measures for the improvement in protection system among the utilities of Northern Region

#### 1. Introduction:

- 1.1. Power system protection plays a v ital role to ensure reliable and s ecure operation of the Grid. The objective of a protection system is to keep the power system stable by isolating only the faulty components while maintaining the rest of the components in electrical network intact. Misoperation and non-operation of protection system may have significant consequential effects such as fatal accidents, load loss and generation loss. Each megawatt of lost load has further consequence to public and industry and loss of scarce natural resources.
- 1.2. Several issues related to power system protection were observed after the twin grid disturbances in July 2012. These issues also featured prominently in the meetings of Protection Sub-Committee from time to time and during the interaction with the consultants appointed by the CTU to review the status of implementation of Enquiry Committee recommendations. In every Protection Sub-Committee meeting, it is observed that protection related multiple tripping in the region are relatively more. Further, many of such tripping could have been avoided by ensuring well-functioning protection system. Therefore, need was felt to explore ways and means to bring about improvement in the field of Power System Protection among the utilities in Northern Region.

#### 2. Constitution of the Group:

In an effort to ensure improvement in the protection system among the utilities of Northern Region, NRPC Secretariat had constituted a group vide letter no. NRPC/OPR/107/06/ 2015/ dated: 26.08.2015 to suggest measures for improvement in protection system among the utilities of Northern Region. (copy enclosed at Encl-I).

#### 3. Recommendations

The Group deliberated upon various factors which may lead to improvement in the performance of the protection system among utilities. It was considered prudent to focus on the recommending a broad outline for developing framework towards sustained improvement in Power System Protection.

The recommendations of the group are under following broad areas:

- 1. Capacity Building,
- 2. Resource Deployment,
- 3. Protection System Maintenance,

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- 4. Event Reporting & Monitoring and
- 5. Talent Recognition Mechanism.

# 3.1 Capacity Building:

# 3.1.1 Training Modules:

Power System Protection is a highly specialized area of knowledge. The complexity of networks and short response times available to protection engineers make capacity building essential for improvement in protection system.

The training modules need to be adopted to suit the needs of engineers with varied exposure to the protection system. This would also provide a stream of trained protection engineers for a proper succession plan in all utilities. The group recommends following training modules for three different target faculty of engineers.

(i) Basic Training on Protection System for Substation Engineers (Level 1)

This module shall be focussed on providing the basic training on protection system and associated equipment to engineers not directly involved with protection system. This type of training is desirable for engineers from Operations, Switchyard Maintenance etc. This training may be organised departmently for each circle/zone. Training module may be developed by individual utility and trainers may be identified from within the organisation.

# (ii) Basic Training on Protection System for Protection System Engineers (Level 2)

This module shall focus on providing the basic training of protection system and associated equipment to engineers directly involved with the protection system commissioning and maintenance. To begin with, the training under this module may be arranged by the NRPC. A grading exam may be conducted at the end of each such module. The module shall cover working knowledge on protection system operation, testing and troubleshooting. Hands-on experince of modern numerical relays and testing kits shall be included in the training. A recommended module for the training is enclosed at Encl-II.

# (iii)Advanced Training on Protection System for Protection System Engineers (level 3)

This training shall focus on providing the design aspects of protection system, protection co-ordination and settings calculation to engineers directly involved with the protection system commissioning and maintenance. The training may be arranged by the NRPC. A recommended training module is enclosed at Encl-III.

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#### 3.1.2 Onsite Experience

In addition to training mentioned above, the group is of the opinion that practical onsite experience is one of the best methods for capcity building. Engineers may be deputed for short duration on rotational basis to commissioning sites/ retrofitment sites. It shall provide them exposure to the configuration/commissioning level details of the modern protection relays.

# 3.1.3 Relay Specific Training by OEM

It may be ensured by the utilities that during procurement of relays, relevant clauses may be added in the bid document and contract agreement which shall mandate the successfull bidder to provide relay specific training to utility engineers.

#### 3.2 Resource Deployment

Adequate resources must be deployed at susbstation level for commissioning, mainteance and troubleshooting of the protection system. The resources may be broadly classified as Human Resource and Material Resources.

# 3.2.1 Deployment of Protection Engineers:

The Group acknowledges the fact that the utilities are encountering manpower constraints and have to manage in limited resources. Considering the same in view, Circle/Zone level Protection groups may be deployed. The guidelines for minimum manpower to be deployed are listed below

- > 400 kV Substations: One EE/AE, One Junior Engineer and Two Technicians for 60 bays.
- > 220 kV Substations: One EE/AE, One Junior Engineer and Two Technicians for 60 bays.
- > 132 kV Substations: One EE/AE, One Junior Engineer and Two Technicians for 80 bays

# 3.2.2 Minimum requirement of Tools and plants

In absence of necessary Tools and Plants, the human resource deployed at the substation level shall not be able to function optimally. The list of necessary tools and plants is enclosed in **Encl-IV**. The number of equipment to be provided on the basis of bays/sub-stations may be decided by their respective management for optimum use.

# 3.3 Protection System Maintenance

Protection systems need periodic monitoring and maintenance to ensure reliable and healthy operation. The Group recommneds that the Monthly and Annual Maintenance plan may be developed and implemented by utilities. The

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# 3.4 Event reporting and Monitoring

- 3.4.1 Analysis of protection system operation is a convenient mechanism to identify and rectify the defects in the system. A mechanism may be developed by the Utility for analysis of tripping. Key personal may be identified at Circle/Zone and resonsibility be assigned to file an initial trip report with DR and EL details to the management, respective SLDC, NRLDC and NRPC Secretariat within prescribed timeframe as per applicable regulations. Detailed report on multiple element tripping shall be s ubmitted to the management/NRLDC/NRPC Secretariat within 15 days.
- 3.4.2 Feasibility may be envisaged to develop a web based event reporting system at NRPC/NRLDC website. The entities may log in and upload the Report, DR and EL. The date and time of the uploads shall be logged and available in the reporting system. Further, this shall provide a ready database for the events and the defects associated with individual substations.

# 3.5 Talent Recognition Mechanism

It is acknowledged that the protection engineers have to often work in odd hours and under short response times. The efforts of the protection engineers need to be acnowledged by the management and rewarded as well. The reward may not necessaily be monetory.

Utilities may develop mechanism of annually identifying and rewarding "Protection Circle" and "Protection Engineer" for their significant contribution towards healthy protection system. Similarly, at regional level, NRPC may also institute award for best performing utility and best protection engineer. Such recognitions help to boost the moral of the protection engineers and encourage them to continue excellent work.

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#### Encl-I

फोन -26511211 , 26868681 फेक्स Fax : 26865206 ई मेल e- mail: ma-nrpc@nic.in वेबसाईट Website : www.nrpc.gov.in

भारत सरकार उत्तर क्षेत्रीय विद्युत समिति -18ए, श.जीत सिंह मार्ग ,कटवारिया सराय, नई दिल्ली110016 -

Government of India
Northern Regional Power Committee
18-A, S. Jeet Singh Marg, Katwaria Sarai,
New Delhi-110016

No. NRPC/OPR/107/06/ 2015/

Dated: 26.08.2015

To,

1. Sh.M.K.Singhal, S.E., RRVPNL

2. Sh. Rajiv Porwal, Asst. GM, NRLDC

3. Sh. B L Gujjar, Manager (Prot.), DTL

4. Sh. M.S. Hada, Deputy Manager, POWERGRID

5. Sh. Bijendra B Singh, Sr. Engineer, NLDC

Sir,

It has been decided to constitute a group to suggest measures for bringing improvement in the field of Power System Protection among the utilities in Northern Region. The Group comprises of the following members:

- 1. Sh. Ajay Talegaonkar, S.E.(O), NRPC.......Chairperson
- 2. Sh.M.K.Singhal, S.E., RRVPNL
- 3. Sh. Rajiv Porwal, Asst. GM, NRLDC
- 4. Sh. B L Gujjar, Manager (Prot.), DTL
- 5. Sh. M.S. Hada, Deputy Manager, POWERGRID
- 6. Sh. Bijendra B Singh, Sr. Engineer, NLDC
- 7. Shri Naresh Kumar, E.E., NRPC......Convener

The Group will submit its report by 14th September, 2015.

Yours faithfully,

Sd/-

(P.S. Mhaske)

Member Secretary

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अधीक्षण अनियन्ता सम्बद्ध निदेशक (निशीलन एवं वाणिल्य) उ०प्रणगठहा०काठनिक

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#### Encl-II

# Training Module for Level 2

#### Day1 Session1

- Interaction with participants
- Expectations from the training
- Initial Assessment test

#### Day1 Session2

- Basic Substation Layout
- Substation Bus Schemes
- Introduction to CT, VT, LA, Isolator and CB

#### **Day1 Session3**

- · Per Unit System.
- Fault analysis (Symmetrical faults).
- Importance of earthing system and measurement of earth resistance

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#### Day1 Session4

- Unsymmetrical faults
- Sequence diagram of transformers

#### Day2 Session1

Distance Protection

#### Day2 Session2

Distance protection schemes(PUTT,POTT etc)

#### Day2 Session3

Distance protection relays( Theory)

#### Day2 Session4

Distance protection relays( Handson)

#### Day3 Session1

Transformer Protection (Diff, REF)

#### Day3 Session2

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# Day3 Session3

Transformer protection relays( Theory)

# Day3 Session4

Transformer protection relays ( Hands on)

#### Day4 Session1

• Bus Bar Protection (Diff, REF)

#### Day4 Session2

Bus Bar Protection Relays (Theory)

#### Day4 Session3

Bus Bar protection relays( Hands on)

#### Day4 Session4

Auto Reclosure

### Day5 Session1

Distance protection testing (Hands on with presentation)

# Day5 Session2

Transformer protection testing( Hands on with presentation)

#### Day5 Session3

Bus Bar protection testing ( Presentation with hands on)

#### Day5 Session4

- Case Studies and Knowledge Sharing
- Doubt clearing and closure session

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#### Encl-III

#### **Training Module for Level 3**

#### Day1 Session1

- Interaction with participants
- Expectations from the training
- Initial Assessment test

#### Day1 Session2

- · Per Unit System.
- · Fault analysis (Symmetrical faults).
- · Sample calculations by Participants for a typical network

#### Day1 Session3

- Unsymmetrical faults
- · Sequence diagram of transformers
- Sample calculations by Participants for a typical network

#### Day1 Session4

 Calculations by participants for symmetrical and asymmetrical fault for a Particular 400/220kV Substation of Northern Region

#### Day2 Session1

- Distance Protection
- Distance protection schemes(PUTT,POTT etc)
- Auto Reclose Scheme

#### Day2 Session 2

- Distance protection relay setting Calculations example
- Distance protection relay setting Calculations by Participants for a typical line cases

#### Day2 Session 3

 Procedure for Distance protection relay setting and configuration of various Numerical Distance Relays installed in Northern Region e.g. ALSTOM/ABB/SIEMENS /GE/ERL etc

#### Day2 Session 4

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# Day3 Session 1

- Transformer protection Theory, Differential, REF, Mechanical Protection relays
- Sample calculations for Transformer Differential and REF Protection

# Day3 Session 2

- Procedure for relay setting and configuration of various Numerical Transformer Differential Relays installed in Northern Region e.g. ALSTOM/ABB/SIEMENS /GE/ERL etc
- Hands on for relay setting and configuration of Major Numerical Transformer Differential Relays installed in Northern Region e.g. ALSTOM/ABB/SIEMENS /GE/ERL etc

# Day3 Session 3

- High Impedance and Low Impedance type of Busbar Protection schemes
- Centralized and Distributed type of Numerical Busbar Protection Schemes
- Typical CT and Trip Circuit schemes for different types of Busbar Protection
- LBB scheme

# Day3 Session 4

- PMU
- System Protection Schemes(SPS)
- Typical SPS for Parallel ICT's and for Typical HVDC and 765kV Lines case

# Day 4 Session 1

- Feeder Backup Relay Setting Calculations
- Transformer Backup Protection relay setting calculations

# Day 4 Session 2

 Calculations for Backup relay setting by Participants using Fault Level Data\_ A Case study for typical network

Day 4 Session 3

 Substation Automation and IEC 61850. Emerging trends including Process Bus level Automation, Merging Units and Non Conventional Instrument Transformers

# Day 4 Session 4

- Protection schematic Design Philosophy for typical 400kV Feeder
- Protection schematic Design Philosophy for typical 400kV Transformer.

#### Day 5 Session 1

· Hands on for Distance Relay Testing

#### Day 5 Session 2

- Hands on for Transformer Differential Relay Testing
- Pre Commissioning Tests for Transformer, Feeders and Busbars

# Day 5 Session 3

 RECAP OF FAULT LEVEL CALCULATION, Backup and Distance Relay settings\_ CASE STUDY AND TUTORIAL FOR PARTICIPANTS

# Day 5 Session 4

- Discussions, sharing of knowledge and case studies
- Assessment and conclusion

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# **Encl-IV**

	Diagnostic Tools for Protection & Switch Yard Maintenance
1.01	Transformer Winding resistance meter & turns ratio meter
1.02	Insulation Resistance (IR) tester (1KV, 5KV, 10KV)
1.03	Automatic Capacitance & Tandelta Measuring Instrument
1.04	Break Down Voltage (BDV) Test Kit for oil (60KV)
1.05	Dissolved Gas Analyser (portable)
1.06	Frequency Response Analyser (FRA) test set
1.07	Circuit Breaker operational Analyser & Dynamic coantact Resistance Meter (DCRM) test kit
1.08	SF6 Gas Leakage Detector
1.09	Dew point measruing instrument
1:10	SF6 Gas Handling Plant (for evacuation, filling, filtering of SF6 gas)
1.11	Static Contact Resistance Measuirng Instrument
1.12	Leakage Current Meter (LCM) for Surge Arrester
1.13	Earth tester for measurment of soil resistivity & ground resistance
1.14	Automatic Relay test kit suitable for testing electro mechanical /static /numerical relays
1.15	Thermovision carmera for detection of hot spots
1.16	Transmision line Response Analyser/Offline Fault Locator
1.17	CT Analyzer
1.18	Primary CT Injection Kit
1.19	Multimeter Tong Tester/Clamp Meter
1.20	Analog/Digital Multimeter
1.21	Actual Line Impedence Measurement
1.22	DC E/F Dector

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# Encl - V

			Comments
1	Daily Maintenance	<ol> <li>Check of relay healthy indication of all C&amp;R panels</li> <li>Check the panels/SCADA for persisting alarms</li> <li>Check the DR and E vent Logger PC for proper functioning</li> <li>Check PLCC panels for any alarm</li> <li>Check the time sync of relays on sample basis.</li> <li>Test the operation of DG set (no load)</li> </ol>	
2	Monthly Maintenance	<ul> <li>(i) Check for electrolyte level in station battery bank (excluding VRLA)</li> <li>(ii) Measurement of voltage of each cell of battery bank-Also verify the Station DC supply voltages (at the longest end of the cable)</li> <li>(iii) Ensure that no DC earth fault is present in the DC system.</li> <li>(iv) Check of current voltage of all phases and DC voltage in all the relays.</li> <li>(v) SF6 gas leakage detection test is carried on SOS basis. However SF6 gas alarm in CB/CT/bushings is monitored on daily basis.</li> </ul>	

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(मनोज सिंह) उद्योक्षण अभियत्ता सम्बद्ध निवंशक (निवंशन एवं वाणिक्य) उठप्रवद्यावद्गावकावलिव

# Encl - VI

1	Annual Maintenance	<ul> <li>(i) Measurement of capacitance &amp; tan delta of CTs, CB grading capacitor, transformer bushings.</li> <li>(ii) Oil parameters &amp; DGA test of transformer oil of power transformers.</li> <li>DGA of oil in transformers/ Reactors is normally carried out on 6 monthly basis. However based upon condition of transformer oil, frequency of oil DGA may vary from weekly monitoring to 6 monthly monitoring)</li> <li>(iii) Breaker operation timings-Frequency of breaker operation timing is yearly. However, DCRM test may be done on CBs on 2 yearly basis.</li> <li>(iv) Leakage current check of surge arrestor.</li> <li>(v) Measurement of earth resistance.</li> </ul>	THRC testing of surge arrestors is carried out twice a year i.e. Pre monsoon and pos t monsoon.  Note: Oil parameter testing (e.g. BDV, moisture, etc) for transformer & Reactors on yearly basis.
2	Five Yearly Maintenance	<ul> <li>(i) Operational/functional testing of relays including breaker operation:         These tests shall be carried out during the shut down of the line equipments. Testing of busbar protection on SOS basis.     </li> <li>(ii) Analysis of all breaker operation.</li> </ul>	

(मनोज सिंह) अधीक्षण अभियन्ता सम्बद्ध निवेशक (निवांजन एवं वाणिज्य) उठप्रठफाठहाठकाठतिठ

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#### **Encl-A**

# List of Participants for the meeting of the group to suggest measures for bringing improvement in the field of Power System Protection among the utilities in NR held on 21.04.2016 at NRPC Secretariat, New Delhi

Name	Designation	Organization	Phone/Mobile	e-mail ID
B.L.Gujar	Manager(T)	DTL	9999533985	bl.gujar@dtl.gov.in
Brijendra B.Singh	Dy.Manager	NLDC-POSOCO	7042954333	brijendra@posoco.in
Rajeev Porwal	DGM(SO-II)	POSOCO	9871581133	rk.porwal@posoco.in
Nitin Yadav Senior Engineer(SO-II)		POSOCO	9560050257	yadavnitin06@gmail.com
M.S.Hada	Manager	Powergrid	9650555997	mshada@gmail.com
Mukesh Singhal	SE(Prot.)	RVPNL	9414061406	mukeshsinghal@gmail.com
Ajay Talegaonkar	SE	NRPC		seo-nrpc@nic.in
Ratnesh Kumar	EE(O)	NRPC		

(मनोज सिंह) अधीक्षण अभियन्ता

जनायाः जनगन्ताः सम्बद्धः निदेशकः (निर्मालन एवं कणिन्य) उठप्रवपावद्वावनावस्ति

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# Annex-III

1. Transmission Lines which are recommended to be certified as ISTS

S.No	Name of the Transmission Line	Owner STU	Average % Utilization (of 2nd and 4th Qtr of 2015-16) by states other than the home state of owner STU
1	400 kV S/C Jodhpur – Merta Line-l	RVPN	59.8
2	400 kV S/C Jodhpur – Merta Line-II	RVPN	59.8
3	400kV S/C Merta-Ratangarh Line	RVPN	50.85
4	400kV S/C Merta-Heerapura Line	RVPN	62.95
5	220kV D/C Aau - Baithwasia Line	RVPN	95.55
6	220kV D/C Baithwasia - BhawadLine	RVPN	95.35
7	220kV D/C Gajner - Bikaner(400kV GSS)Line	RVPN	55.85
8	220 KV Nahtaur-Matore(PG)	UPPTCL	51.8
9	400 KV SULTANPUR- PGCIL(KURSI RD.)	UPPTCL	57.5

2. Transmission Lines which do not fulfil the criteria (as finalized by the Group) to be certified as ISTS

S.No	Name of the Transmission Line	Owner STU	Average % Utilization (of 2nd and 4th Qtr of 2015-16) by states other than the home state of owner STU
1	220kV S/C RAPP(A)-Debari Line	RVPN	17.65
2	220kV S/C Bhiwadi(PG)-Bhiwadi(RVPN)Line	RVPN	6.1
3	220kV S/C Bap-Phalodi Line	RVPN	37.8
4	220kV S/C Bap-Barsingsar Line	RVPN	27.4
5	220kV D/C Jodhpur(400kV GSS)Line	RVPN	4.7
6	220kV D/C Bhawad - Bhopalgarh Line	RVPN	28.7
7	220kV S/C Dechu - Tinwari Line	RVPN	12.05
8	220kV S/C Dechu - Phalodi Line	RVPN	40.8
9	220kV S/C Phalodi - Tinwari Line	RVPN	15.7
10	220kV S/C Tinwari – Jodhpur (400kV GSS)Line (Circuit-I)	RVPN	15.45
11	220kV S/C Tinwari – Jodhpur (400kV GSS)Line (Circuit-II)	RVPN	15.45
12	220kV S/C Bhadla – Bap Line	RVPN	31.2
13	220kV S/C Barsingsar – Bikaner line	RVPN	22.65
14	220kV S/C Barsingsar -Nagaur line	RVPN	4.9
15	220kV S/C Bhopalgarh- Merta line	RVPN	10.6
16	220kV S/C Bhopalgarh-Khinwsar line	RVPN	27.75



(गनोज सिंह) अवीक्षण अभिवन्ता सम्यद्ध निवेशक (वियोजन एवं वाणिज्य) उठ्यक्रपाठमाठलिठ

18 19 20 21 22 23 24 25	220kV S/C Nagaur-Nokha line 220kV S/C Jodhpur(220kV GSS)-Pali line 220kV S/C Jodhpur(400kV GSS)-Bilara line 132kV S/C Gajner-Pugal Road line 132kV S/C Pugal Road-Bikaner line 132kV S/C Gajner – Bhinasar line 132kV S/C Bhinasar-Bikaner line 132kV S/C Pokran – Dechu line 132kV S/C PS(2)-PS(1) line 132kV S/C PS(1) Bajju line	RVPN RVPN RVPN RVPN RVPN RVPN RVPN RVPN	27.2 2.05 10.2 5.6 3.25 5.7 3.3
19 20 21 22 23 24 25	220kV S/C Jodhpur(400kV GSS)-Bilara line 132kV S/C Gajner-Pugal Road line 132kV S/C Pugal Road- Bikaner line 132kV S/C Gajner – Bhinasar line 132kV S/C Bhinasar- Bikaner line 132kV S/C Pokran – Dechu line 132kV S/C PS(2)-PS(1) line	RVPN RVPN RVPN RVPN	10.2 5.6 3.25 5.7
20 21 22 23 24 25	132kV S/C Gajner-Pugal Road line 132kV S/C Pugal Road- Bikaner line 132kV S/C Gajner – Bhinasar line 132kV S/C Bhinasar- Bikaner line 132kV S/C Pokran – Dechu line 132kV S/C PS(2)-PS(1) line	RVPN RVPN RVPN	5.6 3.25 5.7
21 22 23 24 25	132kV S/C Pugal Road- Bikaner line 132kV S/C Gajner – Bhinasar line 132kV S/C Bhinasar- Bikaner line 132kV S/C Pokran – Dechu line 132kV S/C PS(2)-PS(1) line	RVPN RVPN	3.25 5.7
22 23 24 25	132kV S/C Gajner – Bhinasar line 132kV S/C Bhinasar- Bikaner line 132kV S/C Pokran – Dechu line 132kV S/C PS(2)-PS(1) line	RVPN RVPN	
23 24 25	132kV S/C Bhinasar- Bikaner line 132kV S/C Pokran – Dechu line 132kV S/C PS(2)-PS(1) line	RVPN	3.3
24 25	132kV S/C Pokran – Dechu line 132kV S/C PS(2)-PS(1) line		0.0
25	132kV S/C PS(2)-PS(1) line		14.65
		RVPN	10.4
26	Tazky a/u Pat i paliu line	RVPN	11.1
	132kV S/C Bajju- Kolayat line	RVPN	12.2
$\overline{}$	132kV S/C PS(5) – Phalodi line	RVPN	6.75
29	132kV S/C Sanwreej – Dechu line	RVPN	0.1
30	132kV S/C Osian – Tinwari line	RVPN	0.1
31	132kV S/C Bap - Phalodi line	RVPN	14.55
32	132kV S/C Kolayat – Gajner line	RVPN	8.4
33	132kV S/C Jayal – Nagaur line	RVPN	0.1
	400kV D/C Bhadla – Bikaner line	RVPN	31.2
35	220 kV Anta-Dahra	RVPN	14.2
	400 KV MAINPURI PG-PARICHHA-1	UPPTCL	29.45
37	400 KV MAINPURI PG-PARICHHA-2	UPPTCL	29.45
0,	220 KV KANPUR SOUTH-		
38	FATEHPUR(PGCIL)	UPPTCL	37.5
39	220 KV FATEHPUR-FATEHPUR(PG)-II	UPPTCL	15.15
40	220 KV NAUBASTA-FATEHPUR(PGCIL)	UPPTCL	33.1
41	220 KV FATEHPUR-FATEHPUR(PG)-I	UPPTCL	15.15
42	220 KV NAUBASTA-PGCIL(KNP)	UPPTCL	1.6
43	220 KV MAINPURI-PGCIL(KNP)BHAUTI	UPPTCL	30.5
44	220 KV MANPURI-PGCIL(MNP)BHOGAON-I	UPPTCL	5.25
45	220 KV MANPURI-PGCIL(MNP)BHOGAON-II	UPPTCL	5.25
46	220 KV HDJ-PGCIL(MNP)BHOGAON	UPPTCL	36.55
47	220 KV FIROZABAD-PGCIL(MNP)BHOGAON	UPPTCL	29.6
48	220 KV ORAI-PGCIL(KNP)BHAUTI	UPPTCL	35.5
49	220 KV BASTI-PGCIL(GKP)	UPPTCL	30.95
50	220 KV GORAKHPUR-PGCIL(GKP)	UPPTCL	5.8
51	220 KV Modipuram-Matore(PG)-I	UPPTCL	4.85
52	220 KV Modipuram-Matore(PG)-II	UPPTCL	4.85
53	220 KV Muzaffarnagar(Nara)-Matore(PG)	UPPTCL	23.95
54	220 KV Satabdinagar-Matore(PG)	UPPTCL_	2.75
55	220 KV Gajraula-Matore(PG)	UPPTCL	16.8
56	220 KV CHINHAT-LUCKNOW PG	UPPTCL	17.8
57	220 KV SAROJINI NAGAR-RAEBARELI(PG)	UPPTCL	6.35
58	765 kV Anpara C-Unnao	UPPTCL	46.3
59	132 kV Hamirpur-Chohal	PSTCL	4.8

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60 132 kV Kotla-Ropar-1	PSTCL	14.9
61 220 kV Ganguwai-Mohali	PSTCL	4.45

3. Transmission Lines which were not modelled by STU for PoC charge calculation and hence could not be considered for study

S.No	Name of the Transmission Line	Owner STU
1	220kV S/C Bhiwadi(PG)-Neemrana Line	RVPN
2	220kV S/C Bap-Badisid Line	RVPN
3	220kV D/C Bap-Aau Line(Under construction)	RVPN
4	220kV S/C Bhadla- Badisid Line	RVPN
- 5	220kV S/C Nagaur - Merta Line	RVPN
6	132kV S/C PS(3) – PS(4) line	RVPN
7	132kV S/C PS(4) – PS(5) line	RVPN
8	132kV D/C Osian – Baithwasia line(under construction)	RVPN
9	132kV S/C Khetusar – Bhadla line	RVPN
10	132kV S/C Gajner – Gajner(220kV GSS)line	RVPN
11	220 KV BKT-LUCKNOW PG	UPPTCL

4. Transmission Lines which are natural interstate lines and hence need not be certified as ISTS

S.No	Name of the Transmission Line	Owner STU
1	220kV S/C Chirawa – Hissar Line	RVPN
	132KV S/C Sadalpur(Rajgarh)-Hissar line	RVPN
3	132KV S/C Khandar-Sheopur line	RVPN
4	132KV S/C Amrapura-Sirsa Line	RVPN
5	220 KV Muzaffarnagr(Nara)-Roorkee	UPPTCL
6	132 KV SAHUPURI-KARMNASHA	UPPTCL
7	132 KV CHANDAULI- KARMNASHA	UPPTCL
8	132 KV Kiratpur-Manglore	UPPTCL
9	132 KV Chandak-Luksar	UPPTCI
10	132 KV Afzalgarh-Kalagarh	UPPTC
11	132 KV Dhampur-Kalagarh	UPPTCI
12		UPPTCI
13		UPPTC
14		UPPTC
15		PSTCL
16		PSTCL

(मनोज सिंह) अधीक्षण अनियन्ता

सम्बद्ध निवंशक (निवंजन एवं वाणिज्य) उ०१०५१०द्वावकाठवेत

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# Annex-IV

Revised Power Supply Position of Northern Region July-September, 2016

				July, 201	6			
State	Peak Demand Peak Met Surplus/Deficit (-)		Energy Requirement	Energy Availability	Surplus/Defi	cit (-)		
	MW	MW	MW	%	MU/day	MU/day	MU/day	%
CHANDIGARH	358	358	0	0.0	185	185	0	0.0
DELHI	6,342	6,261	-81	-1.3	3,311	3,308	-3	-0.1
HARYANA	9,262	9,262	0	0.0	5,303	5,303	0	0.0
H.P.	1,297	1,297	0	0.0	744	738	-7	-0.9
J&K	2,385	1,950	-435	-18.2	1,220	1,001	-219	-17.9
PUNJAB	11,408	11,408	0	0.0	6,598	6,598	0	0.0
RAJASTHAN	9,288	9,168	-120	-1.3	5,284	5,276	-8	-0.1
U.P.	16,123	15,154	-969	-6.0	9,268	9,241	-27	-0.3
UTTARAKHAND	1,972	1,907	-65	-3.3	1,149	1,138	-11	-0.9
REGION	52,151	51,658	-493	-0.9	33,061	32,788	-274	-0.8
				August, 20	016			
State	Peak Demand	Peak Met	ak Met Surplus/Deficit (-)		Energy Requirement	Energy Availability	Surplus/Deficit (-)	
	MW	MW	MW	%	MU/day	MU/day	:MU/day	%
CHANDIGARH	350	350	0	0.0	172	172	0	0.0
DELHI	5,707	5,707	0	0.0	3,211	3,208	-3	-0.1
HARYANA	8,984	8,984	0	0.0	5,003	5,003	0	0.0
H.P.	1,293	1,293	0	0.0	742	736	-6	-0.8
J&K	2,367	2,008	-359	-15.2	1,321	1,057	-263	-19.9
PUNJAB	11,204	11,204	0	0.0	6,389	6,389	0	0.0
RAJASTHAN	7,807	7,807	0	0.0	4,735	4,713	-22	-0.5
U.P.	15,614	14,690	-924	-5.9	9,351	9,224	-127	-1.4
UTTARAKHAND	1,963	1,888	-75	-3.8	1,153	1,146	-7	-0.6
REGION	51,426	50,081	-1,345	-2.6	32,077	31,648	-429	-1.3
	- 15			Sept., 20	16			
State	Peak Demand	Peak Met	Surplus/De	eficit (-)	Energy Requirement	Energy Availability	Surplus/De	ficit (-)
	MW	MW	MW	%	MU/day	MU/day	MU/day	%
CHANDIGARH	281	281	0	0.0	164	164	0	مهو

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#### 34th TCC & 38th NRPC Meetings (24th and 25th October, 2016) - Agenda

DELHI	5,305	5,301	-4	-0.1	3,212	3,209	-4	-0.1
HARYANA	9,109	9,109	0	0.0	5,062	5,062	0	0.0
H.P.	1,329	1,329	0	0.0	751	749	-3	-0.3
J&K	2,469	1,975	-494	-20.0	1,353	1,083	-269	-19.9
PUNJAB	10,596	10,596	0	0.0	6,125	6,125	0	0.0
RAJASTHAN	9,816	9,816	0	0.0	5,798	5,701	-97	-1.7
U.P.	16,329	15,457	-872	-5.3	9,684	9,404	-280	-2.9
UTTARAKHAND	1,942	1,942	0	0.0	1,150	1,149	-1	-0.1
REGION	52,772	51,816	-956	-1.8	33,300	32,646	-654	-2.0

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# Annex-V

Anticipated Power Supply position for October-December, 2016

		Octo	ber, 2016				
Anticipate d Peak Demand	Expected availability	Surplus/Deficit (-)		Anticipated Energy Requirement	Anticipated Energy Availability	Surplus/Deficit (- )	
MW	MW	MW	%	MU/day	MU/day_	MU/day_	%
245	249	4				3	2.0
4,600	5,717	1,117					12.3
B,100	7,915	-185					0.7
1,400	1,638	238	17.0			1,1	9.5
2,450	2,036	-414	-16.9				-14.5
8,500	9,715	1,215	14.3	4,050			-5.0
10,000	10,922	922	9.2	6,600	6,044		-8.4
15,500	13,736	-1,764	-11.4	9,650	8,351	-1,299	-13.5
1,900	1,894	-6	-0.3	1,075	1,058	-16	-1.5
48300	49200	900	1.9	30704	26855	-1849	-6.0
		Nove	mber, 201	6			
Anticipat ed Peak Demand	Expected availability	Surplus/Deficit (-)		Anticipated Energy Requirement	Anticipated Energy Availability	Surplus/Deficit (-	
	MW	MW	%	MU/day	MU/day	MU/day	%
195	206	11	5.6	105	108	3	2.9
3,600	5,922	2,322	64.5	1,860			54.8
6,800	7,174	374	5.5	3,250	3,442		5.9
1,425	1,544	119	8.4	730	742		1.6
2,500	2,168	-332	-13,3	1,450	1,230	-220	-15.1
5,700	7,287	1,587	27.8	2,900	2,901	1	0.0
10,300	11,536	1,236	12.0	6,200	5,906	-294	-4.7
10,300					2.000	044	-3.0
14,500	13,864	-636	-4.4	8,050	7,809	-241	-3.0
		-636 -16	-4.4 -0.9	8,050 990	7,809	-241	-3.0
	Anticipate d Peak Demand MW 245 4,600 8,100 1,400 2,450 8,500 10,000 15,500 1,900 48300 Anticipat ed Peak Demand MW 195 3,600 6,800 1,425 2,500	Anticipate d Peak Demand	Anticipate d Peak Demand	Anticipate d Peak Demand	Anticipate d Peak   Peak	Anticipate d Peak Demand         Expected availability         Surplus/Deficit (-)         Anticipated Energy Requirement         Anticipated Energy Availability           MW         MW         MW         MU/day         MU/day           4,600         5,717         1,117         24.3         2,600         2,919           8,100         7,915         -185         -2.3         4,450         4,483           1,400         1,638         238         17.0         750         821           2,450         2,036         -414         -16.9         1,400         1,197           8,500         9,715         1,215         14.3         4,050         3,848           10,000         10,922         922         9.2         6,600         6,044           15,500         13,736         -1,764         -11.4         9,650         8,351           1,900         1,894         -6         -0.3         1,075         1,068           48300         49200         900         1.9         30704         28855           November, 2016           Anticipated ed Peak Demand         Expected availability         MW         MU/day         MU/day         Mu/day           MW	Anticipate d Peak   Demand   MW   MW   MW   MU/day   MU

December,2016								
State	Anticipat ed Peak Demand	Expected availability	Surplus	s/Deficit (-)	Anticipated Energy Requirement	Anticipated Energy Availability	Surplus/Deficit (-	
	MW MW		MW	%	MU/day	MU/day	MU/day	%
CHANDIGARH	235	237	2	0.9	115	117	2	1.6
DELHI	4,150	5,735	1,585	38.2	1,950	2,908	958	49.1
HARYANA	6,800	6,983	183	2.7	3,600	3,663	63	1.7
H.P.	1,525	1,645	120	7.9	800	B16	16	2.0
J&K	2,600	2,146	-454	-17.5	1,590	1,329	-261	-16.4
PUNJAB	6,250	7,158	90B	14.5	3,380	2,872	-508	-15.0
RAJASTHAN	10,700	11,423	723	6.8	6,600	6,531	-69	-1.0
U.P.	13,700	13,831	131	1.0	8,300	8,317	17	0.2
UTTARAKHAND	2.050	2.033	-17	-0.8	1,140	1,101	-39	-3.5
REGION	44900	47600	2700	6.0	27475	27653	178	0,6

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# Annex -VI

# Summarized Status of pending rectification of Defects observed during BPA

S.No.	Utility	No. of sub- stations covered under BPA	Expected Completion	Remarks
1.	UPPTCL	21	November, 2016	UPPTCL informed that work at few stations is pending and expected completion in phased manner by November, 2016.
2.	UPRVUNL	4	31 <sup>st</sup> October, 2016	Obra'A' — June, 2016 (including rectification of Time synchronization & BBP, PLCC (to be installed by UPPTCL). To be completed by 31st October, 2016.
				Harduaganj- BBP & PLCC work is expected to be completed by 31.10.2016
3.	RRVPNL	8	Sep, 2016	Rectification of seven sub-stns completed. 400 kV Ratangarh S/s is expected to be completed by 30 <sup>th</sup> September, 2016.
4.	HPSEB Ltd.	1	March, 2017	Out of 12 de ficiencies observed, 8 items stand already rectified. The rectification of defects of remaining 4 No. items will be completed by March, 2017. Taken in PSDF scheme.
5.	UJVNL	1	30-06-2016	Breaker for 220 kV Khodri-I & II needs to be r eplaced. Expected date as intimated by SLDC uttrakhand in 127th OCC meeting is 31.12.2016
6.	PDD, J&K	3	Status of progress is not submitted. Target completion not known.	As informed during 33 <sup>rd</sup> NRPC meeting that deficiencies where procurement was not involved had been rectified and ot her works where procurement is involved are yet to be taken up. PDD J&K informed that they have submitted the proposal for PSDF funding and deficiencies will be rectified when fund will be disbursed from PSDF. As informed by PSTCL defects at 220 kV Sarna-Udhampur line,

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# 34" TCC & 38" NRPC Meetings (24" and 25" October, 2016) - Agenda

	1			pertains to PDD, J&K.
7.	NTPC	10	November, 2016	Unchahar: 30.11.2016

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Annex-VII

Mechanism for Compensation for Degradation of Heat Rate, Aux Consumption and Secondary Fuel Oil Consumption, due to Part Load Operation and Multiple Start/Stop of Units

#### 1. Introduction

Central Electricity Regulatory Commission notified on 6<sup>th</sup> April 2016 Central Electricity Regulatory Commission (IEGC) (Fourth Amendment) Regulations, 2016, which inter-alia contains provisions relating to Technical Minimum Schedule for operation of Central Generating Stations and Inter-State Generating Stations, whose tariff is determined or adopted by the Central Commission. These Regulations further provide for compensation to Generating Stations for degradation of Heat Rate, Auxiliary Consumption and Secondary Fuel Oil consumption due to part load operation and multiple start-ups of units. Sub-regulation 7 of Regulation 6.3 B of IEGC mandates RPCs to work out a mechanism for compensation for station heat rate and auxiliary energy consumption for low unit loading and for secondary fuel oil consumption for additional start-ups in excess of 7 start-ups. This mechanism has been framed by NRPC to fulfil aforesaid requirement.

#### 2. Applicability

This mechanism is applicable to Coal based Central Generating Stations and Coal based Inter-State Generating Stations located in Northern Region, whose tariff is determined or adopted by the Central Commission.

#### 3. Definitions and abbreviations

- (i) "Comp (F)" means amount of final compensation to be received by a generator during the calculation period.
- (ii) "Comp (P)" means amount for preliminary estimate of compensation to generator during the calculation period.
- (iii) "EC (A)" means total energy charges for a g enerator during the calculation period on actual parameters.
- (iv) "EC (N)" means total energy charges for a generator during the the calculation period on normative parameters.
- (v) "ECR (Comp)" means Energy Charge Rate in Rs/kWh for preliminary estimate of compensation to generator for the calculation period.
- (vi) "ECR (DC)" means Energy Charge Rate in Rs/kWh corresponding to average Declared Capacity (DC) during the calculation period.
- (vii) "ECR (SE)" means Energy Charge Rate in Rs/kWh corresponding to average loading of generating station during the calculation period.

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- (viii) "Calculation Period" means period for which compensation calculation is being carried out. Generally, there shall be twelve calculations during a financial year. The first calculation shall be done for one month (i.e. month of April) at the beginning of the financial year. The second calculation shall be do ne by considering cumulative of two months (i.e. months of April and May) and so on.
- (ix) "Regulation" means Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Fourth Amendment) Regulations, 2016.
- (x) "RRAS Regulation" means Central Electricity Regulatory Commission (Ancillary Services Operations) Regulations, 2015
- (xi) "Tariff Regulation" means Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014

Other terms and abbreviations used in this mechanism shall have the meaning as described in Electricity Act, 2003, Regulation and Tariff Regulation.

# 4. Mechanism for working out compensation

# 4.1 Compensation for degradation of Heat Rate and AEC

- (i) The mechanism is based on provisions of Regulations and Tariff Regulations.
- (ii) Energy scheduled under RRAS Regulation shall be taken as +ve for upregulation and -ve for down regulation.
- (iii) The initial estimate of Percentage station-wise loading for the calculation period will be determined using Normative Auxiliary Energy Consumption as under:

$$\% \ \text{Loading} = \frac{\textit{AverageSchedule of the Station during calculation period}}{\textit{Installed Capacity of the Station on Bar} \times (1 - \textit{Auxillary Consumption})} \times 100$$

- (iv) Based on the percentage loading thus arrived, admissible percentage degradation in Auxiliary Energy Consumption (AEC) will be taken from the Regulation. After adding the percentage degradation in AEC to Normative Auxiliary Energy Consumption, percentage loading shall again be calculated.
- (v) Steps (iii) and (iv) shall be repeated until % loading remains in same band of Unit Loading provided in the regulation. The percentage loading arrived at this step shall be considered for further process. However, if the percentage loading so calculated does not converge to a single band of loading and switches between two different bands repeatedly, then average of these two percentage loading figures shall be taken for further processing.

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- (vi) This percentage loading shall be used for getting increase in SHR and Aux. consumption in accordance with the Regulations.
- (vii) Based on the values of increased SHR and AEC arrived at step (vi), Energy Charge Rate (ECR) for scheduled energy i.e. ECR (SE) for the station shall be calculated using the formula specified in Tariff Regulations.
- (viii) Similarly, ECR corresponding to average Declared Capacity (DC) i.e. ECR (DC) for the calculation period shall also be calculated and used as reference for calculating compensation. This is because, the effect of less declaration (with respect to Installed capacity), if any, on the SHR and AEC should be to the account of ISGS.
- (ix) The primary estimate of ECR to be used for calculation of compensation to be paid to ISGS for the calculation period ending n<sup>th</sup> month shall be difference in the ECR (SE) and ECR (DC) for that pewriod. ECR (Comp) for the calculation period ending n<sup>th</sup> month shall be calculated as:

$$ECR_n(Comp) = ECR_n(SE) - ECR_n(DC)$$

- (x) The primary estimate of compensation payable to ISGS for the calculation period ending n<sup>th</sup> month shall be calculated as below:
  - $Comp_n$  (P) = (Total Generation Schedule (Energy) during the calculation period excluding net RRAS energy scheduled during the period) \*  $ECR^n$  (Comp)
- (xi) The sharing of the Compensation amount for the calculation period among various beneficiaries shall be done as under:
  - (a) No compensation shall be pay able by a ben eficiaries if it has requisitioned at least 85% of its entitlement during the calculation period.
  - (b) The compensation amongst other beneficiaries shall be shared in the ratio of un-requisitioned energy below 85% of their entitlement i.e. compensation payable by k<sup>th</sup> beneficiary including virtual entity for the calculation period ending n<sup>th</sup> month

$$CB_{kn} = Comp_n(P) \times \frac{UE_{kn}}{\sum UE_{kn}}$$

Where  $UE_{kn}$  is un-requisitioned energy of  $k^{th}$  beneficiary below 85% of its entitlement during the calculation period ending  $n^{th}$  month.

Provided that the entitlement for virtual entity shall be taken as zero.

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(गगाज सिंह) अधीक्षण अभियन्ता सम्बद्ध विदेशक (नियाजन एवं बाणिज्य) उ०ऽ०पा०दा०काठनि०

- (xii) ECR<sub>n</sub> (A) for the calculation period shall be calculated using actual values of SHR and Aux Consumption furnished by ISGS at the end of the calculation period. Similarly, ECR<sub>n</sub>(N) shall be calculated using Normative values of SHR and Aux Consumption furnished by ISGS.
- (xiii) Now, following values shall be calculated:
  - (a) Total Energy Charges payable to ISGS based on actual parameters  $EC_n \ (A) = ECR_n \ (A) \ x \ (Total Scheduled Energy excluding net RRAS energy scheduled during the calculation period ending <math>n^{th}$  month)
  - (b) Total Energy Charges payable to ISGS based on Normative parameters  $EC_n \ (N) = ECR_n \ (N) \ x \ (Total Scheduled Energy excluding net RRAS energy scheduled during the calculation period ending <math>n^{th}$  month)
- (xiv) Compensation payable for the calculation period ending n<sup>th</sup> month to ISGS would be decided based on following criteria:
  - (a) If EC<sub>n</sub> (A) is less than or equal to EC<sub>n</sub> (N):

    No compensation shall be payable to ISGS
  - (b) If ECn (A) is more than ECn (N):
    - (b1) If  $Comp_n$  (P) is less than or equal to  $EC_n$  (A) minus  $EC_n$  (N) then final compensation amount payable to ISGS for the calculation period ending  $n^{th}$  month:

$$Comp_n(F) = Comp_n(P)$$

(b2) If  $Comp_n$  (P) is more than  $EC_n$  (A) minus  $EC_n$  (N), then final compensation amount payable to ISGS for the calculation period ending  $n^{th}$  month

$$Comp_n(F) = ECR_n(A) - ECR_n(N)$$

(xv) Final Compensation payable by k<sup>th</sup> beneficiary for the calculation period ending n<sup>th</sup> month

$$FCB_{kn} = \sum CB_{kn} \times \frac{Comp_n(P)}{Comp_n(F)}$$

(xvi) However, adjustments shall be carried out for compensation already paid for calculation period ending (n-1)<sup>th</sup> month

Net compensation payable by kth beneficiary for the calculation period ending nth month

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 $NCB_{kn} = FCB_{kn} - FCB_{k(n-1)}$ 

(ननीज सिंह) अधीराण अभियन्ता समाद्य निवेशक (नियोजन एवं काण्डिय) उ०४०२१०हा०कार्जाल

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If  $NCB_{kn}$  is negative, this is amount payable by ISGS to the beneficiary and vice versa. This way reconciliation would automatically take place at the end of the Financial Year. No payment shall be made to virtual entity or by the virtual entity.

# 4.2 Calculation for Fuel consumption:

- (i) No compensation for degradation of Secondary Fuel oil consumption is payable for the year if
  - Total number of start-ups are equal to or less than 7
     Or

The Actual Secondary Fuel Oil consumption is less than Normative Fuel Oil Consumption.

- b) Preliminary estimate of Compensation (in terms of KL of Sec. Oil) payable to ISGS for the year due to degradation of Secondary Fuel oil consumption shall be calculated by multiplying no. of start-ups exceeding 7 and solely attributable to reserve shut-downs with the appropriate value of additional secondary oil consumption specified in Regulation.
- c) Compensation payable to ISGS shall be restricted such that Oil Consumption based on Norms plus Compensation calculated in step (b) above does not exceed actual Secondary Fuel oil consumption for the year.
- d) Compensation in terms of Rupees shall be calculated by multiplying compensation in terms of KL as calculated in step (b) and average landed price of Secondary fuel oil for the year.
- e) Each start-up due to reserve shutdown shall be at tributed to the beneficiaries, which had requisitioned below 55% of their entitlement.
- f) Compensation (in terms of Rupees) shall be s hared amongst the beneficiaries in the following manner:

Compensation payable by beneficiary

$$= (N_i \times \frac{A_i}{\sum (N_i \times A_i)}) \times \text{Compensation payable to ISGS}$$

Where

 $N_i$ = Number of start-ups attributable to the beneficiary

 $A_l$ = Weightage Average Percentage share of the beneficiary in the generating station

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(मनीज सिंह) अवीक्षण अभियन्ता राज्यस्र भिवेशक्ष (मिनोजन एवं वाणिच्य) उ०प्र०५:०द्वाठकाठनिक्

- (ii) Following information shall be required to be submitted by ISGS for carrying out calculations outlined above
  - a) Installed Capacity on bar for each time block
  - b) Normative values of Normative Aux. Consumption, GHR, SFC and LC to be furnished once
  - c) Actual value of CVSF, CVPF, LPPF, LPSF and LPL for each month and also at the end of the year.

### 5. Submission of Data

- (i) Generating station shall submit to NRPC secretariat normative SHR and Normative Auxiliary Energy Consumption in accordance with current Tariff Regulations. Further, revised values of these parameters shall be submitted within seven days of issuance of new Tariff Regulations or amendment thereof.
- (ii) Generating stations shall submit actual data for a month by 21<sup>st</sup> day of the following month. The data to be submitted is- IC on bar for each time block, CVSF, CVPF, LPPF, LPSF and LPL.

## 6. Issuance of compensation statement

- (i) NRPC secretariat will issue the compensation statement along with final REA for the month.
- (ii) In case any anomaly or discrepancy is noticed by any utility, the same may be brought to the notice of Member Secretary NRPC within 15 days of issuance of Compensation Statement.

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(गनोज सिंह) अधीवाण अभियन्ता सन्बद्ध निर्देशक (निर्योलन एवं वाणिज्य) उ०९०४०४,०४,००००० लिए

Annexure 3

केस Fan: 26865206 क्षेत्र e- mail: ms-arpc@nic.in क्षेत्र to Website: www.nrpc.gov.in

## भारत सरकार विद्युत मंत्रालय उत्तर क्षेत्रीय विद्युत समिति 18-ए. श.जीत सिंह मार्ग, कटवारिया सराय,

नई दिल्ली- 110016 Government of India Ministry of Power Northern Regional Power Committee 18-A, S. Jeet Singh Marg, Katwaria Sarai, New Delhi-110016

सं. उक्षेविस/ वाणिज्यिक/ 209/ आर पी सी (38 वीं)/2017/4<sub>61</sub> -*6*<sub>0</sub> 5 No. NRPC/ Comml/ 209/ RPC (38<sup>th</sup>)/2017/ दिनोंक : 10 जनवरी, 2017 Dated: 10<sup>th</sup> January, 2017

सेवा में / To,

उ.क्षे.वि.स. के सभी सदस्य Members of NRPC/TCC

विषय: उत्तरी क्षेत्रीय विद्युत समिति की 38 वीं तथा तकनीकी समंवय उप-समिति की 34 वीं बैठक का कार्यवृत ।

Subject: 38<sup>th</sup> meeting of Northern Regional Power Committee and 34<sup>th</sup> meeting of TCC – Minutes.

महोदय / Sir,

उत्तरी क्षेत्रीय विद्युत समिति की 38 वीं बैठक दिनांक 25 अक्तूबर, 2016 को तथा तकनीकी समंवय उप-समिति की 34 वीं बैठक दिनांक 24 अक्तूबर, 2016 को टीएचडीसी इंडिया लिमिटेड, बाईपास रोड, ऋषिकेश में आयोजित की गयी थी। इन बैठकों के कार्यवृत की एक प्रति आपकी सूचना व आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

The 38th meeting of Northern Regional Power Committee was held on 25th October, 2016 and 34th meeting of TCC was held on 24th October, 2016 at THDC India Limited, Bypass Road, Rishikesh. A copy of the minutes of the meetings is enclosed herewith for favour of information and necessary action.

मवदीय/Yours faithfully,

प्रकास मस्के 10/1/2017-

(P.S. Mhaske) सदस्य सचिव

Member Secretary

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(मनोज सिंह) अधीक्षण अनियन्ता सम्यद्व निदेशक (निरोजन एवं वाणिज्य) उठप्रठमाठद्वाठकाठाँवठ

## **List of NRPC Members**

- Sh. Vineet Garg, IAS, Chairperson, NRPC and Managing Director, HVPN Ltd, Panchkula -134109
- 2. Sh. P.C. Negi, Managing Director, HPSEB Ltd, Shimla-171004
- 3. Chairman, BBMB, Chandigarh-160019
- 4. Member (GO&D), CEA, New Delhi
- 5. Chief Engineer, UT of Chandigarh, Chandigarh-160066
- 6. Managing Director, DTL, New Delhi-110002
- 7. Sh. V. Venugopal, GM , SLDC, DTL, New Delhi-110002
- 8. Managing Director, IPGCL, New Delhi-110002
- 9. Sh Rajesh Kumar Gupta, Chief Engineer (SO&C), SLDC, HVPNL, Panipat
- 10. Managing Director, HPGCL, Panchkula-134109
- 11. Sh. Naresh Sardana, Director (Operation), UHBVN, Panchkula -134109
- 12. Director (Plg. & Contracts), HPPTC Ltd, Shimla-171004
- 13. Superintending Engineer, SLDC, HP Load Despatch Society, Totu, Shimla
- 14. Principal Secretary to Govt. of J&K, PDD, J&K, Jammu
- 15. Managing Director, J&K State Power Dev. Corp., Srinagar, J&K
- 16. CMD, PSTCL, Patiala-147001
- 17. Sh. K.D. Chowdhary, CMD, PSPCL, Patiala-147001
- 18. Sh Sanjay Malhotra, IAS, CMD, RRVPNL, Jaipur-302005
- 19. Chief Engineer (LD), SLDC, Heerapur, Jaipur-302024
- 20. CMD, RRVUNL, Jaipur-302005
- 21. CMD, Aimer VVNL, Jaipur, Rajasthan
- 22. CMD, UPPTCL, Lucknow-226001
- 23. Managing Director, SLDC, UPPTCL, Lucknow-226001
- 24. Managing Director, UPRVUNL, Lucknow-226001
- 25. Managing Director, Purvanchal VVNL, Varanasi-221004
- 26. Managing Director, SLDC, PTCUL, Rishikesh
- 27, Managing Director, PTCUL, Dehradun-248001
- 28. Managing Director, UJVNL, Dehradun-248001
- 29. Sh. S.S.Yadav, Managing Director, UPCL, Dehradun-248001
- 30. Sh. Jayant Kumar, Director (Finance), NHPC, Faridabad-121003
- 31. Sh. Preman Dinaraj, Director (Finance), NPCIL, Mumbai-400094
- 32. Director (Commercial), NTPC, New Delhi-110003
- 33. Sh. R.P. Sasmal, Director (Operation), PGCIL, Gurgaon-122001
- 34. Sh. R.N. Misra, CMD, SJVNL, New Delhi
- 35. Director (Technical), THDC, Rishikesh-249201
- 36. Sh. K.V.S.Baba, CEO, POSOCO, New Delhi-110016
- 37. Sh. P.K. Agarwal, GM, NRLDC, New Delhi-110016
- 38. CEO, Aravali Power Company Pvt. Ltd., NOIDA
- 39. Sh. Karunakar Jha, DGM (Commercial), Jhajjar Power Ltd., Haryana
- 40, Sh. V.S. Babu Kothapalli, WTD, Lanco Anpara Power Ltd.
- 41. Sh. M.K Parameswaran, Station Director, Rosa Power Supply Company Ltd.
- 42. Sh. Arvind Gujral, CEO, BSES Rajdhani Power Limited, New Delhi
- 43. Sh. Satish Jindal, Director and CEO (Trading), JSW Energy Ltd., New Delhi
- 44. Sh. Jaydeb Nanda, COO, Adani Power Rajasthan Ltd., Ahmedabad-380006
- 45. Sh. Anil Kumar Garg, GM(BD), Malana Power Company Ltd, Noida-201301
- 46. Shri Amit Mittal, Talwandi Sabo Power Ltd. Distt: Mansa, Punjab-151302

Special Invitee

1. Chief Engineer, NPC, CEA, NRPC Building, Katwaria Sarai, New Delhi-110016

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(मनोज रिक्ट) अधीक्षण अभियन्ता रान्यज्ञ निर्देशक (नियोजन एवं वाणिन्य) उ०प्रकपाठट्रावन्यावस्वि

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## **List of TCC Members**

- 1. Sh. Jatinder Kumar Juneja, Chairman TCC and Director (Tech), HVPN Ltd, Panchkula-134109
- Sh. R.K. Sharma, Director (Tech), HPSEB Ltd, Shimla-171004,
- 3. Sh. V.K. Kalra, Member (Power), BBMB, Chandigarh-160019
- 4. Chief Engineer (GM), CEA, R. K. Puram, New Delhi-110066
- 5. Chief Engineer, UT of Chandigarh, Chandigarh-160009
- 6. Sh. Prem Prakash, Director (Operation), DTL, New Delhi-110002
- 7. Sh. V. Venugopal, SLDC, DTL, New Delhi-110002
- 8. Sh. Jagdish Kumar, Director (Technical), IPGCL, New Delhi-110002
- 9. Chief Engineer (SO&C), SLDC, HVPNL, Sewah, Panipat
- 10. Director (Generation), HPGCL, Panchkula-134109
- 11. Sh. O.K. Sharma, CE, HPPC, Panchkula-134109
- 12. Director (Projects), HPPTC Ltd., Shimla-171004
- 13. Superintending Engineer, SLDC, HP LDS, Totu, Shimla
- 14. Development Commissioner (P), PDD, Jammu, J&K
- 15. Managing Director, J&K State Power Dev. Corp., Srinagar, J&K
- 16. Director (Tech.), PSTCL, Patiala
- 17. Director (Distribution), PSPCL, The Mall, Patiala
- 18. Director (Technical), RVPNL, Janpath, Jaipur-302005
- 19. Director (PT), Jaipur VVNL, Jaipur, Rajasthan
- 20. Director (Opn), UPPTCL, Lucknow-226001
- 21. Chief Engineer (TO), UPRVUNL, Lucknow-226001
- 22. Director (O&M), PTCUL, Dehradun-248001
- 23. Managing Director, UPCL, Dehradun-248006
- 24. Director (Operation), UJVNL, Dehradun-248006
- 25. Executive Director (O&M), NHPC, Faridabad-121003
- 26. Sh. K.P.Singh Chief Engineer (E&T), NPCIL, Mumbai-400094
- 27. Regional Executive Director (NR), NR-HQ, NTPC, Lucknow-226010
- 28. Sh. Prabhakar Singh, ED (NR-I), PGCIL, New Delhi-110016
- 29. Sh. R.K. Bansal, Director (E), SJVNL, New Delhi
- 30. General Manager (Electrical Design), THDC, Rishikesh-249201
- 31. Sh. P.K. Agarwal, GM, NRLDC, New Delhi-110016
- 32. AGM (O&M), Aravali Power Company Pvt. Ltd., Jhajjar
- 33. Sh. Karunakar Jha, DGM (Commercial), Jhajjar Power Ltd., Haryana
- 34, Sh. V.S. Babu Kothapalli, WTD, Lanco Anpara Power Ltd.
- 35. Sh. Hirday Singh Tomar, Addl. Vice President, Rosa PSCL
- 36. Sh. Girish Deshpande, Director (Technical) JSW Energy Ltd., New Delhi
- 37. Sh. Kanti Biswas, Station Head, Adani Power Rajasthan Ltd., Ahmedabad-380006
- 38. Sh. Sheshadri Krishnapura, VP, BSES Rajdhani Power Limited, New Delhi
- 39. Sh. Anil Kumar Garg, GM(BD), Malana Power Company Ltd, Noida-201301
- Copy for information to:
  - Member Secretary, WRPC, Mumbai-400 093.
  - ii. Member Secretary, SRPC, Bangalore-560 009
  - iii. Member Secretary, ERPC, Kolkata-700 033.
  - iv. Member Secretary, NERPC, Shillong-793 003.

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(मनोज सिंह) अधीकण अभियत्ता सन्यत्त्व निवंसक (नियांजन एवं वाण्ड्य) उ०४० निव्हाजनांशलि०

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# उत्तर क्षेत्रीय विद्युत समिति NORTHERN REGIONAL POWER COMMITTEE

## SUMMARY RECORD OF DISCUSSIONS

**OF** 

34th MEETING OF TECHNICAL COORDINATION SUB-COMMITTEE

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38th MEETING OF NORTHERN REGIONAL POWER COMMITTEE

The 34<sup>th</sup>meeting of Technical Coordination Sub-Committee (TCC) and 38<sup>th</sup> meeting of Northern Regional Power Committee (NRPC) were held on 24<sup>th</sup> and 25<sup>th</sup> October, 2016, respectively at Rishikesh, Uttarakhand. The list of participants in the TCC and NRPC meetings is enclosed at Annexure- I & II, respectively.

# PROCEEDINGS OF 34th MEETING OF TCC

Shri D.V. Singh, Director (Technical), THDC India Limited welcomed Members of Technical Coordination Sub-Committee and other delegates. A short presentation, showing the achievements made by THDCIL was shown.

Shri P.S. Mhaske, Member Secretary, NRPC, welcomed the members of Technical Coordination Sub-Committee and other delegates. He welcomed Shri J.K. Juneja, Director (Tech.), HVPNL, who had taken over as Chairman, TCC for the year 2016-17. He also proposed a resolution in appreciation of the services rendered by Shri R.K. Sharma, Director (Op), HPSEBL, who had relinquished charge of Chairman, TCC after completion of his tenure on 31st March, 2016. TCC in its resolution, placed on record its appreciation of the outstanding services rendered by Sh. R.K. Sharma during his tenure as Chairman, TCC.

Giving overview of operation of Northern Grid, he stated that power supply position of Northern Region during July to September 2016 was satisfactory. The region as a whole faced nominal peak power shortage in the range of 1-3% and energy shortage of 1-2%. He stated that Peak and energy shortage were relatively higher in J&K and Uttar Pradesh.

Member Secretary, NRPC stated that in past during winter season large number of tripping of transmission lines occurred due to fog, causing minor grid events. Due to rigorous monitoring and follow-up at the NRPC level and

July -

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action taken by the transmission utilities for replacement and cleaning of insulators, the fog &pollution related trippings had been reduced over the years. He requested the utilities to keep up the efforts as has been done in the past to prevent such tripping during this winter season for safety of the grid. He further stated that another issue which was a cause of concern during winter season was high voltage in the grid. He requested all utilities to explore transformer tap optimization, operate generating units in synchronous condenser mode where ever such facilities are available, absorption of reactive power by the generating units to its capabilities, switching off the Capacitor banks etc. to maintain the system voltages within safer limits.

Member secretary, NRPC informed that in line with the deliberation in the 35<sup>th</sup> NRPC meeting held in July 2015, Symposium on "Load Forecasting for Operational Planning" on 5<sup>th</sup> August 2016 and Tutorial on Power System Oscillations & PSS Tuning on 7<sup>th</sup> October 2016 was organised by NRPC sectt. He further informed that capacity building programme on integration of renewable into the grid, with funding from PSDF had also been completed.

He informed that large number of agenda items had been listed for deliberation covering various operational and commercial issues. He expressed hope in getting solution to the various issues through fruitful discussion in the meeting.

MS, NRPC thanked THDCIL for hosting the meeting and for making excellent arrangements for the comfortable stay of the participants at holy city of Rishikesh.

Shri J.K. Juneja, Chairperson TCC welcomed the participants. He expressed his satisfaction that the Northern Region peak load period had passed without any significant event affecting grid security. However, he expressed his concern about 70 odd events of GD-I category reported during April to September 2016. He requested all the utilities to replace the obsolete and defective relays and switchgears etc. so that minor incidents which were attributable to deficiencies in Protection System could be avoided. He added that if required, PSDF funding may be explored for such schemes. While mentioning the report of the group for improvement in protection system he suggested that due consideration need to be given to protection related issues. He sought attention of the delegates towards the issue of fog related tripping & high voltage conditions during winter and requested the concerned utilities to take suitable action to avoid fog related tripping and to maintain grid parameters within permissible limits. He also emphasised need for taking some concrete steps for providing reactive power compensation at 220kV level.

He expressed concern on non-availability of reliable telemetry. He appreciated the work done by POWERGRID and requested them to expedite the work.

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(प्रनीज सिंह) अवीक्षण अभियन्ता सन्तद्ध निदेशक (निदीजन एवं वाणिव्य) उ०२०मास्त्राठकारतिक Chairman, TCC drew attention of the members on the issue of mismatch in data from SCADA and interface meters. He suggested to take action on the recommendation of TeST sub-committee for preparing weekly reports based on detailed analysis of SCADA and Interface Meter data, as correctness of SCADA data impacts many operational decisions having commercial consequences.

He highlighted the issue of Maintenance / Replacement of RTUs installed under ULDC Phase-I Project, majority of which would complete their useful life in June 2017. He urged all the concerned utilities to initiate action for replacing RTUs before June 2017 and to maintain those which would remain in the system.

Shri J.K. Juneja, Director (Technical), HVPNL and Chairman, TCC expressed gratitude towards THDC India Ltd. for making excellent arrangement for the meeting.

## CONFIRMATION OF MINUTES (TCC)

## A.1 Confirmation of Minutes of 33<sup>rd</sup> meeting of TCC

Minutes of 33<sup>rd</sup> meeting of TCC held on 21<sup>st</sup> March, 2016 circulated vide letter No. NRPC/Comml/209/RPC(37<sup>th</sup>)/2016/5417-5505 dated 13<sup>th</sup> June, 2016 was confirmed.

## PROCEEDINGS OF 38th MEETING OF NRPC

Shri R.S.T. Sai, Chairman and Managing Director, THDCIL, welcomed members of NRPC and other senior officers on behalf of THDCIL.

Member Secretary, NRPC welcomed all the NRPC members and other participants. He especially welcomed Shri Vineet Garg, Managing Director, HVPNL, who had taken over as Chairperson, NRPC for the year 2016-17. He informed that Shri P.C. Negi, Managing Director, HPSEBL, had relinquished charge of Chairperson, NRPC after completion of his tenure on 31<sup>st</sup> March, 2016. On behalf of NRPC he proposed a resolution as given below in appreciation of the services rendered by Shri P.C. Negi, Managing Director, HPSEBL:

"Northern Regional Power Committee places on record its deep appreciation of the outstanding service rendered by Shri P.C. Negi, MD, HPSEB Ltd. during his tenure as Chairperson, NRPC. Shri Negi, provided able guidance in various technical, commercial &

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(मनाज सिंह) अधीक्षण अभिवन्ता सन्यत्व निवेशक (मितालक एवं वाजिक्य) उठ्यक्षणक्रमाठमाठमाठ administrative matters and made valuable contribution as Chairperson of the Committee."

Members adopted above resolution.

Member Secretary, NRPC thanked THDCIL for hosting the meeting at very short notice and excellent arrangement for stay.

Shri Vineet Garg, Chairperson NRPC welcomed the participants. He expressed satisfaction over, by and large, comfortable power supply position in the Northern Region during the period of April to September, 2016. He also appreciated efforts of all concerned for managing high demand period of the region without any major grid incident.

He stated that with the combined efforts of transmission utilities in Northern region and the rigorous monitoring at regional level, the incidents of tripping of transmission lines during foggy weather had reduced in last 4-5 years. He requested all the transmission utilities to complete this year's target of replacing the conventional insulators with polymer insulators and cleaning of conventional insulators by 15th December 2016.

He expressed concern regarding maintenance/replacement of RTUs installed under ULDC Phase-I Project, majority of which need to be replaced in a short period of time. Since proper functioning of RTUs is vital for ensuring telemetry in SLDCs and NRLDC, he requested all the utilities to work on this issue on war footing.

He appreciated the NRPC Sectt for organising two workshops on load forecasting for operational planning of power system and PSS tuning. He suggested that such workshops should be organised in future also, so that power sector personnel remain updated with the latest technologies and best practices.

In the end, he thanked THDC India Ltd. for the excellent arrangements and comfortable stay of the participants.

Shri S. D. Dubey, Chairperson CEA welcomed the participants. He expressed that since July 2012 incident, the grid had not seen any disturbance which attributable to meticulous planning, coordination, operation & maintenance by all those concerned with the grid. He pointed out that our frequency band is one of the narrowest in the world. He raised the issue of power cuts & shortages in remote areas of our country despite surplus energy availability in our country. To improve this situation he advised not only to focus on generation but also on transmission, distribution and safe & reliable operation of the integrated grid.

He stated that with number of schemes of GoI and with massive investment in this sector supplemented by the coordinated efforts of all those concerned, the mission of the Gol, to provide quality and reliable power to all the consumers

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by 2019, would be a reality. He stressed that some very aggressive efforts need to be put, in order to achieve that milestone. He stated that by 2021-22, India would be having adequate transmission system throughout the country and would be having inter-regional transmission capacity of around 100,000 MW.

He appreciated the NRPC forum for providing a platform to all the constituents to discuss and resolve the technical and operational issues of such a complex system.

## CONFIRMATION OF MINUTES (NRPC)

# A.2 Confirmation of Minutes of 37th meeting of NRPC

Minutes of 37<sup>th</sup> meeting of NRPC held on 22<sup>nd</sup> March, 2016, circulated vide letter No. NRPC/Comml/209/RPC(37<sup>th</sup>)/2016/5417-5505 dated 13<sup>th</sup> June, 2016 was confirmed.

## OPERATIONAL ISSUES

# B.1 New Special Protection Scheme(SPSs) for Northern Region TCC Deliberation

- B.1.1 Member Secretary, NRPC stated that section 5.2 (o) of Indian Electricity Grid Code requires System Protection (SPS) Schemes to be finalized by RPCs. Accordingly, based on requirements, various SPSs were recommended by Operation Coordination Sub-Committee or Protection Coordination Sub-Committee. He added that, subsequent to last TCC/NRPC meetings held in March 2016, following SPSs had been recommended by OCC for approval of NRPC:
  - A. SPS for Kawai-Kalisindh-Chhabra generation complex recommended in 122<sup>nd</sup> OCC meeting held on 22<sup>nd</sup> April, 2016.
  - B. SPS for Anpara generation Complex recommended in 122<sup>nd</sup> OCC meeting held on 22<sup>nd</sup> April, 2016.
  - C. SPS for the Tehri complex for the contingency of any of the circuit of 400 kV Koteshwar-Merrut line recommended in 127<sup>th</sup> OCC meeting held on 23<sup>rd</sup> Sept., 2016
- B.1.2 In regard to SPS for Kawai-Kalisindh-Chhabra generation complex, Superintending Engineer, NRPC stated that automatic load shedding under the above said SPS had not been implemented by RVPNL for N-2

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- contingency of 765kV Anta-Phagi 1 & 2 or 765/400kV ICTs at Anta (till only two ICTs in service). Representative of NRLDC also expressed concern over non-implementation of automatic load shedding
- B.1.3 Representative of RRVPNL stated that some feeders had been identified for automatic load shedding. Some more feeders were being identified to meet the targeted load shedding of 750 MW. He mentioned that for implementation of SPS communication links were also to be established. He assured that the scheme would be completed by March 2017.
- B.1.4 Representative of Adani Power Limited (APL) pointed out certain issues in the scheme and requested Rajasthan Vidyut Prasharan Nigam Limited (RVPNL) to resolve them at the earliest. Representative of RVPNL assured to look into the issues.
- B.1.5 TCC advised RVPNL to start implementing the scheme with feeders already identified. More feeders should be added to the scheme as and when they are identified. TCC also decided that RVPNL and Adani Power Ltd. would submit a joint status report to NRPC Secretariat by 10<sup>th</sup> November 2016 on the issue raised by APL during the meeting.
- B.1.6 In regards to SPS for Anpara generation Complex, representative of UPPTCL stated that LoA would be placed by end of Oct,2016 and the scheme would be implemented within 3 months.
- B.1.7 In regard to SPS for Tehri complex, THDCIL agreed to implement the SPS for the Tehri complex by November 2016.
- B.1.8 With the observations mentioned above in regard to Kawai-Kalisindh-Chhabra generation complex, TCC recommended aforesaid System Protection Schemes for approval of NRPC.

NRPC approved the SPSs recommended by the TCC.

B.2 Report of the Group Constituted for suggesting measures for the improvement in protection system among the utilities of Northern Region

#### **TCC Deliberation**

B.2.1 Member Secretary, NRPC stated that several issues related to power system protection were observed after the twin grid disturbances in July 2012. It was observed that many of these issues/tripping could have been avoided by ensuring well-functioning protection system. Therefore, need was felt to explore ways and means to bring about improvement in the field of Power System Protection among the utilities in Northern Region. He added that to ensure improvement in the protection system among the utilities of Northern

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(मनोज सिंह) अधीवण अनियन्ता सन्यद्ध निदशक (निमंत्रन एवं वाणिण्य) उठप्रवद्माव्हावकावलिक Region, a group was constituted to suggest measures for improvement in protection system. The report of the Group was enclosed at Annex-II of the agenda. The report was deliberated in the 30th meeting of Protection Sub-Committee (PSC) held in September 2015, wherein the PSC recommended for approval of the report of the group by TCC/NRPC.

- B.2.2 Member Secretary, NRPC briefed the members about recommendations on Capacity Building, Resource Deployment, Protection System Maintenance, Event Reporting & Monitoring and Talent Recognition Mechanism.
- B.2.3 On the recommendation regarding Human Resource deployment. representative of Haryana Vidyut Prasaran Nigam Limited (HVPNL)and Himachal Pradesh State Electricity Board Limited (HPSEBL) raised concern about availability of manpower as per the recommendations. SE, NRPC opined that the recommended manpower may be considered as target and states should strive to achieve the same.
- B.2.4 On the recommendation regarding, talent recognition representative of Delhi Transmission Limited (DTL) stated that only appreciation might not be sufficient. Therefore, monetary reward for talent recognition should also be considered.
- B.2.5 Representative of HPSEBL stated that a time bound action plan may be identified for implementation of the recommendations.
- B.2.6 TCC recommended that the report of the Group may be accepted. TCC further recommended as under:
  - Individual utilities would immediately start working to develop training module for Basic Training on Protection System for Sub-station Engineers (Level 1) and start training programmes within 6 months. NRPC Secretariat should take action to start Level 2 training programme in November, 2016. Level 3 training programme would be taken up within 6 months.
  - Utilities would take immediate action to implement recommendation regarding onsite Experience and Relay Specific Training by OEM.
  - Utilities would initiate action to meet the recommended level of deployment of protection Engineers by October 2017 and recommended level of Tools & plants by March 2017.
  - Utilities would take immediate action and align their protection related maintenance activities in accordance with recommendations of the group.
  - Utilities would develop a mechanism by January 2017 to comply with the recommendation 3.4.1 of the group regarding event reporting and analysis.

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- NRPC Sectt. and NRLDC would deliberate and implement a mechanism for web based reporting of events.
- A group comprising members from HPSEBL/HPPTCL, DTL, UPPTCL, POWERGRID and NRPC Secretariat would be constituted to formulate detailed talent recognition mechanism.

NRPC concurred with the recommendations of TCC.

# B.3 System Study for Capacitor Requirement in Northern Region for the year 2016-17 and 2017-18

#### TCC Deliberation

- B.3.1 Member Secretary, NRPC stated that in the 37<sup>th</sup> NRPC meeting, held in March 2016, it was decided that the task of System Studies for assessment of Capacitor requirements in Northern Region would be entrusted to CPRI. It was also decided that Member Secretary, NRPC would proceed further in the matter with the approval of Chairperson, NRPC. This decision was taken as states of Haryana, Punjab, J&K and U.P. (MVVNL) had submitted the scheme for installation of capacitor in their respective state to the Appraisal Committee of PSDF for its funding through PSDF. Based on the decision of the Techno-Economic sub-group of PSDF, the schemes had been forwarded to NRPC for assessment.
- B.3.2 He informed that Letter of Award was issued to CPRI for carrying out the studies with consultancy charges of Rs. 20 Lakh plus Service tax after due approval from Chairperson, NRPC. To carry out capacitor studies, CPRI had submitted format for submission of data which were circulated to the SLDCs. He expressed concern that even after continuous follow-up in OCC meetings and letter to TCC members of STUs, only HPSEB Ltd, RRVPNL, PSTCL and HVPNL (Partial Data) had submitted the data. Therefore, the studies could not be carried out. He mentioned that in accordance with IEGC, RPCs are required to carry out studies every year to finalize reactive compensation and therefore non-submission of data for carrying out the aforesaid study amounts to non-compliance to IEGC. Consequently, in OCC, it was proposed that Hon"ble CERC and PSDF nodal agency would be informed that capacitor requirement could not be finalized due to non- availability of the data and the Letter of Award issued to CPRI for carrying out capacitor studies for 2016-17 and 2017-18would also be cancelled.
- B.3.3 TCC Members expressed concern over non-submission of data by some STUs. The STUs who had not submitted data, assured that they would submit the same shortly.

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- B.3.4 One of the suggestions given in the meeting was that guidelines should be framed for installing capacitors along with new Distribution transformer. However, some of the members were not in favour of such guidelines as they thought it would lead to over or under compensation depending on type of load to be served by that distribution transformer.
- B.3.5 Representative of HVPNL stated that the scheme submitted by them for Power System Development Fund (PSDF) funding was only for making existing capacitors switchable.
- B.3.6 After detailed deliberations following was recommended by TCC:
  - Since more than half the period of current FY had already passed, no purpose would be served for carrying out studies for current FY i.e. 2016-17.
  - Studies should be got done from CPRI for 2017-18 and 2018-19.
  - All the STUs would submit the data by 31.10.2016 for carrying out study for the period 2017-18. Subsequently, the data would be submitted by 30.11.2016 for carrying out study for 2018-19.
  - Constitution of a group with the members from BRPL, HVPNL, UPPTCL,
     One DISCOM of Rajasthan and NRPC Secretariat to frame the guidelines for installation of capacitors at distribution level along with the commissioning of distribution transformer.
  - If the proposal of HVPNL is only for making the Capacitors switchable, it can be recommended for PSDF funding.

NRPC concurred with the recommendations of TCC.

# B.4 Maintenance / Replacement of RTUs installed under ULDC Phase-I Project

### **TCC Deliberation**

B.4.1 Member Secretary, NRPC stated that most of the presently working RTUs (AREVA make S900) were installed at the EHV sub-stations/switchyards of state and Central Sector utilities in the year 2002 under Unified Load Despatch Scheme (ULDC) Phase-I and would complete their fair life in July 2017. The maintenance of these Remote Terminal Units (RTUs) is presently being carried out by POWERGRID. He informed that the issue was deliberated in the 7<sup>th</sup> and 8<sup>th</sup> meetings of TeST sub-committee held in January 2016 and July 2016, respectively. The same was also highlighted by NRPC Secretariat vide letter dated 17.08.2016 addressed to members of TCC representing transmission utilities, and generating companies. He mentioned

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- that as per Grid Code (Clause 4.6.2), it is the responsibility of the Users, STU and CTU to provide Systems to telemeter power system parameter.
- B.4.2 Representative of POWERGRID informed that AREVA had already phased out these RTUs from production and had stopped support services for the same. He stated that utilities should either replace these RTUs or take the responsibility for maintenance of these RTUs after completion of useful life of 15 years. However, in response to a query, he also informed that AMC for these RTUs had been extended for one year with the provision of extension for one more year thereafter.
- B.4.3 Representative of UPPTCL stated that they had placed the order for purchase of 39 RTUs. The RTUs would be replaced by March 2017.
- B.4.4 Representative of HPPTCL stated that out of 16 RTUs, 7 were being replaced. Remaining 9 RTUs would be replaced by September, 2018 through PSDF funding.
- B.4.5 Representative of PTCUL stated that total 13 RTUs were to be replaced and they were going for PSDF funding.
- B.4.6 Representative of PSTCL stated that 3 RTUs had been replaced and they had already placed an order for RTUs, to replace significant number of existing RTUs. Remaining RTUs would be replaced through PSDF funding by July 2017.
- B.4.7 Representative of HVPNL stated, for replacement of 12 RTUs out of 37 Nos. they were in the process of procurement through World Bank funding.
- B.4.8 Representative of BBMB stated that out of 21 RTUs, they had replaced 10 Nos.
- B.4.9 Representative of NTPC stated that they were already in the process of replacing the RTUs. He requested a mechanism to ensure that newly purchased RTUs are compatible with SCADA.
- B.4.10Member Secretary, NRPC stated that in ULDC phase-I, exercise was done to identify the various RTU models which were compatible with the then SCADA. He suggested that similar exercise could be done, while procuring new RTUs to ensure compatibility with existing SCADA system..
- B.4.11 Representatives of DTL and 8BMB suggested that remaining RTUs be replaced by POWERGRID through PSDF funding. Representatives of SJVN and NHPC supported this suggestion as tendering for procuring few RTUs might not lead to economic pricing.
- B.4.12Representative of POWERGRID stated that if quantum of RTUs to be procured becomes significant, they would consider procuring RTUs on behalf of various utilities. He emphasized that apart from RTUs, other components of

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B.4.13TCC recommended that a special meeting of TeST sub-committee be convened on 15<sup>th</sup> November, 2016 to discuss the issue of replacement of RTUs and other communication equipment. Constituents were requested to send their representative in the meeting having all relevant information regarding requirement of RTUs and other communication equipment to be replaced.

### NRPC Deliberation

NRPC concurred with the recommendation of TCC.

B.5 Compliance to recommendations of Task Force on 'Power System Analysis under Contingencies'

#### **TCC** Deliberation

- B.5.1 Member Secretary NRPC stated that as a follow up of one of the recommendations of Enquiry Committee headed by Chairperson, CEA on grid disturbances that took place on 30<sup>th</sup> and 31<sup>st</sup> July 2012, Ministry of Power had constituted a "Task Force on Power System Analysis under Contingencies" in December 2012. The Task Force had submitted its report in August 2013. The report of the Task Force as also Guidelines for Protection settings recommended by the Task force had been uploaded on NRPC website (links http://www.nrpc.gov.in/reports/other/taskforce\_analysis.pdf and http://www.nrpc.gov.in/reports/other/ps\_guidelines.pdf ).lt was also informed that Member Secretary, NRPC vide letter dated 31st July 2014 had also requested members of NRPC to initiate action for implementation of recommendations of the Task Force.
- B.5.2 He added that the matter was also deliberated in the 33<sup>rd</sup>NRPC meeting held on 11<sup>th</sup>November, 2015, wherein it had emerged that some of the recommendations had been complied with and some of them had been implemented partially. Some of the decisions taken in the afore mentioned NRPC meeting, which had not been fully implemented, were as under:
  - (i) Decision: "Concerted efforts should be made to operationalize EMS application under recently commissioned ULDC phase-II. Further, Pradhan Committee"s recommendation in regard to deployment of manpower and their emoluments, incentives in SLDCs be implemented."

Representative of NRLDC stated that State Estimator, which was backbone of EMS, was working satisfactorily for 400kV level. However, representatives of many SLDCs stated that they were not able to operationalize State Estimator at 220 kV level. Representative of

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(गनोज सिंह) अधीक्षण अनियन्ता सन्यद्व निवेशक (निवोलग एवं वाणिल्य) उ०प्र०पा०द्रा०कावलिव 125 POWERGRID stated that main reason for non-functioning of State Estimator at state level was the non-availability of sufficient telemetry data. He stated that for converging of EMS, at least 70% data telemetry is required.

Representative of BBMB pointed out that even though they had 100% telemetry, Energy Management System (EMS)was not functioning at 220kV level. From the discussions, it emerged that apart from telemetry, correct modelling of network was also an issue.

Representative of DTL raised requirement of training for optimum utilisation and modelling of EMS. Representative of POWERGRID informed that training as per original scope of work had already been completed. He also added that correct modelling is the responsibility of SLDCs.

Some members raised the issue of quality of manpower deputed by Siemens. Representative of POWERGRID stated that AMC scope was clear and the matter of deficiency in service, if any, should be reported to enable suitable action.

TCC made following recommendations:

- POWERGRID to take up the matter regarding quality of manpower with Siemens.
- Training on modelling and running of EMS may be arranged and expenses for the same may be met from NRPC fund.
- The issue of Non- functioning of State Estimator may be discussed in special TeST sub-committee meeting to be held on 15th November 2016.
- On the issue of less manpower deployed at SLDCs as compared to that recommended by the Pradhan Committee, TCC advised SLDCs to strive to achieve the same.
- Decision: "Transformer Tap Position adjustment should be done on (ii) seasonal basis. Provision of adequate reactors, study of impact of 220 kV lightly loaded lines & their compensation and absorption of reactive power by generating units etc would help in controlling voltages."

Representative of NRLDC stated that the tap positions of transformers in ISTS network are changed on the advice of NRLDC. He added that NRLDC had suggested methodology for arriving at optimal tap position for transformers and STUs were requested to give feedback on transformers tap changed in intra-state system. However, feedback from states was not forthcoming. It was also stated that Generating stations

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- are helping in absorption of reactive power but there might be further scope for improvement.
- (iii) Decision: "POWERGRID had informed that exercise of tuning of HVDC and TCSC controllers is done regularly. POWERGRID was to inform periodicity of such tuning."
  - Representative of POWERGRID informed that this exercise was being done on yearly basis. It was also informed that a Consultant had been appointed and one of the task assigned to it was to suggest periodicity of tuning of controllers. He informed that report of the consultant was awaited.
- B.5.3 Member Secretary NRPC stated that one of the recommendations of the above mentioned Task Force was related to maintaining protection related database. This issue was deliberated in the Protection Sub-committee (PSC) meetings and it was decided that data regarding settings of relays would be compiled by the Central Transmission Utility (CTU) and (State Transmission Utilities (STUs) for their respective network and furnished to RLDC and SLDC, respectively with a copy to RPC for maintaining the database. A format for submission of protection related database was prepared and same was agreed in 30<sup>th</sup>PSC meeting held on 21.09.2015. The format was available on NRPC website. The issue of protection data base was being regularly discussed in National Power Committee (NPC) meeting wherein emphasis was laid to maintain the database.
- B.5.4 SE, NRPC stated that none of the utilities had submitted the database of the protection relays setting.
- B.5.5 Representative of POWERGRID stated that ERPC and SRPC had outsourced the work of protection database. Representative of DTL opined that third party might be engaged for this work; which can also collect data from field.
- B.5.6 Representative of NRLDC raised concern over security of data in case of engagement of third party.
- B.5.7 TCC recommended that protection setting data be submitted by all the utilities by 31.12.2016 for 400kV and 220kV S/S.

NRPC concurred with the recommendations of TCC.

B.6 Renovation and up-gradation of Protection System of various Substations and Power Houses of Bhakra Beas Management Board.

TCC Deliberation

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अधीक्षण अभियन्ता सामद्ध निवंशक (निवंजन एवं पाधिज्य) - उठप्रवर्णावराङ वर्जनव

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- B.6.1 Member Secretary NRPC stated that BBMB had submitted a proposal for funding from Power System Development Fund (PSDF) for Renovation and up-gradation of Protection System of various Sub-stations and Power Houses. Appraisal committee of the PSDF had requested BBMB to get the proposal appraised from NRPC. Accordingly, the proposal was submitted by BBMB to NRPC for appraisal. The salient features of the proposal are:
  - In line with the observations of protection audit, it is proposed to provide Bus Bar Protection at two 220 kV sub-stations namely Delhi & Kurukshetra.
  - At 220 kV Ganguwal s/s, 220 kV Switchyard of Bhakra Right Bank, Dehar Power House & Pong Power House, existing old Electromechanical realys are proposed to be replaced with Numerical ones to comply with Protection audit observations.
  - The old electro-mechanical Unit Protections provided at Bhakra right & Pong Power Houses are also proposed to be replaced.
  - Redundant DC sources are required to be provided at 220KV substations of BBMB to ensure reliable grid operation.
  - At some of the substations, existing CTs are required to be replaced because of High Tan Delta. Also some of the CTs, which are quite old and have oil leakage, are also proposed to be replaced.
  - PTs/CVTs at some of the substations are required to be replaced in view of providing synchronizing facility and ageing.
  - Synchronising trolleys at 220kV GSS Dhulkote and Sangrur are to be provided to ensure trouble free operation during restoration of the Grid.
  - Replacement of existing old and obsolete PLC terminals along with protection couplers have been proposed for smooth operation of PLCC equipment.
- B.6.2 Member Secretary NRPC added that OCC in its 128<sup>th</sup>meeting held on 17<sup>th</sup>October, 2016 had recommended the proposal for approval of NRPC.
- B.6.3 TCC recommended the scheme for approval of NRPC.

NRPC decided the scheme to be recommended for funding from PSDF.

# B.7 Certification of Non-ISTS line for inclusion in PoC Charges TCC Deliberation

B.7.1 Member Secretary NRPC stated that Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) (Third Amendment) Regulations, 2015 has provision for approval of RPC for considering some State transmission lines as ISTS based on the usage of the particular line. He informed that it was decided in 31<sup>st</sup> TCC/ 35<sup>th</sup> NRPC meeting held on 08<sup>th</sup> /09<sup>th</sup> July, 2015 to constitute a group to recommend a

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मनीज सिंह ) अभीवाम अभियानी सामझ भिन्नेमार्ग (भागीताम एव वाभिक्य) उठ्यावपादम्यागारीता 128 methodology for the study to be conducted by NRPC Secretariat, in consultation with RLDC. Based on the methodology suggested by the group, the study was carried out for certification of the non-ISTS lines submitted by UP, Punjab and Rajasthan.

- B.7.2 He added that the complete lists of transmission lines submitted by STU were sub-divided in following categories:
  - (i) Transmission lines, which fulfil the criteria recommended by the Group and hence were recommended to be certified as ISTS
  - (ii) Transmission lines, which did not fulfil the criteria recommended by the Group and hence could not be certified as ISTS
  - (iii) The lines, which were claimed to be used for inter-state transmission by STUs but were not modelled in the PoC transmission charge calculation and hence exercise to see whether or not these lines carry inter-state power could not be carried out. The responsibility to submit the requisite details for modelling the lines in PoC transmission charge study rests with STU concerned.
  - (iv) The transmission lines, which were natural inter-state lines and hence need not be certified as ISTS.
- B.7.3 He informed that following transmission lines, meeting the criteria decided by the group were recommended for certification as ISTS for the current Financial Year 2016-17:

S.No.	Name of Transmission Line	Owner STU
1.	400 kV S/C Jodhpur – Merta Line-I	RVPN
2	400 kV S/C Jodhpur – Merta Line-II	RVPN
3	400kV S/C Merta-Ratangarh Line	RVPN
4	400kV S/C Merta-Heerapura Line	RVPN
5	220kV D/C Aau – Baithwasia Line RVPN	
6	220kV D/C Baithwasia-BhawadLine RVPN	
7	220kV D/C Gajner – Bikaner(400kV GSS)Line	RVPN
8	220 KV Nahtaur-Matore (PG) UPPTCL	
9	400 KV Sultanpur- KURSI RD( PGCIL) UPPTCL	

B.7.4 It was also informed that the proposal to certify transmission lines as ISTS for the FY 2016-17 was recommended by OCC for approval of TCC/NRPC.

B.7.5 TCC recommended the above mentioned lines for approval of NRPC for certification as ISTS.

अंबेदिया अनियन्ता समाद्ध निदेशक (निवंदिन एवं वाधिका) उठऽठण्यात्मक ॥द्वित

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- B.7.6 It was emphasised that this certification was only for 2016-17. For next financial year (2017-18) the claim would require to be submitted by December, 2016. Further, it was clarified that all norms (such as availability) of CERC for ISTS lines would be applicable for these certified lines.
- B.7.7 Representative of HPPTCL stated that they had sent a list of two lines to NRPC secretariat for certification as ISTS and wanted to know status of the same.
- B.7.8 It was clarified to them that the lines submitted by HPPTCL were not declared under commercial operation by that time. Further, the lines had not been modelled in the PoC software and getting the lines modelled was the responsibility of element owner.

NRPC approved the list of 9 transmission lines recommended by the TCC for certification of these lines as ISTS.

## **B.8** Overview of Grid Operation

#### TCC Deliberation

- B.8.1 Member Secretary NRPC stated that Northern Region had a peak power shortage in the range of 0 to 1.3% and energy shortage in the range of 0 to 1%. J&K faced higher peak power as well as energy shortage (of the order of 18%).
- B.8.2 He added that NRPC Sectt. has to submit to CEA Power Supply Position on monthly basis in the form 28 (provisional) and Form 29 (revised) as per CEA standard. The date for submission is 5<sup>th</sup> and 18<sup>th</sup> day for provisional and revised PSP, respectively. He requested concerned members to furnish the power supply information on monthly basis in the prescribed format to NRPC Sectt. well before these dates.
- B.8.3 TCC advised all the SLDCs to submit provisional data for preparation of Power Supply Position by 2<sup>nd</sup>day of the month and revised data by 15<sup>th</sup>day of the month.
- B.8.4 Representative of NRLDC made a detailed presentation on grid operation during July-September 2016. Highlights of the grid operations were:
  - > Frequency profile for last one year showing improvements in last 5-6 months. For example, frequency was about 75% of time in operation band during Sep 16.

> Frequency Variation Index (FVI) remaining below 0.05 and on certain dates FVI was 0.025.

अधीराण अभियन्ता सम्बद्ध निर्वेशक (निर्दोजन एवं वाणिण्य) उ०प्र०पा०हाठकाठलिठ

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- ➤ Pattern of Demand met of states/Region were presented. NR crossed 1200 MU per day consumption on 30<sup>th</sup> June 2016 and highest demand met in NR crossed 52.6 GW.
- B.8.5 Representative of NRLDC also presented typical load curves of different months and their peculiarities for managing demand. More peaking and declining load factor over the years was mentioned. He also highlighted the following issues:
  - ➤ Large number of line tripping due to tower collapse in Haryana, UP, Rajasthan, Delhi etc during thunderstorm. Few cases of large impact on grid were highlighted. TCC recommended that feedback on action taken by STUs shall be discussed in OCC.
  - > Switching off of feeders during thunderstorm and the difficulty it creates.
  - > Overdrawal of state control areas specially the persistent non- zero crossing of deviation.
  - > Methodology/Terminology for shortage computation
  - > Handling silt at Hydro Stations (This year more frequent start and Stop):
    - ✓ Better silt forecasting, ramping while closing.
    - ✓ Keeping of reserves by state utilities.
  - > Reliability Issues faced in Northern region and different states
    - ✓ Delhi: Opening of Delhi Ring, Frequent tripping around Bamnauli etc.
    - ✓ Haryana: Switchgear rating issue at Nawada, Dhanoda and Mahendragarh, reliability of Faridabad GPS etc.
    - ✓ Rajasthan: Planning deficiencies in Kawai-Kalisindh-Chhabra Complex, High voltage, Hour boundary load changes
    - ✓ UP: N-1 non-compliance at Azamgarh, Sultanpur, Mainpuri, Muradnagar, Muzaffamagar, Agra etc. Evacuation problem for Anpara Complex, Parichha-Lalitipur complex and Bara TPS. Frequent tripping of Lalitpur and its impact on Agra-Gwalior. N-1-1 non-compliance for Greater Noida and single Transformer issue.
    - ✓ Punjab: N-1 non-compliance at Dhuri, Panchkula, Malerkotia and that of lack of underlying network at Amritsar, Ludhiana etc. Issue of overvoltage in 400 kV ring of Punjab.
    - ✓ Uttrakhand: N-1 non-compliance of Kashipur ICTs and 220 kV lines from Roorkee.
    - ✓ J&K: Low voltages and N-1 non-compliance of 220 kV lines in valley area. 220 kV connectivity from New Wanpoh.

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> Winter Preparedness:

अधीरण अभियन्ता सम्बद्ध निवेशक (निवोजन एवं वाणेज्य) ७०४०मद्भात शतकित

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- ✓ Forecasting and load Generation balance
- ✓ High Voltage/Reactive Power Management:
  - Updating, Monitoring and operation of fixed shunt reactors in the system
  - Measurement based Tap Optimization of ICTs
  - Monitoring Reactive power absorption by Generators
  - o Synchronous condenser operation
- ✓ Cleaning of Insulators of EHV lines and Replacement of insulators:
- Monitoring of Weather data: Erroneous weather data coming from most stations.
- Maintaining Reserves for each control area: CERC order on operationalizing Primary, Secondary and Tertiary reserves. Mandatory requirement of atleast 50% of largest unit within the state as per CERC, Poor Frequency Response and putting all units on Governor Operation. Impact of Ancillary Services.
- > Forecasting of Demand and Renewable Generation: Pilot project on renewable forecasting and its performance. Requirement of weather data in real time from Renewable generators.
- ➤ Grid Events in the NR Grid during March to Sep 2016: Total 143 number of simultaneous multiple element tripping occurred in Northern Region from Mar\*16. Lack of analysis and reporting by concerned utilities.
- > Availability of Real time data telemetry: 1% improvement in stations without telemetry provision. Intermittency of telemetry increased in Sep 2016 with respect to Feb 2016. Concern on use of GPRS, reliability of communication.
- > Running of State Estimator % Availability of Digital data as well as modeling issues such as in Rajasthan.
- > Status of the installation of URTDSM system: Proper utilization only after provision software for analysis

NRPC noted the deliberation of the TCC.

# B.9 Important Regulation/ Orders from Hon'ble CERC TCC Deliberation

B.9.1 Representative of POWERGRID stated that Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Fourth Amendment) Regulations,

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अवीक्षण अनियमा सम्बद्ध नियेशक (निर्मालन एवं वाणिल्य) २०४० १८ १ ७ माजिक 2016 came into force with effect from date of publication in Official Gazette i.e. from 29.04.2016. Following new provisions (Clause 4(iii)) have been included w.r.t. transmission

"Where the transmission system executed by a transmission licensee is required to be connected to the transmission system executed by any other transmission licensee and both transmission systems are executed in a manner other than through tariff based competitive bidding, the transmission licensee shall endeavor to match the commissioning of its transmission system with the transmission system of the other licensee as far as practicable and shall ensure the same through an appropriate Implementation Agreement(IA)".

## B.9.2 Members noted the information.

## **NRPC Deliberation**

NRPC noted the information.

# B.10 Establishment of new 400/220kV substations in Northern Region TCC Deliberation

B.10.1 Representative of POWERGRID stated that following new substations were planned under various transmission schemes & under implementation. However, implementation of down below 220kV system needs to be commissioned for optimum utilization of the system:

S.No	Name of Substation	MVA Capacity	Expected Schedule
1	400/220kV Kurukshetra S/Stn. (GIS)	2x500	440kV bay and 1no. ICT are ready for commissioning. 2nd ICT expected by Dec*16.
2	400/220kV Bagpat Gas Insulated Stn.	2x500	Commissioned
3	400/220 kV Saharanpur Sub station	2x315	Commissioned
4	400/220kV S/s at Patran	2x500	Commissioned
5	400/220kV Parbati Pooling Station	2x315	Feb"17
6	400/220kV Dehradun Sub station	2x315	Dec"16
7.	400/220kV Rajghat Sub station (GIS)	4x500	Land yet to be transferred
В	400/220kV Papankalan -I Sub station (GIS)	4x500	July'17
9	400/220kV Tughlakabad Sub station (GIS)	4x500	July'17 (//-1-1-17/8)

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10	220/66kV GIS S/s at Sector 47,Chandigarh	2x160	24 months from investment approval (planned in Feb*17)
11	400/220kV S/s at Kala Amb	7x105	July*17
12	400/220kV S/s at Amargarh	7x105	Oct.'18(Sterlite Grid planning to prepone)
13	400/220kV Kadarpur S/s in Gurgaon area (GIS)	2x500	May*19
14	400/220kV Sohna Road S/s in Gurgaon area (GIS)	2x500	Sep"19
15	400/220kV Prithala S/s in Palwal area (GIS)	2x500	May"19
16	400/220kV Baram(Jauljivi) S/s	2x315	33 months from IA planned in Mar"17

- B.10.2Representative of POWERGRID requested for submission of the details of planned system along with expected date of commissioning for the down below network related to above mentioned sub-stations.
- B.10.3TCC advised all the STUs to implement the down below network in the matching timeline.
- B.10.4 In view of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) (Fourth Amendment) Regulations, 2016 which came into force with effect from date of publication in Official Gazette i.e. from 29.04.2016 (Agenda Item B.9), some of the members expressed concern that since all the bays provided at the ISTS substations can only be utilised in a phased manner, the bays should also be built in a phased manner.
- B.10.5 Regarding number of 220 kV bays being providing for each ICT, TCC recommended that the guideline needs to be reviewed bystanding committee for power system planning in view of changed scenario.

NRPC concurred with the deliberations of TCC.

# B.11 Augmentation of transformation capacity in existing sub-stations TCC Deliberation

B.11.1Representative of POWERGRID stated that in addition to the new substations under implementation/ planned at various locations in Northern Region (Agenda Item B.10), augmentation of transformation capacity had also been planned in various existing sub-stations along with bays for downstream network. A List of ICTs along with associated bays of such existing substations is given below:

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S. No.	Substation	Transformation Capacity (MVA)	Commissioning Schedule
1	Shahajanpur 400/220 kV Sub-station	2x 315 MVA	Commissioned (Sep'14)
2	Hamirpur 400/220 kV Sub-station	3x 105 MVA	Feb"17
3	Jalandhar 400/220 kV Sub-station	1x 500 MVA	Commissioned (Jun'16)
4	Kaithal 400/220 kV Sub-station	1x 315 MVA	July'17 ( Best effor by Mar/Apr"17)

- B.11.2Representative of POWERGRID requested for submission of the details of planned system along with expected date of implementation for the down below network related to above mentioned sub-stations.
- B.11.3TCC advised all the STUs to implement the down below network in the matching timeline.

NRPC noted the deliberation of TCC.

## B.12 Follow up of Major Decisions of NRPC.

SI. No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Deliberations in 34 <sup>th</sup> TCC and 38 <sup>th</sup> NRPC meetings
1	Automatic Meler Reading (AMR) for SEMs	13 <sup>th</sup> NRPC meeting held on 24 <sup>th</sup> June 2009.	POWERGRID and NRLDC had started submitting joint reports showing status of data received through AMR. NRLDC stated that out of 1235 interface meters, data from 973 meters was being received. Site Acceptance Test (SAT) was completed and data through AMR was being regularly used by NRLDC for 764 interface meters.

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SI. No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Deliberations in 34 <sup>th</sup> TCC and 38 <sup>th</sup> NRPC meetings
			POWERGRID informed that the data from all the meters would be available by January2017 TCC and NRPC expressed concern over slow progress of the implementation of AMR and advised concerned agencies to expedite the work.
2	Provision of Bus Reactors in Northern Region to Control Over Voltages	Approved in 15 <sup>th</sup> NRPC meeting on 24th December, 2009	Out of 17 no. reactors at 15 locations, 12 no. reactors at 10 locations have been commissioned. The status of remaining 05 reactors was as under;  Nathpa-Jhakri (1x80 MVAr): SJVN had informed that bays would be ready by June"17. However, due to peak generation in that period, shut-down may not be available. Therefore, the reactor would be commissioned by December 2017.  Chamera-I (1x125 MVAr): NHPC had informed that Commissioning was expected by April 2017.  Parbati-II (1x125 MVAr) and Parbati-III (1x80 MVAr): There is no space at Parbati-III and as such reactors will be installed at Parbati- II. Reactors at Parbati-II will be commissioning of the project in

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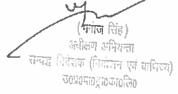
SI. No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Deliberations in 34 <sup>th</sup> TCC and 38 <sup>th</sup> NRPC meetings  Dehar (2X 63 MVAR)
			Included in item 4 (below) of this table.
3.	400 kV Reactors	29 <sup>th</sup> NRPC meeting held in September 2013	POWERGRID: Reactors at BASSI and Panchkula commissioned.     Manesar, Kaithal, Jaipur(S), Kanpur and Sonepat would be commissioned by December 2016.
			<ul> <li>RVPNL: Commissioning of Reactors at Hindaun by December 2016 and Merta by February 2017.</li> </ul>
4	2X63 MVAR Bus reactor and replacement of 250 MVA Trf. with 315 MVA Trf. at Dehar Power House by POWERGRID.	Approved in 30th Standing Committee of Power System Planning of NR held on 19.11.2011	Other reactor was damaged  during transportation and would
5	Unified Real Time Dynamic State Measurement (URTDSM) Scheme.	Approved in 27 <sup>th</sup> NRPC meeting held on 13 <sup>th</sup> July, 2012 & 30 <sup>th</sup> November, 2012	data from only 21 PMU were being received. Utilisation of the data was not possible for want of analytical software.
			TCC/NRPC expressed concern and advised POWERGRID to expedite analytical software,

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SI. No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Deliberations in 34 <sup>th</sup> TCC and 38 <sup>th</sup> NRPC meetings
			without which PMUs would be of no practical use.
6	Power Evacuation from Dulhasti Power Station, Kishtwar (J&K)  - Construction of 2 <sup>nd</sup> 400 kV line	28 <sup>th</sup> Standing Committee	POWERGRID informed that the project was likely to be commissioned by December 2016.
7	Transmission system associated with RAPP-7&8.		POWERGRID informed that Commissioning of RAPP-Kota section was expected by June 2017. It was delayed as forest stretch had now been converted to wild life sanctuary.
8	Transmission system associated with Kishenganga HEP. Kishenganga – Amargarh 220 kV D/c Kishenganga – Wagoora 220 kV D/c	33 <sup>rd</sup> Standing Committee Meeting held on 23/12/2013	POWERGRID had informed that completion schedule of transmission system associated with Kishenganga HEP had been delayed due to unrest in Kashmir. The revised schedule was:  > Kishenganga – Wagoora 220kV D/c line - (Mar.*18)  > Kishenganga – Amargarh 220kV D/c line – (July*17)
			NHPC informed that Kishenganga HEP would be commissioned by July 2017
9	Fiber Optic based communication system in NR and Additional OPGW connectivity in Northern Region under fiber optic expansion	meeting held on 27 <sup>th</sup> November, 2010 and 28 <sup>th</sup>	on all packages would be completed by August 2017.

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SI. No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Deliberations in 34 <sup>th</sup> TCC and 38 <sup>th</sup> NRPC meetings
eg.	project	meeting held in 22 <sup>nd</sup> March, 2013	(Punjab) with OPGW.POWERGRID agreed for the same.
10	Rectification of deficiencies coming out of Basic Protection Audit carried out by CPRI in association with POWERGRID	27 <sup>th</sup> NRPC meeting held in November 2013	Would be completed by December 2016.
11	Third party Protection audit of intra-state system / balance system not covered in Basic Protection Audit	27 <sup>th</sup> NRPC meeting held on 30 <sup>th</sup> November, 2012.	Only UPPTCL and PSTCL had not submitted their action plan. UPPTCL informed that the action plan would be submitted within a week. PSTCL agreed to submit the action plan at an early date.
12.	Planning, procurement and deployment of Emergency Restoration System.	In the 34 <sup>th</sup> NRPC meetings 20 <sup>th</sup> March, 2015	Updated status:  DTL:-Order had been placed for 02 nos. of ERS. Supply expected by May,2017  PSTCL:-Tenders were under evaluation. Order was expected to be placed by 31.12.2016  UPPTCL:-Order for 02 nos. of ERS had been placed.  RRVPNL:-Proposal pending with management.  HVPNL:-In place of ERS, spare
	3		towers worth Rs. 2 Crores would be procured.  PTCUL- Tendering under process

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(मनोज सिंह) अधीवण अभिवन्ता सम्बद्ध निवक्क (भिन्नेजन एवं वाणिक्य) उ०५०५०५/०५/१८८० (१८८०)

SI. No	Name of the Project/Decision taken	Meeting in which Approval was granted/ Decision was taken	Deliberations in 34 <sup>th</sup> TCC and 38 <sup>th</sup> NRPC meetings	
			HPSEBL- exploring potential use of ERS in hilly state like H.P., vendors were invited but they did not turn up.  BBMB:-Partner states had agreed to provide the ERS as and when required by BBMB.	
13. Reactor at Koteshwar			POWERGRID informed that reactor was ready for commissioning. But integration with SCADA as requested by THDCIL would take 2-3 months.	
			In view of high voltage conditions expected in winter months, it was decided that the reactor be commissioned immediately and SCADA integration may be taken up at the earliest.	

# B.13 Reactive compensation at 220 kV level

#### TCC Deliberation

- B.13.1 Member Secretary NRPC stated that the proposal for installation of bus reactors at 12 nos. 400 kV and 17 nos. 220 kV sub-stations was discussed in the 29<sup>th</sup> meeting of NRPC held on 13<sup>th</sup> September 2013. After deliberations, NRPC had approved installation of reactors at 400 kV sub-stations of POWERGRID and RVPNL. As regards 220kV bus reactors, it was decided that the requirement would be firmed up in consultation with the States in separate meetings. Thereafter, the issue of validation of the data and submission of report of the study for determination of requirement of reactive compensation at 220 kV level had been under discussion at NRPC forum.
- B.13.2He added that CTU had submitted report of the study, which is enclosed at Annex-IX of the agenda. In this report, following reactors were proposed:

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## At 220 kV level:

S.No.	Bus Name	State	Reactors Proposed (MVAR)
1	Jind (PG)	Haryana	25
2	Fatehbad (PG)	Haryana	25
3	Chamera Pooling Stn.	Himachal Pradesh	2x25
4	Kishenpur	J&K	25
5	Jalandhar	Punjab	2x25
6	Nakodar	Punjab	2x25
7	Amritsar	Punjab	25
8	Makhu	Punjab	25
9	Dhuri	Punjab	25
10	Akal	Rajasthan	25
11	Suratgarh	Rajasthan	2x25
12	Bikaner	Rajasthan	2x25
13	Barmer	Rajasthan	25

## At 400 kV level:

S.No.	Bus Name	State	Reactors Proposed (MVAR)
1	Mandola(PG)	DELHI	125
2	Hissar(PG)	Haryana	125
3	Kala Amb	Himachal Pradesh	125
4	Chamera Pooling Stn. (PG)	Himachal Pradesh	125
5	Kishenpur(PG)	J&K	125
6	Nakodar	Punjab	125
7	Jullandhar(PG)	Punjab	125
8	Moga(PG)	Punjab	125
9	Dhuri	Punjab	125
10	Patiala(PG)	Punjab	125
·11	Ludhiana(PG)	Punjab	125
12	Ajmer(PG)	Rajasthan	125
13	Merta	Rajasthan	125
14	Ratangarh	Rajasthan	125
15	Chittorgarh(PG)	Rajasthan	125
16	Suratgarh(PG)	Rajasthan	125
17	Parichha	UP	125
18	Allahabad(PG)	UP	125
19	Mainpuri	UP	125
20	Unnao	UP	125
21	Gonda	UP	125
22	Meerut(PG)	UP	125

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(मनीज सिंह) अ किय क्षियत्ता राज्यद्व निर्देश ७ (विद्योगन एवं वाधिज्य) उठ ठए:ठहाठकाऽलिठ

1	23	Kashipur	Uttrakhand	125
r	24	Srinagar	Uttrakhand	125

- B.13.3Member Secretary, NRPC further stated that the matter was deliberated in the 128th OCC meeting held on 17th October 2016. In the OCC meeting, representative of NRLDC had noted that at some locations, reactors were recommended at 220 kV level as well as at 400 kV. He suggested that for efficient implementation, reactors at 400 kV side only at such locations may be considered. With this observation, the proposal was recommended by OCC for approval of TCC/NRPC.
- B.13.4Representative of POWERGRID stated that reactors at both levels would be necessary for better results.
- B.13.5Representative of DTL stated that some locations of Delhi were not included in the study. He stated that study needs to be reviewed for Delhi. POWERGRID agreed for the same.
- B.13.6TCC accepted the report with the observation that study for Delhi system would be reviewed and recommended for approval of NRPC.

NRPC approved the recommendation of the TCC.

B.14 Replacement of porcelain insulator with Polymer and Cleaning of Insulators in Northern Region

### **TCC Deliberation**

- B.14.1 Member Secretary, NRPC stated that the conventional porcelain insulators on transmission lines in Northern Region were prone to flashover, often resulting in tripping of the line during fog. This phenomenon was particularly seen in area with significant pollution. To avoid tripping of the lines conventional insulators were being replaced with polymer insulators on transmission lines falling in vulnerable areas. The vulnerable stretches, where replacement of insulators had not been done, were cleaned prior to onset of winter and sometimes again during winter to wipe out deposited pollutants. The matter is closely monitored at NRPC and NRPC Secretariat convenes periodic meetings on this issue prior to and during winter.
- B.14.2He informed that in this context, certain decisions on the above issue were taken in the 30th NRPC meeting held in April 2014.
- B.14.3It was informed that a meeting on the above issue to review the preparedness for ensuing winter season was held on 6<sup>th</sup> October 2016 at NRPC, New Delhi. Following issues had emerged/ decisions were taken during the meeting:
  - (i) All the transmission lines in plain area were not being built with polymer

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(मनाज सिंह) जबीतम् अभियन्ता सम्बद्धः विदेशतः (विशोजन एवं वृश्चिक्य) उठ्याध्यात् वार्धान्त

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insulators.

- (ii) RRVPNL had no plan for cleaning of insulators. It could not be confirmed that some STUs, which carry out cleaning work through Contractors, had placed the order for the same. It was also decided that in case orders were not expected to be placed soon, conventional insulators in critical stretches should be got cleaned departmentally.
- (iii) A map indicating category wise polluted area in Northern Region coming out of the pollution mapping carried out by CPRI had been uploaded on NRPC website (<a href="http://www.nrpc.gov.in/">http://www.nrpc.gov.in/</a> reports/ other /Pollution Area.pdf). Transmission Utilities should refer to this map coupled with area with fog to identify critical stretches where replacement/ cleaning of conventional insulators should be carried out.
- (iv) Another way of identifying the stretches where replacement/ cleaning of conventional insulators should be carried out is to analyze fog related trippings during past winter seasons.
- (v) It was agreed that the work of insulator replacement and insulator cleaning identified for this winter would be carried out prior to 15.12.2016.
- (vi) Cleaning of Insulators within the sub-station/switchyard also becomes important, if insulators on lines emanating from this substation/switchyard have been replaced with polymer insulators as the conventional insulators in the sub-station now become susceptible to tripping. It was agreed that utilities would explore options like cleaning of insulators with DM water, application of silicon grease and RTV silicone rubber coating.
- (vii) It was agreed that transmission utilities would carry out patrolling to identify area where insulators were having pollution deposits and arrange for cleaning of the prone insulators.
- B.14.4TCC members agreed with the decisions taken in the review meeting held on 06<sup>th</sup> October 2016.
- B.14.5TCC expressed concerns regarding non-awarding of the work for insulator cleaning and replacement by some utilities and advised all utilities to complete the work at the earliest.

#### NRPC Deliberation

NRPC noted the deliberation of the TCC.

# B.15 Capacity Building Programmes / Workshops etc conducted by NRPC TCC Deliberation

B.15.1 Member Secretary NRPC stated that in the 35<sup>th</sup> NRPC meeting held in July 2015, while discussing the issue of reimbursement of expenditure of NRPC

(गनाज सिंह) अधीक्षण अभियन्ता सम्बद्ध निदेशक (निदाजन एवं वाणिज्य) उ०४०५१०५१०१४०१४०

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Sectt. for the year 2015-16, it was suggested that rather than reducing the contribution from each member, the contribution should be kept at same level and additional fund could be used for arranging capacity building programmes, workshops, brainstorming sessions. Accordingly, following programmes were organized by NRPC Secretariat:

- Symposium on "Load Forecasting for Operational Planning" on 5th (i) August 2016.
- Tutorial on Power System Oscillations and PSS Tuning on 7th October (ii) 2016
- B.15.2Member Secretary, NRPC further stated that one 5-day training programme namely "Basic Training on Protection System for Protection System Engineers (Level 2)" is proposed to be conducted in November 2016 through POWERGRID. This programme would be in accordance with the report of the Group Constituted for suggesting measures for the improvement in protection system among the utilities of Northern Region as approved in item B.1 of the agenda. He indicated that estimated cost for the training programme would be around Rs. 15,000/- per person per day. The expenditure on this account would be met from NRPC Fund as decided in 35th NRPC meeting held in July 2015.
- B.15.3 Member Secretary, NRPC also mentioned that a training programme on maintenance aspects of OPGW would be planned to be conducted through POWERGRID in accordance with decision taken in the 33rd TCC/37th NRPC meeting held in March 2016.
- B.15.4TCC recommended the above proposals of training for approval of NRPC.

#### NRPC Deliberation

Members appreciated the work being done towards the capacity building and concurred with the recommendation of TCC to meet the expenditure from NRPC Fund for training programme on protection and maintenance aspects of OPGW being conducted through POWERGRID.

B.16 Estimation of Unrestricted demand and energy requirement for reporting in Power Supply Position

#### TCC Deliberation

B.16.1 Member Secretary, NRPC stated that SLDCs were furnishing monthly data in format 28 and 29 for provisional and final Power Supply Position (PSP), respectively. The supply of this data as per format 28 and 29 is a statutory obligation under the provisions of CEA (Furnishing of Statistics, Returns and Information) Regulations, 2007.

अधीराण अनियन्ता सन्बद्ध निवंशक (नियांचन एवं कणिच्क) च्छाप्रविचावद्गावासावस्तित

(गनांज सिंह)

- B.16.2He further stated that in the data received from SLDCs, it had been observed that some of the states were showing restricted demand data, while the format clearly required that unrestricted energy requirement (in MU) and unrestricted peak demand (in MW) was to be furnished. Furnishing restricted energy requirement and peak demand amount to violation of statutory provisions of CEA Regulations.
- B.16.3TCC expressed concern over non-compliance of statutory obligations by some constituent states. TCC advised all the SLDCs to submit the power supply position data correctly and as per CEA regulations.
- B.16.4Member Secretary, NRPC, further stated that it had been observed that many of the states were showing Zero shortages in the data being furnished to NRPC secretariat in above mentioned formats, whereas in the data available from other sources it was evident that power cuts/restriction had been imposed. It was also noted during deliberations in OCC meetings that in some of the states, there were restrictions on supply hours for some particular class of consumers such as "Rural Domestic", but the same was neither reported nor accounted for while calculating unrestricted energy requirement or unrestricted demand.
- B.16.5TCC advised all SLDCs to furnish correct data so that there is no anomaly in data available at various platforms.

Members noted the deliberations in the TCC. All the members agreed to provide correct information in requisite format.

# B.17 Revision of Declared Capacity of NJHPS on 15.07.2016 and 09.08.2016 TCC Deliberation

- B.17.1 Representative of SJVN stated that Nathpa-Jhakri Power Station (6X250 MW) is being operated as a run-of-river with pondage type (minimum 3 hours of daily peaking) generating stations in line with CERC order.
- B.17.2 During high inflow season, Nathpa-Jhakri Hydro Power Station (NJHPS) was operating continuously round the clock at full load capacity including over load capability. In case of an emergency condition only viz. Force Outage or Miscellaneous Outage (High silt/Reservoir Flushing/Grid constraints), NJHPS was forced to shut down its generating unit(s) with prior intimation to NRLDC.
- B.17.3He added that the phenomenon of high silt occurred every year, when NJHPS units were to bring under shut down due to persistent high silt and opening of silt flushing gates/reservoir flushing by upstream project i.e. KWHPS. This situation of persistent high silt was beyond the control of Generator, which forced NJHPS to shut down its unit(s), inspite of its availability, to prevent an

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(भनोज सिंह) जवीक्षण अभियन्ता सम्बद्ध निवेशक (नियोजन एवं काणिज्य) उठ्यक्षण्यात्राठ कार्जन imminent damage to a costly equipment and entering silted water in the Tunnel beyond permissible limit. During such circumstances, sometimes NJHPS operated on partial /full load during the day, when there was a decreasing trend of silt in the river upto the permissible limit.

- B.17.4 Regarding the specific issue SJVNL representative explained that on 14.07.2016, NJHPS was operating at full load capacity including over load capability till 22:20 Hrs. and thereafter unit(s) were gradually shut down due to persistent high silt. On reduction of silt level around 05:15 Hrs. on 15.07.2016, NJHPS units were synchronized with grid one by one and plant could operate on full load including overload capability for 1:45 Hrs. and partial load for 2 Hrs. Thereafter on the same day, units of NJHPS were again shut down gradually due to increasing trend of silt level beyond permissible limit. Similar incident had happened again on 09.08.2016.
- B.17.5It was submitted that Declared Capacity (DC) of Nathpa Jhakri Hydro Power Station (NJHPS) had been reduced to Zero (0) on 15.07.16 and 09.08.16, despite of the fact that all the units were available for 24 Hrs. and able to operate on full load including overload capacity.
- B.17.6He quoted relevant provisions of CERC Regulations namely sub-regulation (15) of Regulation 3(Definitions) of CERC (Terms and Conditions of Tariff) Regulations, 2014, Regulation 31 (Computation and Payment of capacity Charge and Energy charge for Hydro Generating Stations) of CERC (Terms and Conditions of Tariff) Regulations, 2014, Regulation 6.4(17) of CERC(Indian Electricity Grid Code) Regulations, 2010, and Regulation 6.5(12) of CERC(Indian Electricity Grid Code) Regulations, 2010.
- B.17.7SJVNL representative stated that due to continued high silt at upstream of Nathpa and shutdown/reservoir flushing/ opening of silt flushing tunnel of KWHEP on 15.07.2016 and 09.08.2016, SJVN was bound to stop all the machines under an emergency condition, as it was beyond the norms to keep the plant under generation. SJVN tried their best by reducing the load gradually, with prior intimation to NRLDC. He requested that NJHPS may be allowed to recover full DC on 15.07.2016 and 09.08.2016 in line with aforesaid CERC tariff as well as Indian Electricity Grid Code Regulations.
- B.17.8 Member Secretary NRPC informed that the issue was discussed in 127th OCC meeting held on 23rd September, 2016. In the meeting representative of NRLDC stated that as the generating station was not available for peaking, DC was not allowed. This action was taken as per relevant CERC regulations. Since the matter was related to interpretation of CERC regulation, it was opined that OCC may not be the appropriate forum to resolve the issue.OCC had decided that as NRLDC had not agreed to interpretation of SJVNL, the latter may opt for alternative suitable remedy under law.

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- B.17.9TCC members were of the opinion that the matter was related to interpretation of CERC regulations which cannot be decided in this forum.
- B.17.10 Representative of SJVNL stated that as the matter could not be resolved in this forum, they would approach CERC.

NRPC concurred with the decision of the TCC.

## COMMERCIAL ISSUES

C.1 Mechanism for Compensation for Degradation of Heat Rate, Aux Consumption and Secondary Fuel Oil Consumption, due to Part Load Operation and Multiple Start/Stop of Units(AG)

#### **TCC Deliberation**

- C.1.1 Member Secretary, NRPC stated that Central Electricity Regulatory Commission, on 6<sup>th</sup> April 2016,notified,Central Electricity Regulatory Commission (IEGC) (Fourth Amendment) Regulations, 2016, which inter-alia contains provisions relating to Technical Minimum Schedule for operation of Central Generating Stations and Inter-State Generating Stations, whose tariff is determined or adopted by the Central Commission. These Regulations further provide for compensation to Generating Stations for degradation of Heat Rate, Auxiliary Consumption and Secondary Fuel Oil consumption due to part load operation and multiple start-ups of units. Sub-regulation 7 of Regulation 6.3 B of IEGC mandates RPCs to work out a mechanism for compensation for station heat rate and auxiliary energy consumption for low unit loading and for secondary fuel oil consumption for additional start-ups in excess of 7 start-ups.
- C.1.2 Member Secretary, NRPC further stated that in accordance with the IEGC (Fourth Amendment) Regulations, 2016, NRPC Secretariat had prepared draft mechanism for compensation to Generating Stations for degradation of Heat Rate, Auxiliary Consumption and Secondary Fuel Oil consumption due to part load operation and multiple start-ups of units.
- C.1.3 He further stated that the said draft was deliberated in the 31<sup>st</sup> Commercial Sub-Committee (CSC) meeting held on 04<sup>th</sup> July, 2016 and 125<sup>th</sup> OCC meeting held on 22<sup>nd</sup> July, 2016. Accordingly, the draft was modified by incorporating the views of stakeholders. The, modified draft was again deliberated in the 127<sup>th</sup> OCC meeting held on 23.09.2016 wherein representative of NTPC sought time for offering comment on revised draft. Other members had no comment to offer on revised draft. In the 128<sup>th</sup> OCC meeting held on 17.10.2016, representative of NTPC had requested for calculation of block wise compensation.

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- C.1.4 In the TCC meeting, NTPC agreed for the draft mechanism except that the calculation should be done on the block wise basis instead of monthly basis. All other members had agreed to draft mechanism. Member Secretary, NRPC informed the members that CERC had called a meeting on 27<sup>th</sup> Oct 2016 to discuss the compensation mechanism with a view to bring uniformity in methodology prepared by all the RPCs. In light of the above discussion, Member Secretary, NRPC opined that final decision over this issue would be taken in the meeting with CERC, scheduled to be held on 27<sup>th</sup> Oct 2016.
- C.1.5 After deliberations it was decided that the stakeholders may submit the comments on the detailed mechanism for compensation attached with agenda item. The revised mechanism after considering the comments from stakeholders would be put up to TCC/NRPC in the next meeting.

Members took note of the deliberations and concurred to the decisions taken in the TCC meeting.

- C.2 Default in payment of outstanding dues and surcharge by beneficiaries

  TCC Deliberation
- C.2.1 Representative of NHPC stated that PDD J&K, BYPL, PSPCL, UPPCL and Rajasthan Discoms had outstanding dues for more than 60 days. He requested beneficiaries for early liquidation.
- C.2.2 Representative of PDD J&K stated that they had paid Rs. 690.84 Cr. to NHPC in Oct,16 under UDAY(Ujwal Discom Assurance Yojana) Scheme.
- C.2.3 As the representative of Rajasthan Discoms and UPPCL were not present in the meeting and BYPL is not the member of NRPC in the current year, NHPC was advised to take up with them directly.
- C.2.4 TCC requested beneficiaries to liquidate the outstanding dues expeditiously.

#### NRPC Deliberation

Members noted the TCC deliberations.

# C.3 Opening of Letter of Credit (LC)

#### TCC Deliberation

C.3.1 Representative of NHPC stated that LC opened by BRPL expired on 31.03.2015. BRPL did not open LC of requisite amount of ₹ 26.58 Crs. Also, LC of ₹ 18 Crs. opened by UPPCL expired on 30.04.2016. As on the date LC of only ₹ 100 Crs was available against requisite value of ₹ 115.77 Crs.

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्राधीक्षण अभिवन्ता न्यद्ध निरंहाक (निसंजन एवं वाणिण्य) न्यद्ध निरंहाक (निसंजन एवं वाणिण्य) Representative of NHPC requested UPPCL to open the LC of balance amount.

C.3.2 TCC requested UPPCL and BRPL to open the LC at the earliest.

#### NRPC Deliberation

Members noted the TCC deliberations.

#### Issues of Reconciliation C.4

#### TCC Deliberation

- C.4.1 Representative of NHPC informed that HPPC, Haryana and UPCL had not signed the reconciliation statements of energy accounts since 1st quarter of FY 2015-16 and 3rd quarter of FY 2015-16, respectively.
- C.4.2 Representative of HPPC agreed to reconcile the statement at the earliest. Representative of UPCL was not present in the meeting and NHPC was advised to take up with them directly.

#### NRPC Deliberation

Members noted the TCC deliberations.

#### C.5 Signing of PPA of Tawang HE Projects Stage-I & II TCC Deliberation

- C.5.1 Representative of NHPC informed that the beneficiaries had been requested to convey their consent for signing of PPA of Tawang HE Project, Stage I (600 MW) & Stage II (800MW). All beneficiaries of Northern Region except UPCL did not sent their consent for signing the PPA. Representative of NHPC requested beneficiaries to give their consent for signing the PPA at the earliest.
- C.5.2 Representatives" from Punjab and Himachal Pradesh stated that they had already conveyed their decision. Representative of BRPL, Delhi stated that they were not interested in signing the PPA.

#### NRPC Deliberation

Members noted the TCC deliberations.

#### C.6 Extension of PPAs/BPSAs

#### TCC Deliberation

C.6.1 Representative of NHPC requested the beneficiaries to convey their consent for extension of PPA/BPSA on the existing terms and conditions for a period

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- of 35 years from the date of COD of the respective project. The list of beneficiaries along with the power station due for extension of PPA/BPSA was attached with agenda note of this meeting.
- C.6.2 TCC requested the beneficiaries concerned to convey their consent for early signing the PPAs/ BPSA.

Members noted the TCC deliberations.

#### Surrender of power from selected power stations C.7

#### TCC Deliberation

C.7.1 Representative of NHPC withdrew this agenda item as the matter was subjudice under Hon"ble CERC.

#### NRPC Deliberation

Members noted the TCC deliberations.

- Request for immediate release of THDCIL's payments by C.8 beneficiaries
- C.8.1 Representative of THDCIL stated that despite their sincere efforts, BSES Delhi Discoms, UPPCL (UP), PDD (J&K) had been making part payments and much beyond the due dates. BSES Yamuna Power Ltd. had not made any payment after 07.10.2015. .PDD, J&K has also not made any payment after 27.08.2015. He requested the aforesaid beneficiaries for early liquidation of dues.
- C.8.2 Representative of THDCIL further stated that PDD, J&K had not opened the LC of requisite amount for FY 2016-17, even after repeated reminders. TCC requested PDD, J&K to open the same at the earliest.
- C.8.3 Representative of PDD J&K stated that they had paid Rs.88.27 Cr. to THDCIL in Oct, 16 under UDAY (Ujwal Discom Assurance Yojana) Scheme.
- C.8.4 Representative of BRPL stated that they had been making current payment. TCC requested BRPL to also liquidate the past outstanding dues at the earliest to avoid major financial repercussion/obligation accumulating due to huge outstanding dues.
- C.8.5 Representative of HPSEBL stated that as per their records payment had already been made and should be reconciled. The amount due after reconciliation, if any, would be paid.

C.8.6 TCC advised HPSEBL to reconcile the records and make payment of dues, if any, at the earliest,

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C.8.7 Since representative of Rajasthan Discoms and UPPCL were not present and BYPL is not a member of NRPC in the current year, THDCIL was advised to take up with them directly.

#### NRPC Deliberation

Members noted the TCC deliberations.

# C.9 Intimation for Payment of Energy and other bills

#### TCC Deliberation

- C.9.1 Representative of THDCIL stated that despite the decision taken in the 33<sup>rd</sup> TCC /37<sup>th</sup> NRPC Meetings, the beneficiaries except TPDDL, released the payments without informing the details such as the bill against which the payments had been released etc. He requested beneficiaries to intimate the details immediately after release of any payment as the same is necessary for reconciling the amount received. This will also help in eliminating any dispute in mutual business interest. THDCIL representative stated that in absence of any detail for payment made by the utilities, THDCIL would adjust the payment for the oldest outstanding payment by the respective utility.
- C.9.2 TCC suggested that bills could be settled on the basis of first in first out as already being followed by other GENCOs.

#### NRPC Deliberation

Members noted the TCC deliberations.

## C.10 Payments through RTGS

#### **TCC Deliberation**

- C.10.1Representative of THDCIL stated that despite of regular follow-up for payments through RTGS only, HPPC, Haryana was still making payments through cheques.
- C.10.2Representative of HPPC agreed to resolve this issue at the earliest.

#### NRPC Deliberation

Members noted the TCC deliberations.

C.11 Delay in release of payment of SJVN bills by the beneficiaries of NJHPS & RHPS

TCC Deliberation

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- C.11.1Representative of SJVN stated that an amount of Rs. 1401.81Crorewas outstanding for a period more than sixty (60) days from some of the beneficiaries of NJHPS & RHPS. The beneficiaries who had not cleared their outstanding dues were Govt. of HP, HPSEB, PDD J&K, UPPCL, BRPL, BYPL, UPPCL, Rajasthan Discoms and DTL. It was requested that NRPC may intervene in liquidation of outstanding dues from the above defaulting entities as it was affecting the cash flow of SJVN and it was jeopardising the growth of the organisation.
- C.11.2Representative of PDD, J&K stated that Govt. of J&K had paid Rs. 105.34 Cr. in Oct.,2016 to SJVNL under UDAY(Ujwal Discom Assurance Yojana) Scheme.
- C.11.3Representative of HPSEBL stated that they had already made payment of Rs. 235 Crore and balance amount, if any, would be paid in due course of time. He further stated that the outstanding amount against GOHP needs to be reconciled. Representatives" of SJVN and HPSEBL agreed to reconcile the same.
- C.11.4Since representatives of Rajasthan Discoms and UPPCL were not present in the meeting and BYPL is not a member of NRPC in the current year, SJVNL was advised to take up with them directly.
- C.11.5 TCC advised other members having outstanding dues towards SJVNL to liquidate the same at the earliest.

Members noted the TCC deliberations.

C.12 Non- Opening of Letter of Credit by certain beneficiaries for power supplied from NJHPS

#### **TCC Deliberation**

- C.12.1Representative of SJVN stated that as per provisions of CERC regulations and terms and conditions of power purchase agreement, beneficiaries were required to submit a Letter of Credit (LC) before start of the relevant financial year. However, PDD J&K, BYPL, BRPL and GOHP had not submitted the LC of requisite amount. He requested for opening of LC at the earliest.
- C.12.2Representative of BRPL stated that they were facing some difficulty with their bank in opening the LC. The same would be opened as soon as the issue gets resolved.
- C.12.3TCC was of the opinion that since allocation of Government of Himachal Pradesh (GoHP) had been assigned to HPSEBL, HPSEBL may open the LC. HPSEBL agreed for the same.

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C.12.4PDD J&K was requested to open the LC of requisite amount at the earliest. Further, as BYPL is not a member of NRPC in the current year, SJVNL was advised to take up with them directly.

#### NRPC Deliberation

Members noted the TCC deliberations.

- C.13 Non Opening of Letter of Credit by certain beneficiaries for power supplied from RHPS
- C.13.1Representative of SJVN stated that GoHP, HPSEB, PDD J&K, UPPCL and UHBVN were yet to submit their LC for the FY 2016-17. Here quested these beneficiaries to open the LC as per CERC regulation and PPA terms.
- C.13.2Beneficiarieswere requested to Open requisite LC at the earliest. Further, as representatives of UPPCL were not present, SJVN was advised to take up with them directly.

#### NRPC Deliberation

Members noted the TCC deliberations.

- C.14 Payment of energy bills of NJHPS and RHPS through electronic modes

  TCC Deliberation
- C.14.1Representative of SJVN stated that in 33<sup>rd</sup>TCC & 37<sup>th</sup>NRPC meeting of NRPC, the matter regarding releasing of payment through electronic modes by the beneficiaries to generating companies was discussed, wherein it was decided that all the payments by the beneficiaries would be made through electronic modes i.e. RTGS/NEFT. Representative of Haryana Power Purchase Centre (HPPC) agreed to look into the matter. Representative of SJVN further stated that, all the beneficiaries of SJVN were making payment through electronic modes except HPPC.
- C.14.2TCC requested HPPC to release all future payments though electronic mode only. Representative of HPPC agreed to resolve this issue at the earliest.

#### NRPC Deliberation

Members noted the TCC deliberations.

C.15 Consent for purchase of power from Naitwar Mori Hydro Electric Project (NMHEP), 60 MW (2X30 MW) in Uttarakhand

**TCC Deliberation** 

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- C.15.1Representative of SJVN informed that Government of Uttarakhand (GoUK) has allotted Naitwar Mori Hydro Electric Project (2X30 MW) on River Tons (a tributary of river Yamuna) in district Uttarkashi in the state of Uttarakhand to SJVN Ltd. A Memorandum of Understanding (MoU) for execution of Naitwar Mori HEP was signed with the Govt. of Uttarakhand on 21st November, 2005.
- C.15.2He further stated that Naitwar Mori Hydro Electric Project (2X30 MW) is a run-of- river type scheme and is designed to generate Annually 265.50 MUs in 90 % dependable year and the commissioning of the project was expected in August, 2020.
- C.15.3As per the condition of Memorandum of Understanding (MoU), 12% of the net energy would be given to Government of Uttarakhand (GoUK) free of cost. SJVN would be in a position to offer the balance power being generated from project to interested states / UTs of the Northern Region as per the prevalent policies of Govt. of India issued from time to time.
- C.15.4The estimated project cost is Rs 624.11 Cr at April, 2016 price level. The levelized tariff of the generated power is Rs 6.14 per kwh based on above mentioned project cost and the final tariff would be calculated by the appropriate Regulatory Commission.
- C.15.5Representative of SJVN requested the members to convey their consent for purchase of power, indicating the quantum of power required from the aforesaid Hydro project.
- C.15.6TCC requested the members concerned to expedite their response for purchase of power from Naitwar Mori Hydro Electric Project (NMHEP).

Members noted the TCC deliberations.

# C.16 NRPC certificate for additional RoE for Bhiwani - Hissar 400 kV D/C Line under NRSS XXV

#### TCC Deliberation

C.16.1Member Secretary, NRPC informed that POWERGRID had requested certificate regarding benefit of early commissioning of Bhiwani - Hissar 400 kV D/C Line along with Bays at Bhiwani & Hissar under NRSS XXV. Such certificate is required from RPC under sub-regulation 24(2) (iii) of CERC (Terms and Conditions of Tariff) Regulations, 2014. The proposal was discussed in the 123<sup>rd</sup> OCC meeting. Members were of the view that in accordance with the provisions in the Regulation, the Transmission Licensee was required to approach the concerned RPC forum for the requisite certification before commissioning of the element.

अधीदण अभियन्ता सम्बद्ध निदेशक (निवंदन एवं काणिण्य)

ত্তি বিষয়েলীও হাওঁটু২০ বিষয়েলী বিষয়েলী বিষয়েলী

- C.16.2In the OCC meeting mentioned above, representative of NRLDC had stated that this line had strengthened the link between Bhiwani (PG)-Hissar. He had also informed that Bhiwani (PG) had become important sub-station as it is one of main sub-station for further evacuation of power from HVDC Mundra-Mahendragarh as well as from 765 kV system. He opined that prior to commissioning of this line, 400 kV Bhiwani -Hissar S/C and 400 kV Bhiwani(PG)- Bhiwani (BBMB)- Hissar were the connections from the 400kV Bhiwani (PG) towards Punjab system. These lines were optimally loaded. Thus, commissioning of this line had helped in enhancing the connectivity of Bhiwani (PG) system as well as enhancing the reliability of the area. However, NRLDC was also of the view that in future such decisions should be taken based on data/studies. Accordingly, OCC had agreed as a special case to certify that commissioning of Bhiwani Hissar 400 kV D/C Line has benefited the system operation in the Northern Regional Grid.
- C.16.3It was also informed that POWERGRID had approached NRPC Secretariat for issuance of similar certificate for 400KV Patiala-Panchkula Transmission Line subsequent to Date of Commercial Operation of the line. The proposal of POWERGRID was not considered in the spirit of the deliberations in the 123rd OCC meeting.
- C.16.4POWERGRID had requested for certification for this line from RPC as a special case.
- C.16.5After detailed deliberation over this issue, TCC agreed, as a special case, to issue certification that commissioning of 400 kV Bhiwani-Hisar and Patiala-Panchkula Lines has benefited the system operation and recommended for further approval by NRPC. TCC opined that such cases would not be entertained in future and advised all Inter-state transmission licensees including POWERGRID to approach NRPC for such certification before Date of Commercial Operation (DoCO) of transmission element in accordance with the relevant regulatory provisions.

Member Secretary, NRPC briefed the members about the deliberations and decisions taken in the TCC meeting. NRPC concurred with the decisions taken by TCC.

#### Table Agenda

- C.17 Status of LC against Deviation Charges delayed payment
  - TCC Deliberation
- C.17.1Representative of NRLDC informed about the details of LC to be opened by NR entities for the FY 2016-17 as on 1st Oct 2016, as given below:

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Name of NR Pool members	LC Amount (Rs. in Lakh.)	Status	No. of defaults in Deviation Payment in 2015-16	No. of defaults in Deviation Payment in 2016-17
UPPCL,UP	1402.82	LC not opened	50	21
UPCL, UTTARAKHAND	307.31	LC not opened	12	2
HPSEB, Himachal	607.45	LC not opened	48	20
PDD,J&K	615.36	LC not opened	25	14
EPPL	18.81	LC not opened	38	19
GREENKO, Budhil	74.47	LC not opened	20	15
Punjab	865.06	LC not opened	28	10
DTL	179.57	LC not opened	2	
HBPCL (KWHEP)	39.02	LC not opened	5	
UT Chandigarh	58.46	LC not opened	13	
Rajasthan	441.11	LC not opened	4	2
Railway	69.56	LC not opened	1	
SJVNL	63.67	LC not opened	1	
APCL	68.41	LC not opened	5	2
Haryana	628.48	LC not opened	1	
ВВМВ	19.02	LC not opened		_ 1

C.17.2Defaulting entities were requested to open the LC against Deviation Charges as per the Regulations of CERC.

#### NRPC Deliberation

Members noted the TCC deliberations.

# C.18 Implementation of ABT in BBMB System

#### **TCC Deliberation**

- C.18.1Representative of NRLDC stated that as per CERC order in Petition No. 251/GT/2013, BBMB had to commence the scheduling of power from it's generating units/transmission assets as per ABT from 01.06.2016. However, there were several issues related to accounting, metering and scheduling of the BBMB power. In this regard, meetings were held with all stakeholders to discuss the modalities regarding the issue.
- C.18.2Further, representative of NRLDC flagged the various issues viz. NFL registration, Small feeder data as well as water diversion issue. Representative of BBMB informed that these issues were being taken care of

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#### NRPC Deliberation

Members noted the TCC deliberations.

### C.19 Congestion Charges Status

#### **TCC Deliberation**

C.19.1Representative of NRLDCinformed that the outstanding amount against the entities as on 1st Oct 2016 was indicated as below:

S N.	CONSTITUENTS	Outstanding Amount (In Rs. Lakh)		
1.	U.P.	130.31		
2.	J&K	110.57		
3.	HARYANA	65.10		
4.	EPPL (MALLANA-II)	22.68		
5.	GREENCO BUDHIL	3.49		
6.	DELHI	2.26		
7.	RAILWAY	0.09		

C.19.2Defaulting entities were requested to liquidate the outstanding amount at the earliest.

#### **NRPC** Deliberation

Members noted the TCC deliberations.

# C.20 Reconciliation of Deviation & RE Account/ NRLDC Fee and charges TCC Deliberation

- C.20.1Representative of NRLDC stated that they had sent the reconciliation statements sent Quarterly for Deviation Charges, RE Account, NRLDC Fee and charges. The utilities concerned were requested to verify the NRLDC Fee & Charges Reconciliation statement at the earliest. In case non receipt of any communication, it would be presumed that statement stands reconciled.
- C.20.2 TCC noted the information.

#### **NRPC Deliberation**

Members noted the TCC deliberations.

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## C.21 TDS against STOA Charges

#### TCC Deliberation

- C.21.1 NRLDC representative stated that as per CERC regulation on Open Access in inter-State Transmission, RLDCs were providing single window clearance to the applicants and collecting all payments on behalf of STUs, SLDCs RLDCs and CTU. The charges on short term open access comprises PoC Charges, Application amount, RLDC Operating Charges, SLDC Operating Charges and STU Charges
- C.21.2 He informed that the applicants were deducting the TDS on the charges being paid for Open Access under two PAN numbers i.e. POWERGRID PAN for PoC charges and POSOCO PAN for all other charges. He further stated that in order to further streamline the process, applicants would now be requested to deduct the TDS towards SLDC Operating Charges and STU Charges to the respective PAN nos. of the STUs and SLDCs. In view of this, it was requested to provide the PAN Number of STU &SLDC so that applicants may be advised to use the PAN Number of concerned STU/SLDC for deduction of TDS against STU/SLDC charges. He mentioned that NRLDC vide its letter POSOCO/2016/1292-1308 dated 28<sup>th</sup> Aug 2016 requested to provide the PAN details though the same was awaited from the concerned.
- C.21.3 TCC advised the members to provide the PAN Number of concerned STU/SLDC for deduction of TDS against STU/SLDC charges, as requested by NRLDC.

#### **NRPC Deliberation**

Members noted the TCC deliberations.

#### C.22 Status of Ancillary Services:

#### **TCC Deliberation**

C.22.1Representative of NRLDC stated that subsequent to approval of detailed procedure by CERC, Ancillary services had been implemented w.e.f. 11.04.2016. The Status given was as below:

(All fig in Rs. Cr.)

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	Supplies in DSM RRAS Billed			
Week	Surplus in DSM A/C(Addi+Cap) (A)	Regulation Up (B)	Regulation Down	Net (D)=(B)-(C
Week-3(11 04 16-17 04 16)	10.10	0.23	0.00	0.23
Week-4(18 04 16-24 04 16)	8.93	0.26	0.00	0.26
Week-5(25 04 16-01 05 16)	10.59	1.63	0.00	1.63
Week-6(02.05.16-08.05.16)	9.56	L.30	0.11	1.19
Week-7(09.05.16-15.05.16)	13.51	1.65	0.23	1.42
Week-8(16.05 16-22.05.16)	10.67	0.72	0.65	0.08
Week-9(23 05 16-29 05 16)	9.89	2.86	0,17	2 69
Week-10(30.05.16-05.06.16)	15.28	3.92	0.00	3.92
Week-11(06 06 16-12 06 16)	15.19	2.05	0.12	1.93
Week-12(13.06.16-19.06.16)	13.59	2.22	0.00	2:22
Week-13(20.06.16-26.06.16)	13.98	4.24	0.26	3.98
Week-14(27.06.16-03.07.16)	18.86	6.37	0.21	6.16
Week-15(04.07.16-10.07.16)	15.98	7.86	0.47	7.39
Week-16(11.07.16-17.07.16)	11.85	14.77	0.42	14.35
Week-17(18.07.16-24.07.16)	9.05	14.59	0.09	14.50
Week-18(25.07.16-31.07.16)	10.11	11,90	0,44	11.45
Week-19(01.08.16-07.08.16)	12 09	4.82	1.29	3,54
Week-20(08.08.16-14.08.16)	12.28	12.69	0.07	12 63
Week-21(15.08.16-21.08.16)	10.78	8.69	1_59	7.10
Week-22(22 08 16-28 08 16)	10.96	52.10	0.02	52.08
Week-23(29.08.16-04.09.16)	7.95	18.18	0.31	17.87
Week-24(05.09.16-11.09.16)	9,58	48.15	0.03	48.13

#### C.22.2 Members noted the information

#### NRPC Deliberation

Members noted the TCC deliberations.

#### D. ITEMS FOR NRPC ONLY

# D.1 Transmission proposals as agreed in 38<sup>th</sup>Standing Committee Meeting on Power System Planning of Northern Region held on 30/05/2016

## D.1.1 WR- NR 765kV Inter-regional corridor

Providing a brief background, CTU representative stated that the total power transfer requirement to NR is likely to increase to 26500-27000 MW in next 4-5 years. Further, as power from generation projects in WR (particularly in Chhattisgarh) and in Odisha predominantly flows through WR-NR corridor, thus stressing this path of power flow. Accordingly, to relieve these constraints, an additional transmission corridor was agreed in NR & WR Standing Committee meetings, which comprise of:

765kV Vindhyachal Pooling Station – Varanasi D/c Line

330 MVAr line reactor in both lines at Varanasi end

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Members agreed to the same.

## D.1.2 400kV bays at Bhinmal and Sikar substations under ISTS

CTU representative stated that during the 30<sup>th</sup> Standing Committee Meeting of NR, 2 nos. of 400kV bays each at Bhinmal and Sikar substations were agreed under ISTS for integration of transmission system of RVPN associated with renewable projects. The said bays were for termination of 400kV D/c lines being constructed by RVPN. However, time frame for completion of bays was not firmed up during the 30<sup>th</sup> SCM of Transmission Planning of NR. Subsequently, RVPN vide letter dated 13/04/2016 intimated the time frame for bays. The matter was again discussed in 38<sup>th</sup> SCM held on 30/05/2016, wherein following was agreed under ISTS:

- 2 nos. of 400kV line bays at Bhinmal (PG) Substation
- > 2 nos. of 400kV line bays at Sikar (PG) Substation along with 2 nos. of 50 MVAr line reactors

CTU representative further informed that award of work for aforesaid bays is expected by Feb. "17 with a completion schedule of June" 18.

Members agreed to the above.

# D.1.3 <u>Transmission system for Ultra Mega Solar Parks in Fatehgarh, Distt.</u> Jaisalmer Rajasthan

CTU representative informed that M/s Adani Renewable Energy Park Rajasthan (AREPL) Ltd. has applied for connectivity (1000 MW) and Long Term Access (1000 MW) in ISTS with commissioning schedule of Dec\*17 for its Ultra Mega Solar Power Park at Fatehgarh with target region as NR. To evacuate power from the Fatehgarh UMSPP, following transmission system was agreed in the 38<sup>th</sup> NR SCM:

- > 765kV Fatehgarh Pooling Sub Station Bhadla (PG) D/c line (initially to be operated at 400kV)
- > Establishment of 400kV Pooling Station at Fatehgarh (with a provision to upgrade at 765kV level)
- 2 nos. of 400kV line bays at Fatehgarh Pooling Station
- > 1X125 MVAr Bus Reactor at 400kV Fatehgarh Pooling Substation

Further, CTU representative mentioned that the system was discussed and agreed in the 36<sup>th</sup> Empowered committee meeting on transmission held on 26.07.16, wherein it was decided that scheme shall be implemented through TBCB route. It was also agreed that 2 nos. of 400kV line bays at Bhadla Pooling Station shall be provided by POWERGRID for termination of 765kV Fatehgarh Pooling Sub Station – Bhadla (PG) D/c line (initially to be operated at 400kV).

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Members agreed to the same.

# D.1.4 Provision of 2 nos. of 765 kV bays at Ajmer (POWERGRID) and 2 nos. of 400 kV bays at Bikaner (POWERGRID) under ISTS for new intrastate interconnections to ISTS

CTU representative mentioned that Bhuj – Banaskantha – Chittorgarh – Ajmer – Bikaner – Moga 765 kV D/c line along with 765/400kV substations at Chittorgarh, Ajmer and Bikaner are being implemented under Green Energy Corridor. For interconnection of the intra-state system of Rajasthan with this Green Energy Corridor, RVPN has planned 765 kV D/c line from RVPN's 765/400kV Korna substation to Ajmer 765/400kV (PG) substation with 2x240 MVAr, 765kV switchable line reactors at Ajmer (PG) and Korna (RVPN) substations. The two nos. of 765kV line bays at Ajmer along with 2x240 MVAr, 765 kV switchable line reactors has been agreed to be implemented under ISTS in the 38<sup>th</sup> SCM of Power System Planning of NR held on 30/05/2016.

Further, CTU representative stated that in earlier Standing Committee Meeting of Transmission Planning of NR, LILO of one circuit of Bhadla (RRVPNL) – Bikaner(PG) 400kV D/c (Quad) line at Bikaner(PG) was agreed and currently is under implementation. To resolve the issue of unbalance loading of lines after LILO of 1stckt of Bhadla (RVPN) – Bikaner(PG) 400kV D/c (Quad) line at Bikaner(PG), LILO of the second circuit of Bhadla(RRVPNL) – Bikaner 400 kV D/c (Quad) line at Bikaner (PG) was agreed in 37th SCM of Power System Planning of NR. For LILO of second circuit, 2 nos. of 400 kV line bays at 765/400kV Bikaner S/s have been agreed to be provided under ISTS upon RVPNL request during the 38th SCM of Power System Planning of NR held on 30/05/2016.

Accordingly, following works are to be carried out under ISTS:

- 2 nos. of 765 kV bays at 765/400kV Ajmer S/s along with 2x240 MVAR, 765 kV switchable line reactors
- > 2 nos. of 400 kV line bays at 765/400kV Bikaner (PG)

RVPN informed that abovementioned bays at Ajmer would be required by 2020-21. CTU requested RVPN to inform a firm date to take up the necessary activities for implementation.

Members agreed to the same.

# D.1.5 <u>Augmentation of Transformation Capacity at Raebareli & Sitargani 220/132</u> <u>kV substations</u>

CTU representative stated that replacement of two nos. of 100MVA, 220/132kV ICTs by two nos. of 200MVA 220/132kV ICTs at 220/132kV Raebareli (PG) substation was in- principally agreed during the 37<sup>th</sup> Standing

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Committee meeting of Transmission Planning of NR held on 20/01/2016. Further, it has also been agreed that out of the two replaced transformers, one ICT may be installed at Sitarganj (PG) S/s and other may be used as a regional spare unit.

Accordingly, the scope of works under ISTS for the scheme is as follows:

- Two nos. of 100 MVA, 220/132 kV ICTs at Raebareli S/s to be replaced by two nos, of 200 MVA ICTs 220/132 kV ICTs.
- One of the two replaced 100 MVA, 220/132 kV ICTs at Raebareli S/s may be installed at Sitarganj S/s and the other may be used as regional spare.

Members agreed to the same

# D.1.6 Provision of 2 nos. of 220 kV bays at Fatehpur and 1 220 kV bays at Roorkee under ISTS

CTU representative stated that during the 37<sup>th</sup> Standing Committee Meeting on Power System Planning of NR held on 20/01/2016, 2 nos. of 220kV baysat 765/400kV Fatehpur (PG) S/s under ISTS were agreed upon requestof UPPTCL for termination of 220kVFatehpur(PG) – Sarh (Kanpur) D/c line.

Similarly, during the 35<sup>th</sup> Standing committee meeting on Power System Planning of NR, 1 no. of 220kV bay at 400/220kV Roorkee(PG) S/s under ISTS has been agreed upon request of PTCUL for drawing power from Roorkee(PG) substation.

Members agreed to the same.

# D.1.7 Transmission System associated with Kishenganga HEP

CTU representative stated that the scheme "Transmission System associated with Kishenganga HEP was agreed in 33<sup>rd</sup>Standing Committee on Power system Planning for Northern Region held on 23/12/2013 with following scope:

- > Kiahenganga Wagoora 220kV D/c line
- Kishenganga Amargarh 220kV D/c line

CTU representative further stated that due to unrest in Kashmir, completion schedule of transmission system associated with Kishenganga HEP has been revised. The revised schedule is as follows:

- ➤ Kishenganga Wagoora 220kV D/c line (Mar."18)
- ➤ Kishenganga Amargarh 220kV D/c line (July"17)

Member Secretary NRPC enquired from NHPC about commissioning schedule of their generation project. NHPC representative informed that presently commissioning of Kishenganga is envisaged in July 2017.

Members noted the same.

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#### D.2 Status of UI charges:

D.2.1 Member Secretary, NRPC stated that as per the information received from NRLDC, the status of payment of UI charges payable/Receivable by the utilities as on 30.09.2016 as given below:.

(Rs. in Lakh)

		Principal UI Charges	Interest on UI charges	Principal + Interest
S.No	Utility Name	Net UI Payable(+) or Receivable(-)	Net UI Interest Payable(+) or Receivable(-)	Net Amount Payable (+) or Receivable(-)
		1	2	3=1+2
1	Jammu and Kashmir	0.30296	0.00000	0.30296
2	Uttar Pradesh	33593.6208	3531.85195	37125.47275#
3	Uttarakhand	0.00000	0.03544	0.03544
4	EPPL	0.00000	1.14146	1.14146
5	GreenkoBudhil	0.00000	0.00343	0.00343

#1 The differential amount of Rs. 16039.76272 Lakh is there due to different UI ceiling rate as per CERC Regulation on UI Charges and High Court of Allahabad, Lucknow bench order dated 2.5.2008 and CERC order dated 29.5.2008 for implementation of High Court order which is subject to review based on the conclusion of the proceeding in the matter presently pending in High Court

#2 The additional UI charges of UP for the FY 2009-10 and up to week 5 of FY 2010-11 are Rs. 21085.71003 Lakh as per CERC Regulation on UI Charges which UPPCL was not required to pay in pursuance of High Court of Allahabad, Lucknow bench order dated 12.11.2009 and CERC order dated03.12.2010

#3 Accordingly the UI charges Payable by UP is Rs. 0 Lakh (Including interest)

- D.2.2 Utilities that have to pay the UI charges and interest charges were requested to release the outstanding amount at the earliest.
- D.2.3 After deliberations, it was decided that keeping in view small amount payable by some utilities, the same may be adjusted in deviation charges except that for UP, where the matter was sub-judice.

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#### **Status of Deviation Settlement Charges** D.3

D.3.1 Member Secretary, NRPC informed that the status of payment of Deviation charges payable/receivable by the utilities as on 31.01.2016 had been prepared as per the information received from NRLDC are as given below:

(Rs. in Lakh)

0		Principal DS Charges	Interest on DS charges	Principal + Interest
S.No	Utility Name	Net DSC Payable(+) or Receivable(-)	Net DSC Interest Payable(+) or Receivable(-)	Net Amount Payable(+) or Receivable(-)
		1	_2	3=1+2
1	CHANDIGARH	-59.10196	0	-59.10196
2	DELHI	-97.6863	0	-97,6863
3	HARYANA	139.63125	0	139.63125
4	HIMACHAL PRADESH	-843.05347	0	-843.05347
5	JAMMU AND KASHMIR	7175.06851	0	7175.06851
6	N.F.L.	12.42856	0	12.42856
7	NEPAL	14.15746	0	14.15746
8	POWERGRID_NR	7.58218	0	7.58218
9	PUNJAB	1.56503	0	1.56503
10	RAILWAYS	-41.78668	0	-41.78668
-11	RAJASTHAN	-49,8493	0	-49.8493
12	UTTAR PRADESH	16176.99844	0	16176.99844
13	UTTARAKHAND	0	0	0
14	APCPL	0	0	0
15	BBMB	-48.77713	0	-48.77713
16	NHPC	132.90044	0	132.90044
17	NTPC	-230.87865	0	-230.87865
18		-	0	-4.10029
19	NTPC SOLAR	-4.10029		
20	SJVN	70.50936	0	70.50936
21	THDC	129.21046	0	129.21046
22	ADHPL	0	0	0
23	EPPL _	83.88529	0	83.88529
24	GREENKO BUDHIL	26,15068	0	26.15068
£-7	HBPCL	14.57449	0	14.57449

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25	HIMACHAL SORANG	1.20094	0	1.20094
26	SCL	0	0	0
27	ER-NR	3979.6661	_0	3979.6661
28	NER-NR	1514.2141	0	1514.2141
29	WR-NR	485.90653	0	485,90653
30	Pool Balance	-30898.94318	0	-30898.94318

D.3.2 Utilities that had to pay the deviation charges were requested to release the outstanding amount at the earliest.

## D.4 Status of Reactive Energy (RE) Charges

D.4.1 Member Secretary, NRPC stated that as per the information received from NRLDC, the status of Reactive Energy charges payable/Receivable by the utilities as on 13.10.2016was as given below:

All Figures in Rupees Lakh

SI. No	Constituent	NET RE Charges Salance Upto 31st Mar. 2016	RE Charges Payable/ Receivable During 2016- 2017 (upto 13.10.2016)	NET RE Charges Balance as on 13.10.2016	Interest on delayed payment of RE charges UptoQtr 4 of 2015-16	Net Balance
1	CHANDIGARH	-265.16	-20.44	-285.6	-85.18	-370.78
2	DELHI	437.07	79.61	516.68	-97.02	419.66
3	HIMACHAL PRADESH	-512.13	21.65	-490.48	-132.39	-622.87
4	HARYANA	-6841.64	-486.12	-7327.76	-1569.9	-8897.66
5	JAMMU AND KASHMIR	24061.02	1980.66	26041.68	5312.9	31354.5B
6	PUNJAB	964.94	455.62	1420.56	-28.93	1391.63
7	RAJASTHAN	-3800.59	-379.86	-4180.45	-902.06	-5082.51
8	UTTARAKHAND	-30.57	57.11	26.54	-9.7	16.84
9	UTTAR PRADESH	-12735.03	-1516.69	-14251.72	-2487.72	16739.44

- D.4.2 It was noted that as on 13.10.2016, total outstanding of Reactive Energy Charges against PDD J & K was Rs. 313.55 Cr. Members expressed concern over large outstanding payable by PDD-J&K.
- D.4.3 All Payable constituents including PDD-J & K were requested to release outstanding RE charges payments at the earliest.

D.5 Reimbursement of Expenditure of NRPC Sectt. for the year 2016-17 by the members of NRPC

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- D.5.1 Member Secretary, NRPC stated that keeping in view the budget estimates approved by Government of India (GoI) for the financial year 2016-17 and expenditure likely to be incurred towards outsourcing of staff, conduct of various meetings, leasing of vehicle etc through NRPC fund and balance amount available in the NRPC Fund, the per member contribution for the year 2016-17 would be Rs. 7 lakhs.
- D.5.2 Members agreed to contribute the said amount.

#### Reimbursement of Expenditure of NRPC Sectt. for the year 2015-16 by D.6 the members of NRPC

D.6.1 Member Secretary, NRPC stated that in the 35th NRPC meeting held on 09.07.2015, it was decided to contribute the amount of Rs.11 Lakh per member for the year 2015-16 toward reimbursing NRPC expenditure to Gol for the year 2015-16, for meeting the expenditure for meetings at Secretariat and other expenditure as approved by Chairperson, NRPC. List of members from which contribution was still awaited is given below.

Sl. No.	Constituent Member			
1	J & K State Power Development Corp. Ltd., J&K			
2	Punjab State Power Corp. Ltd.,			
3	Paschimanchal Vidyut Vitran Nigam Ltd., Meerut, UP			
4	Power Transmission Corp. of Uttarakhand Ltd.			
5	GMR Energy Trading Limited, New Delhi			

D.6.2 Members were requested to expedite the contribution.

#### Reimbursement of Expenditure of NRPC Sectt. by the members of NRPC **D.7** for the previous years

D.7.1 Member Secretary, NRPC informed that annual contribution as decided at NRPC meetings from time to time for reimbursing NRPC expenditure to Gol and meeting the expenditure for meetings at held Secretariat was awaited from following members:

S.No.	Constituent Member	Amount
Financial \	rear 2014-2015	
1	J&K State PDC Ltd ,J&K	
2	Dakshinanchal VUNL, Agra	Rs. 11 Lakh
3	JdVVNL, Jaipur	IXS. IT Land
4	Bajaj Energy Pvt Ltd.	

52 (मनोज सिंह) सन्बद्ध निदशक (निवालन एवं वाजिल्य)

च०त्रवपावद्रावकावनिव

Financial Ye	ear 2012-2013	
1	Purvanchal Vidyut Vitaran Nigam Ltd.	Rs.10 Lakh

D.7.2 Members were requested to expedite the contribution.

#### D.8 Verification of NRPC Fund Account

- D.8.1 Member Secretary, NRPC stated that as per the Bye-laws for NRPC Fund the "NRPC Fund" account was required to be audited annually for each financial year. Accordingly, the NRPC fund account for financial year 2015-16 was audited by the officers nominated by Chairperson, NRPC.
- D.8.2 He further stated that the audit of NRPC Fund account was also carried out through the Chartered Accountant appointed with the approval of Chairperson, NRPC. The statement of audited accounts of NRPC Fund for the Financial Year 2015-16 duly audited by the Chartered Accountant was enclosed in the agenda.
- D.8.3 Members approved the statement of audited accounts of "NRPC Fund" for the Financial Year 2015-16.

#### D.9 Verification of Regional Board Fund

- D.9.1 Member Secretary, NRPC stated that as per Bye-laws for Regional Board Fund (RBF), the account for each financial year was required to be audited annually by the officers nominated by Chairperson, NRPC. The auditing of expenditure of RBF account for the year 2015-16 was carried out by the officers nominated by Chairperson, NRPC and statement was placed in the agenda.
- D.9.2 Members approved the statement of audited accounts of RBF for the Financial Year 2015-16.

# D.10 Capacity Building Programme for Integration of Renewable Energy Sources into the Grid

D.10.1Member Secretary, NRPC stated that in 30<sup>th</sup> TCC/34<sup>th</sup> NRPC meeting held in March 2015 it was decided that NRPC Secretariat, with the approval of Chairperson, NRPC, would finalize a capacity building programme for personnel involved in system operators, transmission system planning & operation and policy & regulatory implementation. Further, it was also agreed that this programme should be funded from PSDF. The grant for the capacity building programme through PSDF was sanctioned by Govt. of India. The programme was conducted as per schedule given below:

53

a) Middle Management Batch-I from 15.01.2016 to 27.01.2016

frenching-

(मनोज सिंह) उद्योक्षण अभियन्ता सम्बद्ध नितेशक (भियोजन एवं व्याण्य) उ०४०५०५० ४००५०

- b) Middle Management Batch 2.1 from 15.06.2016 to 25.06.2016 and Batch 2.2 from 21.06.2016 to 31.10.2016
- c) Higher Management Batch from 11.07.2016 to 18.07.2016
- D.10.2As per the terms and condition of contract the payment to the service provider was to be made in phases. Due to non-availability of sufficient fund from PSDF, only part payment was released to the service provider at the time of departure of first batch. Balance payment to the service provider and payment to income tax department for withholding tax was made after receipt of fund from PSDF. Due to delay in deposit of withholding tax, income tax department has imposed penalty. The penal charges were Rs. 37425/- and with accumulated interest amount it has increased to Rs. 38930/-.
- D.10.3Member Secretary also stated that the matter was taken up with NLDC (the nodal agency for disbursement of PSDF) with the request to give consent for depositing the interest on TDS and subsequent penal charges on this interest from the sanctioned grant of PSDF. However, no reply was received from them. To avoid further penalty from income tax department it was proposed to release the Interest on Late Deduction of withholding tax from NRPC Fund.

Members approved the proposal.

#### D.11 Hosting of next meetings of NRPC / TCC

Member Secretary, NRPC stated that PDD J&K was agree able to host the next 35<sup>th</sup>TCC & 39<sup>th</sup>NRPCmeetings, which would become due in Feb./March, 2017.

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(मनाज सिंह) अधीवण अभियन्ता सम्बद्ध निदेशक (भिनोलन एवं वाणिज्य) उदम्बपाद्मावकावनिक

July .

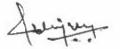
# Annexure-I

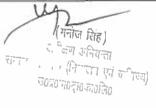
List of Participants of 34<sup>rd</sup> Meeting of TCC on 24.10.2016 at Rishikesh

S.No.	Name of Officer	Designation	Organization	
Α	Members Of TCC			
1.	Shri J.K. Juneja	Chairman, TCC and Director(Tech.), HVPNL	HVPNL	
2.	Shri V.K. Kalra	Member(Power)	ВВМВ	
3.	Shri R.K. Sharma	Director(O)	HPSEBL	
4.	Shri Rajesh Thakur	Director (Proj.)	HPPTCL	
5.	Shri R.K. Bansal	Director(E)	SJVNL	
6.	Shri Jagdish Kumar	Director (Technical)	IPGCL	
7.	Smt ShashiPrabha	Director (Tech.)	PSTCL	
8.	Shri S.P.Chaubay	Chief Engineer (TO)	UPRVUNL	
9.	Shri JanardanChoudhary	Executive Director(O&M)	NHPC	
10.	Shri R.S. Rathee	Regional Exec. Dir. North	NTPC	
11.	Shri Rakesh Sharma	Superintending Engineer	SLDC,HP	
12.	Shri P.K. Agarwal	General Manager	NRLDC	
13.	Shri Anil K. Garg	General Manager(BD)	HPPTCL	
14.	Shri Rajesh Gupta	Chief Engineer/SO&C	HVPN	
15.	Shri Karunakar Jha	DY. General Manager (Comml.)	JPL	
В	Other Participants			
1	NRPC, Secretariat			
16.	Shri Ajay Talegaonkar	Superintending Engineer	NRPC	
17.	Shri Hemant Kumar Pandey	Superintending Engineer	NRPC	
18.	Shri B.S. Bairwa	Executive Engineer (O)	NRPC	
19.	Shri. Ratnesh Kumar	Executive Engineer(C)	NRPC	
20.	Shri AkshyaDubey	Asst. Executive Engineer(O)	NRPC	
21.	Shri Manish Maurya	Asst. Engineer(C)	NRPC	
11	ВВМВ			
22.	Shri Anil Gautam	Director P.R.	BBMB	
23.	Shri Kuldeep Singh	Power Controller	ВВМВ	
24.	Shri Rakesh Birla	DY CE/HQ	BBMB	
111	DELHI			
25.	Shri S.M. Verma	Executive Director (T)	DTL	
26.	Shri. H. Vyas	Executive Director	DTL	
IV	HARYANA		_	

(गनोज सिंह) अधीतण अनियन्ता चनार्य निवसार (निपोजन एवं वागिच्व) 169 ७०५०पाठपाठपाठमाठनिव

27.	Shri Ashok Garg	DySec.General	HPGCL
V	HIMACHAL PRADESH		
28.	Shri J.P. Kalta	Managing Director	HPPTCL
29.	Shri Suneel Grover	Chief Engineer (SO)	HPSEBL
VI	J&K		
30.	Shri S.K. Kaul	Superintending Engineer C&S,PDD	J&K
VII	PUNJAB		
31.	Shri S.S. Mal	Chief Engineer, SLDC	PSTCL
32.	Shri S.K. Kansal	Dy. Chief Engineer, ISB	PSPCL
VIII	RAJASTHAN		
33.	Shri Ajay Kumar Sharma	Chief Engineer (LD)	RVPNL
34.	Shri C.L. Koli	Superintending Engineer (PPM)	RRVUNL
35.	Shri Atul Sharma	Executive Engineer (SOLD)	RVPNL
IX	UTTAR PRADESH		
36.	Shri A.K. Jayaswal	Superintending Engineer	UPPTCL
37.	Shri C.K. Shukla	Superintending Engineer	UPSLDC
38.	Shri Brijesh Singh	Executive Engineer	UPRVUNL
39.	Shri S.K. Chaurasia	Executive Engineer	UPPTCL
40.	Shri Mithilesh K Gupta	Executive Engineer	UPSLDC
X	UTTARAKHAND		
41.	Shri Deep Sah	Chief Engineer (Proj.)	PTCUL
42.	Shri Neeraj Pathak	Superintending Engineer (Planning)	PTCUL
43.	Shri Ashok Kumar	Executive Engineer	PTCUL
ΧI	NHPC		
44.	Shri Chander Mohan	General Manager (Comml.)	NHPC
44.	Silii Cilander Wohan	General Manager (Commi.)	NIFO
XII	NTPC		
45.	Shri Pravin Chaturvedi	General Manager (OS+NR)	NTPC
46.	Shri Rakesh Chopra	General Manager (Comml.)NRHQ	NTPC
70.	01 101 11 1 01	Deputy General Manager (OS)CC	NTPC
47.	Shri Shailesh Dheman	AddlGeneral Manager (Comml.)	1411 0





# 34th TCC & 38th NRPC Meetings (24th and 25th October, 2018) - Minutes

XIII	PGCIL		
49.	Shri Sunil Agrawal	Executive Director(LD & C)	POWERGRID
50.	Shri R.V.S. Kushwaha	General Manager (AM)	POWERGRID
51.	Shri Rajiv Mohan	General Manager(AM)	POWERGRID
52.	Shri Y.S. Sai Prasad	DGM (ULDC &Comml.)	POWERGRID
53.	Shri Mukesh Khanna	Addl. General Manager (CTU,PLG)	POWERGRID
XIV	SJVNL		
54.	Shri Romesh Kapoor	General Manager (C&So)	SJVNL
XV	THDCIL		
55.	Shri D.V. Singh	Director(T)	THDC
56.	Shri H.L. Arora Executive Director (OMS		THDC
57.	Shri Rajiv Vishnoi	Executive Director (Design)	THDC
58.	Shri Ajay Mathur	General Manager (Comml.)	THDC
59.	Shri R.K. Verma	Deputy General Manager (Comml.)	THDC
60.	Shri Rajeev Jain	Executive Manager (Design)	THDC
61.	Shri L.P. Joshi	Addl.General Manager (EMD)	THDC
XVI	NRLDC		
62.	Shri Rajiv Porwal	Deputy General Manager	POSOCO,NRLDC
63.	Shri Alok Kumar	Chief Manager	POSOCO,NRLDC
XVII	JHAJJAR POWER(CLP)		
64.	Shri Rajneesh Setia	Senior Manager	CLP
XVIII	PRIVATE DISCOM(BRPL)		
65.	Shri Satinder Singh Sondhi	Vice President	BRPL

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(गनाज सिंह) अधीर्यन अभियन्ता सम्बद्ध निवेशक (नियोजन एवं वाणिज्य) च०प्रक्षमाण्ड्रावकाशलिक

# Annexure-II

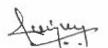
# List of Participants of 38<sup>th</sup> Meeting of NRPC on 25.10.2016 at Rishikesh

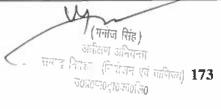
S. N	Name of Officer	Designation	Organization					
Α	Members of NRPC							
1.	Shri Vineet Garg	Chairperson, NRPC and Managing Director, HVPNL	HVPNL					
2.	Shri S.D.Dubey	Chairperson, CEA & Member (PS)	CEA					
3.	Shri R.N. Misra	Chairman &Managing Director	SJVNL					
4.	Shri Prem Prakash	Managing Director	DTL					
5.	Shri Rajesh Singh	Director (Proj.)	HPPTCL					
6.	Shri Preman Dinaraj	Director(Fin.)	NPCIL					
7.	Shri D.V. Singh	Director(Tech)	THDC					
8.	Shri Ajay K. Sharma	Chief Engineer (LD)	SLDC, Rajsthan					
9.	Shri Rajesh Gupta	Chief Engineer /SO&Comml.	HVPNL					
10.	Shri V. Venugopal	General Manager(SLDC)	DTL					
11.	Shri P.K. Agarwal	General Manager	NRLDC					
12.	Shri. P.S. Mhaske	Member Secretary	NRPC					
В	Members of TCC							
13.	Shri J.K. Juneja	Director(Tech.) HVPNL & Chairman (TCC), NRPC	HVPNL					
14.	Shri V.K. Kalra							
15.	Shri R.K. Sharma	Director(O)	HPSEBL					
16.	Shri Rajesh Thakur	Director (Proj.)	HPPTCL					
17.	Shri R.K. Bansal	Director(E)	SJVNL					
18.	Shri Jagdish Kumar	Director (Tech.)	IPGCL					
19.	Smt Shashi Prabha	Director (Tech.)	PSTCL					
20.	Shri R.S. Rathee	Regional Exec. Dir. North	NTPC					
21.	Shri Janardan Choudhary	Executive Director(O&M)	NHPC					
22.	Shri S.P. Chaubay	Chief Engineer (TO)	UPRVUNL					
23.	Shri P.K. Agarwal	General Manager	NRLDC					
24.	Shri Anil K. Garg	General Manager(BD)	HPPTCL					
25.	Shri Rakesh Sharma	Superintending Engineer	SLDC,HP					
26.	Shri Karunakar Jha	DY. General Manager (Comml.)	JPL					
27.	Shri Shravan K Sharma	Director(O&M)	PTCUL					
С	Other Destinions		iii X					
<del>-</del>	Other Participants NRPC, Secretariat							
28.	Shri Hemant Kumar	Superintending Engineer	NRPC _					
20.	Silii Hemant Kumai	orhamicanding Eudineer	NRPC					

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(मनोज सिंह) अनेकण अभियन्ता सम्बद्ध निदेशक (नियोजन एवं वाणिक्र**),72** उ०५०५१०द्रा०का०लि०

S. N	Name of Officer	Designation	Organization		
	Pandey				
29.	Shri B.S. Bairwa	Executive Engineer (O)	NRPC		
30.	Shri Ratnesh Kumar	Executive Engineer(C)	NRPC		
31.	Shri AkshyaDubey	Asst. Executive Engineer(O)	NRPC		
32.	Shri Manish Maurya	Asst. Engineer(C)	NRPC		
11	BBMB				
<b>3</b> 3.	ShriAnil Gautam	Director P.R.	ВВМВ		
34.	ShriKuldeep Singh	Power Controller	BBMB		
35.	ShriRakesh Birla	DY Chief Engineer /HQ	ВВМВ		
151	DELHI				
36.	Shri S.M.Verma	Executive Director (T)	DTL		
37.	Shri H.Vyas	Executive Director	DTL		
IV	HARYANA				
38.	Shri S.S. Dalal	Director	HPGCL		
39.	Shri O.K. Sharma	Chief Engineer	HPPC		
40.	Shri Ashok Garg	DySec.General	HPGCL		
v	HIMACHAL PRADESH				
41.	Shri J.P. Kalta	Managing Director	HPPTCL		
42.	Shri Suneel Grover	Chief Engineer (SO)	HPSEBL		
43.	Shri Rakesh Sharma	Dy. Chief Engineer	HPLDS		
44.	Shri Deepak Uppal	Superintending Engineer (PR&ALDC)	HPSEBL		
45.	Shri Joginder Singh	Superintending Engineer (Inter State)	HPSEBL		
VI	J&K				
46.	Shri S.K. Kaul	Superintending Engineer, C&S,PDD	J&K		
VII	PUNJAB				
47.	Shri S.S. Mal				
48.	Shri S.K. Kansal	DyChlef Engineer	PSPCL		
VIII	RAJASTHAN				
49.	Shri C.L. Koli	Superintending Engineer (PP)	RRVUNL		
50.	Shri Atul Sharma	Executive Engineer (SOLD)	RRVPNL		





Name of Officer	Designation	Organization	
UTTARAKHAND			
Shri Purushottam Singh	Executive Director(O&M)	UJVNL	
Shri Deep Sah	Chief Engineer (Proj.)	PTCUL	
Shri Neeraj Pathak	Superintending Engineer(Plg.)	PTCUL	
Shri Ashok Kumar	Executive Engineer	PTCUL	
UTTAR PRADESH		UPPTCL	
Shri A.K. Jayaswal	Shri A.K. Jayaswal Superintending Engineer		
Shri Brijesh Singh	Executive Engineer	UPRVUNL	
Shri S.K. Chaurasia	Executive Engineer	UPPTCL	
Shri Mithilesh K.Gupta	Executive Engineer	SLDC,UPPTCL	
NHPC			
Shri Chander Mohan	General Manager (Comml.)	NHPC	
NTPC			
Shri Rakesh Chopra	General Manager (Comml.)	NTPC	
Shri Shailesh Dheman	DGM (OS)CC	NTPC	
Shri Shyam Kumar	Addl.General Manager(Comml.)	NTPC	
PGCIL, New Delhi			
Shri Sunil Agrawal	Executive Director (LD & C)	POWERGRID	
Shri R.V.S.Kushwaha	General Manager(AM)	POWERGRID	
Shri Rajiv Mohan	General Manager(AM)	POWERGRID	
Shri Mukesh Khanna	Addl. General Manager (CTU,PLG)	POWERGRID	
Shri Y.S.Sai Prasad	DGM(ULDC &Comml.)	POWERGRID	
SJVNL			
Shri Romesh Kapoor	General Manager(C&SO)	SJVNL	
THDCIL			
Shri H.L. Arora			
Shri Ajay Mathur	General Manager (Comml.)	THDC	
Shri Muhar Mani	General Manager(Tehri St-I) THD		
Shri Sajeev R	Addl.General Manager(O&M)	THDC	
	UTTARAKHAND Shri Purushottam Singh Shri Deep Sah Shri Neeraj Pathak Shri Ashok Kumar  UTTAR PRADESH Shri A.K. Jayaswal Shri Brijesh Singh Shri S.K. Chaurasia Shri Mithilesh K.Gupta  NHPC Shri Chander Mohan  NTPC Shri Rakesh Chopra Shri Shailesh Dheman Shri Shailesh Dheman Shri Shyam Kumar  PGCIL, New Delhi Shri Sunil Agrawal Shri R.V.S.Kushwaha Shri Rajiv Mohan  Shri Mukesh Khanna Shri Mukesh Khanna Shri Y.S.Sai Prasad  SJVNL Shri Romesh Kapoor	UTTARAKHAND Shri Purushottam Singh Shri Deep Sah Shri Neeraj Pathak Superintending Engineer (Proj.) Shri Ashok Kumar  Executive Engineer  UTTAR PRADESH Shri A.K. Jayaswal Superintending Engineer Shri Brijesh Singh Shri S.K. Chaurasia Shri Mithilesh K.Gupta  NHPC Shri Chander Mohan  Shri Rakesh Chopra Shri Shailesh Dheman Shri Shailesh Dheman Shri Shailesh Dheman Shri Shunil Agrawal Shri Ruy.S.Kushwaha Shri Rajiv Mohan Shri Rajiv Mohan Shri Rajiv Mohan Shri Mukesh Khanna Shri Y.S.Sai Prasad  DGM (ULDC &Comml.)  SJVNL Shri Romesh Kapoor  General Manager(CoMS)  General Manager  (CTU,PLG) Shri Y.S.Sai Prasad  Executive Director (CMS)  Executive Director (CMS)	

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मनोज सिंह) अधीका अभिवन्ता राम्बद्ध निदेशक (नियोजन एवं याणिज्य) उ०%०५०%०%००%०

S. N	Name of Officer	Designation	Organization	
XVI	NRLDC			
74.	Shri Rajiv Porwal	DeputyGeneral Manager	POSOCO,NRLDC	
75.	Shri Alok Kumar	Chief Manager	POSOCO,NRLDC	
XVII	JHAJJAR POWER(CLP)			
76.	Shri Rajneesh Setia	Sr. Manager	CLP	
XVIII	ADANI POWER RAJ. Ltd.			
77.	Shri Manoj Taunk	General Manager	Adani Power Raj.Ltd.	
XIX	Pvt. DISCOM			
78.	Shri Satinder Singh Sondhi	Vice President	BSES-Rajdhani	

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(मनाज सिंह) अधीतण अभियत्ता समाद मिदेशक (मित्राजन एवं वाणिज्य) उ०४०/गटर १० गठीत०

# Annexure-III

# **Details of Connectivity Applications granted by CTU**

S.No.	Name of the Applicant	Location	Region	Installed Capacity (MW)	Connectivity Granted for (MW)	Connectivity Granted from	Transmission System Identified for Connectivity
1	THDC India Ltd. (Tehri PSP)	Uttarakhan d	NR	1000	1000	3-Nov-2017	Through Bus Bar extension at Tehri Bus
2	Adani Renewable Energy Park Rajasthan Limited	Bhadla, Rajasthan	NR	250	250	15-Dec-2016 or availability of Tr. System whichever is later	Adani Gen. Switchyard - Bhadla (PG) Pooling Station 220kV D/c line
3	Saurya Urja Company of Rajasthan Ltd	Jodhpur, Rajasthan	NR	500	500	01-Jan-2017 or availability of Tr. System whichever is later	SauryaUrja generation switchyard - Bhadla (PG) Pooling Station 220 kV D/c (Twin Zebra) line
4	L&T Uttaranchal Hydropower Limited	Uttarakhan d	NR	99	99	15-Nov-2017	LILO of one circuit of Srinagar-Baramwari 220 kV D/C line at SingoliBhatwa ri Generation switchyard
5	Adani Renewable Energy Park Rajasthan Limited	Jaisalmer, Rajasthan	NR	1500	1000	30-Dec-2017 or availability of Tr. System under ISTS whichever is later	i) Adani Generation Swtitchyard - Fatehgarh Pooling Station 400kV D/c line (by applicant), ii) Fatehgarh PS - Bhadla (PG) 765kV D/c line

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(मनोज सिंह) वावीलण अभिवन्ता राम्त्य निवंत्रक (निवंत्रक एवं वाणिक्य) उठाठपाठहाठकाठलिठ

# 34th TCC & 36th NRPC Meetings (24th and 25th October, 2016) - Minutes

							along with Fatehgarh PS (under ISTS)
6	Indian Oil Corporation Ltd.	U.P	NR	100	100	31-Dec-2018	IOCL Refinery-Math (UPPTCL) 220 kV D/c line

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(मनीज सिंह) अधीक्षण अभियन्ता सम्बद्ध निदेशक (भिर्दोजन एवं वाणिच्य) उठप्रवपाददावकावलिव

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# Annexure-IV

# Details of Long Term Access Applications granted by CTU

SI. No.	Name of the Applicant	Location	Region	LTOA/L TA granted for (MW)	Point or points of Injection	Tr. System Requirement	
						Dedicated / Connectivity Tr. System	Common
1	THDC India Ltd. (Tehri PSP)	Tehri, Uttarakhand	NR	1000	Tehri PSP, Uttarakhand	Through Bus Bar extension at Tehri Bus	Tehri Generation  Koteshwar  Pooling Stn. 400  kV S/c (Quad  Conductor),  Establishment of  765/400 kV GIS  substation at  KoteshwarPlg.  Stn., Aug. of  765/400  transformation  capacity by  1x1500 MVA at  Meerut, Charging  of Tehri Pooling –  Meerut line at 765  kV level.
2	Himachal Pradesh Power Corporation Limited (Shongtong)	Himachal Pradesh	NR	450	ShongtongK archam HEP, Himachal Pradesh	Shongtong Generation Switchyard	ShongtongKarcha m – Wangtoo 400 kV D/c Line (Quad HTLS Conductor Equivalent to about 3000MW) – 18km (ISTS) Establishment of 220/400kV GIS Pooling Station at Wangtoo along with LILO of both circuits of 400 kV Karcham Wangtoo- Abduliapur D/c line at Wangtoo S/s

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(गनीज सिंह) अधीक्षण अभियन्ता निदेशक (भियोजन एवं क्रा**१७७**८ उठ्डायाजूरा मार्गास्त

3	Solar Energy Corporation of India (Rajasthan to Punjab)	RVPN-STU interconnecti on with ISTS in Rajasthan	NR	30	RVPN-STU interconnecti on with ISTS in Rajasthan	Not Applicable	Existing Transmission System
4	Saurya Urja Company of Rajasthan Ltd. (U-I)	Badla, Rajasthan	NR	250	765/400/220 kV Bhadia Pooling Station	SauryaUrja generation switchyard - Bhadla (PG) Plg. Stn. 220 kV D/c (Twin Zebra) line	Transmission System for Solar Power Parks at Bhadia, Rajasthan
5	Adani Renewable Energy Park Rajasthan Limited	Bhadla, Rajasthan	NR	250	765/400/220 kV Bhadla Pooling Station	Adani generation switchyard - Bhadia (PG) Pooling Station 220 kV D/c line	Transmission System for Solar Power Parks at Bhadia, Rajasthan
6	Saurya Urja Company of Rajasthan Ltd. (U-II)	Badla, Rajasthan	NR	250	765/400/220 kV Bhadla Pooling Station	SauryaUrja generation switchyard - Bhadla (PG) Pooling Station 220 kV D/c (Twin Zebra) line	Transmission System for Solar Power Parks at Bhadla, Rajasthan
7	Himachal Baspa Power Company Ltd. (earlier Jaiprakash Power Ventures Ltd)	Himachal Pradesh	NR	264	KarchamWa ngtoo generation	NIL	Existing Transmission System
8	NSL Tidong Power Generation Private Limited	Himachal Pradesh	NR	88	NSL Tidong Power Gen. Pvt. Ltd., Himachal Pradesh	a) Tidong- Jangi Pooling Station 220 kV D/c line - by HPPTCL b) 2x315 MVA, 220/400 kV GIS Jangi PS	Transmission System for transfer of power to Southern Region ie.: a) Angul – Srikakulam – Vemagiri (PG) 765 kV D/c line b) Wardha – Nizamabad 765 kV D/c line
	2511	X	ra e			VA	c) Nizamabad – Hyderabad (Maheshwaram)

Lugung

(माज सिंह) अधीक्षण अभियन्ता समाद्व निर्देशक (भिज्ञीजन एवं वाणिज्य) उध्यवमावद्रावन्तवस्थि

### 34th TCC & 38th NRPC Meetings (24th and 25th October, 2016) - Minutes

		,					765kV D/c line
9	Adani Renewable Energy Park Rajasthan Ltd.	Jaisalmer, Rajasthan	NR	250	400kV Fatehgarh Pooling Station	Adani Generation Switchyard - Fatehgarh Pooling Station 400kV D/c line	Existing and under construction Transmission System of Green Energy Corridor
10	Adani Renewable Energy Park Rajasthan Ltd.	Jaisalmer, Rajasthan	NR	750	400kV Fatehgarh Pooling Station	Adani Generation Switchyard Fatehgarh Pooling Station 400kV D/c line	Existing and under construction Transmission System of Green Energy Corridor

Junjung

(मनील शिष्ठ) अधीक्षण अभियन्ता समाद्य निदेशक (नियोजन एवं वाणिल्य) उ०२०५०२१६ नाजिल

66

# Weighted Average Rate of Interest

Opening as on Addition Repayment Closing as on from long term	1,70,39,64,393 2,02,16,78,566 20	0 0 0	35,19,60,502 0 11,22,29,465 35,28,46,316 12,45,68,924	41,22,93,01,345 6,41,00,38,677 1,84,85,85,350 47,83,93,40,017 2,97,40,09,260	1,25,13,06,509 0 28,87,63,128 1,25,13,06,609 28,87,63,128	66,33,53,042 0 99,71,46,000 0 0	62,58,08,55,316 8,11,40,03,070 5,28,84,02,629 70,03,23,91,153 5,63,85,04,707		FY 2015-16	Opening as on Addition Repsyment 31,03,2016 from long term debt	18,53,77,34,816 3,78,62,27,628 1,62,57,69,486 22,94,93,38,352 2,19,98,84,770	45,85,61,51,830 15,21,47,52,264 3,42,12,53,441 61,03,69,91,765 3,39,99,54,688	64,39,38,86,446 19,00,99,79,893 5,04,70,42,828 83,88,63,28,117 5,59,96,39,458		FY 2016-17	Speking as on Addition Repayment 31.03.2017 long term debt	96 51 562 8.91 31.73 921 2.73.72.49.392 29.12.52.60.881	70,37,077 15,26,24,46,208 4,18,73,24,123 72,13,24,12,850	4	.66.58.669 Z4,17,56,19,129 6,89,45,71,510 1,01,25,71,73,731
Ourre	384 2.02.16.78.566	$\vdash$	11,31,15,299	,690 1,84,85,85,345	737 28,87,63,128	33,37,92,958	,612 4,60,59,35,296	nn Debts		Opening as on from long term	20,78,88,98,211 22,51,11,63,395	Н	70,03,23,91,153 25,89,85,04,707	o for Long Term Debts		Current Meturity from Open	ľ	3,39,99,54,868 57,63	H	5,59,96,39,468 78,38
Lender Opening as on	PFC Trans 21.10.66.12.384		REC (RES) 46,50,75,801	REC Trans 43,07,78,86,690	REC (PCL) 1,54,00,89,737	GoUP 999,71,46,000	Grand Total 67,18,67,90,612	Weighted Awg. Interest Rate for Long Term Debts		Lender Openi	PFC 20,78,			Weighted Avg. Interest Rate for Long Term Debts		Lender Opening as on	20 GA BR 28.0	61,03,59,91,765		83,98,63,28,117

	Interest	3,84,76,24,714	8,47,18,80,871	12.11.96.05.585		11:16%		Interest	4,72,00,07,570	7,85,94,42,992	12,57,94,50,562	10.72%		interest	5,73,84,00,000	7,85,00,00,000	13,58,84,00,000	10.93%		Net Interest	5,43,36,49,124	8,43,41,83,286	13,86,78,32,410	11.84%
	Closing as on 31,03,2017	41,61,16,32,579	66,01,13,03,709	1.07.62.29.38.288				Gosing as on 31.03.2018	47,70,21,49,158	61,31,48,77,398	1,09,01,70,26,556						+	1		Closing as on 31.03.2021		66,77,48,61,544	1,18,22,15,33,123	
	Current Meturity from long term debt	1,46,37,29,289	6.63.12.09.246	8.29.48.38.647	+			Current Maturity from long term debt	3,16,20,21,676	6,68,49,01,178	9,84,69,22,864			Glosing as on 31.03.2020	56,59,30,00,000	73,27,74,00,000	1,29,87,04,00,000			Current Maturity from long term debt	1,852	B,08,95,95,365 6		
	Closing as on C	43,07,53,61,878	72,84,25,12,957	4 14 84 78 74 816	1000			Closing as on 31.03.2019	50,86,41,70,834	67,89,97,78,576	1,18,86,39,49,410			Repayment	3,43,37,00,000	7,20,55,00,000	10,63,92,00,000			Closing as on 31.03.2021	57,90,62,62,431	74,86,44,56,909	1,32,77,07,19,340	
F I 201/-10	Repayment	1,84,36,16,781	5,28,53,08,508	A 47 84 75 789	on wind and walks		2018-19	Repayment	1,49,41,48,993	6,86,90,87,754	8,36,32,36,747		FY 2019-20	Rei					2020-21	Repayment	6,33,66,75,273	8,07,86,99,577	14,41,53,74,850	
F. I. Z.	Addition	15.59.37.17.778	5,99,57,08,815	24 KB 64 26 163	noninginginging a		FY 2(	Addition	9,28,29,57,949	2,02,63,53,373	11,30,93,11,322		FY 2	Addition	9,16,25,00,000	12,48,31,00,000	21,64,56,00,000		FY 2	Addition	7,64,99,37,704	9,66,57,56,486	17,31,56,94,190	
No. of the last of	Opening as on	27.48.16.44.100	68,84,68,04,332	04 45 E4 42 04 40	and the party of t			Opening as on 01.04.2018	41.61.16.32.579	66,01,13,03,709	1,07,62,29,36,288			Opening as on 01.04.2019	50,86,42,00,000	67,99,98,00,000	40,00,000	n Debts	10	Opening as on 01.04.2020	50,46,92,43,656	85,46,43,29,595	1,15,93,35,73,251	
And the second s	Current Meturity from long term debt	1.64.36.16.781	5,28,53,08,518	8 02 80 25 200	10 YOU TO 10 YOU	Term Debis		Current Maturity from long term debt	1,46,37,29,299	6,83,12,09,248	8,29,49,38,547	r Long Term Debts		Openii 01.0	50,86,4	3'66'29	1,18,86,40,00,0	for Long Tem	TO THE PERSON OF	Current Maturity from long term debt	344		T	
	Opening as on 01.04.2016	29.12.52.60.861	72,13,21,12,850	4 04 96 79 79 794	Pare de l'esterioni	Weighted Avg. Interest Rate for Long Term Debts		Opening as on 01.04,2018	43,07,53,61,878	72,84,25,12,957	1,15,91,78,74,835	Weloniaci Avo. Interest Rate for Long Term Debis		Lender	PFC	REC	TOTAL	Weighted Avg. Interest Rate for Long Term Debts	300	Opening as on 61.04.2020	56,59,30,00,000	73,27,74,00,000	tat	
	Lander	PFC	REC	Todail		Weighted Ave.		Lender	PFC	REC	Total	Welning		Ö				hted Avg		Lender	PFC		TOTAL	
	es Se Se	-	2					No.	,	2				S.NO.	1	2		Weigi		S.NO.	-	2		10000

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(नगीन । सह) क्यांनिय अभियन्ता नियसक (नियसक एवं याधि**१३2** वर्णकारणकारणकार

### Annexure 5 – Tariff Formats for Asset I to Asset XVIII for the tariff period 2014-19 and 2019-24

(गर्नाज सिंह) अधीकण अनियन्ता सम्बद्ध निजेशक (विजेजन एवं वाणिक्य)

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Part III Form-1

Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV Muzaffarnagar (Nara)-Roorkee line

Name of the Transmission Element or Communication system: 220 kV Muzaffarnagar (Nara)-Roorkee line

(Amount in Rs. Lakhs)

<b>6</b>					0.74	13.34	4.08	0
2018-19	00					1;	1	
2017-18	7				0.71	12.93	13.65	
2016-17	9		VA		69'0	12.53	13.22	
2015-16	5				79.0	12.12	12.79	
2014-15	4				59.0	11.72	12.36	
Form No.		10A	36	8	11			
Particulars	2	Depreciation	Interest on Loan	Return on Equity <sup>1</sup>	Interest on Working Capital	O & M Expenses*	Total	8
S.No.	-	1.1	1.2	1.3	1.4	1.5		

(Petitioner)

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सम्बद्ध निदेशक (गिरोदान एवं वाणिच्य) उठप्रवमावद्गावकावित

(मनान (सह) अमेल्य अधिया

Part II Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Ultar Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 220 kV Muzaffamegar (Nam)-Roorkee line
Name of the Transmasion Element or Communication system: 220 kV Muzaffamegar (Nam)-Roorkee line

	Commercial petition	Yes.Mo If No.	79 Yes					
	Line length Date o	operation	58 17-Sep-79					
	Line length Ckt km.		80					
	No. of Sub- Voltage Line length Line length Conductors level KV Cktkm. km		1 220				41	
	Type of line S/C or P	2	Sc	_	_	_		
	Type of line ACAIV DC		AC					
Transmission Lines:	Name of Ilna		220 kV Muzaflamaga # (Nara)- Roorkee line					
Transmit	in R		-	64	eq	4		

No. of transformers  Operation  No. of transformers  Operation  No. of transformers  No. of t		Supplied					-		27-10					Covered in the
Type of Communication System:    Communication System Communication System Communication System UDC/ System Communication System Communication System Communication System Communication System Communication System Communication Communicati	e)	ENO.	Name of Sub- station	Type of Substation Corventional(Gr senfald/Brownfi eld/V GISA/VDC terminal/HVDC Back to Beck	Voltage love: kV	No. of transform / Reactors/SV C etc cepecity)	erer dthw)	768 VX	400 400 kV	220 KV	132 KV & Below	Date of Commercial operation	YeaR	K No. petiton No.
Communication System:  Type of Communication System under ULDCY SCADA/WAMB/Fibre Optic Communication System/RTU/PABX eim  System/RTU/PABX eim  NA  NA  Communication System (Type of Communication System)  System/RTU/PABX eim  NA  NA  NA  NA  Namber/ length Commercial YearNo  Aperation  System/RTU/PABX eim  NA  NA  NA  NA  NA  NA  NA  NA  NA  N		- 4 6 7	009					N						
Type of Communication System:   Type of Communication System under ULDCY   Technical Particulars   Number/ length   Communication Communication   System/RTU/PABX etc.				4										
Number/ length Communication System - Communication System/RTU/PABX ele:  System/RTU/PABX ele:  Number/ length Communication System/RTU/PABX ele:  Number/ length Communication System/RTU/PABX ele:  NA		Communica	tion System;								-	Cov	ered in the B	resent
	ġ Z	Name of (	Communication S		ommunication tion System t V WAMBJFibra ommunication	n System – under ULDC/ e Optic n X elic	Technik	cal Particulars		umberi lengti			res/No	if No. petition No.
	- 12 12 4 1		. E				Z	4						, 

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(Petitioner)

सम्बद्ध निवंशक (नियंकन एवं वाभित्य) (गंगन थि। अर्थन अभियत्ता

उठप्रभगवद्गव मावस्थि

### Part III Form-3

Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV Muzaffarnagar (Nara)-Roorkee line

Name of the Transmission Element or Communication system: 220 kV Muzaffarnagar (Nara)-Roorkee line

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मनीज सिंह) अधीक्षण अभियन्ता सार्श्व निदेशक (नियोजन एवं वाणिच्य) उठंप्रवणवद्गारकार निव

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### Part-III Form 11

### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV Muzaffarnagar (Nara)-Roorkee line

Name of the Transmission Element or Communication system: 220 kV Muzaffarnagar

(Nara)-Roorkee line

(Amount in Rs. Lakh)

				(Milliount i	II No. Lukii)
Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
2	4	5	6	7	8
O & M Expenses	0.98	1.01	1.04	1.08	1.11
Maintenance Spares	1.76	1.82	1.88	1.94	2.00
Receivables	2.06	2.13	2.20	2.27	2.35
Total Working Capital	4.79	4.96	5.13	5.29	5.46
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest on Working	0.65	0.67	0.69	0.71	0.74
	O & M Expenses Maintenance Spares Receivables Total Working Capital Rate of Interest	2 4  O & M Expenses 0.98  Maintenance Spares 1.76  Receivables 2.06  Total Working Capital 4.79  Rate of Interest 13.50%	2     4     5       O & M Expenses     0.98     1.01       Maintenance Spares     1.76     1.82       Receivables     2.06     2.13       Total Working Capital     4.79     4.96       Rate of Interest     13.50%     13.50%	Particulars         2014-15         2015-16         2016-17           2         4         5         6           O & M Expenses         0.98         1.01         1.04           Maintenance Spares         1.76         1.82         1.88           Receivables         2.06         2.13         2.20           Total Working Capital         4.79         4.96         5.13           Rate of Interest         13.50%         13.50%         13.50%	Particulars         2014-15         2015- 16         2016-17         2017-18           2         4         5         6         7           O & M Expenses         0.98         1.01         1.04         1.08           Maintenance Spares         1.76         1.82         1.88         1.94           Receivables         2.06         2.13         2.20         2.27           Total Working Capital         4.79         4.96         5.13         5.29           Rate of Interest         13.50%         13.50%         13.50%         13.50%

(Petitioner)

(मनोज सिंह) अधिया अभियन्ता सम्बद्ध विदेशक (विद्यान एवं विधिन्द) उठाउठात्राह वाठातिव

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PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 220 kV Muzaffarnagar (Nara)-Roorkee line

S.No.	Particulars	Form No.	2019-20	2020-21	2021-22	2019-20 2020-21 2021-22 2022-23	2023-24
-	8	63	4	LO	9	7	8
-	Depreciation	10A					***
2	Interest on Loan	3E			¥.		
က	Return on Equity	8					
4	Interest on Working Capital	11	0.64	99.0	89.0	0.71	0.73
2	O & M Expenses		14.62	15.08	15.66	16.18	16.76
	Total AFC		15.25	15.74	16.34	16.89	17.49
Note: This F	Note: This Form is a summary form and the Data to this from should flow from other base forms.	ita to this from	n should flo	w from oth	er base for	ms.	

(Petitioner)

राम्बद्ध निहराक (नियोक्षम् एवं वानिष्य)

अमेरन अभिया

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PART-IN FORM-2

Details of Transmission Assets: 220 kV Muzaffarnagar (Nars)-Roorkee line

Name of the Transmission Assets: 220 kV Muzaffarnagar (Nars)-Roorkee line

Ť	1. Transmission Lines:										
z vi	S.Ng. Name of Line	Type of Line	S/C or D/C	No. of Sub-	Voltag e	Line Bays	Line Reactor(Including Switchable	1	Line langth Date of Commercial Operation		Covered in the present Petition
		ACHADIC		Conductors	TRABILEA		Reactor)	MIII		Yea/No	M No, Petition
•	\$ 220 kV Muzaflamagar (Ners)- Roorkee fine	AC	SC	1	220	0	0	28	8/17/1879	Yes	
120	Summany:										
	O& M Expense	OA M Expenses for the Transmission lines covered	ission lines co	vered in the inst	In the instant petition		2049-20	2020-21	2021-22 2	2022-23	2023-24
N N	Normative rate of O&M as per Regulation (Rupees In Lakh)	(Rupees in Lak	(a				0.252	0.26	0.27	0.279	0.289
	Length in km						23	99	299	89	29
8	O&M Claimed (Rupees in Lakh)						14.82	15.DB	15,56	16.18	16,78

		io add.		77		No.	No. of Bays			<b>AVA Capacity</b>			Date of	Cove	Covered in the
ος Θ.	Name of Sub-station	Substitution Conventional Voltage level Transform error Greenfield Br Counfield Br Counfield Br Color Color (with Capacity)	Voitage level	rensform ers / Reactors/S VC etc. (with capacity)	786 kV	400kV	220 kV	132 KV & Belo w	785 kV	400 kV	220 kV	132 hV & Below	Commer cla 1 operatio	Yes/No	# No, Petition No.
-	- And Charles						NA								_
	O& M Expenses for the Substations covered in the Instant prillion	covered in the Inc	stant patition				2019-20	420	2020-21	-2-	2021-22	27-	2022-	2023-24	2
No.	Normative rate of O&M as per Regulation (Rupees in Lakh) No. of units	(Rupees in Lakh							9	NA					

1. Number of bays is inclusive of line bays, ICT bays, reactor bays, in bays, reactor bays shall be considered separately for purpose of O&M expenses.

2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

Summary  Sum	Yes/No If No, Petition No.
M Expenses for the Communication System covered in the 2019-20 2019-20 2020-21	
M Expenses for the Communication System covered in the 2019-20 2019-20 2020-21	
M Expenses for the Communication System covered in the 2019-20 200-21	
M Expenses for the Communication System covered in the 2019-20 2019-20 2020-21	
2019-20 200-21	
London Continue	2022-23
medical personal	24
Oal Marpenses as per regulations	
NA Actual O&M Expense (Rupees In Lakh)	
Original project cost / Asset misted to the communication system	

मार्ट मिर्मा मार्टी प्रमाणि उ०प्रवयावद्रावमाधितव

2023-24

2022-23

2021-22

2020-21

2019-20

4) Summary of O&M Expenses claim
Particulars

A) Normative O&N



1	Fransmission line	14.62	15.08	15.66	16,18	16.76
	Subatation					
	Communication System					
П	Total Normative OSM	14.62	15.08	15.68	15.18	16.76
	B) O&M Claimed under					
	Regulation 35 (3)(C)					
	Security Expenses					
	Actual Capital Spare consumed					
	Total O&M	14.62	15.08	15.68	18.18	16.76
ľ	the second state of the second formation of the feet of the second second second break free flow the second	-1 @	and the sandy of the	and franchessisters .	Commission of the Commission of	

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### PART-81 FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV Muzalfarnager (Nara)-Roorkee line

Year	Ending	March

					1	10011	anding marc
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15 50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh			NA			
Normative O&M per MVA	Rs. Lakh			NA.			
Spares for WC as % of OSM	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years					9	

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Losn in accordance with first Proviso to Regulation 30.

(Petitioner)

(मनोज सिंह) सम्बद्ध (स्वयं प्राप्त प्राप्त प्राप्त (स्वयं प्राप्त)

Lujun

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1th April of the respective financial years.

### PART-III FORM-11

### Calculation of Interest on Working Capital

Name of the Transmission Assets: 220 kV Muzaffarnagar (Nara)-Roorkee line

(Amount in Rs. Lakh)

S. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
-	No. of Days in the year		366	365	365	385	386
11	No. of days for which tariff claimed		366	366	365	365	366
- 1	O & M Expenses - one month		1.22	1.26	1.31	1.35	1.40
2	Maintenance Spares 15% of O&M Expenses		2.19	2.26	2.35	2.43	2.51
3	Receivables equivalent to 45 days of AFC		1.88	1.94	2.01	2.08	2.15
4	Total Working Capital		5.29	5,46	5.67	5.88	6.06
5	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12,05%	12.05%	12,05%	12.05%	12.05%
6	Interest on Working Capital		0.54	0.65	88.0	0.71	0.73

(Petitioner)

(मनोज सिंह) अतीक्षण अनियन्ता सम्बद्ध नियराज (नियोजन एवं वाणव्य) उ०५०५०ज्ञा०ज्ञाठजाठी

## Part III Form-1 Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Khodri-Saharanpur-1 Line Name of the Transmission Element or Communication system: 220 kV SC Khodri-Saharanpur-1 Line

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
-	2		4	2	9	7	8
1.1	Depreciation	10A					
1.2	Interest on Loan	3E			AN AN		
1.3	Return on Equity	8					
1.4	Interest on Working Capital	=	0.93	96.0			
5.	O & M Expenses*		16.83	17.42	18.00	18.58	19.17
	Total		17.76	18.38	18.99	19.61	20.22

(Petitioner)

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Part III Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Peblioner: Utter Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 220 kV SC Khadri-Saharanpur-1 Line
Name of the Transmission Element or Communication system: 220 kV SC Khadri-Saharanpur-1 Line

	Tuese.	No							
	Covered in the present petition	M No, petition No.							
		Yes/No	Yes						
	-0	operation	12-Apr-72					I	
	Line length km		83.33						
	Line length Ckt. km.		83.33						
	Voltage fevel kV		220						
	No. of Sub- Voltage Line length Line length Conductors fevel KV Cktkm.		1						
	S/C or D/C		SC						
	Type of line AC/HV DC		AC						
Transmission Linear	Name of line		220 kV SC Khodri- Saharampur-1 Uhe						
ransmin	S. No.	· •	-	2	۲7	*	'	,	,

		Type of Substation				No. of Bays	Bavs			_	Covered in the
S.NO.	Name of Sub-	Conventional(Gr menfiat/Brownfl eld)/ GIS/RVDC terminal/HVDC Back to Back	Voltage level kV	No. of transformers / Reactors/SV C etc. (with capacity)	768 NV	400 kV	220	132 kV & Below	Date of Commercial operation		YearN o M No, petition No.
-											
2											
63					MA						
4					Ž						
•											
Communic	Communication Sustam:						h				
									-	Covered in the present	present
		_	Type of Communication System – Communication System – Communication System under ULDC						Date of		If No.
S. No. Neme of	Name of Communication System		SCADA WAMS/Fibre Optic		Technical Particulars		NUMBER Jength		Commercial	Yes./No	patition

				Covered in the present	present
Name of Communication System Communication System ScaDA WANS/Fibre Optic Communication System	Technical Particulars	Number/ length	Date of Commercial operation	YestNo	If No, petition No.
255 257 257	AN				

सन्दर्व विदेशक (विवासन एवं वाक्षित्र) उध्यवपठ्रावनावनिव

### Part III Form-3

### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Khodri-Saharanpur-1 Line

Name of the Transmission Element or Communication system: 220 kV SC Khodri-Saharanpur-1 Line

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(गनाज सिंह) अधीयण अभियन्ता सम्बद्ध नियराज (भियोजन एवं वाणिज्य) उठ्यव्यावद्वावकावित

Julian

### Part-III Form 11

### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Khodri-Saharanpur-1 Line

Name of the Transmission Element or Communication system: 220 kV SC Khodri-

Saharanpur-1 Line

(Amount in Rs. Lakh)

					( anomic i	11 ( to:aitti
SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	1.40	1.45	1.50	1.55	1.60
2	Maintenance Spares	2.52	2.61	2.70	2.79	2.87
3	Receivables	2.96	3.06	3.17	3.27	3.37
4	Total Working Capital	6.89	7.13	7.37	7.60	7.84
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.93	0.96	0.99	1.03	1.00
_						ATT 4747

(Petitioner)

(गर्नाज सिंह)

अमेशक जानपता। सन्बद्ध निवासक (निवासन एवं क्राणिस्क्)

उ०प्रवपाठहावकावलिव

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### PART-III FORM-1

# Summary of Tariff

Name of the Transmission Assets: 220 kV SC Khodri-Saharanpur-1 Line

S.No.	Particulars	Form No.	2019-20	Form No. 2019-20 2020-21	2021-22	2021-22 2022-23	2023-24
-	2	က	4	ro	9	7	8
T-	Depreciation	10A					(0.5)
2	Interest on Loan	36	١		Y Y		
m	Return on Equity	80					88
4	Interest on Working Capital	7	0.92	0.95	0.98	1.01	1.05
ហ	O & M Expenses		21.00	21.67	22.50	23.25	24.08
	Total AFC		21.91	22.61	23.48	24.26	25.13

Note: This Form is a summary form and the Data to this from should flow from other base forms.

(Petitioner)

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(मनोज सिंह) असीज्ञण अनियता सम्बद्ध निदेशक (नियोद्यन एवं पारित्य) उष्टप्रक्षणक्रावनातिक PART-III FORM-2

Debits of Transmission Lines, Substations and Communication Bystem covered in the project scope and O&M for Instant asset

2	Name of the Transmission Assets: 226 kV SC Khodri-Saharanpur-1 Line	V SC Khodri-Sah	eranpur-1 Line									
÷	1. Transmission Lines:					Ī						
ਲੰ	S.No. Name of Line	Type of Line	S/C or D/C	No. of Sub-	Voltag e	Line Bays	Line Reactor(Including Switcheble		Line length Date of Commercial Operation	nottene	Covered in the present Petition	e present
_		ACHADIC		Conductors	LOVERRY		Reactor)	Pula			YesAto	N No. Petition
	1 220 kV SC Khodri-Saharanpur-1 Line	AC	sc	1	220	0	0	63.33	12-Apr-72	ь	Yes	
ŝ	Տատագոր											
	O& M Expanse:	O& M Expanses for the Transmission lines covered in the instant polition	lasion lines cov	versed in the inst	and potition		2019-20	2020-21	2021-22	2022-23	2023-24	17.78
2	Normative rate of OSM as per Regulation (Rupees in Lakh)	(Rupees in Laki	1				0.252	0.26	0.27	0.279		0.269
15	Length in km						83.33	83.33	83.33	83,33		63.33
8	O&M Cialmed (Rupees in Lakh)						21.00	21.67	22.50	23.26	-	24.08

-		medi.				No.	No. of Bays		4	<b>KVA Capacity</b>			Tada of	Cove	Covered in the
5.ND.	Name of Sub-station	Substation Conventional GreenfieldBr ownfieldy Ovitage level   Franctorm erro   Reactorus   VC etc. (with	Vottage level kV	No. or transform era / Reactors/S VC etc. (w)th capacity)	788 kV	AUDOP	220 KV	132 kV Balo w	765 KV	400 kV	220 KV	132 kV & Below		Yes/ND	rf No, Petition Na.
-							NA		ŀ						
	Summary:														Į.
90	OS. M Expanses for the Substations covered in the instant pedition	covered in the in	stant pedition				20	2019-20	2020-21	-21	2021-22	ş	2022-	2023-24	_
<b>dominativ</b>	Mormative rate of D&M as per Regulation (Rupess in Lakh)	(Rupees in Laki	Ç.							:					
No. of units	nits			92						Z Z					
Peu Ci-	ORLI Claimed (Persons in Lake)														_

t. Number of bays is inclusive of line bays, Italys, machor bays atc. Each ICT bays, ine bays, reactor bays shall be considered separately for purpose of O&M supenses.

2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

Mame	Name of Communication System	Tyme of	Lenothof			Date of Commercial   Capital Cost upto	Capital Cost upto	Covered	Covered in the present Petition
		Communicatio OPGWin ks	OPGWIn ks	No. of RTU	No. of PMU	operation	Cutoff	YesMo	H Mo, Petition No.
					AN				
"	Summery								
	OS M Expenses for the Communication System covered in the	<ul> <li>Communication</li> </ul>	System cover	ed in the	2019-20	2020-21	2021-22	Z022-23	2023-
		Instant petition							24
ahedri	O&M expenses as per regulations								
OSMI	Actual O&M Expense (Rupees in Lakh)						¥2		
il nemit	Original project cost / Asset related to the communication avatan	- communication	Svetom						

A) Normalive O&M

सन्यन निदेशक (निर्माजन एवं मन्भिच्य) उठप्रविद्यवकार्वेह

असेत्य असिया

2023-24

2021-22

2020-21

2019-20

4) Summary of O&M Expenses claim Particulars



	Transmission Bna	21.00	21.67	22.50	23,25
	Substation				
1	Communication System				
1	Tratal Normative O&M	21.00	21.67	22.50	23.25
1	B) O&M Claimed under				
	Regulation 35 (3)(C)				
ı -	Security Expenses				
	Actual Capital Spare consumed				i
- ( -	Total OXM	21.00	21.67	22.50	23.25

### PART-M FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV SC Khodri-Saharanpur-1 Line

Year Ending March
-------------------

							PARTICULAR INVESTOR
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98,0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh			NA			
Normative O&M per MVA	Ra. Lakh			1400			
Spares for WC sa % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-In-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Provise to Regulation 30.

(Petitioner)

(मनीज सिंह) अवीक्षण अभियम्ता सम्बद्ध निर्वशक (निर्वशन एवं वाणिज्य) उठप्रठपाठद्राठकाठलेठ

forting

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

### PART-III FORM-11

### Calculation of Interest on Working Capital

Name of the Transmission Assets: 220 kV SC Khodri-Saharanpur-1 Line

(Amount in Rs. Lakh)

S. No.	Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
1	No. of Days in the year	366	365	365	365	366
11	No. of days for which tariff claimed	366	365	365	365	366
1	O & M Expenses - one month	1.75	1.81	1,87	1,94	2.01
2	Maintenance Spares 15% of O&M Expenses	3.15	3.25	3.37	3.49	3.61
3	Receivables equivalent to 45 days of AFC	2.69	2.79	2.89	2.99	3.09
4	Total Working Capital	7.59	7.84	8.14	B.42	8.71
6	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.	12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital	0.92	0.95	0.98	1,01	1.05

(Petitioner)

(ग्नांज सिंह) अधीक्षण अनियाना राम्बक् निर्धेशक (निर्देशन एवं वाणिज्य) उ०४०पा०द्राटका०लि०

# Part III Form-1 Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Khodri-Saharanpur-2 Line Name of the Transmission Element or Communication system: 220 kV SC Khodri-Saharanpur-2 Line

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
-	2		4	O.	9	7	8
1.1	Depreciation	10A					
1.2	Interest on Loan	36			AN		
1.3	Return on Equity1	œ					
1.4	Interest on Working Capital	11	06.0	0.94	26.0		
1.5	O & M Expenses*		16.37	16.94	17.51		
	Total		17.28	17.88	18.47	19.07	19.67
-							

(Petitioner)

समन्त्र । व्यापा १ वर्ष विभिष्य) ज्यावस्वराव्यावस्व

Part IN Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Patitioner: Uttar Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 220 kV SC Khodri-Saharanpur-2 Line
Name of the Transmission Element or Communication system: 220 kV SC Khodri-Saharanpur-2 Line

ansmis	Transmission Lines:								L	
S. No.	Name of line	Type of line ACHV DC	SVC or	No. of Sub- Conductors	Voltage level kV	Line length Ckt km.	Voltage Line length Line langth level kV Cktkm. km			Covered in the present petition
								operation YealNo	YesJNo	If No, petition No.
-	226 kV SC Khodri- Saharanpur-2	AC	တ္တ	1	220	81.05	31.05	31-Mar-60	Yes	
R										
۰										
rò										
4										
١,										
١,										
۱,										
							1			

		Type of Substation				No. of Bays	lays			క	Covered in the
S.NO.	Nama of Sub- station	Conventional(Gr eenfield/Brownfl eld)/ GIS/HVDC terminal/HVDC Beck to Back	Voitage level kV	No. of transformers / Reactors/SV C etc. (with capacity)	765 KV	400 KV	220 ≥	132 kV & Below	Date of Commercial operation	Ves/N o	H No, petition No.
					AN						
Communic	Communication System:					-			Cove	Covered in the present	resent
Name of	Name of Communication System		Type of Communication System – communication System as SCADA WAMS/Fibro Optic Communication System RT LIPABX etc.	7	Technical Particulars	-	Numberd tength	Date of Commercial operation		Yes/No	If No. petition No.
N					NA						

(Petitioner) अवीतन इत्येष्ट्रा सम्बद्ध निदेशाः [क्योजन एवं क्रिक्य]

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### Part III Form-3

### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Khodri-Saharanpur-2 Line

Name of the Transmission Element or Communication system: 220 kV SC Khodri-Saharanpur-2 Line

Year Ending March

			14.		1041	Chans & week
Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

<sup>1.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(गनीन सिंह) अधिका स्वीतन्त्रा समाज क्षेत्रका (अस्ति स्वास्त्र) उठाउपन्ता (अस्ति स्वास्त्र)

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### Part-III Form 11

### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Khodri-Saharanpur-2 Line

Name of the Transmission Element or Communication system: 220 kV SC Khodri-

Saharanpur-2 Line

(Amount in Rs. Lakh)

					(Annount i	II Ka. Lakiij
SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	1.36	1.41	1.46	1.51	1.55
2	Maintenance Spares	2.46	2.54	2.63	2.71	2.80
3	Receivables	2.88	2.98	3.08	3.18	3.28
4	Total Working Capital	6.70	6.93	7.16	7.40	7.63
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.90	0.94	D.97	1.00	1.03

(Petitioner)

(मनोज सिंह) स्व विश्वाम अभिनाता समाद्व निदशाम (निश्वान एवं वाणिज्य) उठप्रवपावद्वावकावतिव

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### PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 220 kV SC Khodri-Saharanpur-2 Line

S.No.	Particulars	Form No.	2019-20	2020-21	2021-22	2020-21 2021-22 2022-23	2023-24
-	2	က	4	2	9		80
÷-	Depreciation	10A					
2	Interest on Loan	36			A A		
က	Return on Equity	80					
4	Interest on Working Capital	11	68.0	0.92	0.95	0.99	1.02
ιρ	O & M Expenses		20.42	21.07	21.88	22.61	23.42
	Total AFC		21.31	21.99	22.84	23.60	24.44
Note: This F	Note: This Form is a summary form and the Data to this from should flow from other base forms.	a to this fron	n should flo	w from oth	er base for	ms.	

(Petitioner)





(गर्माज सिंह) अवीत्राण अभिकता समद्ध निवेशक (गिर्माजन एपं गाणिज्य) उठ्यवद्मकरूतकाठाहरू

Details of Transmission Lines, Substitions and Communication System covered in the project scope and OSM for instant asset Name of the Transmission Assets: 229 kV &C Khodri-Seharanpur-2 Line

The same	i land	
aminology.	and and an	
-	1	

Function of Line Bays         Line Bays <th>1. Transmission Lines:</th> <th></th>	1. Transmission Lines:										
SC         1         220         0         0         81.05         3/31/1980         Yes           alon lines covered in the instant polition         2018-20         2018-20         2020-21         2021-22         2022-23           6.262         0.262         0.276         0.279         81.05         81.05           7.47         21.88         22.81	S.No. Name of Line	Type of Line ACHVDC	SVC or DVC	No. of Sub- Conductors	Voftag e Level kV	Line Bays	Line Reactor(including Switchable Reactor)	Line length km	Date of Commercial Operation		Covered in the present Petition YearNo If No. Petition
alon lines covered in the Instant polition 2018-20 2018-20 2020-21 2021-22 2022-23 0.262 0.26 0.27 0.279 0.279 81.05 81.05 81.05 22.81	1 220 kV SC Khodri-Saharanpur-2 Line	YC.	SC	1	220	0	Đ	81.05	3/31/1980	Yes	
alon lines covered in the instant polition         2018-20         2020-21         2021-22         2022-23           0.262         0.262         0.26         0.27         0.279           8-105         81.05         81.05         81.05           20.273         20.279         81.05	Summary:					·				-	
61.05 81.05 81.05 81.05 81.05 20.27 20.27 20.279 20.279 20.279	O& M Expense	s for the Transm	nisalon fines co	vered in the inst	ant petition		2019-20	2020-21			2023-24
84.05 81.05 81.05 81.05 81.05	Normaliye rate of O&M as per Regulation	(Rupens in Lat	(b)				0.262	0.26		0.279	0.289
20.42 21.07 21.88 22.81	Length in km						81.05	81.05		91.05	81.05
	ORM Chimed (Runees in Lake)						20.42	21.07	21.88	22.61	23.42

	madfi		,		No. (	No. of Bays			MVA Capacity		1	Darte of	ı	Covered in the
S.No. Name of Sub-station	Substational Conventional Voltage level transform er Greenfelder KV VC etc. (with CISIA-VDC CISIA-VDC CISIA-VDC CISIA-VDC CISIA-VDC CISIA-VDC CISIA-VDC CISIA-VDC CIPIA-CIA-VDC CIPIA-CIA-VDC CIPIA-CIA-VDC CIPIA-CIA-VDC CI	Voltage level kV	No. of transform err. / Reactors/3 VC etc. (with capacity)	786 kV	400kV	220 KV	132 KV & & Belo	765 kV	400 kV	220	132 IV & Below	Commer cla I operatio	estino	ff No, Petition No.
-						NA								
Summary:										1000	1	4000	40 0000	96
O4 M Expenses for the Substations covered in the Instant petition	lons covered in the In	stant petition				20	2018-20	20202	21	2021-22	4	23 22	5005	;
Normative rate of D&M as per Regulation (Rupees in Latch)	ation (Rupees in Late	1							414					
No. of units					Ì				2					
O&M Claimed (Rupees in Lakh)														1

1. Number of bays is inclusive of line bays, iCT bays, reactor bays att. Each ICT bays, line bays, reactor bays shall be considered separately for purpose of O&M expenses.

2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com.

	COVERED IN UNE PRESENTI PROTECTION YEARING   If No. Petition No.			2023-	-				
	Yes/No   If			2022-23					
	Capital Cost upto			2021-22			Y.		
	Osta of Commercial Capital Cost upto			2020-21				50	4. 6.
	No. of PMU	NA		2019-20					SAME AND A PROPERTY OF
	No. of RTU			ed in the					
	Langth of OPGWIIn ks			System cover				system	
1	Type of Length of Communicatio OPGWIIn its			Communication	Instant petition			communication	
3. Communication System:	Name of Communication System		Summary	MExpenses for the		O&M expenses as per regulations	Actual O&M Expense (Rupees in Lakh)	Original project coat / Asset related to the communication system	
3. Commu	N. Kan	- 20 60				O&M exper	Actual Oak	Original pr	

A) Normative O&M

सन्दाद्व निदेशक (मियोरान एवं क्रिक्वि) उ०प्रवस्वरूपि नाविद्वेव

संयोजन समिन्या (मनोज सिंह)

4) Summary of O&M Expenses claim Particulars

2022-23

2021-22

2020-21

2019-20

evi	Substation					
m	Communication System					
	Total Normative O&M	20.42	21.07	21.88	22.61	23.42
	B) O&M Claimed under					
	Regulation 35 (3)(C)					
-	Security Expenses					
N	Actual Capital Spare consumed					
n	3 Total O&M	20.42	21.07	21.88	22.61	23.42
Not	Note: The security expenses and Capital Spares are to be submitted on estimated basis for the purpose	al Spares are to b	no betilmdus or	estimated bas	is for the purp	850

(मगेज सिंह) अर्थात्राण अभिपत्ता सम्बद्ध निस्तृष्ण (स्प्रांजन एवं वाणिक्य) उठ्यप्रवक्ष्यहावनाशिस्त

A.

### PART-III FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV SC Khodri-Saharanpur-2 Line

Year Ending	March
-------------	-------

		1-				Yeart	nding Man
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(5)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs, Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normetive C&M per Bay	Rs. Lakh			NA			
Normative O&M per MVA	Rs. Lekh			NA.			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate es on first day of financial year <sup>2</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						20

<sup>1.</sup> The additional capitalization on account of Change-In-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Proviso to Regulation 30.

3. For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

(Petitioner)

(भनोज सिंह)

क्यीक्षण अनियन्ता सम्बद्ध निदेशक (नियोजन पूर्व बाणिष्य)

ভ০৯১৮৪**০**খ্ল**েলাওলি০** 

Junjun

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

### PART-III FORM-11

### Calculation of Interest on Working Capital

Name of the Transmission Assets: 220 kV SC Khodri-Scharanpur-2 Line

(Amount in Rs. Lakh)

S. No.	Particulara	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
ı	No. of Days in the year		368	365	365	355	366
18	No, of days for which teriff claimed		366	366	366	365	368
1	O & M Expenses - one month		1.70	1.78	1.82	1.88	1.95
2	Maintenance Spares 15% of O&M Expenses		3.06	3,16	3.28	3.39	3.51
3	Receivables equivalent to 45 days of AFC		2.82	2.71	2.82	2.91	3.01
4	Total Working Capital		7.39	7.63	7.92	8.19	8.47
5	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital		0.89	0.92	0.95	0.99	1.02

Patitioner)

(मनोज सिंह) अवीक्षण अनियाता सम्बद्ध नियंत्रातः (नियाजन एवं वाणिज्य) उठ्यवपावद्गावनावात्व

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### Part III Form-1

Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Bareilly - Pantnagar Line

Name of the Transmission Element or Communication system: 220 kV SC Bareilly - Pantnagar Line

(Amount in Rs. Lakhs)

S.No.	Particulars	Form	2014-15	2015-16	2016-17	2017-18	2018-19
		O					
•	2		4	w	9	7	8
1.1	Depreciation	10A	3.56	1.38	1.38	1.38	1.38
1.2	Interest on Loan	36	0.79	0.47	0.31		0.02
1.3	Return on Equity <sup>1</sup>	00	3.13	3.13	3.13	3.13	3.13
1.4	Interest on Working Capital	11	0.23	0.18	0.18		0.17
r.i			1.11	1.15	1.19	1.23	1.27
	Total		8.82	6.31	6,18	6.03	5.97

Note 1: Details of calculations, considering equity as per regulation, to be furnished (As per Form 8).

(Petitioner)

सम्बन्ध निदेशमः (निन्तेत्ता एवं ब्रामिच्य) उ०प्रवस्तवक्रावकानिक क्षांत्र क्षांत्र (元) (元)

Part BI Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 220 kV SC Barelity - Partnegar Line
Name of the Transmission Element or Communication system: 220 kV SC Barelity - Partnegar Line

S. No.	S. No. Name of line	Type of line AC/IIV DC	SVC or DVC	Mo. of Sub- Conductors level kV	Voltage level kV	Line length Line length CkL- lam. km	Line length km	Date of Commercial		Covered in the present petition
		3				l l		operation	YearNo	If No. petitlan No.
_	220 kV SC Bareilly - Pantnagar Line	AC	S	7	220	5.501	5,501	4-Mar-03	Yes	
_		Е								
_										
Ţ										
Γ.										
[										
Γ.										

Voltage No. of transformers 748 400 220 132 kV Gornmercial Yes/No Communication System — Communication System Under LLDG/ Technical Particulars NA  NA  NA  Namber/ isngth Communication System Under LLDG/ Technical Particulars Number/ isngth Commercial Yes/No Operation  NA  NA		Substations:		Type of Substation				No. of Bays	Bays			٥	Covered in the	- 4
Type of Communication System - System/RTuPABX etc   Name of Communication System - Communication System - System/RTuPABX etc   Name of Communication System - Communication System - System/RTuPABX etc   Name of Communication System - Communicat		S.WO.	Name of Sub- station	Conventional(Greentlericht) GRSA-VDC Terminal#NDC Back to Back	Voltage level kV	No. of transformers f Reactorn'SV C etc. (with capacity)	785 VV	460 KV	220 KV	132 kV & Below	Date of Convercial operation	Yes/N o	If No. protion No.	
Communication System -   Communication System   Communication System   Communication System   Communication System   Communication System   System/RTUPABX etc.   NA		-												
Scenarion System:  Type of Communication System -  Communication System  Communication System  Communication System  Communication System  Communication System  Communication System  System/RTUPABK etc  NA  NA  NA  NA  NA  NA  NA  NA  NA  N		2	_											
Communication System - Communication System of Communication System under ULDC/ SCADA WAMS/Fibre Optic Communication System Communication System Communication System of Communication System System/RTUPABX etc  NA		3					VV							
Communication System:  Type of Communication System — Communication System System of Communication System Scanar Turpably and Communication System of Communication System System of Communication System of Communication Sys		•												
Type of Communication System – Communication System under ULDC/ SCADA WAMS/Fibre Optic Communication System and ULDC/ System/RTUPASX etc.		Communication	Svetam							5965				
Name of Communication System under U.D.C./ Name of Communication System under U.D.C./ System/RTUPABX etc.  NA  Name of Communication System System (Communication System)  System/RTUPABX etc.  NA				1							Co	eth III beve	prasont	
X	N.	Name of Co	immunication Syal		dimminestic tion System i N WAMS/Fibr tomminestic em/RTU/PAB:		nical Particulars		Number/ length			'es/No	If No, petition No.	
X	- 24													
(Metitaner)	10 4					Z	<b>V</b>							
										1	K	1	(Petitioner)	

(मनोज सिंह) ट्राफ्रेड्स अन्यन्ता सम्बद्ध निवेद्यमः (निवेदान एवं वाणिज्य)

उ०प्र0पाठट्राठम्म0लि

### Part III Form-3

### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Barellly - Pantnagar Line
Name of the Transmission Element or Communication system: 220 kV SC Barellly - Pantnagar Line

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Effective tax rate1	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

(Petitioner)

(मनोज सिंह) **अभियम्** अभियम्ता

समज निरुक्त निराम एवं वाधिरवी) च्छारावार दुराञ्चावनिष

### Part III Form-4

Abstract of admitted parameters for the existing transmission assets/elements under project.

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Bareilly - Pantnagar Line

Name of the Transmission Element or Communication system: 220 kV SC Barellly -

Pantnagar Line

(Amount in Rs.lakhs)

	Asset IV			
Name of the Assets	220 kV SC Bareilly - Pantnagar Line	Total Gross Block as on 31.03.2014		
DOCO	4-Mar-03			
Petition Number	168/TT/2016			
Tariff order date	19.12.2017			
Particulars	Capital Expenditure admitted as on 31.03.2014			
Apportioned approved Cost/Revised cost estimates, If any (with reference and date of approval)				
Freehold Land				
Leasehold Land				
Building & Other Civil Works				
Transmission Line				
Sub-Station Equipments	7			
PLCC	- N	Δ		
Total	-			
Notional Loan				
Notional Equity				
Total				
Debt-Equity Ratio				
Debt				
Equity				
Total				
Cumulative amount of Depreciation				
Cumulative Repayment of Loan	Mir.	10.00		
Initial Spares*	$\dashv$			

(Petitioner)

क्रमांसण्डिकान् राम्बद्ध निदर्भ कि हुन एवं द्रावेशको उ०४०५,०, १०वर्गा०, ५५०

(गनोज सिंह)

### Part III Form-4A

### Statement of Capital Coat (To be given for relevant dates and year wise)

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Barellly - Pantnagar Line

Name of the Transmission Element or Communication system: 220 kV SC Barellly - Pantnagar Line

		2014-15	2015-16	2016-17	2017-18	2018-19
A	a) Opening Gross Block Amount as per books	67.33	67.33	67.33	67.33	67.33
	b) Amount of capital liabilities in A(s) above	0.00	0.00	0.00	0.00	0.00
	c) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in A(a) above	0.00	0.00	0.00	0.00	0.00
ł	d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) Included in A(s) above	0.00	0.00	0.00	0.00	0.00
В	a) Addition in Gross Block Amount during the period	0.00	0.00	0.00	0.00	0.00
	b) Amount of capital liabilities in B(a) above	0.00	0.00	0.00	0.00	0.00
	c) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in B(a) above	0.00	0.00	0.00	0.00	0.00
	d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in B(a) above	0.00	0.00	0.00	0.00	0.0
С	a) Closing Gross Block Amount as per books	67.33	67.33	67.33	67.33	67.33
	b) Amount of capital liabilities in C(a) above	0.00	0.00	0.00	0.00	0.0
	c) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in C(a) above	0.00	0.00	0.00	0.00	0.0
	d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in C(a) above	0.00	0.00	0.00	0.00	0.0

Note

Capital cost considered in line with the methodology adopted by Hon'ble CERC.

(Petitioner)

मनोज रिहि)

Part-III Form-6

Financial Package upto COD

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Bareilly - Pantnagar Line

Name of the Transmission Element or Communication system: 220 kV SC Bareilly - Pantnagar Line

		Financial Package as Approved	Financial Package as on COD	age as on	As Adr 31.0	As Admitted on 31.03.2014
	Currency and Amount	Amount	Currency and Amount	ount	Currency and	nd
1	2	3	4	5	9	7
Loan-l						
Loan-il			4			
Loan-III		-8				
and so on	194					
Total Loans					Z Z	47.13
Equity-						
Foreign						
Domestic						
Total Equity					N.	20.20
Debt : Equity						
Ratio						
Total Cost					INR	67.33
	Debt	Equity	Total			
Add cap for Year 2014-15	4% -\$4	-1+ -1-				

स्माण प्रतियन्ता स्वीक्षण स्नियन्ता सम्बद्ध निवेशक (निवोजन एवं वाणिन्य) उठ्यठणक्रावनावित्

- Transier

Add cap for Year 2015-16  Add cap for Year 2017-18  Add cap for Year 2018-19  Add cap for Year 2014-15  Debt Equity Total Add cap for Year 2015-16  Debt Equity Total Add cap for Year 2015-16  Debt Equity Debt Equity Figure F					
Add cap for Year 2015-18 Add cap for Year 2018-19 Add cap for Year 2014-15 Equity Add cap for Year 2015-16 Equity Total Add cap for Year 2015-16 Add cap for Year 2015-16 Bebt Equity Total Add cap for Year 2016-17 Debt Equity Total Add cap for Year 2016-17 Debt Equity Equity Debt Equity Total Add cap for Year 2016-17 Debt Equity Equity Equity Equity	Add cap for Year 2015-16				
Add cap for Year 2017-18  Add cap for Year 2014-15  Add cap for Year 2014-15  Debt  Equity  Total  Add cap for Year 2015-16  Add cap for Year 2016-17  Debt  Equity  Debt  Equity  Debt  Equity  Total  Add cap for Year 2016-17  Debt  Equity  Debt  Equity  Add cap for Year 2016-17  Debt  Equity  Debt  Add cap for Year 2016-17	Add cap for Year 2016-17				
Add cap for Year 2018-19 Add cap for Year 2014-15 Equity Add cap for Year 2015-16 Add cap for Year 2016-17 Debt	Add cap for Year 2017-18				
Add cap for Year 2014-15 Debt Equity Total Add cap for Year 2015-16 Equity Add cap for Year 2016-17 Debt Equity Add cap for Year 2016-17 Debt Equity Add cap for Year 2016-17 Debt Equity	Add cap for Year 2018-19				
Debt         Equity           Equity         Add cap for Year 2015-16           Equity         Add cap for Year 2016-17           Debt         Add cap for Year 2016-17           Debt         Add cap for Year 2016-17           Debt         Add cap for Year 2016-17	Add cap for Year 2014-15	2			
Equity           Add cap for Year 2015-16           Pebt           Equity           Add cap for Year 2016-17           Debt           Made cap for Year 2016-17           Debt           Equity	Debt				
Add cap for Year 2015-16       Color of the Property o	Equity				
Debt         Capacity         Capacity <th< td=""><td>Add cap for Year 2015-16</td><td></td><td></td><td></td><td></td></th<>	Add cap for Year 2015-16				
Equity         Equity           Total         Add cap for Year 2016-17           Year 2016-17         Year 2016-17           Debt         Year 2016-17	Debt				
Add cap for Year 2016-17  Debt  Equity	Equity				
Add cap for Year 2016-17  Year 2016-17  Debt  Equity	Total				
Debt (Trains (Pitz.)	Add cap for Year 2016-17				
Equity (miles the)	Debt				N
	Equity				मनोत्त्र शिव

अविशय अभियन्त्र राम्बद्ध निदेशक (नियोजन एवं वाणिच्य) उठप्रविभाग्नातिकागित्र

tintant

Year 2017-18				
Debt			100	
Equity Total				
Add cap for Year 2018-19				
Debt	30			- 1
Equity				
100				1
Total Capital Cost		,		

Note:

\* Say Rs. 800 Lakh. + US\$ 5m=Rs. 3900 Lakh including US\$ 5 m at an exchange rate of US\$=Rs62 # For example: US \$ 5m, etc.

\$ In case of foreign loans exchange rate considered on date of commercial operation.

(Petitioner)

सन्दर्व निरोधक (निरोधका एवं गाणिष्य) उत्प्रकारकरूम् कार्गेलेक (मनीज **विह**) अविरुक्त अभियता

### PART-III FORM- 7

Statement of Additional Capitalisation after COD

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Barellly - Pantnagar Line

Name of the Transmission Element or Communication system: 220 kV SC Bareilly - Pantnagar Line

Admitted Cost <sup>1</sup> (Rs Lakh) in CERC order 168/TT/2016 dated 19.12.2017	(2)	67.33	0.00	0.00	0.00	0.00	
Regulations under which covered	(9)			283			
Justification	(5)	**		NA NA			
Amount capitalized /Proposed to be capitalized (Rs Lakh)	(4)			NA NA			
Work/Equipment proposed to be added after COD upto Cut off Date/beyond Cut- off Date	(3)			NA			
Year	(2)	2014-15	2015-16	2016-17	2017-18	2018-19	
Sr.No.	<u>(5</u>	-	2	3	4	ıo.	

. In case the project has been completed and any tariff notification(s) has already been issued in the past, fill column 7 giving the cost as admitted for the purpose of tariff notification already issued by (Name of the authority) (Enclose copy of the tariff Order).

Note:

Fill the form in chronological order year wise along with detailed justification clearly bringing out the necessity and the benefits accruing to the beneficiaries.

In case initial spares are purchased along with any equipment, then the cost of such spares should be indicated separately

In case of de-capitalisation of assets separate details to be furnished. Further, the original book value and year of capitalisation of such asset to be furnished.

Where de-caps are on estimated basis the same to be shown separately.

(Petitioner) (मनोज सिंह) ज्योधाम अनियन्त्र सम्बद्ध नियंका (में वागिष्य)

उध्प्रधपाधह्राधकाशिक

- Tenjust

Part-III Form 8

Calculation of Return on Equity

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Bareilly - Pantnagar Line

Name of the Transmission Element or Communication system: 220 kV SC Bareilly - Pantnagar Line

2018-19	80	20.20	20.20	3.13	3.13	
204			0		3	
2017-18	7	20.20	20.20	3.13	3.13	
2016-17	9	20.20	20.20	3.13	3.13	
2015-16	LO .	20.20	20.20	3.13	3.13	
2014-15	4	20.20	20.20	3.13	3.13	
Particulars	2	Equity as on COD/Admitted equity	Total Equity	Return on Equity*	Total	
S.No.	-	<del>-</del>	1.2	1.3		

Note 1: \*To be calculated on average equity during the year.

(Petitioner)

(कान रह) जो का अनेयला सन्द्र निरंहक (निरंजन एवं वावि उठप्रभणद्रावनावित्व

Territor Territor

# Part-III Form 9E Calculation of Interest on Normative Loans

Limited	
Corporation	
ansmission C	
sh Power Tr	
<b>Uttar Prade:</b>	
Petitioner:	
Name of the	

					(Amour	(Amount in Rs. Lakh)
Particulars	Existing 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
-	2	က	4	2	9	7
Gross Normative loan - Opening		47.13	47.13	47.13	47.13	47.13
Cumulative repayment of Normative Loan upto previous year		39.11	42.66	44.04	45.42	46.80
Net Normative loan - Opening		8.03	4.47	3.09	1.71	0.33
Increase/Decrease due to ACE/de- capitalization during the Year	24	0.00	0.00	0.00	0.00	0.00
Repayments of Normative Loan during the year		3.56	1.38	1.38	1.38	0.33
Net Normative loan - Closing		4.47	3.09	1.7.1	0.33	0.00
Average Normative Loan		6.25	3.78	2.40	1.02	0.17
Weighted average Rate of Interest of actual Loans		12.66%	12.48%	12.76%	11.16%	10.72%
Interest on Normative loan	200	0.79	0.47	0.31	0.11	0.02

सम्बद्धः निदेशकः (विवेदान एवं समिच्य) उठप्रविपोठट्राठकावस्ति

### Part-III Form 10A

### Statement of Depriciation

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Barellly - Pantnagar Line

Name of the Transmission Element or Communication system: 220 kV SC Barellly - Pantnagar Line

(Amount in Rs. Lakh)

SI. No.	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Opening Capital Cost		67.33	67.33	67.33	67.33	67.33
2	Closing Capital Cost		67.33	67.33	67.33	67.33	67.33
3	Average Capital Cost		67.33	67.33	67.33	67.33	67.33
6	Depreciable value		60.60	60.60	60.60	60.60	50.60
8	Remaining depreciable value		60.60	60.60	60.60	60.60	60.6
9	Depreciation (for the period)		3.56	1.38	1.38	1.38	1.33
10	Depreciation (annualised)		3.56	1.38	1.38	1.38	1.3
11	Cumulative depreciation at the end of the period	39.11	42.66	44.04	45.42	46.80	48.18

1. In case of details of FERV and AAD, give information for the applicable period.

(Petitioner)

(मनीज सिंह) अधीर य अभियत्ता सम्बाद विश्वाक (विशीजन एवं कशिज्य) उठप्रकारद्वारकक्षित

Anymy

### Part-III Form 11

### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Bareilly - Pantnagar Line

Name of the Transmission Element or Communication system: 220 kV SC Bareilly -

Pantnagar Line

(Amount in Rs. Lakh)

					<u> </u>	11 140: Eq
SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.09	0.10	0.10	0.10	0.11
2	Maintenance Spares	0.17	0.17	0.18	0.18	0.19
3	Receivables	1.47	1.05	1.03	1.00	0.99
4	Total Working Capital	1.73	1.32	1.31	1.29	1.29
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.23	0.18	0.18	0.17	0.13

(Petitioner)

(ननाज सिंह) अधीरण अभियाना सम्बद्ध भिरेशक (भिराजन एवं वाणिएव)

**उद्याधान का प्रधान करावार व** 

Juntin

### PART-III FORM-1

## Summary of Tariff

Name of the Transmission Assets: 220 kV SC Bareilly - Pantnagar Line

S.No.	Particulars	Form No.	2019-20	2020-21	2021-22	2022-23	2023-24
-	2	ю	4	ıo	9	2	8
-	Depreciation	10A	1.38	1.38	1.38	1.38	1.38
2	Interest on Loan	9E	00.00	00.00	00:00	00.00	0.00
3	Return on Equity	80	3.13	3.13	3.13	3.13	3.13
4	Interest on Working Capital	11	0.13	0.13	0.13	0.13	0.14
O.	O & M Expenses		1.39	1.43	1.49	1.53	1.59
	Total AFC		6.03	6.07	6.13	6.18	6.24
Note: This Fo	Note: This Form is a summary form and the Data to this from should flow from other base forms.	to this from s	hould flow f	rom other b	ase forms.		

(Petitioner)

tritan

(गर्नाज सिंह) अवीतम अधियन्ता राज्य निदेशक (वित्रोचन एवं दापिज्य) उक्कणकट्राकनकतिक PART-III FORM-1A Summary of Assel Level Cost

Name of the Transmission Assets: 220 kV SC Barelly - Pantnagar Line

Particular Particular Perticular Preethold Land) Passehold) Preethold Land) Passehold Land Preethold Land Passehold Land Passe	As on 2019-20 COD/01-04- (Actual/Projected)	ii) Summary of Actual / Projected Capital Cost	Overland Canifest Cost			
Ind) As per IA RCE-3 orks as per	2019-20 (Actual/Projected)	2020-21	nigorea celure: ecc		:	
Land (Freehold Land)  Land (Leasehold)  Building & Civil Works  Transmission Line  Sub-Station  PLCC  Total Capital Cost as per Books		(Actual/Projected)	2021-22 (Actual/Projected)	2022-23 (Actual/Projected)	2023-24 (Actual/Projected)	as on 31.03.2024
Land (Leasehold)  Building & Clvil Works  Transmission Line Sub-Station PLCC  Total Capital Cost as per						
Transmission Line Sub-Station PLCC Total Capital Cost as per Books						
Transmission Line Sub-Station PLCC Total Capital Cost as per						
PLCC Total Capital Cost as per						
PLCC Total Capital Cost as per Books						
Total Capital Cost as per Books						
1						
Less: Liability						
Add: Discharge of liability						
Total Capital Cost	67.33					67.33
Equity	20.20					20.20
Debt	47.13					47.13

(मनान सरेह) समान् निकार (निमानम एवं वाधिएव) उठाउनावह निकार

(Petitioner)

tithet !

PART IN FORM 2

Datalle of Transmission Lines, Substations and Communication System covered is the project scope and OddA for Instant search Name of the Transmission Assets: 220 kV &C Bernilly - Pentragar Line

1		Type of Line	200-000	No. of Bub-	Voltag a	a day of	Line Reactor(Including	Linn length	Date of Commercial Oceanities	Period Orestella	9	Covered in the present	resent
Ė	D.TIL. WATER OF LITE	ACHINDO	5	Conductors	Lavel kV		Reactor)	E E				Yes/No #1	If No, Periston No.
-	220 kV SC Barelly - Paningar Line	VC.	28	Į. Rž	220	o	0	1055	rt -	4.150.03		Yes	
١Ē	Summary:												[
	O& M Expenses	Od. M. Expenses for the Transmission lines covered in the instant petition	lasion lines cov	ened in the insta	mt pertition		2019-20	3020-21	1-21	2021-22	2022-23	2023-24	
ΙĒ	Normative rate of OAM as per Reculation (Rupses in Lath)	tupes in Laith)					0.262		0.26	0.27	0.278		6.289
ΙĘ	enerth in ton						E.501		8.601	5,501	10478		5.501
13	O&M Claimed (Rubbers in Lake)						1.39		1,43	1.48	1.53		1.69

_		1) page				Ma. c	No. of Bays		LIVA Capacity	pacity				Ü	Coverest in the
8. No.	Name of Sub-station	Substation Conventional Greenfield/Br eventield/Y gagnybo	Vertage toves	No. of Vertage level transform era / Randform era / NY Rendform era / Rendform (with capacity)	785 kV	400kV	220 kV	132 EV # 6 Below	765 WV	480 kV	220	132 kV & Balow	Date of Commercia I operation	Yeszifio	Il No. Petition No.
-							NA								
	Burnmary:											ľ			ſ
OBME	J& M Expenses for the Bubatetions covered in the instant petitio	covered in the ins	tent petition				2019-20		2020-21		202	2021-22	2022-23	2023-24	2
Mormathye ra	ormative rate of O&M as per Regulation (Rupees in Lakh)	(Ruppes in Lakh)													
No. of units										¥.					_
OdM Claimed	d [Kupees in Lakh]					II.									7

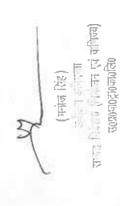
Note: Industre of line bays, NCT bays, reactor bays etc. Each ICT bays, line bays, reactor bays shall be considered separately for purpose of DSM expenses. 2. The MVA Cepacity shall exclude the capacity of reactor, FBE, Stat Com

1. Number of be-

Date of Commendal Capital Cost upto operation Caloff ¥ No. of PMU No. of RTU Type of Langth of ommunication OPSWIn is Communication System:
 Name of Communication System
No.

2022-23 2021-22 ž 2020-21 O&M expenses as per regulations
Actual O&M Expense (Rupees in Lakit)
Original project cost / Assai related to the communication system
Original project cost / Assai related to the communication system
Note: The O&M expenses as per regulation shall be worked on based on estimated project cost. The actual O&M expenses to be 2019-29 Summary
OA M Expenses for the Communication System covered in the instant patition

ed 3	Particulars	2019-20	2020-21	2021-22	2022-	2023-24
e	A) Normative O&M				3	
-	Transmission line	1.39	1.43	1.49	1,53	1.59
m	Substation					
	Communication System					
	Total Normathys O&N	1.39	1.43	1.49	1.53	1.5
	B) O&M Claimed under Regulation 35 (3)(C)					
-	Security Expenses					



twint.

### <u>PART-III FORM-3</u> Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV SC Barelly - Pantnegar Line

Year Ending Merch

Perticulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Effective Tax Rate <sup>2</sup>	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.23	0.252	0.26	0.27	0.279	0.289
Normative O&M per Bay	Ru. Lukh			***			
Normative O&M per MVA	Rs. Lukh			NA			
Spares for WC as % of OSM	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12,05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Proviso to Regulation 30.

(Petitioner)

(मनोज रिह) क्रिकेट स्टिक्स समाज क्रिकेट स्टिक्स विकास क्रिकेट स्टिक्स

Junjung.

<sup>2.</sup> To be supported by recessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 31

i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

PARTAL FORM4 silve COD and Weighted Average Life for single AFC for the project as whole Abstract of usiding transmission assets/secords under project, Determinisms of the Transmission Assets: 220 kV SC Burellly - Parlinger Line

(Amount in Re. Leich)

A) Details of All the Asset Covered ender the Asset No. 8. Asset Name description	Actual CCD	COD correldere	d for Tariff	Erlagilya CC	(Refer C)	ect as whole	Weighted Average easily life of the project (Rafer D)	Lepead masful Lil	n of the project as on 01-04- 2019 (Note: E)
20 KV Nasik Movsert-1 DIC line	Aller-03	4-8/8/-	00		4-Mar-03				
				-	_		25		16
				-				- 0	
B) Cetalis as on 91-04-2019 for determinado		Agent fif	Commissão	med pelor to t	1.84.2018	_	-		Tutal as on 01.04.2019 for
Particulers on on 31-03-2019 ofter true up of period.	2014- 19	Added IV							the project as whole
		b	-						Bulline company)
Capital Goet as on 31.03.2019		0.00							67.3
Cumulative Depreciation as on 31-83-2018		48,18			-				48.1
Dobt Equity Ratio so on 31.83.2019		70:30							78:3
Group Equity for Hormative ROE so on 31.0	1.2010	0.00							20.2
Grass Lean as on 31,03,2019		0.00				1	(		47.1
Currelative Re-payment of Loss as on \$1.03	1.2919	40.18							48.1
C) Computation of Effective ECO for determ	uning lapsed us	aius title of the pr	dect as who	da.					
Assol No.	Accet TV					T otal			
•	6	c	d		'	ge(b+c+d+a			
1) Astual COD of the Asset.	4-May-03								
2) COD correldered for tariff purpose *	4-Mar-03								
3) No. of days between the CCO of the speet considered for terff and the CCO of the Project (444)	0.00								
6) True tip Capital Cost so on 31-63-3619 ( In Lath)	67.33					67.33			
5) Weight of the Cost of an asset (in %) (**)	100.00%								
6) Weighted days = (3x8)	p.èd					6.00			
7) Effective COD w (Le. COD of the Project	Walted Stindards and	dente				34/2003			

Particulars A	b b	¢		Coel	104	Weighted Cost
•	ь	8		1 1		
				at) Be(pacaqae	h	6 = (g)x(h)
Freehold Land					- 6	
Leonahold Lend				1	24	
Building & Other Civil Works			1		25	
Transmission Line	67.23		_	(7.93	24	1885.31
Sub-Blatton Equipment			)		24	
PLCC			T		15	
and so on						
Total	67.33			87.33		1003.31 Yeers

Weighted Average Into a Total Weighted Control Commine Com (yourned on to get complete year)

E) Lapsed unighted average useful life of the project & Selance weighted reverse Useful Rfe
This refers to the No. of completed years from the Entective COO till the less day of the gravious briff posted (b.s. 31.00.2019)

1) Effective COO

3.44/2019

1) Land tay at the previous territi coverel period

3.54/2019 (II) No. of Completed years lapsed so on 01.04.2019 (II)-(I) by) Remaining qualiti life (in year) (WAL-lapsed

Note: 1) The petitioner has to maintain the identity of the individual seasts. In conscillation positions, the patitionar has to maintain and provide the details of technical movins, like description, eclast COD, effective COD, cut-off date, educated capital cost, OBM Expenses siz. The patitioner has to make all claims of additional capital expenditure or de-explaitation for the project, along with Auditor cartificate by clearly municiping the individual assets to which the claim has been made. Accordingly the relevant tenth forms should show the individual asset what breakup. 2) This form is required to be automated when the project is commissioned prior to 0.1.8.4.2018. 3) The Me. of completed year can be entired by the excel function viz. YEARFRAC(3143-3018,Effective
COO) and ignore the fraction if any from the testifi.

(Patitioner)

अनीसम् अभियन्ता सम्बद्ध िरद्धाः (नियानन एवं बाधिज्य) उठप्रवनावद्गावकावालेव

(मनोज सिंह)

### PART-RI FORM- 6 Calculation of Return on Equity at Normal Rate

Name of the Transmission Assets: 220 kV SC Barelily - Pantnegar Line

S. No	Particulars	As on 01- 04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)		(3)	(4)	(5)	(8)	(7)
	No. of Days in the year		366	386	385	365	366
	No. of days for which tariff claimed		366	385	365	366	366
1	Opening Normative Equity		20.20	20.20	20.20	20.20	20.20
2	Less: Adjustment in Equity*	i					
3	Adjustment during the year						
4	Net Opening Equity (Hormal)		20.20	20.20	20.20	20.20	20.20
5	Add: Increase in Equity due to addition during the year/period						
6	Less: Decrease due to de-capitalisation during the year						
7	Add: Increase due to discharges during the year/period						
8	Closing Normative Equity		20.20	20.20	20.20	20.20	20.20
9	Average Normative Equity		29.20	20.20	20.20	20.20	20.20
11	Rate of Return on Equity (Base Rate )		15.50%	15.50%	15.50%	15.50%	15.50%
12	Reduced rate of 1% decided by commission under Regulation 38 (2) (if any)						
13	Effective tax rate / MAT rate for the respective years		0.00%	0.00%	0.00%	0.00%	0.009
14	Rate of Return on Equity (Pre Tax)		15.50%	15.50%	15.50%	15.50%	15.509
15	Return on Equity of project cost till cut off date (Pre Tax)		3.13	3.13	3.13	3.13	3.1

Lunjung

(गनोज सिंह) जोतिनण अनियन्ता सम्बद्ध निवसक (नियंत्तन एवं वाणिज्य) जणप्रभावद्वादकावनिव

### PART-ELFORM DE Calculation of Interest on Normative Loan

Name of the Transmission Assets: 220 kV SC Saratily - Pantragar Line

						(Amoun	t in Ra <sub>s</sub> Lakh)
3.No.	Particulara	As on 91-94- 2919 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2923-24
	No. of Days in the year		386	365	365	365	366
	No. of days for which tariff claimed		366	385	365	365	366
1	Gross Normative Ioan - Opening		47.13	47,13	47.13	47.13	47.13
2	Cumulative repayment of Normative Loan upto provious year		47.13	47.13	47.13	47.13	47,13
3	Net normative toan - Opening		0.00	0.00	0.00	0.00	0.00
4	Addition in Normative loan towards the ACE		0.00	0.00	0.00	0.00	0.00
5	Adjustment of Normative Gross tean pertaining to the decapitalised easset.				83		
6	Normative Repayments of Normative Loan during the year		0.00	0.00	0.00	0.00	0.00
7	Adjustment of Cum, repayment pertaining to the decapitalised asset.						
В	Net Normative Ioan - Closing		0.00	0.00	0.00	0.00	0.00
P	Average Normative Loan		0.00	0.00	0.00	0.00	0.00
			40.0084	44 0484	44 0.490	44 8466	11 84%

(गनांज सिंह) साहित्य अभिन्ता राजा भिन्न । अभिन्ता एवं प्राधिका) उठ्यास्त्र (१८ कार्जिका)

0.00

### PART-III FORM- 10 A

Name of the Transmission Assets: 220 kV SC Barelly - Pantnagar Line

	Statement of	d Depreciation				(Amount	in Ris. Lakh)
8. No,	Particulars	As on 01-04- 2019 / COD	2019-20	2020-21	2021-22	2022-23	2023-24
1	No. of Days In the year		366	365	366	365	366
or Ha	No. of days for which tariff claimed		355	365	385	365	356
Life at the	e beginning of year	- 2					
1,1	Weighted Average useful Life of the Asset/Project.		25	25	25	25	25
1.2	Lapsed weighted sverage useful life of the asset/project (in Completed no, of Year).		0)				
1.3	Balance weighted average useful life of the asset/project (in Completed no. of Years)						
Capital B.	820						
1.4	Opening Capital Cost		67.33	67.33	67.33	87.33	67.33
1.5	Additional Capital Expanditure dr. the year		0.00	0.00	0.00	0.00	0.00
1.5	De-Capitalisation during the year						
1.7	Closing Capital Cost		67.33	67.33	67.33	67.33	67,33
1.6	Average Capital Cost		57.33	67.33	67.23	67.33	67,33
1.9	Freehold land included in 1.8		0.00	0.00	00.0	0.00	0.00
1.10	Asset having Nit. Salvage value included in 1.8						
1,11	Asset having 10% Salvage value included in 1.6		87.33	87.33	57.33	67.33	87.33
1,12	Depreciable value (1,10+90% of 1,11)		60.60	60.60	80.80	80.60	60.60
<b>Deprecia</b>	tion for the period and Cum. Depreciation.				-		
1.13	Weighted Average Rate of depreciation						
1.14	Depreciation (for the period)		1.38	1.38	1,38	1.38	1.38
1.15	Depreciation (annualised)		1.38	1.38	1.38	1.38	1.38
1.16	Cumulative depreciation at the beginning of the period	48.16	49.58	50.94	52.32	53.70	55.06
1.17	Less: Adj. of Curr.dep. pertaining to the decapitalised asset.						
1.18	Cumulative depreciation at the end of the period		49,58	50.94	52,32	53.70	55.06

(Petitioner)

Luging

(मनोज सिंह) अधीक्षण अनियन्ता सम्बद्ध निवेशक (वियोजन एवं वाणिज्य) उ०प्रथमाशुरावकावलिव

### Part III Form-1 Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV DC Sahibabad-Patparganj Line

Name of the Transmission Element or Communication system: 220 kV DC Sahibabad-Patparganj Line

(Amount in Rs. Lakhs)

2018-19	8	at			0.13	2.42	2.56	
2017-18	7		63		0.13	2.34	2.47	
2016-17	9		A A		0.13	2.27	2.39	
2015-16	2				0.12	2.19	2.31	
2014-15	4				0.12	2.12	2.24	
Form No.		10A	6E	œ	11			
Particulars	2	Depreciation	Interest on Loan	Return on Equity1	Interest on Working Capital	O & M Expenses*	Total	
S.No.	1	1.1	1.2	1.3	1.4	1.5		

(Petitioner)

(मनाज सिंह) उहाँ, ११ क्लिया सम्बन्ध हिस्सक (निताजन एनं वाधिएय) उठ्य ४० स्था हिस्स

Junitur

Part II Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Utter Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 220 kV DC Schitabad-Patparganj Line
Name of the Project: 220 kV DC Schitabad-Patparganj Line

S. No.	Name of line	Type of line ACHIV DC	SVC or DVC	No. of Sub- Conductors	Voltage level kV	Line length Ckt km.	Line length km	Date of Commercial		Covered in the present petition
			l le					operation	Yes/No	If No. petition No.
-	220 kV DC Sahibabad- Patpangani Line	AC	2	-	220	7.002	3.501	31-Mar-83	Yes	
2										
7										
,										

Sylvottage (Faustorus's Cete, (with tevel five Commercial Formatication System.)  NA  No. of transformers  NA  NA  Number/ length Commercial Communication System/RTUPABX etc.  NA  Namber/ length Communication System/RTUPABX etc.  Namber/ length Communication System/RTUPABX etc.				Type of Substation				No. of Bays	lays			ŭ	Covered in the
Type of Communication System:    Communication System:   Type of Communication System:   Communication System		S.NO.	Name of Sub- station	Conventional(Gr eenfield/Brownfield)/ GlS/HVDC ferminal/HVDC Back to Back	Voltage tavel kV	No. of transformers / Reactors/SV C etc. (with capacity)	768 XV	400 VX	220 KV	132 kV & Below	Date of Commercial operation	Yes/N o	f No, petition No.
Type of Communication System:  Communication System:  Communication System:  Communication System:  Communication System:  Communication System  System/RTUFAEX ebc  Number langth  Communication  System/RTUFAEX ebc  Name of Communication  Sys		-											
System:  Type of Communication System:  Communication System:  Type of Communication System:  Communication System:  Communication System:  System/RTUPAEX ebc  Number langth  Communication System/RTUPAEX ebc		2											
Communication System:   Type of Communication System under ULDC/   Technical Particulars   Number/ langth   Communication System IT UPABX etc.   Communication System IT UPABX etc.   Number/ langth   Communication   System IT UPABX etc.   Number/ langth   Communication   System IT UPABX etc.   Number/ langth   Communication   Commu	1	61					MIA						
Communication System:  Type of Communication System - Communication System - Communication System Communication System System RTUFAEX etc.  System RTUFAEX etc.  Name of Communication System System RTUFAEX etc.  AA  Number I largth Commercial Commercial Commercial Communication System RTUFAEX etc.		4					42						
Communication System:  Type of Communication System under ULDC/ Name of Communication System under ULDC/ SCADA/WAMS/Fibre Optic Communication System/RTURABX ebc  Name of Communication System/RTURABX ebc  NA  Number/ length Commercial YearNo	ıl												
Name of Communication System under ULDC/ Communication System under ULDC/ System/RTURAEX ebc  Number forugith  Communication  System/RTURAEX ebc  Name of Communication  System/RTURAEX ebc  NA	1	Communica	Hon System:										
Name of Communication System Unication Communication Communication Communication System Unication Communication Communica				1	1						Cov	ored in the	Tresent
NA		100	Sommunication &		Son System u / WAMB/Fibn pmmunication		niçal Particulars	ž	umber/ length			es/No	W No.
NA													
	TT						Δ.						

(Petttloner)

सम्बद्ध निद्यम निर्मान एवं स्पिष्य उ०प्रथमशब्दाव ज्ञावस्थि

### Part III Form-3

### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV DC Sahibabad-Patparganj Line

Name of the Transmission Element or Communication system: 220 kV DC Sahibabad-Patparganj Line

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.303	0.313	0.324	0.334	0.346
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मनोज सिंह) अधीक्षण अभियन्ता सम्बद्ध निवेशक (नियोजन एवं वाधिज्य) उ०७०५०द्रा०काठलि०

Aujun

### Part-III Form 11

### **Calculation of Interest on Working Capital**

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV DC Sahibabad-Patparganj Line

Name of the Transmission Element or Communication system: 220 kV DC Sahibabad-

Patparganj Line

(Amount in Rs. Lakh)

_					(Alliberit	II IZ9" FBKII)
SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.18	0.18	0.19	0.19	0.20
2	Maintenance Spares	0.32	0.33	0.34	0.35	0.36
3	Receivables	0.37	0.39	0.40	0.41	0.43
4	Total Working Capital	0.87	0.90	0.93	0.96	0.99
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.12	0.12	0.13	0.13	0.13

(Petitioner)

(गनोज सिंह) अधीक्षण अनियन्ता सम्बद्ध निदेशक (नियोजन एवं वाणिज्य) उठप्रठपाठद्गाठकाठल्टिठ

Junia

PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 220 kV DC Sahibabad-Patparganj Line

S.No.	Particulars	Form No.	2019-20	2019-20 2020-21 2021-22 2022-23	2021-22	2022-23	2023-24
-	2	8	4	LO .	9	7	00
-	Depreciation	10A					
2	Interest on Loan	36			N A		
33	Return on Equity	80					
4	Interest on Working Capital	7	0.12	0.12	0.12	0.13	0.13
5	O & M Expenses		2.64	2.74	2.83	2.93	3.03
	Total AFC		2.75	2.86	2.95	3.06	3.16
Note: This F	Note: This Form is a summary form and the Data to this from should flow from other base forms.	ta to this fror	n should flk	w from oth	er base for	ms.	

(Petitioner)

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उठप्रवसक्ट्रावनावित्व

PART-III FORM-2

Details of Transmission Lines, Substations and Communication System covered in the project scope and OSM for instant asset

Name of the Transmission Assets: 220 kV DC Sahibabad-Palparganj Line

S.No. Name of Line Sure Line Sure Line Sure Conductors         Type of Line Sure Line Sure Conductors         Voltage of Line Sure Sure Line Sure Conductors         Voltage of Line Sure Sure Conductors         Voltage of Line Sure Sure Conductors         Voltage of Line Sure Sure Conductors         Voltage Sure Sure Sure Conductors         Voltage of Line Sure Sure Sure Sure Sure Sure Sure Sur	÷.	1. Transmission Unes:						**				
DC Salidabad-Pathangani)         AC         DC Salidabad-Pathangani)         AC         1         220         0         7,002         3/31/1983         Yes           O& M Expansas for the Transmission linear covered in the Instant petition of OAM as per Regulation (Rupees in Lakh)         200,337         0,331         0,331         0,404         0,419           (Rupees in Lakh)         2,54         2,74         2,83         2,83         2,83	S.No	o, Name of Line	Type of Line ACHVDC	SYC or DYC	No. of Sub- Conductors		Line Bays	Line Reactor(including Switchable Reactor)	Line length Clun	Date of Commercial Opera		Covered in the present Petition Vesilvo   If No. Petition
O& M Expenses for the Transmission lines covered in the Instant petition         2018-20         2028-24         2021-22         2022-23           Fundamental control of O&M as per Regulation (Rupees in Lakh)         0.391         0.391         0.404         0.419           (Rupees in Lakh)         7.002         7.002         7.002         7.002         7.002           (Rupees in Lakh)         2.54         2.74         2.83         2.83	Ψ.	220 kV DC Sahbabad-Parparganj Line	AC	ാവ	,	220	0	0	7.002	3/31/1983		Yes
OB. M Expenses for the Transmission lines covered in the Instant petition         2018-20         2028-21         2021-22         2022-23           1 of OB.M as per Regulation (Rupees in Lakh)         0.377         0.391         0.419         0.419           (Rupees in Lakh)         7.002         7.002         7.002         7.002         7.002           (Rupees in Lakh)         2.54         2.74         2.83         2.83	Sum	mary:										
of D&M as per Regulation (Rupees in Lakh) 0.419 0.419 7.002		Os M Expense	a for the Transm	ission lines cor	versed in the Inst	ant petition		2018-20	2020-21	2021-22	2022-23	2023-24
(Rupees in Lakh) 2.64 2.74 2.83 2.83	E	native rate of O&M as per Regulation	(Rupees in Laki	4				0.377	0.381	0.404	0.419	0.433
2.64 2.74 2.83 2.83	Leng	gith in lom						7.002	7.002	7.002	7.002	7.002
	9	Claimed (Rupees in Lakh)						2.64	2.74	2.63	2.93	3.03

4		in add:				Mo. o	No. of Bava			MVA Caracity				Cov	Covered in the	
S.No.	Name of Sub-station	Substation Conventional( Greenfield/Br ownfield)/ GISARVDC	No. of transform ers   Voltage level   TRescions S   VC etc. (with naparally)	Mo. of transform ers / Reactors/S VC etc. (with rapacity)	785 KV	400KV	228 KV	23 d e ₹ 33	765 kV	400 kV	220 kV	132 hV & Balow	Commer cla 1 operatio	Yes/No	l'No, Petition No.	
-	Statistical						NA.									_
Ď	O& M Expenses for the Substations covered in the instant patition	covered in the in	stant patition				2019-20	20	2020-21	21	2021	2021-22	2022-	2023-24	75	
Моття	lormative rate of O&M as per Regulation (Rupees in Lakh)	(Rupees in Laki	(q													
No. of units	unifa									ž						
OBMC	O&M Claimed (Runees in Lakh)															

1. Number of bays is inclusive of line bays, ICT bays, reactor bays att. Each ICT bays, inc bays, reactor bays shall be considered separately for purpose of OSM expenses.

2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

NA Ne Communication System covered in the 2019-20 2020-31 Instant petition	Cutoff YearMo W No, Petition No.
he Communication System covered in the 2019-20 2020-31 Instant petition	
he Communication System covered in the 2019-20 2020-21 instant petition	
he Communication System covered in the 2019-20 2020-21 instant petition	
Instant petition	3021-22 2022-23 2023-
	24
	9
Actual O&M Expense (Rupess in Lakh)	
Original project cost / Asset related to the Communication system	

सम्बद्ध निदेश (नियंजा एवं प्रतिप्य) उठप्रवस्वाद्वाव मार्गे लेख

अधिया अभियता

2023-24

2022-23

2021-22

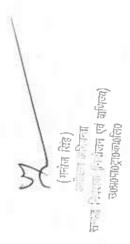
2020-21

2019-20

4) Summary of OLM Expenses claim

Particulars

A) Normative OSM



-	1 (Transmission line	2.64	2.74	2.83	2,93	
24	Substation					
2	Communication System					
	Total Normative O&M	2.64	2.74	2.83	2.93	
	B) O&M Claimed under					
	Regulation 35 (3)(C)					
-	Security Expenses					
12	Actual Capital Spare consumed		١			
,,	3 Total O&M	2.64	2.74	2.83	2 93	
3	the accounts amount and Carles Caran am to be behind an action to action to action to a column to the second section to the section to the second section to the section to th	of me seemed let	to exhanisted or	Sand haterolisa .	a few than reserve	0400



### PART-III FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV DC Sahibabad-Patparganj Line

Particulars	Unit	Existing 2015-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	*			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative C&M per km	Ra. Lakh	0.346	0.377	0.391	0.404	0.419	0.433
Normative O&M per Bay	Rs. Lekh			NA			
Normative O&M per MVA	Rs. Lakh			· ·			
Spares for WC as % of O&M	1%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Proviso to Regulation 30.

(Petitioner)

(मनोज सिंह) अमेदन अनियन्ता सन्बद्ध विदेशक (नियस्तन एवं क्रिफिज्य) उध्यक्षक्षाव्यावस्थानिक

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

### PART-III FORM-11

### Calculation of Interest on Working Capital

Name of the Transmission Assets: 220 kV DC Sahibabad-Patpargenj Lina

(Amount In Rs. Lakh)

_						F	** *****
S. No.	Particulara	As on 01-04-2019 / as on COD whichever is leter	2019-20	2020-21	2021-22	2022-23	2023-24
	No. of Days in the year		366	365	365	365	366
II	No, of days for which tariff claimed		366	365	365	365	366
- 1	O & M Expenses - one month		0.22	0.23	0.24	0.24	0.25
2	Maintenance Spares 15% of O&M Expenses		0.40	0.41	0.42	0.44	0.45
3	Receivables equivalent to 45 days of AFC		0.34	0.35	0.36	0.38	0.39
4	Total Working Capital		0.95	0.99	1.02	1.08	1,10
5	Bank rate as on 01.04,2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital		0.12	0.12	0.12	0.13	0.13

(Petitioner)

(गर्गाज तिह) अभीदाम उन्हें उत्ता सम्बद्ध निदस्य (भाजन एवं वर्गाच्य) उठप्रठमावद्गावकावित

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### Part III Form-1

Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 62-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 62-Gazipur Line

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
1	2		4	15	9	7	00
1.1	Depreciation	10A	2.71	2.71			
1.2	Interest on Loan	36	2.66	2.29		1.44	1.09
1.3	Return on Equity <sup>1</sup>	80	2.39	2.39			
1.4	Interest on Working Capital	11	0.21	0.20	0.20	0.19	
1.5	O & M Expenses		19.0	0.63	0.65	0.67	69.0
	Total		8.58	8.22	7.94	7.39	7.06
- 0			i,				

Note

1: Details of calculations, considering equity as per regulation, to be furnished (As per Form 8).

(Petitioner)

- Landing

राख्द निदेशक जियांजन एवं वागेरच

सिवा हिंदी अस्तिय अस्तिता Pert III Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Patitioner: Utter Pradesh Power Transmission Corporation Limited
Name of the Region: Morth
Name of the Project: 220 kV SC Noids Sec 62-Gazdour Line
Name of the Project: 220 kV SC Noids Sec 62-Gazdour Line

불요	SUC OF SUD- VOITAGE LINE INNER OF CONTROL OF SUD- SUD- SUD- SUD- SUD- SUD- SUD- SUD-
	-

	Substitutions		Type of Substation				No. of Bays	lays			ŏ	Covered in the
	S.NO.	Name of Sub- etellon	Corventione ((Gr eartflebt/Brownff eid)/ GIS/HVDC terminal/HVDC Back to Back	Vottage fevel kV	No. of transformers / Reactors/SV C etc. (with capacity)	765 KV	40g kV	220 KV	132 kV & Below	Date of Commercial operation	YealN o	lf No, pelition No.
	1 2 3			24	80	Q Z						
	4											
	Communication System:	ystem:								1	Courses of the Greenway	
S. Np.	Name of Cox	Name of Communication Systam		Type of Communication System – Communication System under ULDC/ SCADA/ WAMS/Fibre Optic Communication		Technical Particulars	2	Number/length		Data of Commercial operation	YesAlo	If No, petition No.
- 4 6 4	=		safe			NA	57					

अधिका अभिन्ता सम्बद्ध गिरंशक (नियंक्त एनं वागित्या) 3090910510m0120

### Part III Form-3

### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North Name of the Project: 220 kV SC Noida Sec 62-Gazipur Line Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 62-Gazipur Line

Year Ending March

					1001	Ending Marci
Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Effective tax rate	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

(Petitioner)

(मनोज सिंह) अमेक्ष्य अभियन्ता

सन्बद्ध निदेशक (नियोजन एवं कांपाच्य)

ব০গ০গাণ্ডো০কাণনিও

### Part III Form-4

Abstract of admitted parameters for the existing transmission assets/elements under project.

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 62-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Nolda Sec 82-

**Gazipur Line** 

(Amount in Rs.lakhs)

	Asset IV	
Name of the Assets	220 kV SC Nolda Sec 62- Gazipur Line	
DOCO	26-Mar-09	
Petition Number	168/TT/2016	Total Gross Block as on 31.03.2014
Tariff order date	19.12.2017	
Particulars	Capital Expenditure admitted as on 31.03.2014	
Apportioned approved Cost/Revised cost estimates, if any (with reference and date of approval)		
Freehold Land		
Leasehold Land		
Building & Other Civil Works		
Transmission Line		
Sub-Station Equipments		
PLCC	N N	A
Total	ï	
Notional Loan		
Notional Equity		
Total		
Debt-Equity Ratio		
Debt		
Equity		
Total		
Cumulative amount of Depreciation		
Cumulative Repayment of Loan	- 77	
Initial Spares*	<u> </u>	

(गनोज सिंह) अधीराण अनिवन्ता

अध्यक्षण कानपता सम्बद्ध निदेशक (नियोजन एवं वर्गणच्य) उठाउठापाठूमाठूमाठिमाठिमाठ

(Petitioner)

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### Part III Form-4A

### Statement of Capital Cost (To be given for relevant dates and year wise)

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Nolda Sec 62-Gazipur Line

Name of the Transmission Element or Communication system; 220 kV SC Noida Sec 62-Gazipur Line

		2014-15	2015-16	2016-17	2017-18	2018-19
A	a) Opening Gross Block Amount as per books	51.34	51.34	51.34	51.34	51.34
	b) Amount of capital liabilities in A(a) above	0.00	0.00	0.00	0.00	0.00
	c) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in A(a) above	0.00	0.00	0.00	0.00	0.00
	d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in A(a) above	0.00	0.00	0.00	0.00	0.00
В	a) Addition in Gross Block Amount during the period	0.00	0.00	0.00	0.00	0.00
	b) Amount of capital liabilities in B(a) above	0.00	0.00	0.00	0.00	0.00
	c) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in B(a) above	0.00	0.00	0.00	0.00	0.00
	d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in B(a) above	0.00	0.00	0.00	0.00	0.00
С	a) Closing Gross Block Amount as per books	51.34	51.34	51.34	51.34	51.34
	b) Amount of capital liabilities in C(a) above	0.00	0.00	0.00	0.00	0.00
	c) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in C(a) above	0.00	0.00	0.00	0.00	0.00
	d) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in C(a) above	0.00	0.00	0.00	0.00	0.00

Note

Capital cost considered in line with the methodology adopted by Hon'ble CERC.

(Petitioner)

(मनांज सिंह)

अधीक्षण अभियन्ता

सन्बद्ध निर्देशक (निर्धालन एवं वाणिव्द) उठप्रवसावद्वावस्था

Lujung

Part-III Form-6

Financial Package upto COD

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Nolda Sec 62-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 62-Gazipur Line

		Tilialicial Fachage as Apploved	COD	Adye as on	As At	As Admitted on 31.03.2014
	Currency and Amount	Amount	<b>Currency and Amount</b>	nount	Currency and	and
1	7	3	4	ហ	9	7
Loan-l						
Loan-II						
Loan-III						
and so on						
Total Loans					NR.	35.94
Equity-	1123					
Foreign						
Domestic						
Total Equity			* 10		INR	15.40
Debt : Equity						
Ratio						
Total Cost					INR	51.34
	Debt	Equity	Total			
Add cap for Year 2014-15	1132					u)
-	ĝi.					

热

अवैदान अभियना सम्ब निवंधक (नियंत्रन् एवं वाणिक्य) उठप्रवाधकूरावनावित्

				Œ	
Add cap for Year 2015-16					
*	11				
Add cap for Year 2016-17		12			
	0				
Add cap for Year 2017-18					
Add cap for Year 2018-19					
Add cap for Year 2014-15					
Debt			11+		
Equity					
Total					
Add cap for					
Year 2013-16					
Debt					#
Equity	70				1
Total					
Add cap for					
Year 2016-17					
	<i>5</i>				7
Debt					
Equity					
į				,	PERSON PERSON

अवीतमा अनियन्ता सम्बद्ध मिदेशक (नियोजन एवं बानिज्य) उठप्राणगठह्याकाठलिठ

tistant.

Total	Add cap for Year 2017-18	Debt	Equity	Total	Add cap for	) )	Debt	Equity	Total	Total Capital	Cost	with add cap.	
	= -												
335													

Note:

\* Say Rs. 800 Lakh. + US\$ 5m=Rs. 3900 Lakh including US\$ 5 m at an exchange rate of US\$=Rs62 # For example: US \$ 5m, etc. \$ In case of foreign loans exchange rate considered on date of commercial operation.

(Petitioner)

सन्बद्ध निर्देशक (निर्द्योजन एवं वामिष्ट्य) उठप्रवसावद्रावमावितव अधिका अभिया

### PART-III FORM- 7

Statement of Additional Capitalisation after COD

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 62-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 62-Gazipur Line

Admitted Cost <sup>1</sup> (Rs Lakh) in CERC order 168/TT/2016 dated 19.12.2017	(2)	51.34	00'0	00:00	00:0	00:00	
Regulations under which covered	(9)						
Justification	(5)			AN NA			
Amount capitalized /Proposed to be capitalized (Rs Lakh)	(4)			NA			
Work/Equipment proposed to be added after COD upto Cut off Date/beyond Cut- off Date	(3)			AN			
Year	(2)	2014-15	2015-16	2016-17	2017-18	2018-19	
Sr.No.	(1)	+	2	6	4	ນ	

. In case the project has been completed and any tariff notification(s) has already been issued in the past, fill column 7 giving the cost as admitted for the purpose of tariff notification already issued by (Name of the authority) (Enclose copy of the tariff Order).

Note:

Fill the form in chronological order year wise along with detailed justification clearly bringing out the necessity and the benefits accruing to the beneficiaries. In case initial spares are purchased along with any equipment, then the cost of such spares should be indicated separately.

In case of de-capitalisation of assets separate details to be furnished. Further, the original book value and year of capitalisation of such asset to be furnished.

Where de-caps are on estimated basis the same to be shown separately.

(Petitioner) राम्बर्स निदेशक (नियोधन एवं पानिक्य) उ०प्रतपाठ्टा० नगरित 間にはいいい ानंज सिंह)

Part-III Form 8

Calculation of Return on Equity

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 62-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 62-Gazipur Line

,	T	9	<u> </u> Q	စ္	ഉ	
2018-19	00	15.40	15.40	2.39	2.39	
2017-18	7	15.40	15.40	2.39	2.39	
2016-17	9	15.40	15.40	2.39	2.39	
2015-16	9	15.40	15.40	2.39	2.39	
2014-15	4	15.40	15.40	2.39	2.39	
Particulars	2	Equity as on COD/Admitted equity	Total Equity	Return on Equity*	Total	
S.No.	-	7	1.2	5.		

(Petitioner)

1: \*To be calculated on average equity during the year.

(मनोज सिंह) अवीत्रण अभियता सम्बद्ध नियेशक (नियोधन एवं बाधिन्य) उठश्रणस्र्यहणकाशेले

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Part-III Form 9E
Calculation of Interest on Normative Loans

Limited	
Corporation	
Fransmission (	
Power	
Pradesh	
Uttar	
Petitioner:	
of the	
<b>Nате</b> (	

					(Атопі	(Amount in Rs. Lakh)
Particulars	Existing 2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
-	2	m	4	מו	ø	7
Gross Normative Ioan - Opening		35.94	35.94	35.94	35.94	35.94
Cumulative repayment of Normative Loan upto previous year		13.55	16.27	18.98	21.69	24.40
Net Normative loan - Opening		22.39	19.67	16.96	14.25	11.54
Increase/Decrease due to ACE/de- capitalization during the Year		00:0	00.00	0.00	0.00	0.00
Repayments of Normative Loan during the year		2.71	2.71	2.71	2.71	2.71
Net Normative loan - Closing		19.67	16.96	14.25	11.54	8.83
Average Normative Loan		21.03	18.32	15.61	12.90	10.19
Weighted average Rate of Interest of actual Loans		12.66%	12.48%	12.76%	11.16%	10.72%
Interest on Normative Ioan	440	2.66	2.29	1.99	1.44	1.09

্দ**ন্যন বিছি)** ভ্ৰমিল্ম থানিবলা ব্যুলন্ত্ৰ নিবৈত্য (নিবানেশ ঘ্ৰ আশিব্য) ন্যুলন্ত্ৰনামন্ত্ৰী

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#### Part-III Form 10A

#### Statement of Depriciation

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North
Name of the Project: 220 kV SC Nolda Sec 62-Gazipur Line
Name of the Transmission Element or Communication system: 220 kV SC Nolda Sec 62-Gazipur Line

(Amount in Rs. Lakh)

						(Annount III I	
SI. No.	Particulars	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
_ 1	Opening Capital Cost		51.34	51.34	51.34	51.34	51,34
2	Closing Capital Cost		51.34	51.34	51.34	51.34	51.34
3	Average Capital Cost		51.34	51.34	51.34	51.34	51.34
6	Depreciable value		46,21	48.21	46.21	46.21	46.2
8	Remaining depreciable value		46,21	46,21	46,21	46.21	46.2
9	Depreciation (for the period)		2.71	2.71	2.71	2.71	2.7
10	Depreciation (annualised)		2.71	2.71	2.71	2.71	2.7
11	Cumulative depreciation at the end of the period	13.55	16.27	18.98	21.69	24.40	27.1

1. In case of details of FERV and AAD, give information for the applicable period.

(Petitioner)

(मनाज सिंह) अवीक्षण अभियन्ता

रामाद्ध निदेशक (निदोजन एवं वाभिज्य) ব্যুয়্যুদাতুর্যুক্তরাতন্তিত

#### Part-III Form 11

#### **Calculation of Interest on Working Capital**

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 62-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec

62-Gazipur Line

(Amount in Rs. Lakh)

				(Annount i	II IXS. Lakiij
Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
2	4	5	6	7	8
O & M Expenses	0.05	0.05	0.05	0.06	0.06
Maintenance Spares	0.09	0.09	0.10	0.10	0.10
Receivables	1.43	1.37	1.32	1.23	1.18
Total Working Capital	1.57	1.52	1.47	1.39	1.34
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest on Working	0.21	0.20	0.20	0.19	0.18
	O & M Expenses Maintenance Spares Receivables Total Working Capital Rate of Interest	2 4  O & M Expenses 0.05  Maintenance Spares 0.09  Receivables 1.43  Total Working Capital 1.57  Rate of Interest 13.50%	2     4     5       O & M Expenses     0.05     0.05       Maintenance Spares     0.09     0.09       Receivables     1.43     1.37       Total Working Capital     1.57     1.52       Rate of Interest     13.50%     13.50%	2     4     5     6       O & M Expenses     0.05     0.05     0.05       Maintenance Spares     0.09     0.09     0.10       Receivables     1.43     1.37     1.32       Total Working Capital     1.57     1.52     1.47       Rate of Interest     13.50%     13.50%     13.50%	Particulars         2014-15         2015- 16         2016-17         2017-18           2         4         5         6         7           O & M Expenses         0.05         0.05         0.05         0.06           Maintenance Spares         0.09         0.09         0.10         0.10           Receivables         1.43         1.37         1.32         1.23           Total Working Capital         1.57         1.52         1.47         1.39           Rate of Interest         13.50%         13.50%         13.50%         13.50%

(Petitioner)

(मनोज सिंह) अधीक्षण व्यक्तियन्ता सम्बद्ध निदेशयः (विधासन एवं वाणिव्य) उ०प्रवपाद्धारु कार्वतिव

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## PART-III FORM-1

# Summary of Tariff

Name of the Transmission Assets: 220 kV SC Noida Sec 62-Gazipur Line

S.No.	Particulars	Form No.	2019-20	2020-21	2021-22	2022-23	2023-24
-	2	ო	4	ιO	9	7	00
-	Depreciation	10A	2.71	2.71	2.71	0.84	0.84
2	Interest on Loan	36	0.82	99.0	0.24	0.04	0.00
က	Return on Equity	89	2.39	2.39	2.39	2.39	2.39
4	Interest on Working Capital	11	0.12	0.12	0.12	0.09	0.03
ស	O & M Expenses		92.0	0.78	0.81	0.84	0.87
	Total AFC		6.79	6.56	6.27	4.20	4.18
Note: This	Note: This Form is a summary form and the Data	and the Data to this from should flow from other base forms.	hould flow t	rom other b	ase forms.		

(Petitioner)

(मनोज सिंह) अधिका अनिवन्ता सम्बद्ध निदेशक (क्रियंक एवं वाधिक्य) उठमण्याज्ञात्रकाण्येल

254

PART-41 FORM-1A Summary of Asset Level Cost

Name of the Transmission Assets: 220 kV SC Noide Sec 62-Gazipur Line

A) Summary of Capital Cost, Means of Finance of the Asset	leans of Finant	ce of the As	10t						
ļ	I) Apportioned Approved Cost	Honed ed Cost		=	Summary of Actual /	ii) Summary of Actual / Projected Capital Cost			
Particular	As per IA	As per RCE-3	As on COD/01-04- 2018	2019-20 (Actual/Projected)	2020-21 (Actuai/Projected)	2021-22 (Actual/Projected)	2022-23 (Actual/Projected)	2023-24 (Actual/Projected)	as on 31.03.2024
Land (Freehold Land)									
Land (Leasehold)									
Building & Civil Works									
Transmission Line									
Sub-Station	06								
PLCC									
Total Capital Cost as per Books								3%	
Less: Liability									
Add: Discharge of Itability									
Total Capital Cost			51.34						51.34
Equity			15.40						15.40
Daht			35.04						35.94

(ग्लांज सिंह) इदीलग अभियन्ता समस् निवंशक (निवंभन एवं वर्धिक्य) उठप्रतम्बर्धिककारित

(Petitioner)

Tribing!

PART-th FORM-2

Details of Transmission Lines, Substations and Communication System covered in the project scape and OAM for Instant seast Name of the Transmission Assetts: 220 kV SC Notta Sec 62-Gazipur Line

S.No. Name of Line	of Line	Type of Line	SUC or DIC	No. of Sub-	Voltage	Line Bays	Lies Resctor(including Switchable	5		Date of Commercial Operation	al Operation		Covered in the present Petition	#
		AEMADO		Conductors	Level EV	_	Reactor)	-				Ye	Yealto Hillo, F	If No, Petition No.
22 22 23 24 24 25 25 25 26 26 26 26 26 26 26 26 26 26 26 26 26	1 220 kV SC Neida Sec 62-Gazipur Line	VC	28	1	022	0	0	8		Et alect		_	Yes	
Summary:														
	O.L. M Expens	GLM Expenses for the Transmission lines covered in the instant petition	ibsion lines cov	ared in the insti	ent petition		2019-30		2020-21	69	2021-22	2022-23	2023-24	
THE TIME THE	Mormative rate of OAM as per Regulation (Rupees in Lakh)	(Rupees in Lakh)		-			0.252	12		0.28	0.27	0.279	9.289	ा जा
Length in lon	0							173		3	F	eris		का
2 Claimen	OLM Claimed (Rupees in Lakh)						0.5	0.76		0.78	0.81	0.04	0.67	<u>اع</u>

Il No, Petition No. 2021-22 2022-23 3023-24 Yeshio Date of Commends I operation 132 EV & Below 2 % 480 KV ¥ 2820-21 2 % 日日日 2019-20 N. 220 KV 400kV 766 kV Pramaform era / Reactora/S VC etc. (with capacity) No. of Voltage lavel OB M Expenses for the Substations covered in the Instant petition Momentive rate of O&M as per Regulation (Rupees in Lahh)
No. of units
O&M Calined (Rupees in Lahh) Substation Conventional Greenfield Br ownfield y Name of Sub-station Streensry: 8.No.

Note: Inclusive of line baye, NCT bays, reactor bays sto. Each NCT bays, line bays, reactor baye shall be considered separately for purpose of D&M expenses. 2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com.

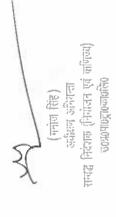
1. Number of be

22 72 2022-23 Date of Commercial Capital Cost upto operation Cutoff 2021-22 2020-21 operation 2419-20 돛 No. of PMU No. of RTU Od. M Expenses for the Communication System covered in the Indeed of System covered in the Type of Length of Communication OPGWile by Communication System:
 Neme of Communication System
 No. Summary

OSIM expenses as per regulations
Actual CAM Expense (Rupees in Lakit)
Original project cost / Asset related to the communication system
Original project cost / Asset related to the communication system
Note: The OSIM expenses as per regulation ahalf be worked on testimated project cost. The actual OSIM expenses to be

ş

ei ⊋	Particulars	2018-30	2020-21	2021-22	2022-	2023-24
	A) Normalive O&M					
÷	Transmission line	0.76	0.76	0.01	0.84	0.67
N	Substation					
m	Communication System					
	Total Normative Olim	0.76	0.78	0.81	0.84	76.0
	B) D&M Claimed under Regulation 35 (3)(0)					
÷	Security Expenses					



The state of the s

#### PART-III FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV SC Noida Sec 62-Gazipur Line

Year Ending March

					-	1001	PERSONAL PROPERTY
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(G)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15,50%	15.50%	15.50%
Effective Tax Rate <sup>2</sup>	%	15.50%	15.50%	15.50%	15,50%	15.50%	15.50%
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Re. Lakh	0.23	0.252	0.26	0.27	0.279	0.289
Normative O&M per Bay	Ra. Lakh			NA			
Normative O&M per MVA	Rs. Lakh	1		na.			
Spares for WC ss % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	50	45	45	45	45	45
Benk Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Provise to Regulation 30.

(Petitioner)

(गनोज सिंह) अधीरण अभिवन्ता सम्बद्ध निरंधक (निवालन एवं वाणिक्य) ব্যায়ত গতে বাবে বাবিত

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Teriff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

#### PART-R FORM 4 COD and Walgidoo

Abstract of existing transmission association ents under project, Determinance of the Transmission Associa: 226 kV SC Notes See 52-Gazipur Line

A) Betalle of All the Asset Covered under t	no Scope of the F				
Asset No. & Asset Name description	Adami COD	COD considered for Tariff	Effective COO for the project as whole [Refer C]	Weighted Average useful 60s of the project (Forter D)	Lapsed uselful Life of the project as on 81-54- 2019 (Porter E)
226 KV Masik-Navsori-1 C/C IIns	28-Mar-09	26-Mar-09	26-Mar-09		
				25	10

(B) Details as on \$1.04.39(\$ for determination of Birgle Teri	ff for the Projec	da Commissioned prior to 0	1.04.2013		
Particulars on an 31-03-2019 after true up of 2014- 19	Aspnt IV				Total se en 01.04.2019 for
period.					the project as whole
	ь	E			ge(becedeest)
Capital Cost us on 31.83.2918	0.00				\$1.34
Clamplathre Depreciation se on 21-03-2019	27,11				27.11
Debt Equity Ratio on un \$1.03.2018	70:30				78:30
Gross Equity for Normative RDE as on \$1.03.2019	0.00				18.40
Gross Loss as on 31 32 2019	0.00				36.94
Cumulative Re-payment of Loren as on 31.03.2018	27.11		[		27.11
C) Computation of Effective COO for determining Japanel up	arful life of the	project sa whole.			

C) Computation of Effective COO for determine	niring Japond Sas	rful life of the	project se wh	ols.		
Asset No.	Assat N			ŀ		Total
	ь —	c	4	•	ſ	ge(b+c+d+e
1  Actual CDD of the Assol.	3/25/2009					
2) COD acresidered for teriff purpose <sup>90</sup>	3/20/2009					
3) He, of says between the COD of the esset considered for teriff and the COO of the Project MAIN	5.00					
4) True up Capital Coet as on 31-03-2019 ( In Lakin)	81.34					51.34
6) Weight of the Cool of an accel (in %) <sup>90</sup>	100.00%					
6) Weighted days = (3x6)	9.09					8.60
7) Effective COB = (i.e. COB of the Project	Total Weighted	(aye.)				3/3 6/25(0)

(Motics:
(i) CDG of the Assact considered for spitts: This wommelly refers the spital count of the propose has to be common assacts if any in previous tariff period, then the CDD considered for sect clubbed sees for tariff purpose has to be common assacts if any in previous tariff period, then the CDD considered for selff period. Notional CDB:

(ii) No. of days from the CDD of the Spigot. It refers the distance between the CDD considered for tariff for the instituted Asset and the CDI the Project. This has been compared by (CDD of the spigot. -CDD of the Instituted asset)

(iii) CDD of the Project - The CQD of the isst sees of the Project. In individual asset's cost on comparing the Total capital cost of the CDD of the CDD of the Instituted asset is not so comparing the Total capital cost of the project. It was to be been compared by (Grand ap cost of compared capital capital capital of the CDD of the Instituted tary is the sesset of the Weight of the Cost of an esset and the distance from its CDD to the CDD of the project.

Particulars	Capital Cost as	on 01-04-2019 after to	139 up of 2014-1	10	c	combined)		Weighted Cost
raidcaai	Asset VI				c	opt I	(He/	to influence cross
	ь	c				•() •+@+#+#	h	) = (g)(c(h)
reshold Land								
Lessehold Land							24	
Building & Other Civil Works							23	
Instrumbulen Line	61.34					51.34	24	1263.6
Lub-Otation Equipment							28	
H.CC							- 14	
no os bm								
Total	69.34					61.34		1263.0
Weighted Average life = Total Weight	ed Cont/Total Combin	e Cost (Rounded off	in get asmplata	year)	•		25	Years.
E) Lapsed weighted average Useful Me of the	project & Balance w	eighted average tiest	al Illia					
This refers to the No. of completed years iro	m the Ethydive COO	six the lest day of the	previous tartify	period (1.4. 31.)	13.2010)			
Effective COD			3/25/2009					
I] Last day of the provious tariff control peri	od .		3/31/2010					
III) No. of Completed years topsed as on 01.04.3019 (II)-(I)				1				

Note: 1) The petitionur has to maintain the identity of the trethyldual assets. In consolidation petitions, the petitionur has to maintain and provide the destriction (notificial essets, life description, actual COR, intretive COR, out-oil data, admitted capital sort, GAM Expenses rise. The petitionur has to make all claims oil additional capital expenditure or do-capitalization for the project, slong with Accidence or clearly mentioning in the Individual sesses to which the claim has been inside.

Accordingly the individual statist forms should show the intervitual sease whos breakes, 2) This form is required to be submitted whose the project is commissioned in the Individual sesses to be active to the submitted whose the project is commissioned in the Individual State (Individual State (Individual State)). The No. of completed to be submitted whose the project is commissioned in the Individual State (Individual State). The No. of completed year can be arrived by the small function viz. VEAMPERACI 43-2019;Energies

CIDD) and Agnore the Rescion III any from the result.

(नंतांज सिंह) अधीक्षण अभिएला

सम्बद्ध विदेशक (विद्योजन एवं कणिज्य) বর্তমতদাতুর তক্ষাতলিত

## PART-III FORM- 8 Calculation of Return on Equity at Normal Rate

Name of the Transmission Assets; 220 kV SC Noide Sec 62-Gezipur Line

S. No	Particulare	As on 01- 04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)		(3)	(4)	(5)	(8)	(7)
_	No. of Days in the year		366	365	365	365	366
	No. of days for which tariff claimed		368	365	365	365	366
1	Opening Normative Equity		15.40	15.40	15.40	15.40	15.40
2	Less: Adjustment in Equity*						
3	Adjustment during the year		50				
4	Net Opening Equity (Normal)		15.40	15.40	15.40	15,40	15.40
6	Add: Increase in Equity due to addition during the year/period						
6	Less: Decrease due to de-capitalisation during the year						
7	Add: Increase due to discharges during the year/period						
В	Closing Normative Equity		15.40	15.40	15.40	15.40	15.40
9	Average Normative Equity		15.40	15.40	15.40	15.40	15.40
11	Rate of Return on Equity (Base Rate )		15.50%	15,50%	15.50%	15.50%	16.50%
12	Reduced rate of 1% decided by commission under Regulation 38 (2) (if any)					120	
13	Effective tax rate / MAT rate for the respective years		0.00%	0.00%	0.00%	0.00%	0.00%
14	Rate of Return on Equity (Pre Tax)		15.50%]	15.50%	15.50%	15.50%	15.50%
15	Return on Equity of project cost till cut off date (Pre Tax)		2.39	2.39	2.39	2.39	2.39

(मगोज सिंह) उन्हें अनिमन्त सम्बद्ध निर्धसक (निर्माणना एवं बाणिज्य) उठमण्डावट्टाट आवद्धिव

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## PART-IN FORM SE Calculation of Interest on Normative Loan

of the Transmission Assets: 220 kV SC Noids Sec 82-Gazipur Line

<ul> <li>(Amount in Re. Lakh)</li> </ul>
--

5.No.	Particulars	As on 01-04- 2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
	No. of Days in the year		388	365	385	366	386
	No. of days for which tariff claimed		368	365	365	366	366
1	Gross Normative Ioan - Opening		35.94	35.94	35.94	35.94	35.94
2	Cumulative repayment of Normative Loan upto previous year		27.11	29.82	32.53	35.24	35.94
3	Net normative loss - Opening		8.83	6.12	3.41	0.70	0.00
4	Addition in Normative loan towards the ACE		0.00	0.00	B.00	0.00	0.00
В	Adjustment of Normalive Gross loan pertaining to the decapitalised sasset.						
	Normative Repayments of Normative Loan during the year		2.71	2.71	2.71	0.84	0.84
7	Adjustment of Cum, repayment partaining to the decapitalised asset.						_
8	Net Normative loan - Closing		B.12	3.41	0.70	0.00	0.00
9	Average Hormetive Loan		7.48	4.76	2.05	0.35	0.00
10	Weighted average Rate of Interest of actual Loans	- 2.	10.83%	11.84%	11.84%	11.84%	11.84%
15	Interest on Normative Ioan		0.82	0.58	9.24	0.04	0.00 (Petitioner)

(मनोज सिंह) अधीक्षण अनियन्ता सन्यद्ध निवंशक (नियंजन एवं वाणिक्य) उ०प्र०पा०ट्रा०काशलि०

#### PART-III FORM-10 A

Name of the Transmission Assets: 220 kV SC Nolda Sec 62-Gazipur Line

	Statement of	of Depreciation					
8. No.	Particulars	As on 01-04- 2019 / COD	2019-20	2020-21	2021-22	2022-23	2023-24
ı	No. of Days in the year		366	365	385	355	366
NI NI	No. of days for which tariff claimed		388	365	385	365	36
Life of the	beginning of year						
1.1	Weighted Average useful Life of the Asset/Project.		25	25	25	25	25
1.2	Lapsed weighted average useful life of the asset/project (in Completed no. of Year).						
1.3	Balance weighted average useful life of the asset/project (in Completed no. of Years)						
Capital Ba	180						
1.4	Opening Capital Cost		51.34	51,34	51.34	51.34	51.3
1.5	Additional Capital Expenditure dr. the year		0.00	0.00	00.00	0.00	0.0
1.6	De-Capitalisation during the year						
1.7	Closing Capital Cost		51.34	51.34	51.34	51.34	51.3
1.8	Average Capital Cost		51,34	51.34	51.34	61.34	51.3
1,9	Freshold land included in 1.8		0.00	0.00	0.00	0.00	0.0
1.10	Asset having NIL Salvage value included in 1.6			4.			
1,11	Asset having 10% Salvage value included in 1.8		51,34	51.34	51.34	51.34	51.3
1.12	Depreciable value (1.10+90% of 1.11)		46.21	46.21	48.21	46.21	46.2
Depreciat	ion for the period and Cum. Depreciation.						
1,13	Weighted Average Rate of depreciation						
1.14	Depreciation (for the period)		271	2.71	2.71	0.84	0.8
1.15	Depreciation (annualised)		2.71	2.71	2.71	0.84	0.8
1.16	Cumulative depreciation at the beginning of the period	27.11	29.82	32.53	35.24	36.09	36.9
1.17	Less: Adj. of Cum.dep. pertaining to the decapitalised asset.						
1.18	Cumulative depreciation at the end of the period		29.82	32.53	35 24	36.09	36.9

(भनोज सिंह) अधिकाम अधिकता सम्बद्ध विदेशक (निवीचन एवं बाणिक्स) उठ्यवन्यवस्थान

Part III Form-1

Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 20-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 20-Gazipur Line

(Amount in Rs. Lakhs)

2018-19	8				0.06			
2017-18	7						1.02	
2016-17	9		A V		0.05		66.0	
2015-16	5				0.05	0.91	96.0	
2014-15	4				0.05	0.88	0.93	
Form No.		10A	36	80	11			
Particulars	2	Depreciation	Interest on Loan	Return on Equity1	Interest on Working Capital	O & M Expenses*	Total	
S.No.	-	1.1	1.2	1.3	1.4	1.5		

(Petitioner)

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सन्दर्भ निकास (मन्द्रोतन एवं द्वानाना) उठम्रठम् १०५०मा १५

Part III Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Ultar Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 220 kV SC Notes Sec 20-Gazjour Line
Name of the Transmission Element or Communication system: 220 kV SC Notes Sec 20-Gazjour Line

Transmis	Transmission Lines:				×					
8. No.	Name of Isne	Type of line ACMIV DC	SIC or DIC	No. of Sub- Conductors	Voltage level kV	Voltage Line length Line length level kV Cktkm. km	Line length km	_	Covered	Covered in the present petition
								operation	Yes/No	M No. petition No.
-	ZZO KV SC Noide Sec 20- Gazipur Line	AC	<b>0</b>	1	220	4.354	4.354	31-Mar-83	Yes	
64										
n										
4										
•										

		Type of Substation				No. of Bays	Bays			0	Covered in the
S.NO.	Name of Sub-	Conventional Greenflat de la conventional Greenflat de la conventional	Vottage fevel kV	No. of transformers // Rescriors/8v C etc. (with capacity)	765 XV	400 kV	220 NV	132 kV & Below	Date of Commercial operation	YearN	If No, petition No.
-											
2											
63	3				MA						
4					42						
,											
Communic	Communication Sustain.										
-	Control of Street							-	-	Covered in the present	present
S. No. Name of	Name of Communication System	0	Type of Communication System – Communication System under ULDC SCADA WAMS/Fibre Optic Communication System/RTUPABX etc		Technical Particulars	£	Number/ length		Date of Commercial operation	Yes/No	if No.
		28			AN						

(मनोज सिंह) अनेतरण अनेयन्ता राम्बद्ध निदेशक (निवेदान एवं साधिज्य) उठ्यक्षणकृष्टावनणहोत

#### Part III Form-3

#### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 20-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 20-Gazipur Line

Year Ending March

Particulars	Unit	2014-15	2015-16	2018-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh		Ŧ.	NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

Lunjung

मनीज सिंह) अवीक्षण अनियन्ता सम्बद्ध निवंशक (निवंशित एवं वाणिज्य) २०७२०मा०द्वाठमाठनिक

#### Part-III Form 11

#### **Calculation of Interest on Working Capital**

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 20-Gazipur Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec

20-Gazipur Line

(Amount in Rs. Lakh)

					ii isə. Lanıı,
Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
2	4	5	6	7	8
O & M Expenses	0.07	0.08	0.08	0.08	0.08
Maintenance Spares	0.13	0.14	0.14	0.15	0.15
Receivables	0.15	0.16	. 0.17	0.17	0.18
Total Working Capital	0.36	0.37	0.38	0.40	0.41
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest on Working	0.05	0.05	0.05	0.05	0.06
	O & M Expenses Maintenance Spares Receivables Total Working Capital Rate of Interest	2 4  O & M Expenses 0.07  Maintenance Spares 0.13  Receivables 0.15  Total Working Capital 0.36  Rate of Interest 13.50%	2     4     5       O & M Expenses     0.07     0.08       Maintenance Spares     0.13     0.14       Receivables     0.15     0.16       Total Working Capital     0.36     0.37       Rate of Interest     13.50%     13.50%	2     4     5     6       O & M Expenses     0.07     0.08     0.08       Maintenance Spares     0.13     0.14     0.14       Receivables     0.15     0.16     0.17       Total Working Capital     0.36     0.37     0.38       Rate of Interest     13.50%     13.50%     13.50%	Particulars         2014-15         2015- 16         2016-17         2017-18           2         4         5         6         7           O & M Expenses         0.07         0.08         0.08         0.08           Maintenance Spares         0.13         0.14         0.14         0.15           Receivables         0.15         0.16         0.17         0.17           Total Working Capital         0.36         0.37         0.38         0.40           Rate of Interest         13.50%         13.50%         13.50%         13.50%

(Petitioner)

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(मनोज सिंह) अवीक्षण अभियन्ता सम्बद्ध निवेशक (निवेशन एवं वाणिज्य) उठप्रवश्चवद्भावकावनिव

PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 220 kV SC Noida Sec 20-Gazipur Line

S.No.	Particulars	Form No.	2019-20	2020-21	2021-22	2021-22 2022-23	2023-24
	2	က	4	G	9		8
-	Depreciation	10A					
2	Interest on Loan	36			Y Y		
ო	Return on Equity	8					
4	Interest on Working Capital	11	0.05	0.05	0.05	0.05	0.05
ഹ	O & M Expenses		1.10	1.13	1.18	1.21	1.26
	Total AFC		1.15	1.18	1.23	1.27	1.31
Note: This F	Note: This Form is a summary form and the Data to this from should flow from other base forms.	a to this fron	n should flo	w from oth	er base fon	ns.	

(Petitioner)

< (मनेज सिंह) अहीक्षण अभियन्ता सम्बद्ध मिदेशक (गिहोजन एवं बागेरुव) उठप्रविष्णव्हावनावित्व

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PART-IN FORM-2

Details of Transmission Assets: 228 kV SC Noids Sec 20-02/20pt Line. Substations and Communication System covered in the project scope and O&M for instant asset

1.1	. Transmission Lines:										
Š	S.No. Name of Line	Type of Line	S/C or D/C	No. of Sub-	Vottage Line Bays	Line Bays	Line Reactor(including Switchable	Line length	Line length Date of Commercial Operation		us present
		Manage			Care hy		Rescion				YesiNo If No, Petition
_	220 KV SC Noida Sep 20-Gazipur	*	US	•	200	c	v	4 354	3/31/1983	Yes	
	Line	200	5		7	•		A. Contraction			
Sell	Nummary:										

OB.M. Expenses for the Transmission lines covered in the instant petition	2019-20	2020-21	2021-22	2022-23	2023-24
Normative rate of D&M as per Regulation (Rupees in Lakh)	0.252	0.26	0.27	0.279	0.289
Length in km	4.354	4.354	4.354	4.354	4.354
O&M Claimed (Rupses in Lakh)	1.10	1.13	1.18	121	1.26

, 		madá				Ko	No of Rava			MVA Canacity				П	Covered in the	
S.No.	Name of Bub- station	Substation Conventional Greenfield/Br ownfield/ GIS/HVDC	Vottage lavel kV	No. of transform era / Reactors/S VC etc. (with capacity)	785 kV	400KV	220 kV	132 RV 4- RV 8-6-0	765 KV	400 kV	220 XV	t32 kV& Below	Commer clai operatio	2	if No, Petition No.	
-							NA							1		
	Summary:														ſ	
	O& M Expenses for the Substations covered in the instant petition	s covered in the in	stant petition	H			2019-20	20	2020-21	21	202	2021-22	2022-	2023-24	7	
Norma	Normative rate of O&M as per Regulation (Rupees in Lakh)	1 (Rupees in Laki	(H)							:						
No. of units	units									¥						
MIC	O.E.M. Cloimed (Remede In Laich)														_	

1. Number of bays is inclusive of tine bays, ICT bays, eactor bays siz. Each ICT bays, ince bays, reactor bays shall be considered separately for purpose of O&M expenses.

2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

3. Communication System:							
on System	Type of Communicatio	Length of OPGWIIn ke	No. of RTU	No. of PMU	Date of Commercial operation	Capital Cost upto Cutoff	Date of Commercial Capital Cost upto Covered in the present Petition Ro.
				NA			
Summery							
OS M Expenses for the Communication System covered in the instant patition.	Communication instant petition	System cover	ed in the	2019-20	2020-21	2021-22	2022-23 2023-
O&M expanses as per regulations							

Odew expenses as per regulations
Actual Oxponse (Rupees in Lakh)
Original project cost / Asset related to the communication system
Note: The Odiff expenses as per regulation shall be worked on based on estimated project cost. The ectual Odiff expenses to be

2023-24

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रोगद्ध निदेशक (नित्रिजन एवं व्हणिण्य) प्रवासक्ताव्याविक क्षित्र अध्या

(मनोज सिंह) ज्यीहरण अभियन्ता सम्बद्ध निदेशक (निसोध्य एवं वाणिज्य) उठ्यक्षकहरूकमण्डिछ

			2	101	77
121	Substation				
12	Communication System				
	Total Normative O&M	1,10	1.13	1,16	1.21
	B) O&M Claimed under	75.0			
	Regulation 35 (3)(C)				
-	Security Expenses				
64	Actual Capital Spare consumed			65	
6	Total O&M	t.10	1.13	1.18	1,21
				200	
	-				
	-				

1.21



### PART-III FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV SC Nolda Sec 20-Gazipur Line

15 15 15 15 15 15 15 15 15 15 15 15 15 1						Year E	nding Marc
Particulors	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15,50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	*			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh						
Normative O&M per MVA	Rs. Lakh	1		NA			
Spares for WC as % of D&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Luan in accordance 1. The additional capitalization on account of change in case of the state of the computed in accordance with Regulation 31.
2. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 31.
i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

(Petitioner)

(मनोज सिंह) अवीक्षण अभियन्ता त्तनबद्ध निदेशक (निवोजन एवं वाणिज्य) उ०प्रथमाग्ट्रावकावलिव

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

#### PART-IN FORM-11

#### Calculation of Interest on Working Capital

Hame of the Transmission Assets: 220 kV SC Nolda Sec 20-Gazipur Line

(Amount	in.	Rs.	Lakhi
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S. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
- 1	No. of Days in the year		366	365	365	365	366
N	No. of days for which tariff claimed		366	365	365	365	366
- 1	O & M Expenses - one month		0.09	0.09	0.10	0.10	0.10
2	Maintenance Spares 15% of O&M Expenses		0.16	0.17	0.18	0.18	0.19
3	Receivables equivalent to 45 days of AFC		0.14	0.15	0.15	0.18	0.16
4	Total Working Capital		0.40	0.41	0.43	0.44	0.46
5	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
5	Interest on Working Cepital		0.05	0.05	Q.05	0.05	0.05

(Petitioner)

(मनोज सिंह) अधीवण अभियन्त सम्बद्ध निदेशक (निदोजन एवं वाणिज्य) उ०प्र०पा**्ट्रा०**का०लि०

Part III Form-1

Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North Name of the Project: 220 kV SC Noida Sec 20-BTPS Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 20-BTPS Line

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
-	2		4	15	9	7	8
1.1	Depreciation	10A					
1.2	Interest on Loan	3E			AN		
1.3	Return on Equity1	8				1	
1.4	Interest on Working Capital	11	0.15	0.15		0.16	I
1.5	O & M Expenses*	3.	2.69	2.78			3.06
	Total		2.84		3.03	3.13	V
	2 TA A						

(Petitioner)

(मर्गेल सिंह) अनीसन अभियत्ता सम्बद्ध निरंह्मा (निर्माजन एवं वाभित्य) उठ्यवक्षावकाति

Part III Form.2
Details of Transmission Lines and Substations and Communication Systems
Name of the Pattioner: Ultar Pradeah Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 220 kV SC Noide Sec 20-8TPS Line
Name of the Transmission Element or Communication system: 220 kV SC Noide Sec 20-8TPS Line

AC SC 1 220 13:303 13:303 3D-Sep-85 Yes	S. No.	Name of	Type of line ACMV DC	SVC OF	No. of Sub-	Voltage level kV	Voltage Line length Line length level kV Cktkm.	Line length km	Date of Commercial	Covered in the present petition
AC SC 1 220 13:303 30-Sep-85									орешцен	If No, petition No.
	_	220 kV SC Nords Sec 20- BTPS Line		SC	-	22	13.303	13.303	30-Sep-85	
	l.									
	_									
	L									
	١.									
	١.									

No. of Bays	No. of transformers 400 220 132 kV Commercial YearN o If No. petition No. cepacity) kV kV kV & Balow operation		NA		Covered in the present	Technical Particulars Number' length Commercial Yes.No petition operation No.	
	Voltage / Reactional kv				Type of Communication System	Communication System under ULDCs SCADA WARSFlave Optic Communication SystemRTUPABX etc	
Type of Substation	Conventional(Gr eenfield/Rrownfield)/ GIS/HVDC terminal/HVDC Back to Back				Type of Co	-	
	Name of Sud-		Ä	Communication System:	0.000	Name of Communication System	
	SAO.	- 2	en 4	Communica		5. No. Name of G	+ 6

जगद विदेशक (नियोजन एवं याभिन्य) उठप्रविपाठद्राठमाठतिक

(मगेज सिंह) अधिया अभियात

(Petitioner)

#### Part III Form-3

#### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Nolda Sec 20-BTPS Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec 20-BTPS Line

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मनीज सिंह) अवीक्षण अभियाना सम्बद्ध नियंशक (नियोजन एवं पानिज्य) उठप्रध्याध्याककारीरा

Lunjung

#### Part-III Form 11

#### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Noida Sec 20-BTPS Line

Name of the Transmission Element or Communication system: 220 kV SC Noida Sec

20-BTPS Line

(Amount in Re Takh)

					<u> </u>	II KS. Lakii,
SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.22	0.23	0.24	0.25	0.25
2	Maintenance Spares	0.40	0.42	0.43	0.44	0.46
3	Receivables	0.47	0.49	0.51	0.52	0.54
4	Total Working Capital	1.10	1.14	1.18	1.21	1.25
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.15	0.15	0.16	0.16	0.17

(Petitioner)

(मनोज सिंह) अविदान अभिनन्ता राज्यद्व निदेशक (निवीजन एवं वाधिका) उ०५०५१० हा० का०लि०

PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 220 kV SC Noida Sec 20-BTPS Line

S.No.	Particulars	Form No.		2020-21	2019-20 2020-21 2021-22 2022-23	2022-23	2023-24
-	2	3	4	2	9	7	8
-	Depreciation	10A					
7	Interest on Loan	36			NA N		
က	Return on Equity	80					
4	Interest on Working Capital	11	0.15	0.15	0.16	0.16	0.17
ហ	O & M Expenses		3.35	3.46	3.59	3.71	3.84
	Total AFC		3.50	3.61	3.75	3.87	4.01
Note: This F	Note: This Form is a summary form and the Data to this from should flow from other base forms.	a to this fron	n should fic	w from oth	er base forr	ns.	ď

(Petitioner)

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(मनोन सिंह) अधिक्षम् अभियन्ता सन्दर्धः (नियंदन एवं वाधिन्य) स्वत्रवण्ट्रस्थंकातिक PART-IB FORM-2

Details of Transmission Lines, Substations and Communication System covered in the project scope and O&M for instant asset

Name of the Transmission Assets: 220 kV SC Nolds Sec 20-8TPS Line

1, 178	1. J. Fallanta Blow Ciles:											
S.No.	S.No. Name of Line	Type of Line ACRIVIDC	S/C or D/C	No. of Sub- Conductors	Voltag e Level kV	Line Bays	Line Reactor(including Switchable Reactor)		Line length Date of Commercial Operation km		Covered in the present Patition Yea.No If No, Pel	ue present bn If No, Petition
-	220 kV SC Noida Sec 20-BTPS Line	AC	SC	-	220	a	0	13.303	9691/06/8		Yes	
Bum	mmary:											
	O& M Expenses	Os. M Expenses for the Transmission lines covered in the instant pelition	Ission lines co.	vered in the inst	ant petition		2019-20	2020-21	2021-22	2022-23	2023-24	
	formative rate of O&M as per Regulation (Rupees in Lath)	Rupees in Laki	2				0.252	0.26	0.27	0.279	0.289	
Leng	angth in lum						13.303	13.303	13.303	13,303	13,303	
08M	3&M Claimed (Rupees in Lakh)						3.35	3.46	3.53	3.71	3.84	

Length in km OSM Claimed (Rupees in Lakh)

If No, Petition Covered in the ģ 2023-24 YearNo operatio Date of Commer 2022-- cts 132 kV & Below 2021-22 ន្តន MVA Capacity 400 kV Ž 2020-21 8 ≥ 132 R ₹ 23 B 86 2019-20 220 KV ¥ No. of Bays 400kV 765 kV transform ers / Reactors/8 VC etc. (with capacity No. of Voltage fevel O& M Expenses for the Substations covered in the instant petition ≥ Normative rate of O&M as per Regulation (Rupees in Lakh) Substation Conventional Greenfield/Br Ownfieldy GIS/HVDC Name of Sub-station No. of units OEM Claimed (Rupees in Lakh) Summing: S.No.

1. Number of bays is inclusive of line bays, ICT bays, the control bays, the bays, reactor bays shall be considered separately for purpose of ORM expenses.

2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

	10 805	Length of	All a summer	manne	Date of Commercial   Capital Cost upto   Covered in the present Pedian	Capital Cost upto	Covered in	the present Politican
	Communicatio	_	ND. OF REU	NO. OT PAND	operation	Cutoff	Yes/No	If Na, Petition No.
				AN				
Summer						i		
O& M Expenses for the Communication 8	mmunication	1 System covered in the	ad in the	2019-20	2020-21	2021-22	2022-23	2023-
Inst	Instant petition							24
1878 expenses as per regulations								
Actual O&M Expense (Rupoes in Laids)						AN		
Orbinal project cost / Asset related to the communication system	munication s	system						

2019-20 A) Normative O&M Particulars

सम्बद्ध मिल्ला (नियंत्र ह्यं वर्षारा)

(和国限)

2023-24

2022-23

2021-22

2020-21

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4) Summery of O&M Expenses claim

्रिम्येख सिंह्) सम्बद्ध निदेशक अभियता उपस्य निदेशक नियोजन प्रवं वाणिएव) उप्रतपात्रावकातिक

P4	Substation					
m	Communication System					
	Total Normalive O&M	3.35	3.48	3.59	3.71	3.64
	B) O&M Clelmed under					
	Regulation 35 (3)(C)					
÷	1 Security Expenses					
14	Actual Capital Spare consumed					
n	3 Total D&M	3.35	3.46	3.59	3.71	3.64
Mok	Mole: The security expenses and Capital Spares are to be submitted on estimated basis for the purpose	al Spares are to b	e submitted on	estimated basis	for the purpor	

thing the same

## PART-III FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV SC Noide Sec 20-BTPS Line

<u></u>						Year I	nding Marc
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rete of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date <sup>1</sup>	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh						
Normative OBM per MVA	Rs. Lakh	1		NA			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Sank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12,05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						-

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Proviso to Regulation 39.

(Petitioner)

(गर्गाज सिंह) अधीकण अभियन्ता सम्बद्ध निदंशक (नियोजन एवं वाणिज्य) चवप्रवचावर १०कावतिव

To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31
i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

#### PART-III FORM-11

#### Calculation of Interest on Working Capital

Name of the Transmission Assets: 220 kV SC Noids Sec 20-9TPS Line

(Amou	and the	Do I	1 -1	alle Si
- IAUNUS	AUT 1871	rus.	القط	uni

S. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
T	No. of Days in the year		366	365	365	365	386
0	No. of days for which tariff claimed		366	365	365	365	366
-1	O & M Expenses - one month		0.28	0.29	0.30	0.31	0.32
2	Maintenance Spares 15% of Q&M Expenses		0.50	0.52	0.54	0.56	0.58
3	Receivables equivalent to 45 days of AFC		0.43	0.45	0.46	0.48	0.49
4	Total Working Capital		1.21	1.25	1.30	1,34	1.39
5	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12,05%	12.05%
6	Interest on Working Capital		0.15	0.15	0.16	0.16	0.17

(Petitioner)

(मनाज सिंह) अंबोक्षण अनियन्ता सन्वद्ध निदेशक (नियोजन एवं वाणिण्य) उ०प्र०पा०क्रा०का०लि०

Part III Form-1

Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Sahupuri-Pasauli Line

Name of the Transmission Element or Communication system: 220 kV SC Sahupuri-Pasauli Line

(Amount in Rs. Lakhs)

2018-19	8				0.47	8.44	8.91	
2017-18					0.45	8.18	8.64	
2016-17	9		Ā	F	0.44	7.93	8.37	
2015-16	ω				0.42	7.67	8.09	
2014-15	4				0.41	7.41	7.82	
Form No.		10A	9E	83	11			
Particulars	2	Depreciation	Interest on Loan	Return on Equity	Interest on Working Capital	O & M Expenses*	Total	
S.No.	+	1.1	1.2	1.3	1.4	1.5		

(Petitioner)

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सम्बद्ध निवेशक (नियंक्त एवं बागेरव) उठप्रवम्बद्धावना

(मिनेन सिट्ट) अधीरण उन्हेस्स्त

Pert II Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 220 KV SC Sahupuri-Pasault Line
Name of the Transmission Element or Communication system: 220 KV SC Sahupuri-Pasault Line

S. No.	Name of Inne	Type of line ACHV DC	S/C or	No. of Sub- Conductors	Voltage level kV	Voltage Line length lavel kV Ckt km.	Line length	Date of Commercial		Covered in the present petition
								operation	Yea/No	If No, petition No.
*	220 kV SC Sahupuri- Pasaufi Line	AC	သိ	-	220	38.7	36.7	26-Apr-79	Yes	÷ 6
174										
ęn										
4										
,			1							
,					100					

No. of Bays	Voltage     No. of transformers     No. of transformers     Date of Communicial Year.       leavel KV     Reactors/RV C etc., (with KV     KV     RV     R Solow     Operation			< 2	<b>X</b> 2			Covered in the present	CDC/	SCADA WARST-thre Optic Technical Particulars Number length Commercial Yea/No petition	ala		42		
Type of Substition	*								Communication Sy		Systemetr	20			
	Name of Sub-				Γ		Communication System:			Name of Communication System					
Substations:	ON.	-	2	r)	4		Сошш			S. No. Nam		- e	4 173	-	



अवीजन अभियन्। पाम्ब निवंशक (निनोजन एवं क्षणिक्व) उठ्यव्यवहरूककावाहरू

#### Part III Form-3

Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Sahupuri-Pasaull Line

Name of the Transmission Element or Communication system: 220 kV SC Sahupuri-Pasauli Line

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मनोज सिंह) अजीतम् अनियन्ता सम्बद्ध निवेशक (नियोजन एवं वर्गण्ड्य) सम्बद्ध निवेशक (नियोजन एवं वर्गण्ड्य)

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#### Part-III Form 11

#### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 220 kV SC Sahupuri-Pasauli Line

Name of the Transmission Element or Communication system: 220 kV SC Sahupuri-

Pasauli Line

(Amount in Rs. Lakh)

SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.62	0.64	0.66	0.68	0.70
2	Maintenance Spares	1.11	1.15	1.19	1.23	1.27
3	Receivables	1.30	1.35	1.39	1.44	1.48
4	Total Working Capital	3.03	3.14	3.24	3.35	3.45
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.41	0.42	0.44	0.45	0.47

(Petitioner)

(मनोज सिंह) अधीक्षण अभियन्ता सन्यद्ध निदेशन (निद्योजन एवं वाधिज्य) उठप्रवस्तव्हारकाटलेव

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## PART-III FORM-1

# Summary of Tariff

Name of the Transmission Assets: 220 kV SC Sahupuri-Pasauli Line

S.No.	Particulars	Form No.	Form No.   2019-20   2020-21	2020-21	2021-22	2022-23	2023-24
-	2	က	4	rO.	9	7	80
	Depreciation	10A					
2	Interest on Loan	9E			¥		
က	Return on Equity	8	9				
4	Interest on Working Capital	11	0.40	0.42	0.43	0.45	0.46
c)	O & M Expenses		9.25	9.54	9.91	10.24	10.61
	Total AFC		39.6	96.6	10.34	10.69	11.07
Note: This F	Note: This Form is a summary form and the Data to this from should flow from other base forms.	a to this fron	n should flo	w from oth	er base for	TIS.	

(Petitioner)

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ज्ञदीत्रण अनियन्ता सन्बद्ध निवेशक (निवाजन एवं काणित्य)

च०प्रवसावराव नाविन्व

PART-18 FORM-2

Details of Transmission Lines, Substations and Communication System covered in the project acope and O&M for Institut asset

Name of the Transmission Assets: 220 kV SC Sahupuri-Passult Line

1.152	1. Transmission Lines:			7								
S.No.	S.No. Name of Line	Type of Line	SVC or DVC	No. of Sub-	Voltage	Line Bays	Line Reactor(Including Switchable	Line length	Line length Bate of Commercial Operation	nation	Covered in the present Polition	present
		ACCUACIO		CONDUCTORS	AN ING		Reactor)	Y		L	Yes/No If	If No, Petition
-	220 kV SC Sahupuri-Pasauli Line	AC	SC	-	220	0	0	38.7	4/26/1979		Yes	
Summary:	nary:											
	O& M Expenses	O& M Expenses for the Transmission lines covered in t	ission Ilass cov	dened in the instr	the Instant petition		2019-20	2020-21	2021-22	2022-23	2023-24	_
North	Normative rate of D&M as per Regulation (Rupees in Lakh)	(Rupees in Lak)	ŧ				0.252	0.26	0.27	0.279	0.288	
Leng	Length in km						38.7	38.7	36.7	36.7	36.7	
0834	O&M Claimed (Rupees in Lakh)						9.26	9.54	9.91	10.24	10.61	

	n	mark.				No.	No. of Bays			MVA Capacity			7. 1.0	COVE	Covered in the
S.No.	Name of Sub-station	Conventional Voltage level transformers Greenfled/Br ownfletdy Confeder Con	Voltage level	transform era // Reactors/5 // VC etc. (with cepecity)	765 kV	400kV	220 kV	132 WV Belo w	768 VV	400 kV	220 KV	132 C kV & Balow			No, Pettion No.
-	Summary:						NA						ĺ		9
ខ័	O& M Expenses for the Substations covered in the instant petition	covered in the In	itsnt petition				2019-20	-20	2020-21	-21	2021-22	22	2022-	2023-24	2
Normative on No. of units	Mormative rate of O&M as per Regulation (Rupees in Lakis) No. of units O&M Ctehred (Rupses in Lakis)	(Rupees in Lakh								NA					

1. Number of bays is inchaive of the bays, ICT bays, lest bays, line bays, reactor bays shall be considered separately for purpose of O&M expenses.

2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

-	Name of Communication System	Type of	Length of		the of Bases	Date of Commercia	Date of Commercial   Capital Cost upto   Covered in the present Palition	Covered	n the present Patition
		ů	OPGWIIN KB	No. Of Kill	NO. OT PINO	operation	Culpff	Yes/No	If No, Petition No.
_									
					W				
					5				
1	Summary								
1	O& M Expenses for the Communication	e Communication	a System covered in the	ed in the	2019-20	20 2020-21	2021-22	2022-23	2023-
		instant petition							24
1 24	34M expenses as per regulations								
14	Actual O&M Expense (Rupees in Lakh)						Y'Y		
12	Octobral project cost / Asket related to the communication system	s communication	Svalem						

2020-21 2019-20 4) Summary of OSM Expensos claim A) Normative D&M Particulars

2023-24

2022-23

2021-22

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सन्दर निदेशक (निवोधन एवं वाशिक्त) **उ**0प्र0510ट्रा0मार्गते स्तीय अन्य (मांज फिर)

सन्तर्भ सिरोहर स्थानम् सम्बद्ध सिरोहरम् सिरोहरम् (विद्यान एवे काणिच्य) उत्तरकारम्

-	Transmission line	9.25	9.54	9.91	10.24	10.61
N	Substation					
m	Communication System					
	Total Mormative O&M	9.25	9.54	16:6	10.24	10.61
	B) O&M Claimed under					
	Regulation 35 (3)(C)					II
-	Security Expenses					
64	Actual Capital Spare consumed					
m	3 Total O&M	9.25	9.54	16.6	10.24	10.61
N	Note: The security expenses and Capital Spares are to be submitted on estimated basis for the purpose	al Spares are to be	se no periliped on es	<b>Emaled basis</b>	or the purpos	

- Transmit

#### PART-IN FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 220 kV SC Sahupuri-Pessuli Line

						Year E	nding Marc
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(B)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98,0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh			NA			
Normative O&M par MVA	Rs. Lakh			100			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	50	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	*	13.50%	12.05%	12,05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

1. The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Proviso to Regulation 30.

with trest Proviso to Regulation 30.

2. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

3. For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

(Petitioner)

सम्बद्ध निदेशक (निद्याजन एवं वाणिज्य) उ०५०पाठहाठ काठालिठ

## PART-IN FORM-11

## Calculation of Interest on Working Capital

Name of the Transmission Assets: 226 kV SC Schupuri-Passuli Line

	(Amount	t in	Rs.	Lakhi
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S. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
1	No. of Days in the year		386	365	355	365	368
- 11	No. of days for which tariff claimed		366	366	365	365	366
1	O & M Expenses - one month		0,77	0.80	0.83	0.85	0.88
2	Maintenance Spares 15% of C&M Expenses		1.39	1.43	1.49	1.54	1.59
3	Receivables equivalent to 45 days of AFC		1.19	1.23	1.27	1.32	1.36
4	Total Working Capital		3,34	3.45	3.59	3.71	3.84
5	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
G	Interest on Working Capital		0.40	0.42	0.43	0.45	0.46

(Petitioner)

Lugun

(मनोज सिंह) अधीक्षन अभियन्ता सम्बद्ध भिवंशक (भियोजन एवं वाणिज्य) उठ्याठमाठद्राठकाठित

Summary Sheet Part III Form-1

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV SAHUPURI-KARMNASHA Name of the Transmission Element or Communication system: 132 KV SAHUPURI-KARMNASHA

(Amount in Rs. Lakhs)

2						
		4	S.	9	7	8
Depreciation	10A					
Interest on Loan	36			¥ Y		
n Equity <sup>1</sup>	ထ				10	
na Ca	11	0.43		0.46		
xpenses*		7.76		8.29		8.83
		8.19	8.47	8.75	9.04	
	Return on Equity¹ Interest on Working Capital O & M Expenses⁴ Total	ng Capital	ng Capital 11	ng Capital 11 0.43	ng Capital 11 0.43 0.44 7.76 8.03 8.19 8.47	ng Capital 11 0.43 0.44 7.76 8.03 8.19 8.47

(Petitioner)

कपद िद्राक (क्रिक्रेन एवं क्रिक्रिय) 上上 的

(新四部)

चण्याण्याण्याण्याण्या

Part BI Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petrions: North
Name of the Region: North
Name of the Project: 132 KV SAHUPURLKARINNASHA
Name of the Transmission Element or Communication system: 132 KV SAHUPURLKARINNASHA

Covered in the present petition if No. petition No. Yes/No Yes Date of Commercial 1-Jan-1962 oparation Une length km 38.4 Line length Ckt.- km. 38.4 No. of Sub- Voltage Conductors level KV 132 SC of 8 Type of line AC/HV DC Ş 132 KV SAHUPURI-KARMNASH Transmission Lines: 3. No. Name of line

						4				-	Constant in the	_
		Type of Substation				No. of Bays	2478			3	OIN III MAA	$\tau$
ŎWS	Mame of Bub- station	Correntional(Gr earfield/Brownfillad)/ GIS/HVDC terminal/HVDC Back to Back	Voitage loval kV	No. of transformers / Reactors/SV C etc. (with capecity)	765 KV	40B KV	220 X	132 kV & Balow	Commercial Operation	YearN o	YearN o If No, petition No.	
1	, T-				MA							
*					2							_
4												
												٦.
Commune	Communection System:											
		Type of Communication System -	Type of Communication System -	a System –				å	Part of	COVERDO IN UNS DIVERGIN		

Typ	ie of Communication System -					
S. No. Name of Communication System	Communication System under ULDG SCADA WANSFibra Optic Communication System/RTUPABX etc	Technical Particulars	Numbert length	Date of Commercial operation	Ves/No	ff No, pelition No.
De la companya de la						
		₹Z				

सम्बद्ध निदंशक (निवंदान एवं बाधित्व) उठ्यव्यवद्गवनावित्व

अधिका अभिवन्ता

## Part III Form-3

## Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV SAHUPURI-KARMNASHA

Name of the Transmission Element or Communication system: 132 KV SAHUPURI-KARMNASHA

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations, Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मानेज सिंह)

अवीवण अभिगन्ता

सम्बद्ध निदेशक (निपालन एवं वाणिच्य) उ०प्र०पाठनाठनाठ

## Part-III Form 11

## **Calculation of Interest on Working Capital**

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV SAHUPURI-KARMNASHA

Name of the Transmission Element or Communication system: 132 KV SAHUPURI-

KARMNASHA

(Amount in Rs. Lakh)

					(Annount i	II KS. Lakiij
SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.65	0.67	0.69	0.71	0.74
2	Maintenance Spares	1.16	1.20	1.24	1.28	1.32
3	Receivables	1.36	1.41	1.46	1.51	1.55
4	Total Working Capital	3.17	3.28	3.39	3.50	3.61
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.43	0.44	0.46	0.47	0.49

(Petitioner)

Lunjuag

(मनोज सिंह) अधीक्षण अनियन्ता समाद्व निवेशक (निवेशक एवं पाणिज्य) उठप्रण्याहरीकावस्थित

## PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 132 KV SAHUPURI-KARMNASHA

S.No.	Particulars	Form No.	2019-20	2020-21	2021-22	Form No. 2019-20 2020-21 2021-22 2022-23	2023-24
-	2	63	4	ıo	9		80
+	Depreciation	10A					
2	Interest on Loan	9E			N A		
60	Return on Equity	8					
4	Interest on Working Capital	11	0.42	0.44	0.45	0.47	0.48
53	O & M Expenses		99.68	9.98	10.37	10.71	11.10
	Total AFC		10.10	10.42	10.82	11.18	11.58

Note: This Form is a summary form and the Data to this from should flow from other base forms.

(Petitioner)

thing the

(ममेज रिहर) अधीतार अभियन्तर राज्य निवंशक (मिमोजन एवं व्यक्तिक) उठ्यक्ष्मक्रकाशित

PART-II FORM:3 Details of Transmission Lines, Substations and Communication System covered in the project scope and O&M for instant asset Name of the Transmission Assets: 132 KV SAHUPURHKARMNASHA

2	1. I Fan Smill Show Lines;							-		-	freeze of the State of
1	2011	Type of Line	Sicorpic	No. of Sub-	Voltag e	Line Bavs	Line Reactor(Including Switchable	Line length	Line length Date of Commercial Operation		Petition
9	a.no. naine or Line	ACMVDC		Conductors	Levil ky		Reactor)	MIN		Н	Yes/No If No, Petition
-	132 KV SAHIPURI-KARMNASHA	AC	S	1	132	0	g	38.4	1-Jan-1962	_	Yes
	Summission										
	O& M Expenses for the Transmission lines covered in the instant petition	for the Transm	ission lines co	vered in the inst	ant petition		2019-20	2020-21	2021-22	2022-23	2023-24
-		Manage In 1 and	1				0.252	0.26	0.27	0.279	0.289
Ē	Normative rate of USAM as per Regulation (Rupers in Land)	ikupets car					38.4	38.4	38.4	38.4	38.4
	Cangus in an						89'6	9.98	10.37	10.71	11.10

7						2	No of Days			MVA Capacity				Cove	Covered in the
_				100		AU. C	ii Daya								
is. No.	Name of Suib- station	Substation Conventional( Conve	Voltage level RV	raneform era / Reactora/S /C etc. (with capacity)	768 kV	400kV	220 kV	8 P K 22	765	460 kV	220 FY	132 kV & Below	Commer cla I operatio	Yea/No	M No, Petition No.
ŀ		- Children and I					NA								
	Summery												0000	-	100
Õ	O& M Expenses for the Bubstations covered in the instant pelition	covernd in the in	stant petition				2019-20	20	2020-21	2	202	2021-22	2022	2023-6202	•
Morma	Mormative rate of OAM as per Regulation (Rupeas in Lakh)	(Rupeas in Lak	2							AN					
AND OF LINES	MO. Of LIMIS ORLI Claimed (Pannon in Lake)														7

1. Number of bays is inclusive of time bays, RCT bays, reactor bays etc. Each ICT bays, line bays, reactor bays shall be considered separately for purpose of O&M expenses.
2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

Name of Communication System   Tyl								
Comm	Communicatio	OPGWRIP ks	No. of RTU	No. of PMU	operation	Cutoff	operation Cutoff YearMo No.	M No, Petition No.
				AN				
Name of the Party								2000
O& M Expenses for the Communication System covered in the	munication	System cover	ed in the	2018-20	20 2020-21	2021-22	27277	2002
Institu	Instant petition							1
ACM expenses as per requisitions						***		
Actual O&M Expense (Rupers in Lith)						AN		77
propert cost / Asset related to the communication system	nunication a	system						

A) Normative O&M

क्षेत्रत रिद्धाट (मिलेक्स एवं ब्राधित्य) चण्याण्याण्याण्याण्याण्याण्या

अर्थित अप्रियम् 神區 (統)

294

4) Summary of OaM Expenses claim
Particulars

2022-23

2021-22

2020-21

2019-20

VOXOTION PROPERTY

			ा वं दाशित्व)
	7	(min 確)	अवेजिय अभियन्ता सम्बद्ध निवेशक (निवेज्ज एवं वाशिष्य)
	~		

3 Total OBM 10.37 10.05. The security expenses and Capital Spares are to be submitted on sedimated basis for the purpose 10.71 10.37 96'6 9.68 Substation
Communication System
Total Normative O&M
B) Q&M Calined under
Regulation 36 (3(C)
Security Expertes
Actual Capital Spare consumed

10.37

96-6

## PART-IN FORM-3 Normative Parameters considered for Tartff Computation

### Name of the Transmission Assets: 132 KV SAHUPURI-KARMNASHA

						Year E	inding March
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date <sup>1</sup>	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh						
Normative O&M per MVA	Rs. Lakh			NA			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Proviso to Regulation 30.

(Petitioner)

(गनोज सिंह) अवीक्षण अनियन्ता सावद्व निवेशक (निवीजन एवं याणिज्य) उ०प्रभुपाठ्या०काठलिठ

Lujun

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Patition, it should be 1.4.2019, while for True-up Patition, it should be 1<sup>st</sup> April of the respective financial years.

## PART-III FORM-11

## Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV SAHUPURI-KARMNASHA

(Amount in Rs. Lakh)

S. No.	Particulars	As on 01-04-2019 / as on COO whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
T	No. of Days in the year		366	365	365	365	366
11	No. of days for which tariff claimed		366	365	365	365	356
1	O & M Expenses - one month		0.81	0.83	0.86	0.89	0.92
2	Maintenance Spares 15% of O&M Expenses		1.45	1.50	1.56	1.61	1.66
3	Receivables equivalent to 45 days of AFC		1.24	1.28	1.33	1.38	1.42
4	Total Working Capital		3.50	3.61	3.75	3.68	4.01
6	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital		0.42	0.44	0.45	8,47	0.48

Petitioner)

(मनोज सिंह) अवीक्षण अभियन्ता सम्बद्ध निवास (नियोगन एवं वाणिज्य) उठाउपाठदाठ माठीस्त

Lujung

Part III Form-1 Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV CHANDAULI- KARMNASHA

Name of the Transmission Element or Communication system: 132 KV CHANDAULI- KARMNASHA

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2016-13
-	2		4	5	9	7	œ
1.1	Depreciation	10A					
1.2	Interest on Loan	<u> 9</u> 6			Y Y		
1.3	Return on Equity	8				1	
14	Interest on Working Capital	1-	0.20	0.20	0.21	**	
- L	O & M Expenses*		3.58	3.70		3.95	4.07
2	Total		3.77		4.03	4.17	

(Petitioner)

- training

सन्दर्भ निदेशक (निवाजन एवं वाकिच्य) उठप्रवन्नवहावनावनिव

अवस्था अन्यान

Part III Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Uttar Pradeat, Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 132 KV CHANDAUL: KARNNASHA
Name of the Project: 132 KV CHANDAUL: KARNNASHA

g. G.	S. No. Name of	Type of line	SIC OF	No. of Sub- Voltage Conductors level IV	Voltage level kV	Line length Citt im.	Line length Line length Clt Jun. fun	_	Covered	Covered in the present petition
								operation Yes/No	Yes/No	if No.
	132 KV CHANDAULI- KARIMNASH A	AC	သွ	-	132	17.7	£'21	1_Jan-1992	Yes	ì
Γ										
Г										
									Ţ	
Ī										

No. of transformers.  NA  No. of transformers.  NA  Number/ length Commercial Test Ad0 226 132 kV Commercial VestNo HNO, petition No. Date of Commercial VestNo Petition No. Number/ length Commercial VestNo Petition No. No. Number/ length Commercial VestNo Petition No. No.	SV C etc. (with 785 400 220 132 kV Commercial Yes/N Descritor Operation Technical Particulars Number/ length Operation 1917 FRE	Type of Substation
Technical Particulars  Number/ length Commercial YearNo operation	Technical Particulars  Number/ length  Commercial  Covered in the prese	Convertional(Gr eenfieldBrownfield)/ GIS/HVDC leminal/HVDC Back to Back
Technical Particulars  Number/ length  Covered in the properation  Operation	Technical Particulars  Number/ langth  Commercial YearNo  NA  NA  (Fill) [Fill)	80
Technical Particulars Number/ length Commercial YearNo operation	Technical Particulars  Number/ langth Commercial Years prese	
Technical Particulars Number/ length Commercial YearNo operation	Technical Particulars Number! langth Commercial yearlo pail NA	
NA	(मगेज सिंह)	Type of Communication System — Communication System under ULDC/ SCADA WAMS/Fibre Optic Communication System/RT/UPABX etc
	1	

सन्बद्ध निद्रतक (निर्माजन एवं व्यक्तिय)

उत्प्रवस्तवस्तवस्त

### Part III Form-3

Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV CHANDAULI- KARMNASHA

Name of the Transmission Element or Communication system: 132 KV CHANDAULI- KARMNASHA

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मनीज सिंह) अधीराण अनियन्ता सम्बद्ध निवंशक (नियांजन एवं वाणिज्व) ज्वाराजनावस्थि

August Hard

## Part-III Form 11

## **Calculation of Interest on Working Capital**

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV CHANDAULI- KARMNASHA

Name of the Transmission Element or Communication system: 132 KV CHANDAULI-

KARMNASHA

(Amount in Rs. Lakh)

						II Ita. Lukiij
SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.30	0.31	0.32	0.33	0.34
2	Maintenance Spares	0.54	0.55	0.57	0.59	0.61
3	Receivables	0.63	0.65	0.67	0.69	0.72
4	Total Working Capital	1.46	1.51	1.56	1.62	1.67
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.20	0.20	0.21	0.22	0.22

(Petitioner)

(मनोज सिंह) अधीक्षण अभियन्ता सम्बद्ध निदेशक (मियोजन एवं वाणिजय) उ०प्रदेपाठनाठ कार्याद्ध

Sunjung

# PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 132 KV CHANDAULI- KARMNASHA

S.No.	Particulars	Form No.	2019-20	2020-21	Form No.   2019-20   2020-21   2021-22   2022-23	2022-23	2023-24
-	2	ဗ	4	2	9	7	80
-	Depreciation	10A					
2	Interest on Loan	9E			NA VA		
62	Return on Equity	8					
4	Interest on Working Capital	11	0.19	0.20	0.21	0.22	0.22
ស	O & M Expenses		4.46	4.60	4.78	4.94	5.12
	Total AFC		4.65	4.80	4.99	5.15	5.34
		And the second s	11.6	- C	as been for	94	

Note: This Form is a summary form and the Data to this from should flow from other base forms.

(Petitioner)

सम्बद्ध १,१५८ मान भारत) सम्बद्ध १,१५८ (१५ मान एवं बार्गरूप) उक्ष्यवस्त्र (१५ मान एवं बार्गरूप)

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PART-44 FORM-2
Details of Transmission Lines, Substations and Communication System covered in the project scope and D&M for instant asset

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1. Transminston Lines:	vn Lines:									[		
on S.	1 lbs	Type of Une	SucorDic	Mo. of Sub-	Voltag e	Line Bays	Line Reactor(including Switchable		Line length Date of Commercial Operation		Covered in the present Patition	T PU
		ACHINDO		Conductors	Lavel KV		Reactor)	NAIN			Yes/No	W No, Petition
1 132 KV CHANI KARMNASHA	1 132 KV CHANDAULL KARMNASHA	AC	သွ	1	132	0	0	17.7	1-Jan-1982		Yes	
Summary:												Γ
İ	O& M Expense	O& M Expenses for the Transmission lines covered in the instant pelition	Isalon lines co	rered in the inst	ant petition		2019-20	2020-21	2021-22	2022-23	2023-24	
Mormalise rate	Morraniae rate of D&M as per Requisition (Rupess in Lakh)	(Rupees in Lak)	7				0.262	0.26	0.27	0.279	0.269	П
I enough in hon							17.7	17.7	421	17.7	17.7	
Den Claimad	Of the Challenger (Disperse In Cable)						4.46	4.50	4.78	4.94	5.12	

4		10 Edit				á	of Davis			MVA Canacity				Cove	Covered in the
				464		300	no. or mays			The same of the sa		I	Darte of T	İ	
Š. No.	h. Nama of Sub-station	Substitutional Conventional General Voltage level Troposational Conventional Conven	Voltage level kV	rensform era / Renctors(S VC etc. (with capacity)	765 kV	480KV	220 KV	132 NV Belo	765 kV	400 KV	220 KV	132 kV& Below		YearNo	if No, Petition No.
-							NA								
	Summery:														[a
Ĺ	O& M Expenses for the Substations covered in the instant petition	covered in the in	stant petition					2018-20	50	2020-21	202	2021-22	2022-	2023-CZ02	\$
FON	Normative rate of O&M as per Regulation (Rupses in Lakh)	n (Rupees in Lakt													
No.	No. of units						1.5			Z					
O EM	O&M Claimed (Rupees in Lakh)													1	1

1. Number of bays is inclusive of line bays, ICT bays, reactor bays etc. Each ICT bays, line bays, reactor bays shalf be considered separately for purpose of D&M expenses.

2. The MVA capacity shall exclude the capacity of mettor, FSE, Stat Com

a. Communication system:							1 - 0000 - 000 0
Name of Communication System	Communicatio OPGWIIn ks	No. of RTU	No. of PMU	Date of Commercial Capital Cost upto	Capital Coat upto Cutoff	Cove	H No, Petition No.
-							
м			AZ.				
en ,							
Summery		-					
Od. M Expenses for t	Od. M Expenses for the Communication System covered in the	ad in the	2019-20	2020-21	2021-22	2022-23	2023-
	instant petition						44
O&M expenses as per regulations							
Actual O&M Expense (Rupees in Lakh)					AN		
Original project cost / Asset related to the communication system	ne communication system						
MAIN. The ARM common as nor remistion shall be worked on based on estimated project cost. The actual OSM expenses to be	tion shall be worked on based on	estimated prole	ot cost. The actual OSM ex	ed of sesned			

राम्बद्ध नियोशक (नियोजन एवं वाजिन्य) २०५०प०ट्राठ-मण्डेल

(मानेज सिंह) अयोकण अभियन्त्र

4) Summary of O&M Expenses claim Particulars

A) Normative O&M

2021-22

2020-21

2019-20

्राचीय सिंह) अचीयमा अनियन्ता सन्दर्व निर्देशक (निर्देशन एवं वाणिच्य) उठप्रवस्तव्हावमावित्व

						l
84	Substation					
n	Communication System					
	Total Normative O&M	4.46	4.60	4.78	4.84	1
	B) OSM Claimed under					
	Regulation 35 (3)(C)					
-	Security Expenses					
м	Actual Capital Spare consumed					
42	3 Total O&M	4.46	4.60	4 78	4.94	
Not	Note: The security expenses and Capital Sparse are to be submitted on estimated basis for the purpose	of Spares are to	be submitted on	estimated basi	s for the purp	*



## PART-III FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 132 KV CHANDAULI- KARMNASHA

Year End	ing i	Mar	ch
----------	-------	-----	----

						Year t	nding Marc
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98,0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.269
Normative O&M per Bay	Rs. Lakh			NA			
Normative O&M per MVA	Rs. Lakh			INA			
Spares for WC as % of O&M	*	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Proviso to Regulation 30.

(Petitioner)

पंनोज सिंह) अधीक्षण अनियन्ता सम्बद्ध निवेशक (निवोद्यन एवं कारीज्य) उठप्रवसामुहाककार्तिक

Lanjung

with first Provise to Regulation 30.

2. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Patition, it should be 1.4.2019, while for True-up Patition, it should be 1<sup>st</sup> April of the respective financial years.

## PART-III FORM-11

## Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV CHANDAULI- KARMNASHA

(Amount in Rs. Lakh)

S. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
1	No, of Days in the year		366	365	356	365	386
- II	No. of days for which tariff claimed		366	365	365	366	366
1	O & M Expenses - one month		0.37	0.38	0.40	0.41	0.43
2	Maintenance Spares 15% of O&M Expenses		0.67	0.69	0.72	0.74	0.77
3	Receivables equivalent to 45 days of AFC		0.57	0.59	0.61	0.64	0.66
4	Total Working Capital		1.61	1.67	1.73	1.79	1.85
6	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital		0.19	0.20	0.21	0.22	0.22

(Petitioner)

(गनाज शिंह) अक्षित्रण अभियन्ता सम्बद्ध निवेशक (निवेशकन एवं बाणिज्य) उ०प्रकृतकाठलिठ

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# Part III Form-1 Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Kiratpur-Manglore

Name of the Transmission Element or Communication system: 132 KV Kiratpur-Manglore

(Amount in Rs. Lakhs)

	,				-	/C	D- 1	
2018-19	8				0.91	16.56	17.47	
2017-18	7				0.89	16.06	16.94	20 %
2016-17	9		AA		0.86	15.55	16.41	F
2015-16	co.				0.83	15.05	15.88	
2014-15	4				08.0	14.54	15.35	
Form No.		10A	9E	00	11			
Particulars	2	Depreciation	Interest on Loan	Return on Equity1	Interest on Working Capital	O & M Expenses*	Total	
S.No.	-	1.1	1.2	1.3	1.4	1.5		

(Petitioner)

रामद्व निदेशक (मियोजन एवं वामिन्य) उठप्रधनावज्ञावनावले

Part III Form:2

Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Uttar Pradest, Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 132 KV Kiraipur-Mangiore
Name of the Transmission Element or Communication system: 132 KV Kiraipur-Mangione

Covered in the present petition	lf No. petition No.						
Covered	YearNo	Yes					
1 0	operation	1-Jan-1964					
Line length		72					
Vottage Line length Line length level KV Ckt km. km.		72				100	
Voltage level kV		132					
No. of Sub- Conductors		5. -					
SVC or		SC					
Type of tine ACMV DC		V VC					
Consmission Lines:		132 KV Kiratpur- Manglore					
Transmiss S. No.		-	2	•	4		

Annual Communication System:    Name of Sub-   Station   Station   System:			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				No. of Bave	lava			3	Covered in the
Type of Communication System:  Communication System:  Communication System:  Type of Communication System -  Communication System:  Communication System  Communication System  System Tigh ABX etc  Number length  Communication  System Tigh ABX etc  Number length  Communication  System Tigh ABX etc  Number length  Communication  System Tigh ABX etc  Neared  Communication  System Tigh ABX etc  Number length  Communication  System Tigh ABX etc  Neared  Neared  Communication  System Tigh ABX etc  Neared  C	S.NO.	Name of Sub- station	1ype of Suchtation Corventional(Gr eenflet/fibrownf etd)/ (019AHVDC ferminal/HVDC Back to Back	Voltage level kV	No. of transformers ! Reactors/SV C etc. (with capecity)	765 W	400 kV	220 KV	132 kV & Betow	Data of Commercial operation	YearN D	if No, petition No.
Communication System:  Type of Communication System - Communication System under ULDC:  SCADA WAMSFibre Optic Communication SystemPTU/PABX etc  Number/ length Commercial YearMo	- M M T					NA						
Name of Communication System - Communication System Communication System Communication System Communication System Communication System Communication System Communication System Communication Communication System System RTUPABX etc.	Communica	ation System:			2					Soci	ned in the p	saint
	S. No.	Communication S		mmunication tion System I V WAMSFibr ommunication	1.01	nical Particulora	ž	umberf length	Comm		es/No	r No, Petition No.
	- 0 0 4	(4)				AN			W.			

सम्बद्ध िनेताक (जि.इ.च.च एवं याजिया) उठप्रविद्यावकावानिक

## Part III Form-3

## Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Kiratpur-Manglore

Name of the Transmission Element or Communication system: 132 KV Kiratpur-Manglore

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(गनोज सिंह)

अवीक्षण अनियन्ता

चम्बद्ध निदशक (भियांजन एवं वाधिज्य) उ०प्रवमावद्गावकावस्थि

## Part-III Form 11

## Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Kiratpur-Manglore

Name of the Transmission Element or Communication system: 132 KV Kiratpur-

Manglore

(Amount in Rs. Lakh)

SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	1.21	1.25	1.30	1.34	1.38
2	Maintenance Spares	2.18	2.26	2.33	2.41	2.48
3	Receivables	2.56	2.65	2.74	2.82	2.91
4	Total Working Capital	5.95	6.16	6.36	6.57	6.78
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.80	0.83	0.86	0.89	0.91

(Petitioner)

(मनोज सिंह) अधीराण अनियन्ता

समाद्व निदशक (निदाजन एवं वाणिवय) उ०५०गा०ट्रा०मा०लि०

PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 132 KV Kiratpur-Manglore

	Particulars	LONG HOL	70104	14-0707	FORM NO. 2013-20 2020-21 2021-22	2000	
~	2	က	4	S.	9	7	80
-	Depreciation	10A					
2	Interest on Loan	36			NA		
60	Return on Equity	8					
4	Interest on Working Capital	1	0.79	0.82	0.85	0.88	0.91
נט	O & M Expenses		18.14	18.72	19.44	20.09	20.81
	Total AFC		18.93	19.54	20.29	20.96	21.71

Note: This Form is a summary form and the Data to this from should flow from other base forms.

(Petitioner)

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समित निवेशन अनियंत्र राष्ट्र निवेशक (मिर्गाणन एवं व्यशिज्य) उठ्यवप्तव्हावकावित्व

(新西湖)

PART-III FORM-2.
Details of Transmission Lines, Substations and Communication Bystem covered in the project acope and O&M for Instant asset

Name of the Transmission Assets: 132 KV Kiratpur-Manglore

4. Trani	1. Transmission Lines:											
200	S.Vo. Name of Line	Type of Line	S/C or D/C	No. of Sub-		Line Boys	Line Reactor(including Switchable	Line length	Line length Data of Commercial Operation		Covered in the present Petition	Į.
		ACMINDC		Conductors	Level KV		Reactor)	WEIT		YesAlo	П	If No, Petition
-	132 KV Kiratpur-Manglore	AC	SC	-	132	0	0	72	1-Jan-1964	Yes	- a	
Summany:	my:											٦
	O& M Expense	O& M Expenses for the Transmission lines covered in the instant petition	Ission lines co	wend in the Inst	Int petition		2019-20	2020-21	2021-22	2022-23	2023-24	
Nomet	Normative rate of O&M as per Regulation (Rupees in Lakh)	(Rupees in Laki	E C				0.252	0.28	0.27	0.279	0.289	П
Lenoth in km	in km						7.2	22	72	72	7.2	
Nac.	Cold Charles of Consess for Labert						48.44	18,72	19.44	20.09	20.81	

Ni_		in add.				Mo. o	No. of Bays			MVA Capacity	i		Date of	COM	Covered in the
S. S.	Name of Sub-station	Substation Conventional Voltage level to ownfield R GENTOC GENTOC	Voltage level	No. of transform ers / Reactors/S VC etc. (with capacity)	765 kV	400kV	220 KV	132 KV	785 KV	400 KV	220	132 KV & Below	Commer cla l operatio	Commer clal yearlo n	if No, Petition No.
-							Y.								
L	OA M Expenses for the Substations covered in the Instant petition	covered in the in	stant petition		Ĺ	Н	204	2049-20	2020-21	121	202	2021-22	2022-	2023-24	3
Norm	Normative rate of D&M as per Regulation (Rupses in Lakh)	(Rupees in Lax	1				T			NA					
0	OLM Claimed (Rupses in Lakh)														7

1. Number of bays is Inclusive of tine bays, ICT bays, reactor bays eld. Each ICT bays, ine beys, reactor bays shall be considered separately for purpose of O&M expenses.

2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com.

	Type of	Loudin of			Deta of Commercia	Deta of Commercial   Capital Cost upto		COVERED IN THE DIRECTT PERIDON
	일	OPGWIIn ks	No. of RTU	No. of PMU	operation	Cutoff		M No, Patition No.
1								
				AN				
					*			
Summac.								
O& M Expenses for the Communication System covered in the	Communication	Вузвет соче	ad in the	2019-20	2020-21	2021-22	2022-23	2023-
	instant petition							22
D&Nexpenses as per regulations								
Actual O&M Expense (Rupees in Laids)						AN		
Original project cost / Asset related to the communication system	communication	system						

2020-21 2019-20 4) Summary of O&M Expenses claim
Particulars A) Normalive O&M

2023-24

2022-23

2021-22

सम्बद्ध निदेशक (नियोजन एवं वाधिज्य) SOTOTION OF DESIGNATION अमेरा अमिता

			/	वागित्य)	
		1	अधिया	गरिया एवं बाधि	द्रावकावित्र
, ,	8	<b>く</b> 言		Pater (F	V070405
				Phil	
1					

-		10.12	41701			
14	Substation					
•	Communication System					
	Total Normative O&M	18.14	18.72	19,44	20.08	20.81
	B) OAM Claimed under				Ī	
	Regulation 35 (3)(C)					
-	Security Expenses					
М	Actual Capital Spare consumed				Ā	Ī
60	3 Total O&M	18,14	10.72	19.44	20.09	20 61
Not	Note: The security expenses and Capital Spares are to be submitted on estimated basis for the purpose	al Sparse are to l	be submitted on	estimated basis	s for the purpo	990

- trital

## PART-M FORM-3 Normative Parameters considered for Teriff Computation

Name of the Transmission Assets: 132 KV Kiratpur-Manglore

-	Year	Ending	March
		_	

						i dtn s	Training meast
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	96.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.280	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh			NA			
Normative Q&M per MVA	Rs. Lakh			PIA			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Proviso to Regulation 30.

3, For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

(Petitioner)

(मनोज सिंह) अधीक्षण अनियन्ता राम्बद्ध निवेशक (नियोजन एवं वाधीज्य) उ०१०या०द्वाठकाठलिठ

Jugun

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)gross income, where gross income refers the profit before tax.

## PART-III FORM-11

## Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV Kiratpur-Mangiore

(Amount in Rs. Lakh)

S. No.	Particulars	As on 01-04-2019 / as on GOD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
1	No. of Days in the year		356	365	365	365	366
IJ	No, of days for which tariff claimed		366	365	368	365	368
1	O & M Expenses - one month		1.51	1.56	1.62	1.57	1.73
2	Maintenance Spares 15% of O&M Expenses		2.72	2.81	2.92	3.01	3.12
3	Receivables equivalent to 45 days of AFC		2.33	2.41	2.50	2.58	2.67
4	Total Working Capital		6.58	6.78	7.04	7.27	7.53
5	Bank rate as on 01,04,2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital		0.79	0.82	D.85	0.88	0.91

(Petitioner)

(मनाज सिंह) अभीवण अनियन्ता सम्बद्ध निवसक (नियोजन एवं वाणिज्य) उ०४०५०२,०कालस्थ

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# Part III Form-1 Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Chandak-Luksar

Name of the Transmission Element or Communication system: 132 KV Chandak-Luksar

(Amount in Rs. Lakhs)

1.1         Depreciation         10A         F         6         7         8           1.2         Interest on Loan         9E         NA           1.3         Return on Equity¹         8         0.36         0.37         0.38         0.44           1.4         Interest on Working Capital         11         0.36         6.69         6.91         7.14         7.36           1.5         O & M Expenses*         6.82         7.06         7.53         7.77           Total         Total         7.53         7.77	S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation         10A         NA           Interest on Loan         9E         NA           Return on Equity¹         8         0.36         0.37         0.39           Interest on Working Capital         11         0.36         6.69         6.91         7.14           O & M Expenses*         6.82         7.06         7.29         7.53           Total         7.04         7.53         7.53	-	2		4	2	9	7	8
Interest on Loan         9E         NA           Return on Equity¹         8         0.36         0.37         0.39           Interest on Working Capital         11         0.36         6.69         6.91         7.14           O & M Expenses*         6.82         7.06         7.29         7.53           Total         7.29         7.53	1.1	Depreciation	10A					
n on Equity¹         8         0.36         0.37         0.38         0.39           sst on Working Capital         11         0.36         6.46         6.69         6.91         7.14           A Expenses*         6.82         7.06         7.29         7.53	1.2	Interest on Loan	3E			۷ ۷		
A Expenses*         6.46         6.82         7.29         7.53	1.3	Return on Equity	89					
A Expenses*     6.46     6.69     6.91     7.14       6.82     7.06     7.29     7.53	1.4	ng Capi	11	0.36				
6.82 7.06 7.29 7.53	10,	O & M Expenses*		6.46				
	2	Total		6.82				

(Petitioner)

(मगन सिंह) अर्थत्व अर्थत्व अर्थायता उठ्यकाण्ड्राकम एवं वाण्या

Part III Form-2

Details of Transmission Lines and Substantions and Communication Systems

Name of the Pettiloner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Chandak-Lukasr

Name of the Transmission Element or Communication system: 132 KV Chandak-Luksar

S. No.	S. No. Name of	Type of line ACHIV DC	S/C or		Voltage level kV	Mb. of Sub- Voltage Line length Line length Conductors level KY Cktkm. km	Line length	O	Cove	Covered in the present petition
								operation	YesMo	If No. petition No.
-	132 KV Chandak- Luksar	- VG	SC	-	132	32	32	1-Jan-1964	Yes	
N		-								
m										
4										
			-							
[										

No. of transformers  NA  Number! length  Namber! length  Nambe
Date of Covered in the properties of Covered in the Cov
Date of Covered in the properties of Covered in the Covered in the properties of Covered in the Covered in the properties of Covered in the Covered i
Number length Conversion YearNo
Number length Commercial YearNo operation
NA



(मनेज सिंह) अधिका अनिस्ता सम्बद्ध नियंत्रक (नियोजन एवं वागिल्य) उठ४०२०२०द्र१०कवन्ति०

## Part III Form-3

Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Chandak-Luksar

Name of the Transmission Element or Communication system: 132 KV Chandak-Luksar

Year Ending March

<u>,                                      </u>						41141119 111414
Particulars	Unit	2014-15	2015-16	2018-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

<sup>1.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मगांच सिंह)-अधीवण अनियन्ता सम्पद्ध निर्देशक (निर्दोलन एवं वाणिच्य) उ०४०पा०द्राठकाठलिठ

Lujun

## Part-III Form 11

## Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Chandak-Luksar

Name of the Transmission Element or Communication system: 132 KV Chandak-

Luksar

(Amount in Rs. Lakh)

					(zanount i	ii ita. Lukiij
SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.54	0.56	0.58	0.59	0.61
2	Maintenance Spares	0.97	1.00	1.04	1.07	1.10
3	Receivables	1.14	1.18	1.22	1.26	
4	Total Working Capital	2.65	2.74	2.83	2.92	
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.36	0.37	0.38	0.39	0.41

(Petitioner)

(भगोज सिंह) अधीलण अनियना। सम्बद्ध निवंसक (भियोजन एवं वाधिज्य) उ०५०माऽङ्गाठजाठसिव

Lenjung

## PART-III FORM-1

# Summary of Tariff

Name of the Transmission Assets: 132 KV Chandak-Luksar

S.No.	Particulars	Form No.	2019-20	2020-21	Form No. 2019-20 2020-21 2021-22 2022-23	2022-23	2023-24
-	2	က	4	5	9		88
1	Depreciation	10A					
2	Interest on Loan	36			NA NA		
ဇ	Return on Equity	8					
4	Interest on Working Capital	11 8	0.35	0.36	0.38	66.0	0.40
S	O & M Expenses		90'8	8.32	8.64	8.93	9.25
	Total AFC		8.42	89.8	9.02	9.32	9.65
Note: This F	Note: This Form is a summary form and the Data to this from should flow from other base forms.	a to this fron	n should flo	w from oth	er base for	ns.	

(Petitioner)

- Arrigan

(गगंज पिहर) इंग्लीक्षण स्थितिया सम्बद्ध निदेशम (नियोक्षण एवं वाणिक्य) उठ्यवन्दिङ्गकातिव

PART-III FORM-3 Details of Transmission Lines, Substations and Communication System covered in the project scope and O&M for instant asset Name of the Transmission Assets: 132 KV Chandak-Luksar

17.1	1. Transmission Lines:										the same of the latest of	- Donamor
		Type of Line	Office on the	No. of Sub-	Voltage	Line Rave	Line Reactor(including Switchable	Line length	Une length Date of Commercial Operation		Pettion	111111111111111111111111111111111111111
Q.NO.	G.No. Mame of Line	ACHINDO	2000	Conductors	Level kV		Reactor)	KEN			Yes/No #	If No, Petition
-	132 KV Chandak-Luksar	AC	SC	-	132	0	0	32	1-Jan-1964	>	Yes	
Summary	18.7%											ſ
		OB M Expenses for the Transmission lines covered in the knetant petition	Ission lines cov	versed in the inst	notited the		2019-20	2020-21	2021-22	2022-23	2023-24	24
]		the tall against	1				0.282	0.26	0.27	0.279	0.289	
Eog.	Nomative rate of U.S.M. as per negalation (nupees in Lang	The sandow					P4 P7	32	32	32	S	
9							8708	8.32	23.52	8.63	9.25	
9	UPW CIBILINGO (LAUDBAS III LEMI)											

2.	in adf				No.	No. of Bays		2	MVA Capacity			Date of	COVE	Covered in the
S.No. Name of Sub-station	Substation Conventional( Coenvelled Notage tevel Coenvelled Notage tevel Coenvelled Notage tevel Coenvelled Notage tevel	Voltage fevel	No. of bransform ers / Reactors/S VC etc. (with capacity)	765 KV	400kV	220 KV	132 W Belo	765 KV	400 kV	220 EV	132 kV & o	-	YearNo	If No, Petition No.
-	1 hameleastern 1					NA								
Summary: Oz. M. Expenses for the Substations covered in the instant petition	covered in the in	stant petition				2019-20	50	2020-21	-	2021-22	22	2022-	2023-24	7.
Normative rate of D&M as per Regulation (Rupees in Lakh)	Rupees in Lakt								4X		1	3		
No. of units OAM Claimed (Russes (n 1akh)														٦

1. Number of bays is inclusive of line bays, ICT bays, reactor bays etc. Each ICT bays, fine bays, reactor bays shall be considered separately for purpose of D&M expenses.

2. The MVA Capacity shall exclude the capacity of reactor, PSE, Stat Com

Instant petition  USAM exponece as per regulations  NA	Control Of the Communication o
--	--

संगत्व निदेशक (निहांजन एवं वाशिष्य) उठप्रवयाव्याव्यावस्था

世界 馬馬 (町町(駅)

4) Summary of O&M Expenses claim particulers

A) Normative O&M

2021-22

2020-21

2019-20

(मनोज सिंह) अधीलण अभियत्ता सम्बद्ध ित्यक्षण (में बांगिया) उठप्रप्राण्डाण कार्णल

 2 Substation
 3 Communication System
 8.06
 8.32
 8.64
 8.93

 Total Meaninication System
 8.06
 8.32
 8.64
 8.93

 Regulation of under Regulation of Regulation of Regulation of Systems
 8.06
 8.32
 8.64
 8.93

 1 Security Expenses
 3 Actual Capital Spare consumed
 8.06
 8.32
 8.64
 8.93

 Note: The security expenses and Capital Spares are to be submitted on estimated basis for the purpose

1 Transmission line

A THE STATE OF THE

## PART-IN FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 132 KV Chandak-Luksar

						Year I	nding Marc
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date <sup>4</sup>	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lekh			NA		_	
Normative D&M per MVA	Rg. Lakh	1		N/I			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Daye	50	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years	12.					

The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Previse to Regulation 30.

(Petitioner)

(मनांज सिंह) अमीसण अभियन्ता चन्वतः निदशक (निवाजन एवं वाणिज्य) उ०४०५१०द्राटकावनिव

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1st April of the respective financial years.

#### Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV Chandak-Lukser

(Amount in Rs. Lakh)

S. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
1	No. of Days in the year		356	365	365	366	366
11	No. of days for which tariff claimed		366	365	365	365	366
1	O & M Expenses - one month		0.67	0.69	0.72	0.74	0.77
2	Maintenance Spares 15% of O&M Expenses		1.21	1.25	1.30	1.34	1.39
3	Receivables equivalent to 45 days of AFC		1.03	1.07	1.11	1.15	1.19
4	Total Working Capital		2.92	3.01	3.13	3.23	3.34
6	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	interest on Working Capital		0.35	0.36	0.38	0.39	0.40

(Petitioner)

(मनाज चिंह) अमीवण अभियन्ता

रान्छद्व निर्वेशक (गियोजन एवं वाधिज्य) उ०प्र0पा०ट्रा०कावलि०

July

## Summary Sheet Part III Form-1

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Afzalgarh-Kalagarh Name of the Transmission Element or Communication system: 132 KV Afzalgarh-Kalagarh

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
-	2		4	5	9	2	8
1.1	Depreciation	10A					
1,2	Interest on Loan	3E			¥		
1.3	Return on Equity1	8					
1.4	Interest on Working Capital	1	0.07	20'0			0.08
15	O & M Expenses*		1.23	1.27	1.32		
	Total		1.30	1.34	1.39	1.43	1.48
						Į.	

(Petitioner)

सम्बद्ध निरंशक (नियंत्रम् एवं जापेत्रक्) उत्तरभगव्द्राध महत्रिक

(研究院)

Part IN Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Uttar Pradexh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 132 KV Attalgarh-Kalagarh
Name of the Project: 132 KV Attalgarh-Kalagarh
Name of the Transmission Element or Communication system: 132 KV Attalgarh-Kalagarh

ACHV DC	SC of	No. of Sub-	Voltage Line length Line length level kV Ckt km. km 132 6.088 6.088	Line length km	Commercial operation	Y 887	Covered in the present petition No # No, petition No.
+	T						
H							
H	-						
H							
H							
H							

W voltage (Reactors/SV C etc. (with capacity) kV kV kV kV kV kV Below coperation (Communication System - Technical Pariculars Number length operation yetemWRTL/PABX etc.			Type of Substation				No. of Bays	Bays			3	COVERTED IN LINE
Name of Communication System:    Type of Communication System:   Type of Communication System:   Type of Communication System:   Type of Communication System:   Type of Communication System   Communication System   Communication System/RTUPABX etc   Communicati	क्ष			Voltage level kV	No. of transformers / Reactors/SV C etc. (with capacity)	765 kV	400 KV	220 KV	132 kV & Below	Date of Commercial operation	Ves/N o	If No. patition No.
Type of Communication System:  Communication System System/RTU/PABX etc  Number of Communication System/RTU/PABX etc  Name of Communication System/RTU/PABX etc  Name of Communication System/RTU/PABX etc  Name of Communication System/RTU/PABX etc  Name of Communication System/RTU/PABX etc  Name of Communication System/RTU/PABX etc					= 3							
Communication System:  Type of Communication System Communication System System/Stan/STUPABX etc  Name of Communication System System/Stan/STUPABX etc  Name of Communication System System/Stan/STUPABX etc  Name of Communication System System/SturyABX etc		123 et 1				Ž	4					
Name of Communication System —  Communication System Communication System UDC:  System/RTU/PABX etc.	Ď,	Communication System:								County	Total for the	resent
NA	ģ	Name of Communication	- 3	ommunication Non System A WANS/Fibr A WANS/Fibr Communication		nical Parliculars		Number lengt		-	ON/NO	if No, petition No.
			8			AM						

सन्दर्भ निदेशक (नितित्ता एवं वाधित्व) उठ्यक्तार्ग्य मार्गास्य

स्थान अस्तान

#### Part III Form-3

#### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Atzalgarh-Kalagarh

Name of the Transmission Element or Communication system: 132 KV Afzalgarh-Kalagarh

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मनोज सिंह) अधीरण अनियत्ता सम्बद्ध निरंशन (नियोजन एवं वाणिज्य) च०१०१८ तट १८० रिव

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#### Part-III Form 11

#### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Afzalgarh-Kalagarh

Name of the Transmission Element or Communication system: 132 KV Afzalgarh-

Kalagarh

(Amount in Rs. Lakh)

SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.10	0.11	0.11	0.11	0.12
2	Maintenance Spares	0.18	0.19	0.20	0.20	
3	Receivables	0.22	0.22	0.23	0.24	
4	Total Working Capital	0.50	0.52	0.54	0.56	0.57
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	
6	Interest on Working	0.07	0.07	0.07	0.07	0.08

(Petitioner)

(मनोज सिंह) अभीक्षण जिमयन्ता राज्यद्व निवेशक (निवाजन एवं वाणिज्य) उ०७७५१०द्वाठनागरीक

August

PART-III FORM-1

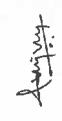
# Summary of Tariff

Name of the Transmission Assets: 132 KV Afzalgarh-Kalagarh

S.No.	Particulars	Form No.	2019-20	2020-21	2021-22	2021-22 2022-23	2023-24
-	2	6	4	2	9	7	œ
-	Depreciation	10A					
2	Interest on Loan	36			AN		
က	Return on Equity	8			-		
4	Interest on Working Capital	11	0.07	0.07	0.07	0.07	0.08
S	O & M Expenses		1.53	1.58	1.64	1.70	1.76
	Total AFC		1.60	1.65	1.72	1.77	1.84

Note: This Form is a summary form and the Data to this from should now from other

(Petitioner)





PART-III FORM-2

Details of Transmission Lines, Substations and Communication System covered in the project scope and O&M for instant asset

Transmission Assets: 132 KV Azalgarh-Kalagarh

Trans.	1. Transmission Lines:						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-			the omstant
5	ed lo draw	Type of Line	S/C or D/C	No. of Sub-	Voltag e	Line Bays	Line Reactor(Including	Line length km	Line length Date of Commercial Operation		lon
		ACHVOC		CONDUCTORS	CBASH NA		Reactor)			TORENO	H NO, FOURT
-	132 KV Alzalgarh-Kalagarh	Ş	SC	-	132	0	0	6.086	1-Jan-1975	Yes	
oummary.		O. M Ercenses for the Transmission lines covered in	ission lines con	vered in the Inst	n the Instant petition		2019-20	2020-21	2021-22 20	2022-23 20	2023-24
			,					0.28	0 27 0	0.278 0	0.289
1	remetter rate of OAM as per Regulation (Rupses in Lakh)	Rupses in Lak	2				70770			-	6000
1							6.068	6.068	6.068		200
ongr.	Length in hum						100	1.58	1,64	1.70	1.76
0 8 7	OSM Claimed (Rupees in Lakin)										

ri								ŀ	1	ANTA Connective				500		
L		to add				202	No. of Bays	1			ľ	I	Dale of			-
υ N	Neme of Sub- station	Substation Conventional GreenfieldBr ownfieldy GISAHVDC	Voltage fevel	No. of transform ers / Reactors/S VC etc. (with rapacity)	765 kV	400kV	220 kV	를 중 4 를 1	785 kV	400 kV	220 KV	132 kV & Below	Commer cts I operatio n	YearNo	ff No, Petition No.	
_		Charlesination						-								_
							4									
	Summary:						2842		2030.21	-	2021-22	27.	2022-	2023-24	77	
L	OA M Expenses for the Substations covered in the instant petition	s covered in the in	nstant petition				07-8107						23	١	1	
Ž	Normative rate of O&M as per Regulation (Rupses in Lakh)	in (Rupses in Laki	1							NA						
불	Na. of units														_	
ಠ	O.S.M. Claimed (Rupees in Lakh)														1	

1. Number of bays is inclusive of line bays, ICT bays, medior bays atc. Each ICT bays, line bays, reactor bays shalf be considered separately for purpose of O&M expenses.
2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

3. Communication system:					Parks at Agencial	Charles Cook and	Coverno	Country of the Control of the Contro	
S. Name of Communication System	Type of Communicatio	Length of OPGWin hs	No. of RTU	No. of PMU	unto or commencial operation	Cutoff	Yes/No	If No, Patition No.	
				2					
4 (2)				<u> </u>					
Summary							H	2027.	
OB M Expenses for the Communication System covered in the	e Communication	n System cover	ed in the	2019-20	2020-21	2021-22	C3/22/02		
	instant petition								
38M expenses as per regulations						NA			
Actual O&M Expense (Rupses in Laids)		1		Ţ					
brioinal project cost / Asset related to the communication s)	a communication	system					-		
Note: The O&M expenses as per regulation shall be worked	ion shall be work	ed on based or	n estimated pro	i on based on estimated project cost. The actual O&M expenses to be	chenses to be		7		
						1		, ·	

A) Normative O&M

सन्तर दियक (निव्यन एवं वाधिका) जात्राहर्ताहरू विमानिया

4) Summary of O&M Expenses claim

Particulars

2022-23

2021-22

2020-21

2019-20



	Transmission line	1.53	1.58	1.64	1.70	1.76
N	Substation				(	
6	Communication System			=		
	Total Normative O&M	1.53	1.58	1.64	1.70	1.76
	B) O&M Claimed under					
	Regulation 35 (3MC)					
-	Security Expenses					
24						
Ī-	Total O&M	1.53	1.58	1.64	1.70	1.78
Not	Note: The security expenses and Capital Spares are to be submitted on estimated basis for the purpose	s eq ot are serieds ()	ubmitted on sell	mated basis f	or the purpos	

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### PART-M FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 132 KV Afzalgarh-Kalagarh

Year	Ending	March
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Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	% .	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.269
Normative O&M per Bay	Rs. Lakh			NA			
Normative O&M per MVA	Rs. Lakh			110			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Provise to Regulation 30.

(Petitioner)

(मनोज सिंह) सम्बद्ध निर्देशक (नियोजन एवं पाणिच्य) च०प्रवासाम् । सामानीया

<sup>2.</sup> To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

#### Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV Afzalgarh-Kalagarh

(Amount in Rs. Lakh)

\$. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
1	No. of Days in the year		366	365	366	365	366
ĮĮ.	No. of days for which tariff claimed		366	365	365	365	366
1	O & M Expenses - one month		0.13	0.13	0.14	0.14	0.15
2	Maintenance Spares 15% of O&M Expenses		0.23	0.24	0.25	0.25	0.26
3	Receivables equivalent to 45 days of AFC		0.20	0.20	0.21	0.22	0.23
4	Total Working Capital		0.55	0.57	0.60	0.61	0.64
5	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital		0.07	0.07	0,07	0.07	0.08

(मनोज सिंह) अधीलण अभितना सन्दर्ध विकास क्षेत्रका संवेदिक्य)

Part III Form-1

Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Dhampur-Kalagarh

Name of the Transmission Element or Communication system: 132 KV Dhampur-Kalagarh

(Amount in Rs. Lakhs)

	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
1	2		4	15	9	7	8
Г	Depreciation	10A					
$\overline{}$	Interest on Loan	3E			Ą Z		
Т	Return on Equity	89					
	Interest on Working Capital	11	0.50	0.52			
	O & M Expenses*		60.6	9.41			10.35
П	Total		9.59	9.92	10.26	10.59	
1							

(Petitioner)

the state of

रम्बद्ध निरंशक (नियंजन एवं बानित्स) उठप्रवमक्ट्राव्सवित्ति

(माज पहा) असम्बन्धाः अस्तित्व

Part III Form-2

Details of Transmission Lines and Substations and Consmusication Systems
Name of the Petitionsr: Uttar Pradesh Power Transmission Corporation Limited
Name of the Ragion: North
Name of the Project: 132 KV Dhampur-Kalagach
Name of the Transmission Blament or Communication system: 132 KV Dhampur-Kalagach

S. No.	S. No. Name of	Type of line AC/HV DC	SVC or	No. of Sub- Conductors		Voltage Line length level kV Cht km.	Line length km	_	Covered	Covered in the present petition
								operation Yea/No	Yea/No	If No, petition No.
T	132 KV Ohampur- Kalagarh	AC	ပ္တ	1	132	45	45	1-Jan-1975	Yes	
77										
60										
4										
,										

200	If No. petition No.					_				
COVERED III UN	If No. pa					present		M No.		
3	YearN o					County in the present		YearNo		
	Date of Commercial operation					Con			-	
	132 kV & Below							Commercial operation		
Bays	220 KV							Number! length		
No. of Bays	400 KV							2		
	765 VA			MA				Technical Particulars	NA NA	
	No. of transformers / Reactors/SV C etc. (with capacity)					-			2	
	Voltage (evel.kv							Type of Communication System— Communication System under ULDG SCADA WAMBFibre Optic Communication SystemRTUIPABX etc		
Type of Substation	Convantional(Gr earfield/Brownff etd)/ G8SHVDC terminal/HVDC Back to Back						1	Type of Ca Communical SCADA Syals		
Type	Name of Sub- station terms					System:		Name of Communication System		
	S.NO.	1	2	P	4	Communication System:		Name of Comm		
	ő					$\ $		ő V vi	- 12 EJ 4 ·	

राम्द्र निरंशक (मियंतम एवं वाणेख्य)

जन्मान्य हो जन्मान

(मिनाव तिहा) अवीहाए अधियना

#### Part III Form-3

#### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Dhampur-Kalagarh

Name of the Transmission Element or Communication system: 132 KV Dhampur-Kalagarh

Year Ending March

Particulars	Unit <sup>2</sup>	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01,04,2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

à

(Petitioner)

Aujus

(मनोज सिंह) कवित्रण अभिरत्वा

रामद्ध निवंदक (निवंजन एवं वादिन्व) उठप्रवादशकावनावनिव

#### Part-III Form 11

### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV Dhampur-Kalagarh

Name of the Transmission Element or Communication system: 132 KV Dhampur-

Kalagarh

(Amount in Rs. Lakh)

				(Announce o	11 1701
Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
2	4	5	6	7_	8
O & M Expenses	0.76	0.78	0.81	0.84	0.86
Maintenance Spares	1.36	1.41	1.46	1.51	1.55
Receivables	1.60	1.65	1.71	1.76	
Total Working Capital	3.72	3.85	3.98		
	13.50%	13.50%	13.50%	13.50%	
Interest on Working	0.50	0.52	0.54	0.55	0.57
	O & M Expenses Maintenance Spares Receivables Total Working Capital Rate of Interest	2 4  O & M Expenses 0.76  Maintenance Spares 1.36  Receivables 1.60  Total Working Capital 3.72  Rate of Interest 13.50%	2     4     5       O & M Expenses     0.76     0.78       Maintenance Spares     1.36     1.41       Receivables     1.60     1.65       Total Working Capital     3.72     3.85       Rate of Interest     13.50%     13.50%	2       4       5       6         O & M Expenses       0.76       0.78       0.81         Maintenance Spares       1.36       1.41       1.46         Receivables       1.60       1.65       1.71         Total Working Capital       3.72       3.85       3.98         Rate of Interest       13.50%       13.50%       13.50%	Particulars         2014-15         2015- 16         2016-17         2017-18           2         4         5         6         7           O & M Expenses         0.76         0.78         0.81         0.84           Maintenance Spares         1.36         1.41         1.46         1.51           Receivables         1.60         1.65         1.71         1.76           Total Working Capital         3.72         3.85         3.98         4.11           Rate of Interest         13.50%         13.50%         13.50%         13.50%

(Petitioner)

(गनीज सिंह) अधीरमा अभिगन्ता सम्बद्ध गिर्देशक (नियोग्यम एवं वाधिज्य) देशक (नियोग्यम एवं वाधिज्य)

Lujus

Summary of Tariff

Name of the Transmission Assets: 132 KV Dhampur-Kalagarh

S.No.	Particulars	Form No.	Form No. 2019-20 2020-21 2021-22 2022-23	2020-21	2021-22	2022-23	2023-24
-	2	3	4	22	9	7	8
1	Depreciation	10A					
2	Interest on Loan	36			¥.		
3	Return on Equity	8					
4	Interest on Working Capital	11	0.49	0.51	0.53	0.55	0.57
ıçı	O & M Expenses		11.34	11.70	12.15	12.56	13.01
	Total AFC		11.83	12.21	12.68	13.10	13.57

Note: This Form is a summary form and the Data to this from should flow from other base forms.

(Petitioner)

मिनोज सिंह) उच्चेत्रण अभित्या सम्बन्ध भित्यक एवं बाधित्व) उच्चित्रण सिंहोत्रत एवं बाधित्व)

- tritime

PART-M FORM-2

Details of Transmission Lines, Substations and Communication System covered in the project acope and O&M for Instant asset

or Malazanda	HIP ROMAN	
Assessed 100 Int Chamber	Constitution and the constitution of the const	
Street of the Toursmitted		

4	1, Italianission Circo.											
_ š	S.Wo. Name of Line	Type of Line	S/C or D/C	No. of Sub-	Voltag B	Line Bays	Line Reactor(including Switcheble	Line length	Line length Date of Commercial Operation		Covered in the present Petition	neont.
		MUNICIPALITY		Conductors			Reactor)	1000			Yes/No Iff N	If No, Petition
-	132 KV Ohampur-Kalagarh	AC	S	-	132	0	0	45	1-Jan-1975		Yes	
18	Summary:									į		[
	O& MEzpense	O& M Expenses for the Transmission lines covered in the lestant petition	issten lines co	vered in the inst	ant petition		2018-20	2020-21	2021-22	2022-23	2023-24	
Į	Normative rate of O&M as per Regulation (Rupees in Lakh)	(Rupses in Lakt	3				0.252	0.26	0.27	0.279	0.289	
Len	Length in km						46	45	45	45	46	
ð	OAR Claimed (Russea in Lakh)						11.34	11.70	12.15	12.56	13.01	

si											Ì	ŀ	ľ	ľ	
		in add.				No. o	No. of Bays			<b>MVA Capacity</b>		Ī	Date of	COM	Covered in the
Ġ. Ś	Name of Sub-station	Substation Conventional( Graenfalektar Cwanfalektar	Voltage lavel kV	No. of transform ers / Reactors/5 VC etc. (with capacity)	765 kV	400kV	220 kV	다 중 세 등 *	765 kV	400 kV	220 KV	132 kV & a Below		ressitio	I' Na, Petition No.
-	2000000						AN								
<u> </u>	O& M Expenses for the Substations covered in the instant petition	covered in the in	stant petition					2018-20	2020-21	21	2021-22	22	2022-	2023-24	24
Norm	Normative rate of O&M as per Regulation (Rupees in Lakh)	(Rupees in Laki	T)												
No. of units	nuits									۲ 2					
	California discount to bethi														

1. Number of bays is inclusive of line bays, ICT bays, and ICT bays, line bays, marter bays shall be considered expansially for purpose of O&M expenses.

2. The 8VVA Cepacity shall exclude the capacity of reactor, FSE, Stat Com

Name of Com	Name of Communication System	Type of	Length of			Date of Commercial	Capital Cost upto	Covered	Date of Commercial   Capital Cost upto   Covered in the present Petition
		Ų	OPGWIIN Ks	NO. OT MIU	NO. OT PINU	operation	Cutoff	Yes/No	if No, Patition No.
			I						
_					MA				
					2				
Summary									
٥	O& M Expenses for the Communication System covered in the	a Communication	System cover	ed in the	2019-20	2020-21	2021-22	2022-23	2023-
		instant petition							*
O&M expenses as per regulations	r regulations								
al O&M Expense	Actual O&M Expense (Rupees in Lakh)						¥		
nal project cost.	Original project cost / Asset related to the communication system	communication	svatem						

2019-20 4) Summary of O&M Expenses claim Particulars A) Normative O&M

2023-24

2022-23

2021-22

2020-21



-	1  Transmission line	11.34	11.70	12.15	12.58	١
ы	Substation	- CO	Total Control			1
m	Communication System					
	Total Normative D&M	11.34	11.70	12.15	12.58	Į
	B) O&M Claimed under					
	Regulation 35 (3)(C)		2			
-	Security Expenses					1
~	Actual Capital Spare consumed			Ī		
						ı
12	3 Total O&M	11.34	11.70	12.18	12.56	
Not	Note: The security expenses and Capital Spane are to be submitted on estimated basis for the purpose	al Spares are to b	se submitted on es	timated basis	or the purpo	3

the true

### <u>PART-III FORM-3</u> Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 132 KV Dhampur-Kalagerh

Year Ending	March
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						1401	STRUMING MAGE
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh			NA			
Normative O&M per MVA	Ra. Lakh			INC			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	80	45	45	45	45	45
Bank Rate sa on first day of financial year3	%	13.50%	12.05%	12.05%	12.05%	12,05%	12.05%
Lepsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

1. The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Provise to Regulation 30.

2. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

3. For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

(Petitioner)

(गंगाज सिंह) उन्हें अपने पत्ता सम्बद्ध ित क (निकास एवं वापिट्य) GONOTION TO TOP TO

#### Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV Dhampur-Kalagarh

(Amount in Rs. Lakh)

S. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
- 1	No. of Days in the year		366	365	365	365	366
II	No. of days for which tariff claimed		366	365	365	365	366
1	O & M Expenses - one month		0.95	0.98	1.01	1.05	1.08
2	Maintenance Spares 15% of O&M Expenses		1.70	1.76	1.82	1.88	1.95
3	Receivables equivalent to 45 days of AFC		1.46	1.51	1.56	1.62	1.67
- 4	Total Working Capital		4.10	4.24	4.40	4.54	4.70
6	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12,05%	12.05%
6	Interest on Working Capital		0.49	0.51	0.53	0.55	0.57

(Petitioner)

(मनोज सिंह) उक्तीराम अभियन

अधीराण अनियन्ता सम्बद्ध निरोशक (निर्मातन एवं कांगेज्य)

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Part III Form-1

Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV LALITPUR-RAJGHAT

Name of the Transmission Element or Communication system: 132 KV LALITPUR-RAJGHAT

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
-	2		4	S	9	7	æ
1.1	Depreciation	10A					
1.2	Interest on Loan	∃6			NA		
1.3	Return on Equity1	8					
1.4	Interest on Working Capital	11	0.28	0.29	0:30		
1.5	O & M Expenses*		5.05	5.23			
	Total		5.33	5.51	5.70	5.88	6.07
		N					

(Petitioner)

सम्बद्ध निनेशक (निवादक एवं दाधिच्व) च०४०६४०६४० कालेल 医传 原第

Part #Form-2
Details of Transmission Linsa and Substations and Communication Systems
Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 132 KV LALITPUR-RAJGHAT
Name of the Transmission Element or Communication system: 132 KV LALITPUR-RAJGHAT

	Covered in the present pelition	If No, petition No.						
١		Yes/No	Yes					
	_	operation YearNo	1-Jan-1995					
	Une length		25					
	Line length Cht km.		\$2					
	Voltage level kV		132					
	No. of Sub- Voltage Line length Line length Conductors level kV Cht km. km		-					
	SAC or DAC		ပ္တ					
	Type of line AC/HV DC		Q4					
	Name of	3	132 KV LALITPUR. RAJGHAT		3			
	is. No.		-	2	60	4	_	,

Volkage   Volkage   Peactoral   Technical Particulars   No. of transformers   No. of t	Substations		Turn of Buhelshoo				No. of Bays	Says			Ö	Covered in the
Communication System:  Type of Communication System  Communication System  Communication System  SystemRTUPABX etc.  Name of Communication  SystemRTUPABX etc.  NA  NA  Namber length  Communication  SystemRTUPABX etc.  NA	S.NO.	Name of Sub- station	Conventional (Gr Conventional (Gr eanfaid (Brownf etc)) GBS/HVDC terratnal (HVDC Back to Back	Voltage level kV	No. of transformers f Reactors/SV C etc. (with capacity)	765 KV	400 kV	220 KV	132 kV & Below	Date of Commercial operation	YesiNo	If No, petition No.
Communication System:  Type of Communication System - Communication System System/FTURPABX etc.  Name of Communication System System/FTURPABX etc.  NAM  Number length Commence in Particulars Number length Commence in System/FTURPABX etc.	- N M M					Ž	A					
Name of Communication System—  Communication System— Communication System— Communication System— System-RTUPABX etc.  Name of Communication System— System-RTUPABX etc.  Name of Communication System	Сопш	unication System:										
Name of Communication System – Communication System ander ULDC: Technical Particulars Number length Commercial Yea/No Operation System/TUPABX etc.	-									6		120001
NA		e of Communication &		mmunication fon System of VAMS/Fibro ommunication		mical Padicular		lumber lengt			Yes/No	If No.
	- 803	=		38		NA						

राम्बर निदंतक विकासन एवं याभिष्य) TO NOT TO THE PROPERTY.

#### Part III Form-3

#### Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV LALITPUR-RAJGHAT

Name of the Transmission Element or Communication system: 132 KV LALITPUR-RAJGHAT

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative D&M per bay	Rs. Lakh			NA_		4
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मनोल सिंह) अधीक्षण अभिग्रन्ता सम्बद्ध नियशक (नियोजन एव दाणिज्य) उठप्रज्याद्धावकादत्विक

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#### Part-III Form 11

#### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV LALITPUR-RAJGHAT

Name of the Transmission Element or Communication system: 132 KV LALITPUR-

**RAJGHAT** 

(Amount in Rs. Lakh)

SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.42	0.44	0.45	0.46	0.48
2	Maintenance Spares	0.76	0.78	0.81	0.84	0.86
3	Receivables	0.89	0.92	0.95	0.98	1.01
4	Total Working Capital	2.07	2.14	2.21	2.28	2.35
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.28	0.29	0.30	0.31	0.32

(Petitioner)

(गर्माज सिंह) अवीक्षण अभियन्ता सम्बद्ध निदेशक (नियोजन एवं चाणिज्य) उठ्यठपाठमुक्तकारिक

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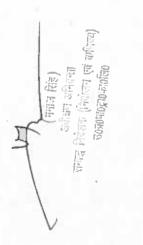
# Summary of Tariff

Name of the Transmission Assets: 132 KV LALITPUR-RAJGHAT

S.No.	Particulars	Form No.	2019-20	Form No.   2019-20   2020-21	2021-22	2022-23	2023-24
-	2	8	4	10	9	7	æ
-	Depreciation	10A					
2	Interest on Loan	3E			Y Y		
m	Return on Equity	80					
4	Interest on Working Capital	11	0.27	0.28	0.29	0.30	0.31
ıo	O & M Expenses		6.30	6.50	6.75	6.98	7.23
	Total AFC		6.57	6.78	7.04	7.28	7.54

Note: This Form is a summary form and the Data to this from should flow from other base forms.

(Petitioner)





Details of Transmission Lines, Substations and Communication System covered in the project scope and O&M for Instant asset TPUR-RAJGHAT

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S/C or D/C	No. of Sub- Conductors	Voltage Level kV	Line Bays	Line Rescior(including Switchable Rescior)	Line tength	Line length Date of Commercial Operation km		Pettion YearNo IV No. Petition
SC	•	132	0	0	ß	1-Jan-1895	Yes	
ission lines ca	vered in the inst	ant petition		2019-20	2020-21	2021-22 26		2023-24
1				0.252	0.26	0.27	0.278	0.269
termative rate of DSM as per Kingulation (Kupees in Lawn)				26	26	25	2.5	22
				6.30	6.50	6.75	6:98	7.23
	SC Sston lines ca	SC 1 sslon lines cavered in the line	SC 1	SC 1	SC 1 1132 0	SC         1         132         0         0           ston lines cavered in the instant petition         2018-20           6.30	SC         1         132         0         0         25         1-Jan-1895           slon lines cavered in the instant petklion         2019-20         2020-21         2021-22           6.35         26         26         26           6.37         6.30         6.50         6.75	SC         1         132         0         0         25         1-Jan-1965         Yes           ston lines covered in the instant patklion         2019-20         2020-21         2021-22         2022-33           25         26         26         26         25         26           6:30         6:50         6:50         6:36         6:39         6:38

ri						No.	No of Buse			MVA Capacity			1	Cove	Covered in the
						NO. L	and the state of							-	
S.No.	Marrie of Sub-station	Substation Conventional( Conve	Voltage level kV	No. of transform off / Reactors/5 VC elc. (with capacity)	766 kV	400kV	220 kV	132 17.7 8 Belo	765 KV	400 kV	220 NV	132 KV & Below	Commer clat   Yea/No	O NO	If No, Pettion No.
-		1 domination l					NA								
]	Stements										2000		2823	AC-2000	180
경	OR M Expenses for the Substations covered in the Instant petition	covered in the in	stant petition				2019-20	120	20202-21	e e	202	27-1202	23 52	en East	7 :
Normative r	Normative rate of O&M as per Regulation (Rupees in Lakh) No. of units	(Rupees in Lak	9							AN					$\neg$

1. Number of bays is inclusive of this bays, ICT bays, reactor bays std. Each ICT bays, line bays, reactor bays shall be considered separately for purpose of O&M expenses.

2. The MVA Capacity shall exclude the repactor, FSE, Stat Com

Opegwin hs No. of RTU No. of PMU  NA System covered in the 2019-20	Name of Communication System Type of Communication OPGWiln his No. of RTU No. of PMU Late of Communication OPGWiln his No. of RTU No. of PMU cperation Cutoff Communication Resolution System covered in the Axpenses as per requisitions in Late of the Communication system covered in the System Covered in the S	D20-21 Z021-22 Z022-23 NA	Type of Length of Communicatio OPGWiin its		of PMII	Date of Commercial			
System covered in the 2019-20 2020-21 2021-23 2022-23	020-21 2021-32 2022-23 NA	020-21 2021-22 2022-23 NA				operation	Cutoff	YearNo If N	o, Pethlon No.
System covered in the 2019-20 2020-21 2021-22 2022-23	020-21 2021-22 2022-23 NA	he Communication System covered in the 2019-20 2020-21 2021-22 2022-23 NA			NA NA				
System covered in the 2019-20 2020-21 2021-22 2022-23 NA	020-21 2021-22 2022-23 NA	020-21 2021-22 2022-23 NA							
System covered in the 2019-20 2026-21 2021-22 2022-33	020-27 2027-23 NA	NA	Stander						Comple
NA	NA	NA	OS.N Expenses for the Communication System covered is	the	2019-20	Ī	2021-22	2022-23	24
100 (200)			Instant petition			-			
The state of the s			expenses as per regulations				***		
1 1. A complete of the state of	na bridget cost / Assai related to the communication system	nal project cost / Assei related to the communication system	at O&M Expense (Rupees in Lakh)				ZZ.		
			majorit enet / Accord related to the communication system						

भग्यद्व िन्द्राम् (निन्त्रमम् एवं वाणित्य) (नेना न चिहा) द्रासीसम्बद्धाः

राज्यातमा जूना विमावाली

4) Summary of O&M Expenses claim

A) Normalive D&M

2021-22

2020-21

2019-20

अन्यक्ष भादशाम (मिक्तेंदान एवं वामिष्य) उठ्यवशत्रुविकाशिक

6.75 6.98 7.23	8.75 6.86 7.23	is for the purpose				
9.50	5	submitted on estin				
6.30	ured	ind Capital Spares are to be			n.	
Communication System Total Normative O&M	B) O&M Claimed under Regulation 35 (3)(C) Security Expenses Actual Capital Spare consumed	Total OEM The security expenses a			ø	4

6.75

6.50

6.30

Communication System
Total Normative C&M
B) C&M Cleimed under
Regulation 35 (3)(C)
Security Expenses
Actual Cepital Spare consumed

tritunt

### PART-# FORM-3 Normative Parameters considered for Tartiff Computation

Name of the Transmission Assets: 132 KV LALITPUR-RAJGHAT

	Year E	nding Merch
1-22	2022-23	2023-24
(6)	(7)	(8)
50%	15.50%	15.50%
1.0%	98.0%	98.0%
		0.000

Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	7/4	15.50%	15.50%	15.50%	15,50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Ngrmative O&M per km	Rs. Laith	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh			NA			
Normative C&M per MVA	Rs. Lakh			140-5			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning of every year(in completed years)	No. of years						

1. The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in as with first Provise to Regulation 30.
2. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income rafers the profit before tax.

3. For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

(Petitioner)

(समाज तरह) क्रोतिय इतियसा सन्बद्ध निवसक (निवसक एवं वाणिच्य) च्यावा (निवसक एवं वाणिच्य)

#### Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV LALITPUR-RAJGHAT

(Amount in Ra. Lakh)

S. No.	Perticulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
- 1	No. of Days in the year		366	365	365	365	366
II	No. of days for which tariff claimed		366	365	365	365	366
1	C & M Expenses - one month		0.53	0.54	0.58	0.58	0.60
2	Maintenance Spares 15% of O&M Expenses		0.95	0.98	1.01	1.05	1.06
3	Receivables equivalent to 45 days of AFC		0.81	0.84	0.87	0.90	0.93
4	Total Working Capital		2.28	2.35	2.44	2.52	2.61
5	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital		0.27	0,25	0.29	0.30	0.31

(Petitioner)

(मनोज सिंह) इनोबाम अभियाना

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Part III Form-1 Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV ANPARA-MORWA

Name of the Transmission Element or Communication system: 132 KV ANPARA-MORWA

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
-	2		4	5	9	7	80
1.1	Depreciation	10A					
1.2	Interest on Loan	6E			A A		
1.3	Return on Equity1	8			1		
1.4	Interest on Working Capital	11	0.13				II.
rc.	O.& M Expenses*		2.32	2.40	2.48		2.65
	Total		2.45	2.54	2.62	2.71	
			55				

(Petitioner)

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सम्बद्ध निदेशक (निविज्ञा एवं वाणिच्य च०५०११०५०का०ति

अविकास अभियन्ता

Part III Form-2 Details of Transmission Lines and Substations and Communication Systems

Name of the Patitioner: Ultar Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 132 KV ANPARA-KORWA
Name of the Transmission Element or Communication system: 132 KV ANPARA-MORWA

E			Т	T	Т	Т	1	٦
Covered in the present petition	W No. pettion No.							
Cove	YesAlo	Yes						
	operation	1-Jan-1865						
Line length		11.5						
Line length Ckt km.		11.5						
Voltage level KV		132						
No. of Sub- Voltage Line length Line length Conductors level KV Ckdkm. km		1						
SAC or		SC						
Type of line ACMV DC		¥C						
5. No. Name of		132 KV ANPARA- MORWA						
S. No.	į.	-	176	0	*	ļ		,

Communication System:  Name of Communication System:  Type of Communication System:  Communication System:  Type of Communication System:  Communication System:	-	Type of Substation					No. of Bays	1275			3	Covered in the
Type of Communication System –  Communication System UDCs System Operation  System System System Operation  System System System  System System System  System Syst	Å,	Conventional(Gr GSRNDC GISRIVDC terminal/HVDC Back to Back	Voltage level KV	No. of transformer / Reactors/SV C etc. ( capacity)		29 × 1	400 kV	22.0 KV	132 kV & Below	Date of Commercial operation	YesfNo	
Type of Communication System under ULDCs Communication System Walfribre Optic Communication System RTUPABX etc.			iii									
Type of Communication System – Communication System under ULDCs/ System RTUPABX etc.  Number fength Communication System RTUPABX etc.						MIA						
Type of Communication System – Communication System under ULDCs/ System RTUPABX etc.  Number fength Commercial YesUND System RTUPABX etc.						2						
Type of Communication System – Communication System operation  System RTMPABX etc.  Number fength Communication System RTMPABX etc.												
Type of Communication System – Communication System under ULDC/ Communication System RTUPABX etc  Namber tength Communication System RTUPABX etc	em:										and in the	looses.
SystemRTUPABK etc.	3		ommunication tion System t	n System – under ULDC/	Technical Pa			umber/ tength		_		E No.
NA	adion Sy		ommunication	x elc								No.
NA			4.									==
				te	2							
	1								III.by Sizze	भवन्ता		

सम्बद्ध निदेशक (मिरोजना एवं वामित्य)

उ०प्रवम् वर्षे विकालिय

#### Part III Form-3

Normative parameters considered for tariff computations

Name of the Petitioner: Utter Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV ANPARA-MORWA

Name of the Transmission Element or Communication system: 132 KV ANPARA-MORWA

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मनोज सिंह) अंबीक्य अनियन्ता

#### Part-III Form 11

#### Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV ANPARA-MORWA

Name of the Transmission Element or Communication system: 132 KV ANPARA-

**MORWA** 

(Amount in Rs. Lakh)

SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7	8
1	O & M Expenses	0.19	0.20	0.21	0.21	0.22
2	Maintenance Spares	0.35	0.36	0.37	0.38	0.40
3	Receivables	0.41	0.42	0.44	0.45	0.47
4	Total Working Capital	0.95	0.98	1.02	1.05	1.08
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.13	0.13	0.14	0.14	0.18

(Petitioner)

(मनाज तिह) अधीरतण अनियन्ता

राज्यसं निर्देशकं (निराधन एवं वाणिक्य)

Summary of Tariff

Name of the Transmission Assets: 132 KV ANPARA-MORWA

S.No.	Particulars	Form No.	Form No. 2019-20	2020-21	2021-22	2022-23	2023-24
-	2	က	4	2	9	7	8
-	Depreciation	10A					
2	Interest on Loan	3E			N A		
65	Return on Equity	8					
4	Interest on Working Capital	+	0.13	0.13	0.14	0.14	0.14
2	O & M Expenses		2.90	2.99	3.11	3.21	3.32
	Total AFC		3.02	3.12	3.24	3.35	3.47

Note: This Form is a summary form and the Data to this from should flow from other base forms.

(Petitioner)

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उठमण्डाव्याव्याव्या

PART-JII FORM-2

Details of Transmission Lines, Substations and Communication System covered in the project scope and O&M for instant assets.

Name of the Transmission Assets: 132 KV ANPARA-MORWA.

E I	1. Transmission Linear:						н			ı	Covered in the present	resent
8.No.	S.No. Name of Line	Type of Line ACHIVOC	S/C or D/C	No. of Sub- Conductors	Voltage Level KV	Line Bays	Eme Keedtorjinduoing Switchable Reactori	Line length km	Line length Date of Commercial Operation km		Petition Yes:No II	on If No, Petition
-	132 KV ANPARA-MORWA	¥C.	S	-	132	0	0	11.5	1-Jan-1985		Yes	
Sum	Summary:											
L	O& M Expense:	O& M Expenses for the Transmission lines covered in the Instant petition	ission lines cov	ered in the Inst	ant petition		2019-20	2020-21	2021-22	2022-23	2023-24	
							0.383	0.25	0.27	0.279	0.289	
Ş	Normalive rate of O&M se per Regulation (Rupees in Lakn)	(Rubers in Lak					4	11.5	44.8	11.5	11.6	
3	Length in km						2.90	2.99	3.11	3.21	3.32	ī
200	OEM Claimed (Rupses in Lakh)											

2	in self t				No.	No. of Bays		4	MVA Capacity		1	Date of	Cov	Covered in the
S.No. Name of Sub-station	Substation Conventional Greenfeld/Br pwnfieldy GIRMVDC	Substation Conventional Grantiform by Grantiform by Grantiford W. V. C. etc. (with GISMVDC	No. of transform ers / Reschors/S VC etc. (with capacity)	786 kV	400KV	220 kV	132 W 60 W	785 kV	400 kV	220	132 KV & Below		restino	if No, Patition No.
-	formula aftilities					NA								ſ
Summery: On the instant petition	s covered in the k	natant petition				201	2019-20	202021	21	2021-22	21	2022-	2023-24	- 24
								-						_
Normetive rate of OSM as per Regulation (Rupees in Lakit)	on (Rupees in Lah	th)				T			AN					_
No. of units OSM Claimed (Rubees in Lakh)												1		1

1. Number of bays is inclusive of time bays, ICT bays, reactor bays etc. Each ICT bays, ine bays, reactor bays shall be considered separately for purpose of O&M expanses.
2. The MVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

8				A				
Agricians							0000000	2023.
MExpenses for the	Communication Instant petition	System cove	red in the	2019-20	20 2020-21	2021-22		7.
O&M expenses as per regulations						ΔM		
Actual O&M Expense (Rupees in Laidh)				1				
Orders revises cost / Asset related to the communication system	nmunication s	Matem						1

समान् भावताक (निवंद्यन एवं दामिष्य) 304070710 110 RIO

इस्. म अभियना

4) Summary of O&M Expenses claim

2021-22

2020-21

2019-20

_		4.00	4.35			
<u> </u>	2 Substation					
<u> </u>	3 Communication System					
L	Total Normative O&M	2.90	2.99	3.11	3.21	3.32
_	B) O&M Claimed under					
	Regulation 35 (3)(C)					Ī
	1 Security Expenses					I
Ľ	2 Actual Capital Spare consumed					
Ľ	3 Total O&M	2.90	2.99	3.11	3.21	3.32
_	Note: The security expenses and Capital Spares are to be submitted on estimated basis for the purpose	Atal Spares are to	be submitted o	n estimated bas	s for the purpo	2





#### PART-IN FORM-3 Normative Parameters considered for Tariff Computation

Name of the Trensmission Assets: 132 KV ANPARA-MORWA

Ye	ar En	dina	March

						1001 6	t talling more
Particulars	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15,50%	15.50%	15.50%	15,50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date 1	%			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative OSM per km	Ra. Lakh	0.230	0.252	0.260	0.270	0.279	0.289
Normative O&M per Bay	Rs. Lakh			NA			
Normative O&M per MVA	Rs. Lakh			***			
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year	%	13.50%	12.05%	12.05%	12.05%	12,05%	12.05%
Lapsed life as on 61.04.2019 and beginning of every year(in completed years)	No. of years						

<sup>1.</sup> The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance with first Provise to Regulation 30.

2. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance withRegulation 31 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

(Petitioner)

(गनांज सिंह) अधीक्षण अनियन्ता सन्बद्ध निवेशक (निवांजन एवं वाणिज्य) ซององกอสุดสอไสอ

<sup>3.</sup> For Tariff Petition, it should be 1.4.2019, while for True-up Petition, it should be 1<sup>st</sup> April of the respective financial years.

#### PART-III FORM-11

### Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV ANPARA-MORWA

(Amount in Rs. Le	akh)	
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S. No.	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
1	No, of Days in the year		366	365	385	365	366
П	No. of days for which tariff claimed		366	366	388	365	366
1	O & M Expenses - one month		0.24	0.25	0.26	0.27	0.28
2	Maintenance Spares 15% of O&M Expenses		0.43	0.45	0.47	0.46	0.50
3	Receivables equivalent to 45 days of AFC		0.37	0.38	0.40	0.41	0.43
4	Total Working Capital		1.05	1.08	1.12	1.15	1.20
6	Bank rate as on 01.04,2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
6	Interest on Working Capital		0.13	0.13	0.14	0.14	0.14

(Petitioner)

(ननाज शिह) समीक्षण जनियन्ता ताम्बद्ध निवेशन (निवोजन एवं वाणिण्य) उट्याठमाठद्वाठ मार्गलिठ

Part III Form-1 Summary Sheet

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV BINA-MORWA

Name of the Transmission Element or Communication system: 132 KV BINA-MORWA

(Amount in Rs. Lakhs)

S.No.	Particulars	Form No.	2014-15	2015-16	2016-17	2017-18	2018-19
-	2		4	2	9	7	8
1.1	Depreciation	10A					
1.2	Interest on Loan	3E			Y Y		
1.3	Return on Equity	8					
1.4	Interest on Working Capital	1	0.13				
ri.	O & M Expenses*		2.32	2.40	2.48		
	Total		2.45	2.54	2.62	2.71	2.79

(Petitioner)

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राज्या निदेशक (निद्यान एवं बार्गच्य) च0त्र0म्बर्ट्रा० ऋतःचेत

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Part II Form-2
Details of Transmission Lines and Substations and Communication Systems
Name of the Petitioner: Litter Pradesh Power Transmission Corporation Limited
Name of the Region: North
Name of the Project: 132 KV BINA-MORWA
Name of the Transmission Element or Communication system: 132 KV BINA-MORWA

5. No.	S. No. Name of	Type of line ACHY DC	SIC or	No. of Sub- Voltage Line length Line length Conductors level XV CKL- km. km.	Voltage level XV	Line length Ckt km.	Line length km	Commencial petiti	Coverad	Covered in the present petition
								орегадо	Yes/No	If No, petition No.
<u>_</u>										
	132 KV BINA- MORWA	Ą	သွ	<b>7-</b>	132	11.5	11.5	1-Jan-1978	Yes	
[										
	122									
[										

Covered to the	Data of Commercial Yea/R o If No, patition No. operation				Covered in the present		
	132 KV Cor					Date of Commercial operation	
Bavs	PA 220					Numberf fength	
No. of Bavs	400 KV				-		
	788 7.x		414	Z		Technical Particulara	A N
	No. of transformers / Reactonn/SV C etc. (with capacity)						
	Voltage fevel XV	i				Type of Communication System – Communication System under ULDC/ SCADA WAMS/Fibre Optic Communication System/RTUPABX etc	
The state of the s	i ype od substation Conventional(Gr gentliebdBrownfi ald)/ GIS/HVDC terminal/HVDC Back to Back					<del>Ban</del>	
-	Marna of Sub-				Bon System:	Name of Communication System	
	S.NO.	1		2 4 ,	Communication System:	S. No. Name of C	- 10 10 4 1

गन्धः ि ्क (नियोज्ञ पूर्व बाधित्व) उठाविक्रकृष्टिकार्वेह

#### Part III Form-3

Normative parameters considered for tariff computations

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV BINA-MORWA

Name of the Transmission Element or Communication system: 132 KV BINA-MORWA

Year Ending March

Particulars	Unit	2014-15	2015-16	2016-17	2017-18	2018-19
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%
Target Availability	%	98.00%	98.00%	98.00%	98.00%	98.00%
Normative O&M per km	Rs. Lakh	0.202	0.209	0.216	0.223	0.230
Normative O&M per bay	Rs. Lakh			NA		
Spares for WC as % of O&M	%	15%	15%	15%	15%	15%
Receivables in Months for WC	Months	2	2	2	2	2
Bank Rate as on 01.04.2014 <sup>2</sup>	%	13.50%	13.50%	13.50%	13.50%	13.50%

1. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 25 i.e. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

2. Mention relevant date

(Petitioner)

(मगंज तिंह)

चम्बद्ध निवंशक (विकास एवं प्राधिक)

VOUNTY

#### Part-Ill Form 11

## Calculation of Interest on Working Capital

Name of the Petitioner: Uttar Pradesh Power Transmission Corporation Limited

Name of the Region: North

Name of the Project: 132 KV BINA-MORWA

Name of the Transmission Element or Communication system: 132 KV BINA-MORWA

(Amount in Rs. Lakh)

SI. No.	Particulars	2014-15	2015- 16	2016-17	2017-18	2018-19
1	2	4	5	6	7_	8
1	O & M Expenses	0.19	0.20	0.21	0.21	0.22
2	Maintenance Spares	0.35	0.36	0.37	0.38	0.40
3	Receivables	0.41	0.42	0.44	0.45	0.47
4	Total Working Capital	0.95	0.98	1.02	1.05	1.08
5	Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
6	Interest on Working	0.13	0.13	0.14	0.14	0.15

(Petitioner)

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(मनोज सिंह) अधीक्षण अभियन्तर

सम्बद्ध निदेशक (निर्माल एवं वर्गिण्य)

PART-III FORM-1

Summary of Tariff

Name of the Transmission Assets: 132 KV BINA-MORWA

S.No.	Particulars	Form No.	2019-20	2019-20 2020-21 2021-22 2022-23	2021-22	2022-23	2023-24
-	2	က	4	c	9	7	80
-	Depreciation	10A					
2	Interest on Loan	9E			NA		
က	Return on Equity	8					
4	Interest on Working Capital	11	0.13	0.13	0.14	0.14	0.14
чo	O & M Expenses		2.90	2.99	3.11	3.21	3.32
	Total AFC		3.02	3.12	3.24	3.35	3.47
Note: This F	Note: This Form is a summary form and the Data to this from should flow from other base forms.	ta to this fron	n should fic	w from oth	er base for	ms.	

(Petitioner)

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(मना अस्ति) अस्मय विदेशक विभिन्न उठ्यक्षणकात्रकातिक

Petalis of Transmission Lines, Substations and Communication System covered in the project acope and O&M for instant asset

Voltage Line Bays	Line Reactor(including Switchable	if Ine length		Covered in the present	
+			Date of Commercial Operation		uo.
6	Reactor	MARTI		Yes/No	If No, Petition
732	0	11.5	1-Jan-1978	Yes	
O& M Expenses for the Transmission lines covered in the Instant petition	2019-20	2020-21	2021-22 20	2022-23 203	2023-24
	0.252	0.28	0 72.0	0.278 0.	0.288
	11.5	11.5	11.5	_	97.0
	2.90	2.99	3,11	3.21	3.32
		11.5		11.5 9.27	14.5 44.5 44.5 2.99 3.44 3.21

ci								Ì				ľ			and to the	-
		in add to		,		No.	No. of Bays		M	MVA Capacity			Dete of	2	COVERNI III III	_
9.N 0.	Name of Sub-station	Substation Conventional( Conve	Voltage fevel kV	No. of fransform era / Reactors/S VC etc. (with capacity)	765 KV	400kV	220 KV	¥ 5 ≥ 35 × 5 ≥ 35	765 kV	400 kV	220 kV	132 kV & Below	Commer ctal operatio	YearNo	lf No, Pelfilon No.	
-		The state of the s					NA									_
	Summary:										900		1000	PO LOUG		
L	O& M Expenses for the Substitions covered in the Instant pelition	covered in the In	stant pelition				2019-20		20202		202	2021-22	23		5	
EON	Normative rate of O&M as per Regulation (Rupees in Lakh)	(Rupees in Lakh		:			7			***						
No. o	No. of units									Ā						
3	O.S.M. Claimant (Removes to Lake)														7	

1. Number of bays is inclusive of line bays, ICT bays, reactor bays etc. Each ICT bays, line bays, reactor bays shall be considered separately for purpose of O&M expenses.
2. The NVA Capacity shall exclude the capacity of reactor, FSE, Stat Com

<ol><li>Communication System:</li></ol>								
Name of Communication System Type of Communication	Type of L	Length of OPGWin ks	No. of RTU	No. of PMU	Date of Commercial Capital Cost upto Covered in the present Petition operation Cutoff YearNo H No. Petition No.	Capital Cost upto	Covered in the	if No, Petition No.
	i.			AN				
Sentomenu								
Of M Expenses for the Communication System covered in the	Communication	System cover	ed in the	2019-20	20 2020-21	2021-22	2022-23	2023-
	instant petition	7	7					24
D&M expenses as per regulations						;		
Actual O&M Exponse (Rupees in Lakh)			0			Z Z		
Ortginal project cost / Asset misted to the communication system	communication	Lystem					-	
	the same of the same	and heart and he	column balamian	Land of application and the first of the control	il evnentes to be		7	
Nois: The Centeroness as Derrequinden stan be worked			rafoud pagements	CORT THE SMITS OF	an or convenient			

2020-21 2019-20 4) Summary of D&M Expenses claim Particulars A) Normative O&M

सन्बद्ध निदेशक (मियोजन एवं वाणिच्य) उग्राजनावृद्धकावाति

(मांख विह) अवीतम् अधियन्त

2021-22

-	HOMENING MILE	200	A.10		. 4:0	1
2	Substation					
2	Communication System					
	Total Normative O&M	2.90	2.99	3,11	3,21	(4)
	B) O&M Claimed under					
	Regulation 35 (3)(C)		5			
÷	Security Expenses					
69	Actual Capital Spare consumed					
•	3 Total O&M	2.90	2.99	3.11	3.21	r l
Note	Note: The security expenses and Capital Spares are to be submitted on estimated basis for the purpose	tal Spares are to t	se submitted or	setimated bas	is for the purpo	98

(मध्य थिह) अम्बाय अभियस रामद्र मियाण सियंत्रच एवं क्षिण्डा) स्प्रमण्डाड क्राइति

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# PART-III FORM-3 Normative Parameters considered for Tariff Computation

Name of the Transmission Assets: 132 KV BINA-MORWA

						Year t	nding Marc
Particulurs	Unit	Existing 2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Base Rate of Return on Equity	%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Base Rate of Return on Equity on Additional Capitalization after Cut-off Date	*			NA			
Target Availability	%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
Normative O&M per km	Rs. Lakh	0.230	0.252	0.260	0.270	0.279	0.269
Normative O&M per Bay	Rs. Lakh			NA			
Normative O&M per MVA	Rs. Lakh	i e		1495			
Spares for WC as % of O&M	*	15%	15%	15%	15%	15%	15%
Receivables in Days for WC	Days	60	45	45	45	45	45
Bank Rate as on first day of financial year <sup>3</sup>	%	13.50%	12.05%	12.05%	12.05%	12.05%	12.05%
Lapsed life as on 01.04.2019 and beginning	No. of years						

of every year(in completed years)

1. The additional capitalization on account of Change-in-Law to be excluded and To be equivalent to Weighted Average Rate of Loan in accordance 1. The social capitalization on account of change in-Law to be exceeded after 10 or equations of the expension of accordance with Regulation 31.

2. To be supported by necessary documents and calculations. Effective tax rate is to be computed in accordance with Regulation 31.

1. actual tax (or estimated tax)/gross income, where gross income refers the profit before tax.

(Petitioner)

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<sup>3.</sup> For Tariff Patition, it should be 1.4.2019, while for True-up Patition, it should be 1st April of the respective financial years.

#### PART-III FORM-11

#### Calculation of Interest on Working Capital

Name of the Transmission Assets: 132 KV BINA-MORWA

(Amount in Rs. Lakh)

S. Ng,	Particulars	As on 01-04-2019 / as on COD whichever is later	2019-20	2020-21	2021-22	2022-23	2023-24
1	No. of Days in the year		366	365	365	365	366
II	No, of days for which tariff claimed		366	365	365	365	366
1	O & M Expenses - one month		0.24	0.25	0.26	0.27	0.26
2	Maintenance Spares 15% of O&M Expenses		0.43	0.45	0.47	0.48	0.50
3	Receivables equivalent to 45 days of AFC		0.37	0.38	0.40	0.41	0.43
4	Total Working Capital		1.05	1.08	1.12	1.18	1.20
5	Bank rate as on 01.04.2019 or as on 01st April of the COD year, whichever is later.		12.05%	12.05%	12.05%	12.05%	12.05%
8	Interest on Working Capital		0.13	0.13	0.14	0.14	0.14

(Petitioner)

पानाज शिह) सम्बद्ध विशेषा समितना विशेषा (विशेषान एवं वाणिण्य उठाउट विद्राण तार्थन

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# Anil Jain Director(Planning & Commercial)



CIN No. U40101UP20U45GC028687 G511N-09AAACU8823E129 J.P.Power Transmission Corporaton Ltd. (U.P. Govt. Undertaking) 5<sup>th</sup> floor, Shakti Bhawan, 14-Ashok Marg, Lucknow-226001

Phone: 0522 2218511 Email- director\_comm@upptcl.org

No.462 Dir(P&C)/UPPTCL/2020 Date: 09 July, 2020

# **SUB: LETTER OF AUTHORIZATION**

Pursuant to power delegated by the Board of Directors of U.P. Power Transmission Corporation Limited on dated 09.07.2020, I do hereby authorize Sh. Manoj Singh, Superintending Engineer to sign on Vakalatnama, Affidavits and to appear and conduct case proceedings on behalf of the company before APTEL, CERC, UPERC etc.

Director (Planning & Commercial)

(Anil Jain)
Director (Planning & Commercial)

एकाजान्य विश्वास्त्र

Lym

## Fee Acknowledgement

Counterfoil (Office Copy)

Transaction Id.: 900138f5d38b14204ecd

PayU Id.:

16240267921

Status:

success

Received From:

U.P. POWER TRANSMISSION CORPORATION LIMITED (UPPTCL)

The Sum of Rs. :

940287

Fee Type

Petition Filing Fees

Dated: Nov 18, 2022, 12:40 PM

Fee Mode

**NEFTRTGS** 

1	Form - I (Payme	nt Related Report)
	Part	iculars
1.	Name of the Petitioner / Applicant	U.P. POWER TRANSMISSION CORPORATION LIMITED UPPTCL
2	Address of the Petitioner / Applicant	5th FLOOR SHAKTI BHAWAN 14 ASHOK MARG LUCKNOW Lucknow*
3.	Subject Matter	(Approval under Regulation-86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations'1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2014 for Truing up Transmission Tariff for 2014-19 Tariff Block and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2019 for determination of Transmission Tariff for 2019-24 Tariff Block for in respect of Uttar Pradesh Power Transmission Corporation Limited (UPPTCL) owned Transmission Lines/System conveying electricity to other States.)
4.	Diary No.	
5.	Petition No., if any	
6.	Details of generation / Transmission assets	П
	(a) Generating station / units	132 KV Afzalgarh-Kalagarh,132 KV ANPARA-MORWA, 132 KV BINA-MORWA, 132 KV Chandak-Luksar,132 KV CHANDAULI- KARMNASHA, 132 KV Dhampur-Kalagarh, 132 KV Kiratpur-Manglore, 132 KV LALITPUR-RAJGHAT, 132 KV SAHUPURI-KARMNASHA, Bareilly- Pantnagar Line,Khodri-Saharanpur-1 Line,Khodri-Saharanpur-2 Line,Moida Sec 20-BTPS Line,Noida Sec 20-Gazipur Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,132 KV Afzalgarh-Kalagarh,132 KV ANPARA-MORWA, 132 KV BINA-MORWA, 132 KV Chandak-Luksar, 132 KV CHANDAULI- KARMNASHA, 132 KV Dhampur-Kalagarh, 132 KV SAHUPURI-KARMNASHA, Bareilly- Pantnagar Line,Khodri-Saharanpur-1 Line,Khodri-Saharanpur-2 Line,Noida Sec 20-BTPS Line,Noida Sec 20-Gazipur Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,132 KV Afzalgarh-Kalagarh,132 KV ANPARA-MORWA,132 KV BINA-MORWA, 132 KV Chandak-Luksar,132 KV BINA-MORWA, 132 KV Chandak-Luksar,132 KV CHANDAULI- KARMNASHA, 132 KV LALITPUR-RAJGHAT,132 KV Kiratpur-Manglore, 132 KV LALITPUR-RAJGHAT,132 KV SAHUPURI-KARMNASHA, Bareilly-Pantnagar Line,Khodri-Saharanpur-1 Line,Khodri-Saharanpur-2 Line,Muzaffarnagar (Nara)-Roorkee Line,Noida Sec 20-BTPS Line,Noida Sec 20-Gazipur Line,Noida Sec 20-Gazipur Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patarganj Line,Sahupuri-Pasauli Line,Sahibabad-Patar

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Durjung

समीज चिक्की
अध्यादान समिवन्ति
(हिंदोपान त्व वाज्यप)
अध्यावद्रीवकाविक

Chandak-Luksar, 132 KV CHANDAULI- KARMNASHA 132 KV Dhampur-Kalagarh ,132 KV Kiratpur-Manglore , 132 KV LALITPUR-RAJGHAT, 132 KV SAHUPURI-KARMNASHA .Bareilly- Pantnagar Line, Khodri-Saharanpur-1 Line, Khodri-Saharanpur-2 Line, Muzaffarnagar (Nara)-Roorkee Line, Noida Sec 20-BTPS Line, Noida Sec 20-Gazipur Line, Noida Sec 62-Gazipur Line, Sahibabad-Patarganj Line, Sahupuri-Pasauli Line, 132 KV Afzalgarh-Kalagarh, 132 KV ANPARA-MORWA ,132 KV BINA-MORWA ,132 KV Chandak-Luksar, 132 KV CHANDAULI- KARMNASHA, 132 KV Dhampur-Kalagarh ,132 KV Kiratpur-Manglore , 132 KV LALITPUR-RAJGHAT ,132 KV SAHUPURI-KARMNASHA ,Bareilly- Pantnagar Line,Khodri-Saharanpur-1 Line, Khodri-Saharanpur-2 Line, Muzaffarnagar (Nara)-Roorkee Line, Noida Sec 20-BTPS Line, Noida Sec 20-Gazipur Line, Noida Sec 62-Gazipur Line, Sahibabad-Patarganj Line, Sahupuri-Pasauli Line, 132 KV Afzalgarh-Kalagarh, 132 KV ANPARA-MORWA, 132 KV BINA-MORWA, 132 KV Chandak-Luksar , 132 KV CHANDAULI- KARMNASHA , 132 KV Dhampur-Kalagarh, 132 KV Kiratpur-Manglore, 132 KV LALITPUR-RAJGHAT ,132 KV SAHUPURI-KARMNASHA ,Bareilly- Pantnagar Line,Khodri-Saharanpur-1 Line, Khodri-Saharanpur-2 Line, Muzaffarnagar (Nara)-Roorkee Line, Noida Sec 20-BTPS Line, Noida Sec 20-Gazipur Line, Noida Sec 62-Gazipur Line, Sahibabad-Patargani Line, Sahupuri-Pasauli Line, 132 KV Afzalgarh-Kalagarh, 132 KV ANPARA-MORWA ,132 KV BINA-MORWA ,132 KV Chandak-Luksar, 132 KV CHANDAULI- KARMNASHA, 132 KV Dhampur-Kalagarh ,132 KV Kiratpur-Manglore , 132 KV LALITPUR-RAJGHAT ,132 KV SAHUPURI-KARMNASHA, Bareilly-Pantnagar Line, Khodri-Saharanpur-1 Line, Khodri-Saharanpur-2 Line, Muzaffarnagar (Nara)-Roorkee Line, Noida Sec 20-BTPS Line, Noida Sec 20-Gazipur Line, Noida Sec 62-Gazipur Line, Sahibabad-Patarganj Line, Sahupuri-Pasauli Line, 132 KV Afzalgarh-Kalagarh, 132 KV ANPARA-MORWA ,132 KV BINA-MORWA ,132 KV Chandak-Luksar ,132 KV CHANDAULI- KARMNASHA , 132 KV Dhampur-Kalagarh ,132 KV Kiratpur-Manglore , 132 KV LALITPUR-RAJGHAT ,132 KV SAHUPURI-KARMNASHA, Bareilly-Pantnagar Line, Khodri-Saharanpur-1 Line,Khodri-Saharanpur-2 Line, Muzaffarnagar (Nara)-Roorkee Line, Noida Sec 20-BTPS Line, Noida Sec 20-Gazipur Line, Noida Sec 62-Gazipur Line, Sahibabad-Patarganj Line, Sahupuri-Pasauli Line, 132 KV Afzalgarh-Kalagarh, 132 KV ANPARA-MORWA ,132 KV BINA-MORWA ,132 KV Chandak-Luksar ,132 KV CHANDAULI- KARMNASHA , 132 KV Dhampur-Kalagarh ,132 KV Kiratpur-Manglore , 132 KV LALITPUR-RAJGHAT , 132 KV SAHUPURI-KARMNASHA ,Bareilly- Pantnagar Line,Khodri-Saharanpur-1 Line, Khodri-Saharanpur-2 Line, Muzaffarnagar (Nara)-Roorkee Line, Noida Sec 20-BTPS Line, Noida Sec 20-Gazipur Line, Noida Sec 62-Gazipur Line, Sahibabad-Patarganj Line, Sahupuri-

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प्रसाद विदेशक विकार विकार

		Pasauli Line,132 KV Afzalgarh-Kalagarh,132 KV
		ANPARA-MORWA ,132 KV BINA-MORWA ,132 KV Chandak-Luksar ,132 KV CHANDAULI- KARMNASHA , 132 KV Dhampur-Kalagarh ,132 KV Kiratpur-Manglore , 132 KV LALITPUR-RAJGHAT ,132 KV SAHUPURI-KARMNASHA ,Bareilly- Pantnagar Line,Khodri-Saharanpur-1 Line,Khodri-Saharanpur-2 Line,Muzaffarnagar (Nara)-Roorkee Line,Noida Sec 20-BTPS Line,Noida Sec 20-Gazipur Line,Sahupuri-Pasauli Line
	(b) Capacity in MW / ATC	129771,245133,245133,682109,377292,959216,153474
1	(c) Date of commercial operation	01/01/1975,01/01/1985,01/01/1978,01/01/1964,01/01/19
	(d) Period of which fee paid	2019-2024
	(e) Amount Paid	Rs. 940287 paid towards filing fee
		with Transaction ID: 900138f5d38b14204ecd
7.	Application fee for licence	
	(a) Trading licence	
	(b) Transmission licence	
	(c) Period of which paid	
	(d) Amount of fee paid	
8.	Fee paid for Miscellaneous Application	
9.	Fee paid for Interlocutory Application	
10	Fee paid for Regulatory Compliance petition	
	Fee paid for Review Application	
	Licence fee for inter-state trading	
	(a) Category	
	(b) Period	
	(c) Amount of fee paid	
	(d) Surcharge, if any	
	Annual Registration Charge for Power Exchange	
	(a) Period	
	(b) Amount of turnover	
	(c) Fee paid	
	(d) Surcharge, if any	
	Details of fee remitted	
	(a) UTR No.	
	(b) Date of remittance	
	(c) Amount remitted	
Note	e : While SI. Nos. 1 to 3 and 16 are compulsory,	the rest may be filled up as applicable.
Sigr	nature of the authorized signatory with date	

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প্রত্যাত বিশ্বতী বিশ্