पावरग्रिड सदरन् इंटरकनेक्टर ट्रान्समिशन सिस्टम लिमिटेड
[पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड की %100पूर्ण स्वामित्व वाली सहायक कंपनी]
POWERGRID Southern Interconnector Transmission System Limited
[A 100% wholly owned subsidiary of Power Grid Corporation of India Limited]
POWERGRID, SR1 HQ, D.no.6-6-8/32&395/E, Kavadiguda,Secunderabad 500080.Telangana
STD/EPABX: 040-27546636,27546658 फैक्स:040-27546637
[Registered Office: B9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016]

CCL: PSITSL/C'Peta/RTM/TT/19-24/Reactor & NGR/ दिनांक:12.03.2024

सचिव,
सैंट्रल इलैक्ट्रिसिटी रैगुलेट्री कमीशन (सी.ई.आर.सी.)
तीसरा एवं चौथा तल,
चन्द्रलोक भवन,36, जनपथ,
नई दिल्ली-110001.

विषय:- Approval under Regulation 23 of CERC (Conduct of Business) Regulations,2023 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission Tariff from Actual DOCO to 31-03-2024 for Asset-1: 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and Asset-2: Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

महोदय,
उपरोक्त पारेषण प्रणाली के वर्ष 12.05.2023 से 31.3.2024 तक के पारेषण टैरिफ हेतु याचिका की 3 प्रतियां (1 मूल व 2 प्रतियां),संलग्न है। पूर्ण याचिका को पावरग्रिड की बेवसाइट पर दर्शाया गया है जिसका पता www.powergrid.in है। माननीय आयोग द्वारा जारी सार्वजनिक सूचना दिनांक 25.08.2010 के अनुसार राशि ₹ 1,00,000.00 /- का भुगतान ऑनलाइन पोर्टल के माध्यम से पे-यू चालान द्वारा किया गया है। याचिका शुल्क की गणना नई फीस रेगुलेशन,2012 के पैरा 3(2) के तहत दिये गये निर्देशों के आधार पर निम्नुसार की गई है:-

Asset	Fin. Year	Tariff (T) (Rs. In Lakh)	Petition filing fees @....of Tariff (R)	Petition filing fees (B)=(T)X® (Rs.)	Rounded to nearest 100 (min. 40,000: 2009-12 and min. 1,00,000: 2012-24 (Rs.)
Asset-1 & 2	2019-20	0.00	0.11%	0.00	0.00
	2020-21	0.00	0.11%	0.00	0.00
	2021-22	0.00	0.11%	0.00	0.00
	2022-23	0.00	0.11%	0.00	0.00
	2023-24	80.99	0.11%	8908.90	1,00,000
Total	One Lakh Only				1,00,000

याचिका की प्रति सभी प्रतिवादियों को स्पीड पोस्ट द्वारा भेजी गई है(रसीद संलग्न है)तथा याचिका ई-फाइल कर दी गई है। निवेदन है कि याचिका को स्वीकृत किया जाए। कृपया पावती भेजें।

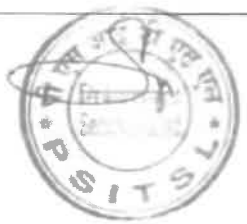
भवदीय,

संलग्नक: उपरोक्तानुसार

(एस एम हि नानाजि)
मुख्य कार्यकारी अधिकारी (PSITSL)

Form-I

Particulars	
1. Name of the Petitioner/Applicant	**POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED**
2. Address of the Petitioner/Applicant	"SAUDAMINI", Plot no 2, Sector 29, Gurgaon
3. Subject Matter	Approval under Regulation-86 of CERC (Conduct of Business) Regulations,2023 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission Tariff from Actual DOCO to 31-03-2024 for **Asset-1:** 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and **Asset-2:** Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.
4. Petition No., if any	N.A.
5. Details of generation assets (a) generating station/units (b) Capacity in MW (c) Date of commercial operation (d) Period for which fee paid (e) Amount of fee paid (f) Surcharge, if any	N.A
6. Details of transmission assets (a) Transmission line and sub-stations	**Asset-1:** 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and **Asset-2:** Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.
(b) Date of commercial operation	31.08.2023 and 12.05.2023
(c) Period for which fee paid	2023-24
(d) Amount of fee paid	Rs. 1,00,000.00
(g) Surcharge, if any	
7. Fee paid for Adoption of tariff for (a) Generation asset (b) Transmission asset	N.A.



8. Application fee for licence (a) Trading licence (b) Transmission licence (c) Period for which paid (d) Amount of fee paid	N.A.
9. Fees paid for Miscellaneous	N.A.
10. Fees paid for Interlocutory	N.A.
11. Fee paid for Regulatory Compliance	N.A.
12. Fee paid for Review Application	N.A.
13. Licence fee for inter-State Trading	N.A.
(a) Category	
(b) Period	
(c) Amount of fee paid	
(d) Surcharge, if any	
14. Licence fee for inter-State	N.A.
(a) Expected/Actual transmission	
(b) Period	
(c) Amount of fee calculated as a transmission charge percentage of	
(d) Surcharge, if any	
15. Annual Registration Charge for	N.A.
Exchange	
(a) Period	
(b) Amount of turnover	
(c) Fee paid	
(d) Surcharge, if any	

16. Details of fee remitted	Through Online Pay U Challan
(a) UTR No.	SBIN124064164419
(b) Date of remittance	04.03.2024 .
(c) Amount remitted	Rs.1,00,000/-

Note: While Sl. Nos. 1 to 3 and 16 are compulsory, the rest may be filled up as applicable

Signature of the authorized Signatory with Date

12/3/2024

Shri. SHAIK MATA VENKATA NANAJI

CEO, PSITSL

Fee Acknowledgement

Counterfoil (Office Copy)

Transaction Id.:	8648ef5d719991f040b6
Payment Gateway ID:	19322040101
Status:	success

Received From : POWERGRID Southern Interconnector Transmission System Limited (PSITSL)

The Sum of Rs. : 100000

Fee Type: Petition Filing Fees **Dated :** Mar 11, 2024, 10:56 AM

Fee Mode: NEFTRTGS

Fee Period:

Petitioner/ Organisation Name: POWERGRID Southern Interconnector Transmission System Limited (PSITSL)

Mar 12, 2024, 4:17 PM

पावरग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड

POWERGRID

कार्पोरेट आफिस : प्लॉट नं–02, सेक्टर–29, गुड़गाँव (हरियाणा)

भारतीय डाक

India Post

(स्पीड पोस्ट बुकिंग लिस्ट)

बी.एन.पी.एल. कोड : एच–जी आर जी, एन.एस.पी.पी.सी.गुड़गाँव – 122016 दिनांक 13/3/2024 पृष्ठ संख्या 1

क्रम.सं.	नाम	पता	शहर	राज्य	पिनकोड	वजन	बारकोड	टिप्पणी
1.	Tamil Nadu Generation and Distribution, Chennai				600002.	700gm	EH168591198IN	
2.	Power Company of Karnataka, Bangalore –				560009	"	EH168591207IN	
3.	Bangalore Electricity Supply, Bangalore –				560001	"	EH168591215IN	
4.	Gulbarga Electricity Supply Com., Karnataka				585102	"	EH168591224IN	
5.	Hubli Electricity Supply Company, Karnataka –					"	EH168591238IN	
6.	Mangalore Electricity Supply Company, Mangalore				575001	"	EH168591241IN	
7.	Chamundeswari Electricity Supply, Mysuru –				570009	"	EH168591255IN	

पावरग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड

POWERGRID

कार्पोरेट आफिस : प्लॉट नं–02, सेक्टर–29, गुड़गाँव (हरियाणा)

(स्पीड पोस्ट बुकिंग लिस्ट)

भारतीय डाक

India Post

बी.एन.पी.एल. कोड : एच–जी आर जी, एन.एस.पी.पी.सी.गुड़गाँव – 122016 दिनांक 13/3/2024 पृष्ठ संख्या.....

क्रम.सं.	नाम	पता	शहर	राज्य	पिनकोड	वजन	बारकोड	टिप्पणी
8.	Kerala State Electricity Board, Thiruvananthapuram				695004	700gm	EH168591269IN	
9.	Southern Power Distribution Com., Hyderabad				500063	"	EH168591272IN	
10.	Northern Power Distribution Com., Warangal				506001	"	EH168591286IN	
11.	Electricity Department, Pondicherry	–			605001	"	EH168591290IN	
12.	Eastern Power Distribution Company, Vishakapatnam					"	EH168591309IN	
13.	Electricity Department, Panaji Goa	–				"	EH168591312IN	
14.	Southern Power Distribution, Tirupati				517501	"	EH168591326IN	

पावरग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड

POWERGRID

कार्पोरेट आफिस : प्लॉट नं–02, सेक्टर–29, गुड़गाँव (हरियाणा)

(स्पीड पोस्ट बुकिंग लिस्ट)

भारतीय डाक

India Post

बी.एन.पी.एल. कोड : एच–जी आर जी, एन.एस.पी.पी.सी.गुड़गाँव – 122016

दिनांक 12/3/2024 पृष्ठ संख्या 3

क्रम.सं.	नाम	पता	शहर	राज्य	पिनकोड	वजन	बारकोड	टिप्पणी
15.	Andhra pradesh Central power, Vijayawada				520008	700gm	EH168591330IN	
16.	Chief Engineer, Power, New Delhi –				110066	11	EH168591343IN	
17.	chief operating officer, GTUL, Gurgaon,				122001	11	EH168591357IN	

BEFORE
THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

PETITION FOR

APPROVAL OF TRANSMISSION TARIFF
For

Asset-1: 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and

Asset-2: Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

PETITION NO.: .....

TARIFF BLOCK: 2019 – 2024

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED

(A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)

REGISTERED OFFICE
B-9, QUTAB INSTITUTIONAL AREA, KATWARIA SARAI,
NEW DELHI – 110 016

CORPORATE CENTRE
"SAUDAMINI", PLOT NO-2, SECTOR-29,
GURGAON-122 001 (HARYANA)
EPABX: 0124-2571 700 TO 719, FAX: 0124-2571989

BEFORE
THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

PETITION NO.: .....

IN THE MATTER OF: Approval under Regulation 23 of CERC (Conduct of Business) Regulations,2023 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission Tariff from Actual DOCO to 31-03-2024 for
Asset-1: 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and
Asset-2: Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED. **--- PETITIONER**
(A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)
Registered office: B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi. 110 016.
Corporate Centre: 'SAUDAMINI', Plot No-2, Sector-29, Gurgaon-122 001 (Haryana).

Tamil Nadu Generation and Distribution Corporation Ltd and others **--- RESPONDENTS**

12	DOCO letter, RLDC, CEA and CMD Certificates	Encl-5	110-119
13	Auditor's Certificate	Encl-6	120-125
14	Liabilities flow Statement	Encl-7	126-129
15	Cash IDC Statement	Encl-8	130-131
16	Tariff Forms	Encl-9	132-221
17	Checklist	Encl-10	222-224

FILED BY
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED
REPRESENTED BY
SHAIK MATA VENKATA NANAJI

CHIEF EXECUTIVE OFFICER
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED
PLACE: 08/3/2024
DATED: Secunderabad

BEFORE
THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

PETITION NO.: .....

IN THE MATTER OF: Approval under Regulation 23 of CERC (Conduct of Business) Regulations,2023 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission Tariff from Actual DOCO to 31-03-2024 for
Asset-1: 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and
Asset-2: Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED. **--- PETITIONER**
(A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)
Registered office: B-9, Qutab Institutional Area,
Katwaria Sarai, New Delhi. 110 016.
Corporate Centre: 'SAUDAMINI', Plot No-2,
Sector-29, Gurgaon-122 001 (Haryana).

Tamil Nadu Generation and Distribution Corporation Ltd and others **--- RESPONDENTS**

To

The Secretary
Central Electricity Regulatory Commission
New Delhi 110001

Sir,

The application filed under Regulation 23 of CERC (Conduct of Business) Regulations, 2023 and Regulation 8 and 9 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission tariff of assets from DOCO to 31.03.2024 may please be registered.

FILED BY
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED
REPRESENTED BY
SHAIK MATA VENKATA NANAJI

CHIEF EXECUTIVE OFFICER
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED
PLACE: 08/03/2024
DATED: Secunderabad

BEFORE
THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

PETITION NO.: .....

IN THE MATTER OF: Approval under Regulation 23 of CERC (Conduct of Business) Regulations,2023 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission Tariff from Actual DOCO to 31-03-2024 for
Asset-1: 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and
Asset-2: Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED. **--- PETITIONER**
(A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)
Registered office: B-9, Qutab Institutional Area,
Katwaria Sarai, New Delhi. 110 016.
Corporate Centre: 'SAUDAMINI', Plot No-2,
Sector-29, Gurgaon-122 001 (Haryana).

Tamil Nadu Generation and Distribution Corporation Ltd and others **--- RESPONDENTS**

MEMO OF PARTIES

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED. VERSUS		**--PETITIONER**
1	Tamil Nadu Generation and Distribution Corporation Ltd NPKRR Maaligai, 800, Anna Salai, Chennai – 600 002	**--RESPONDENTS**
2	Power Company of Karnataka Limited (PCKL) 5th Floor, KPTCL Building, Kaveri Bhawan, Bangalore – 560 009	
3	Bangalore Electricity Supply Company Ltd., (BESCOM), Corporate Office, K.R.Circle Bangalore – 560 001, Karnataka.	
4	Gulbarga Electricity Supply Company Ltd., (GESCOM) Station Main Road, Gulbarga, Karnataka-585102	
5	Hubli Electricity Supply Company Ltd., (HESCOM) Navanagar, PB Road, Hubli, Karnataka.	
6	Mangalore Electricity Supply Company Limited (MESCOM) Corporate Office, Paradigm Plaza, AB Shetty Circle Mangalore – 575 001, Karnataka.	
7	Chamundeswari Electricity Supply Corporation Ltd., (CESC)	

	# 927, L J Avenue, Ground Floor, New Kantharaj Urs Road Saraswatipuram, Mysuru – 570 009, Karnataka.	
8	Kerala State Electricity Board VaidyuthiBhawanam, Pattom, Thiruvananthapuram – 695004	
9	Southern Power Distribution Company of Telangana Limited (TSSPDCL) #6-1-50, Corporate Office, Mint Compound, HYDERABAD – 500 063, Telangana.	
10	Northern Power Distribution Company of Telangana Limited (TSNPDCL) #2-5-3 1/2, Vidyut Bhawan, Corporate Office, Nakkal Gutta, Hanamkonda, Warangal – 506 001, Telangana	
11	Electricity Department, Govt of Pondicherry, Pondicherry - 605001	
12	Electricity Department, Government of Goa Vidyuti Bhawan, Panaji, Goa	
13	Southern Power Distribution Company of Andhra Pradesh Limited (APSPDCL) Srinivasasa Kalyana Mandapam Backside, Tiruchanoor Road, Kesavayana Gunta, Tirupati-517 501, Chittoor District, Andhra Pradesh	
14	Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL), APEPDCL, P&T Colony, Seethmmadhara, Vishakapatnam, Andhra Pradesh	
15	Andhra Pradesh Central Power Distribution Corporation Limited Corporate Office,Beside Polytechnic College ITI Road,Vijayawada - 520 008, Krishna DistA.P., INDIA	
16	Chief Engineer, Power System Project Monitoring Division, Central Electricity Authority, Sewa Bhawan, R. K. Puram, Sector-1, New Delhi - 110 066	
17	Chief Operating Officer, CTUIL Saudamini, Plot no.2, Sector -29, Gurgaon 122001	

FILED BY

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED

REPRESENTED BY

SHAIK MATA VENKATA NANAJI

CHIEF EXECUTIVE OFFICER

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED

PLACE: Secunderabad

DATED: 8/3/2024

BEFORE
THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

PETITION NO.: .....

IN THE MATTER OF: Approval under Regulation 23 of CERC (Conduct of Business) Regulations,2023 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission Tariff from Actual DOCO to 31-03-2024 for
Asset-1: 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and
Asset-2: Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED. **--- PETITIONER**
(A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)
Registered office: B-9, Qutab Institutional Area,
Katwaria Sarai, New Delhi. 110 016.
Corporate Centre: 'SAUDAMINI', Plot No-2,
Sector-29, Gurgaon-122 001 (Haryana).

Tamil Nadu Generation and Distribution Corporation Ltd and others **--- RESPONDENTS**

To
The Hon'ble Chairman and
his Companion Members of The Hon'ble CERC
The humble application filed by the Petitioner.

MOST RESPECTFULLY SHOWETH

1.0 That, Hon'ble Commission have made CERC (Terms and Conditions of Tariff) Regulations, 2019, vide notification dated 07.03.2019. These regulations shall remain in force for a period of 5 years w.e.f. 01.04.2019, unless reviewed earlier or extended by the Hon'ble Commission.

2.0 The petitioner **POWERGRID Southern Interconnector Transmission System Limited** (hereinafter referred to as Petitioner/PSITSL)), a 100% wholly owned subsidiary of Power Grid Corporation of India Limited (POWERGRID) is an Inter-State Transmission Licensee implemented Transmission project "Strengthening of Transmission System beyond Vemagiri" on Build, Own, Operate and Maintain (BOOM) basis through TBCB route. The Hon'ble Commission vide

no:40/Transmission/2016 dated 08.02.2016 granted Transmission license for the petitioner. The project inter-alia included establishment and commissioning of 765kV Chilakaluripeta Substation along with other elements. The entire scope of "Strengthening of Transmission System beyond Vemagiri" project has been successfully commissioned on 18.01.2020.

3.0 Subsequently, certain additional schemes, namely **(i) requirement of 765 kV spare (1-ph) Reactor unit at 765 kV Chilakaluripeta (Part-B) and (ii) scheme to bypass NGR to use Switchable line reactor as bus reactor at 765 kV Chilakaluripeta** were assigned to the petitioner by CTUIL vide OM ref.no.C/CTU/AI/STCCTP dated 16.11.2021 for implementation under the Regulated Tariff Mechanism (RTM) mode (hereinafter referred to as the 'transmission scheme').The Petitioner was also granted transmission license by Hon'ble Commission vide order 65/TL/2022 dated 18.07.2022 for implementation of above schemes.

Upon commissioning of the above schemes, the PSITSL is approaching the Hon'ble Commission for determination of transmission tariff. Detail of the scope of works covered under the instant petition is as under: -

A. Requirement of 765kV spare (1-Ph) Reactor units at 765 kV Chilakaluripeta Substation (Part –B)

Sl.No	Scope of the Transmission Scheme	Capacity /km	Implementation Time Frame
1	One spare unit (1-Ph) of 80 MVAR reactor at 765kV Chilakaluripeta along with necessary arrangement to take spare reactor units into service as per the operational requirement.	80 MVAR (1-Ph)	15 months from issue of OM by CTU

B. Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilakaluripeta.

Sl.No	Scope of the Transmission Scheme	Capacity /km	Implementation Time Frame
1.	NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri- Chilakaluripeta 765 kV D/c line at Chilakaluripeta 765 kV S/s.	NGR bypass arrangement	6 months from issue of OM by CTU
2.	NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Chilakaluripeta – Cuddapah 765 kV D/c line at Chilakaluripeta 765 kV S/s.	NGR bypass arrangement	6 months from issue of OM by CTU

4.0 The tariff for the said transmission systems shall be determined by the Hon'ble Commission in accordance with the CERC (Terms and Conditions of Tariff) Regulations, 2019. Instant petition covers approval of transmission tariff for following Assets of PSITSL:

Sl.No	Asset No	Asset Name	Actual DOCO
1	Asset-1	One spare unit (1-ph) of 80MVAR reactor at 765kV Chilakaluripeta Substation	31.08.2023
2	Asset-2	NGR bypass arrangement to use switchable line Reactors (240 MVAR each) as bus reactors installed on each circuit of a) Vemagiri-Chilakaluripeta 765kV D/C line and b) Chilakaluripeta – Cuddapah 765 kV D/c line at Chilakaluripeta765 kV S/s	12.05.2023

The entire scope of the project is completed and covered under instant petition. Accordingly, the instant petition is being filed in compliance with the Regulation 9 of CERC (Terms and Conditions of Tariff) Regulations, 2019.

5.0 Approval of the Scheme

Implementation of Vemagiri – Chilakaluripeta 765 kV D/c line along with 240 MVAR switchable line reactor at both ends of each circuit and Chilakaluripeta – Cuddapah 765 kV D/c line along with 240 MVAR switchable line reactors at both ends of each circuit as part of "Strengthening of transmission system beyond Vemagiri" was agreed in the 37th meeting of the SCPSPSR held on 31.07.2014. In 164th OCC meeting held on 25.02.2020, SRLDC had suggested to implement NGR bypass arrangement for switchable line reactors at 765kV Chilakaluripeta S/s to use them as bus reactors in case of outage of line.

In 3rd meeting of SRPC (TP) held on 24.08.2021, it was agreed to implement NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilakaluripeta 765 kV D/c line and Chilakaluripeta – Cuddapah 765 kV D/c line at Chilakaluripeta 765 kV S/s. Copies of referred minutes of meeting are attached hereto as **Encl-1**

Subsequently, vide OM ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021, CTUIL has allocated the following schemes "(1) Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B) & (2) Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765kV Chilkaluripeta under Regulatory Tariff Mechanism (RTM) to POWERGRID Southern Interconnector Transmission System Ltd (PSITSL). Copies of referred OM is enclosed as **Encl-2**

Accordingly, application was filed for grant of separate transmission license to POWERGRID Southern Interconnector Transmission System Ltd (PSITSL)for implementation of the above schemes. The Hon'ble commission has granted transmission license vide order no:69/TL/2022 dated 18.07.2022 to the petitioner.

Subsequently, the investment approval of the project was accorded on 02.08.2022 by Board of Directors, POWERGRID Southern Interconnector Transmission System Limited (PSITSL) at an estimated cost of Rs.7.77Crores for Asset-1and Rs.0.7 Crores for Asset 2 at September 2021 price level, a copy investment approval is enclosed as **Encl-3**

5.1 The scope of work covered is as follows:

(a) Requirement of 765kV spare (1-Ph) Reactors units at 765 kV Chilakaluripeta (Part –B)

765kV

80MVAR, 765kV Reactor : 1 No

(b) Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilakaluripeta.

132 kV

NGR bay : 4 Nos.

The Single Line diagram of the Chilakaluripeta S/s, extracts of DPR is enclosed as **Encl-4**

6.0 Implementation Schedule

Asset-1 & Asset 2 were to be commissioned within 15months & 6 months respectively from the date of investment approval i.e. 02.08.2022. Hence, Scheduled date of commissioning comes to 01.11.2023 for Asset-1 and 01.02.2023 for Asset-2 against which the subject Assets were commissioned and put under commercial operation as follows:

Asset	Schedule Commissioning as per IA	Actual DOCO	Delay wr.t IA
Asset-1	01.11.2023	31.08.2023	No delay
Asset-2	01.02.2023	12.05.2023	100 days

Salient reasons of Time Over-run:

With regard to implementation of the schemes, it is to submit that Central Transmission Utility of India Limited (CTUIL) vide Office Memorandum dated 16.11.2021 has allocated following schemes (1) Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B) & (2) Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765kV Chilkaluripeta through "Regulated Tariff Mechanism" (RTM) mode with a time scheduled of 15 months & 6 months respectively. Transmission License petition was filed on 03.02.2022 for grant of separate transmission license to PSITSL for implementation of the above schemes. The Hon'ble Commission has granted transmission license vide order no:69/TL/2022 dated 18.07.2022 to the petitioner. Subsequently, investment approval for subject scheme was approved by Board of Directors of PSITSL on 02.08.2022. It is humbly submitted best efforts were put in by the petitioner for timely completion of the works. Asset-1 was completed within scheduled time, however the works of Asset-2 was delayed due to non-willingness of vendors for accepting the orders for small quantity of foundation works, structures for BPI, GI Flat for earthing and execution of foundation, erection works in existing 765kV switchyard, etc. Hence the time over-run was beyond the control of the petitioner and best efforts have been made to put assets under commercial operation as tabulated at Para-6.0. It is humbly prayed that the Hon'ble Commission may consider the above-mentioned unforeseen events in commissioning of Assets and condone the time overrun in commissioning of instant assets. Copy of the CEA certificate, RLDC certificate, CMD certificate and DOCO letter for the subject assets covered under instant petition are enclosed as **Encl-5.**

7.0 Estimated Completion Cost

7.1 That the application for determination of tariff is filed in line with provision 9(1) of Tariff Regulation 2019 applicable for 2019-24 period. Further, the present petition covers approval of tariff based on actual expenditure incurred up to actual DOCO and additional capitalisation projected to be incurred from DOCO to 31.03.2024 in respect of the subject assets as per detail given below.

(Rs. in Lakhs)

Assets	Apportioned cost as per FR	Apportioned cost as per RCE	Expenditure up to Actual DOCO	Projected Add Cap			Estimated Completion Cost
				2023-24	2024-25	2025-26	
Asset-1	777	824	689.41	35.01	93.36	0	817.78
Asset-2	70	122	68.79	32.92	20	0	121.71
Total	**847**	**946**	**758.2**	**67.93**	**113.36**	**0**	**939.49**

That the capital cost incurred up to DOCO and projected to be incurred during 2023-26 is duly certified in Auditor's Certificate, copy whereof in respect of the assets covered in this petition is enclosed herewith as **Encl-6.**

The details of estimated completion cost vis-à-vis apportioned approved cost (FR) for the Asset covered under instant petition are as follows:

(Rs. in lakhs)

Asset No.	Approved Cost (a)	Estimated completion Cost (b)	Variation (c=b-a) (-decrease, +increase)
Asset-1	777	817.78	+40.78 (+6.05%)
Asset-2	70	121.71	+51.71 (+77.14%)
Total	**847**	**939.49**	**+92.49 (+11.68%)**

The item-wise cost variation between apportioned approved cost and estimated completion cost are explained in Form-5. The Estimated completion cost is within the apportioned approved cost as per RCE. The item wise variation for the project is tabulated as below:

For Asset-1: (Rs. in lakhs)

Sl.No	Description	Cost as per FR	Estimated Capital Cost	Variation (-decrease, +increase)
		a	b	c = b - a
	Substation			
1	Misc Civil Works	20	0	-20.00

2	Equipment cost	639	753.60	+114.60
3	IEDC	91	43.20	-47.80
4	Interest During Construction (IDC)	27	20.98	-6.02
	Total	**777**	**817.78**	**+40.78**

For Asset-2: (Rs. in Lakhs)

Sl.No	Description	Cost as per FR	Estimated Capital Cost	Variation (-decrease, +increase)
		a	b	c = b - a
	Substation			
1	Misc Civil Works	0	0	0
2	Equipment cost	61	114.87	+53.87
3	IEDC	8	5.6	-2.40
4	Interest During Construction (IDC)	1	1.24	+0.24
	Total	**70**	**121.71**	**+51.71**

7.2 Due to variation of estimate completion cost w.r.t to FR cost, revised cost estimate was prepared and approval by PSITSL Board is under process. Salient reasons of cost variation are given here as under:

Asset-1

i. **Variation in IDC Cost:** Interest during Construction (IDC) for the project as per the approved DPR/IA was estimated at Rs. 0.27 crore whereas based on the actual funds flow as per progress of works, the IDC for the project in the proposed RCE works out to Rs. 0.21 crore. Thus, there is a decrease of Rs. 0.06 crore in IDC.

ii. **Variation in IEDC Cost:**

As per the approved DPR/ IA, the IEDC including contingencies for the project was estimated at Rs. 0.91 crore on total DCO cost (i.e. IEDC @10.75% & contingency @3% on total DCO cost) whereas in the RCE, based on actual expenditure

incurred the IEDC works out to Rs. 0.43 crore, resulting in a decrease of Rs. 0.48 crore.

iii. **Variation in Equipment cost**

Being a Govt. enterprise, the Petitioner has the obligation for indigenous development of manufacturer as well as to adhere to Govt. of India guidelines in vogue with regard to procurement of goods & services. Accordingly, the Petitioner has been following a well laid down procurement policy which ensures both transparency and competitiveness in the bidding process. Open Tender mode of award have been followed for placement of awards under this project. Through this process, best possible market prices for required product/services/as per detailed designing is obtained and contracts are awarded on the basis of lowest evaluated eligible bidder. The best competitive bid prices against tenders may vary as compared to the cost estimate depending upon prevailing market conditions, design, and site requirements. Whereas the estimates are prepared by the petitioner as per well-defined procedures for cost estimate. The FR cost estimate is broad indicative cost worked out generally on the basis of average unit rates of recently awarded contracts/general practice. It is submitted that the cost estimate of the project is on the basis of September '2021 price level. Variation in equipment cost is attributable to market forces prevailing at the time of bidding and due to the small quantity of expansion works involved under the project.

Asset-2

i. **Variation in IDC Cost:** Interest during Construction (IDC) for the project as per the approved DPR/IA was estimated at Rs. 0.01 crore whereas based on the actual funds flow, the IDC works out to Rs. 0.124 crore. Thus, there is an increase of Rs. 0.024 crore in IDC.

ii. **Variation in IEDC Cost:**

As per the investment approval, the IEDC including contingencies for the project was estimated at Rs. 0.08 crore on total DCO cost (i.e. IEDC @10.75% & contingency @3% on total DCO cost). In the RCE it is has been considered actual

and further on element-wise amount @ 13.75% (10.75%-IEDC+3%-Contingency) upto commissioning and contingency @ 3% on balance expenditure after commissioning of the project which works out to Rs. 0.06 crore resulting in a decrease of Rs. 0.02 crore.

iii. **Variation in Equipment cost**

Being a Govt. enterprise, the Petitioner has the obligation for indigenous development of manufacturer as well as to adhere to Govt. of India guidelines in vogue with regard to procurement of goods & services. Accordingly, the Petitioner has been following a well laid down procurement policy which ensures both transparency and competitiveness in the bidding process. Open Tender mode of award have been followed for placement of awards under this project. Through this process, best possible market prices for required product/services/as per detailed designing is obtained and contracts are awarded on the basis of lowest evaluated eligible bidder. The best competitive bid prices against tenders may vary as compared to the cost estimate depending upon prevailing market conditions, design, and site requirements. Whereas the estimates are prepared by the petitioner as per well-defined procedures for cost estimate. The FR cost estimate is broad indicative cost worked out generally on the basis of average unit rates of recently awarded contracts/general practice. It is submitted that the cost estimate of the project is on the basis of September '2021 price level. Variation in equipment cost is attributable to market forces prevailing at the time of bidding and due to the small quantity of expansion works involved under the project.

Considering the above, it is humbly prayed that the reasons for cost variation are beyond the control of Petitioner. Hon'ble commission may please consider the estimated completion cost.

Tariff for the project has been claimed on the capital cost as on DOCO and projected expenditure upto 31.03.2025. Hence, it is humbly prayed that tariff may be allowed on the completion cost for assets covered under instant petition.

7.3 Initial spares:

No spares have been claimed in the present petition.

(Rs. In Lakhs)

Assets	Particulars	Plan & Machinery cost (A)	Initial Spares Claimed (B)	Ceiling Limit (%) (C)	Percentage claimed (%)	Initial Spares Worked out D = [(A-B)*C /(100-C)]
Asset-1	SS (Brown Field)	817.78	0	6.0	0	52.20
Asset-2	SS (Brown Field)	121.71	0	6.0	0	7.77

7.4 Initial Spares discharge details:

(Rs. in lakhs)

Asset	Particulars	Total spares Claimed	Expenditure on initial Spares Upto COD and included in auditor certificate upto COD	Expenditure on initial spares in 2022-23 (Add Cap)	Expenditure on initial spares in 2023-24 (Add Cap)
Asset-1	SS (Brown Field)	0	0	0	0
Asset-2	SS (Brown Field)	0	0	0	0

7.5 Additional Capitalisation

The details of underlying assumptions for additional capitalisation for the instant asset is summarized below:

The admissibility of additional capital expenditure (Add Cap) incurred after DOCO is to be dealt in accordance with the provisions of Regulation 24 of CERC (Terms and Conditions of Tariff) Regulations, 2019. The extract of Regulation 24 of the Regulations 2019 is reproduced as under:

"Additional Capitalisation"

(1) The additional capital expenditure in respect of a new project or an existing project incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:

a) *Un discharged liabilities recognized to be payable at a future date;*

b) *Works deferred for execution;*

c) *Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 23 of these regulations;*

d) *Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority or order or decree of any court of law; and*

e) *Change in law or compliance of any existing law: and*

f) *Force Majeure events:*

Provided that in case of any replacement of the assets, the additional capitalisation shall be worked out after adjusting the gross fixed assets and cumulative depreciation of the assets replaced on account of de-capitalisation.

7.6 The additional Capitalisation incurred/projected to be incurred in the contextual assets is mainly on account of Balance/Retention Payments and hence the same may be allowed by Hon'ble Commission under Regulation 24(1)(a) and 24(1)(b). The details of underlying reasons for additional capitalisation Assets are given in respective form -7. The Contractor wise liabilities flow statement for the assets are enclosed as **Encl-7.**

8.0 TRANSMISSION TARIFF FOR 2019-24 BLOCK:

8.1 That as per Regulation 8(1) (ii), 14 (5) and 15 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 the tariff for transmission of electricity on Inter-State transmission system (ISTS) shall comprise transmission charges for recovery of annual fixed cost consisting of (a) Return on Equity, (b) Interest on Loan Capital, (c) Depreciation, (d) Interest on Working Capital and (e) Operation and maintenance expenses.

8.2 The tariff for block 2019-2024 has been worked out as per Regulation 10 of the CERC (Terms and Conditions of Tariff) Regulations, 2019. In the present petition the transmission tariff has been calculated taking actual Expenditure upto DOCO and estimated expenditure from DOCO to 31.03.2024.

8.3 Further, for the instant assets, details of accrual IDC as considered under add- cap during the year of discharge is tabulated below.

Asset-1: (Rs. in lakhs)

Sl.No.	Expenditure	Building & Civil works	Substation	PLCC	I.T. Equipment	Total
1	As per Auditor Certificate (Upto DOCO) as on 31.08.2023	0.00	689.41	0.00	0.00	689.41
2	Less: Accrual IDC not discharged upto DOCO	0.00	2.78	0.00	0.00	2.78
3	Expenditure upto DOCO Excluding Accrual IDC	**0.00**	**686.63**	**0.00**	**0.00**	**686.63**
4	Est. Expenditure for FY 2023-24 as per auditor certificate	0.00	35.01	0.00	0.00	35.01
5	Add: Accrual IDC Discharged in 2023-24	0.00	2.78	0.00	0.00	2.78
6	Est. Expenditure 2023-24 (Including Accrual IDC discharge)	**0.00**	**37.79**	**0.00**	**0.00**	**37.79**
7	Estimated capital cost for Tariff block 2019-2024	**0.00**	**724.42**	**0.00**	**0.00**	**724.42**
8	Est. Expenditure 2024-25	**0.00**	**93.36**	**0.00**	**0.00**	**93.36**
9	Est. Expenditure 2025-26	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
10	Estimate Completion Cost	**0.00**	**817.78**	**0.00**	**0.00**	**817.78**

Asset-2:

(Rs. in lakhs)

Sl.No	Expenditure	Building & Civil works	Substation	PLCC	I.T. Equipment	Total
1	As per Auditor Certificate (Upto DOCO) as on 12.05.2023	0.00	68.79	0	0	68.79
2	Less: Accrual IDC not discharged upto DOCO	0.00	0.39	0.00	0.00	0.39
3	Expenditure upto DOCO Excluding Accrual IDC	**0.00**	**68.40**	**0.00**	**0.00**	**68.40**
4	Est. Expenditure for FY 2023-24 as per auditor certificate	0.00	32.92	0	0	32.92
5	Add: Accrual IDC Discharged in 2023-24	0.00	0.39	0.00	0.00	0.39
6	Est. Expenditure 2023-24 (Including Accrual IDC discharge)	**0.00**	**33.31**	**0.00**	**0.00**	**33.31**
7	Estimated capital cost for Tariff block 2019-2024	**0.00**	**101.71**	**0.00**	**0.00**	**101.71**
8	Est. Expenditure 2024-25	**0.00**	20	0.00	0.00	**20**
9	Est. Expenditure 2025-26	**0.00**	0.00	0.00	0.00	**0.00**
10	Estimate Completion Cost	**0.00**	**121.71**	**0.00**	**0.00**	**121.71**

8.4 The Hon'ble Commission is requested to kindly allow the IDC on the basis of cash out flow. It is further submitted that accrued IDC to be discharged during respective years for the assets has not been included in the Add Cap expenditure for the respective year as per Auditor certificate. Further, the entire IEDC amount mentioned in the auditor certificate is on cash basis and is paid up to DOCO. Further, statement of cash IDC is enclosed at **Encl-8.**

The transmission tariff has been calculated based on audited cost and considering Accrued IDC to be discharged thereafter. The tariff Formats for block 2019-24 have been furnished out as per Annexure-I, Part-III of the Tariff Regulations for period 2019-24 and the calculations for working out the tariff along with supporting documents are attached hereto as **Encl-9.**

8.5 The annual transmission tariff for the tariff period 2019-24 is summarized as below:

(Rs. in lakhs)

Sl.No	Project	2019-20	2020-21	2021-22	2022-23	2023-24
1	Asset-1	0.00	0.00	0.00	0.00	68.46
2	Asset-2	0.00	0.00	0.00	0.00	12.53
3	**Total**	**0.00**	**0.00**	**0.00**	**0.00**	**80.99**

8.6 That, it is submitted that the petitioner being liable to pay income tax at MAT rate prescribed vide The Taxation Laws (Amendment) Ordinance, 2019 published in the Gazette dt. 20th September 2019, the ROE has been calculated @ 18.782% after grossing up the ROE with MAT rate of 17.472% (Base Rate 15% + Surcharge 12% + Cess 4%) based on the formula given at Regulation 31(2) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for 2019-24 period. That as per clause 31 (3) of the above Regulation, the grossed up rate of ROE at the end of every financial year shall be trued up based on actual tax paid together with any additional tax demand including interest thereon duly adjusted for any refund of tax including interest received from the IT authorities pertaining to the tariff period 2019-24 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the petitioner, as the case may be. Any under-recovery or over-recovery of grossed up rate on ROE after truing up shall be recovered or refunded to beneficiaries or the long-term customers, as the case may be on year-to-year basis. It is further submitted that adjustment due to any additional tax demand including interest duly adjusted for any refund of tax including interest received from IT authorities shall be recoverable /adjustable during the tariff period 2019-24 on year-to-year basis on receipt of Income Tax assessment order.

8.7 Under CGST Act, 2017 implemented w.e.f. 01.07.2017, the Govt. of India has exempted the charges of transmission of electricity 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" by giving applicable GST rate as NIL. Hence, the Transmission Charges as indicated at para 8.5 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 the petitioner and the same shall be charged & billed separately by the petitioner. Further additional taxes, if any, are to be paid by the petitioner on account of demand from Govt. / Statutory authorities, the same may be allowed to be recovered from the beneficiaries.

8.8 Approval was accorded by PSITSL Board to borrow funds by way of inter-corporate loan form POWERGRID. In the tariff calculation for 2019-24 period, Interest on Loan has been calculated on the basis of rate prevailing as on DOCO for inter-corporate loan. The change in Interest rate due to floating rate of interest applicable, if any, for the project needs to be claimed / adjusted over the tariff block of 05 years directly from / with the beneficiaries.

8.9 That as per Regulation 35(3)(c) of CERC Tariff Regulations, 2019, the Security Expenses and Capital Spares for transmission system shall be allowed separately after prudence check. The transmission charges at para-8.5 above are excluding security expenses and capital spares. Security expenses are presently not claimed separately for Chilakaluripeta SS for RTM works where the assets covered under the instant petition are located.

8.10 The application filing fee, expenses incurred on publication of Notices in News papers 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 the petitioner as ISTS licensee under CERC (Fees and Charges of RLDC and other matters) Regulations as amended from time to time

shall also be recoverable from the DICs as provided under clause 70 (3) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019.

8.11 The Transmission Charges and other related Charges indicated at para 8.5 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 respondent(s) to the petitioner and the same shall be charged, billed separately by the petitioner on the respondents.

9.0 Sharing of Transmission Charges

Tariff for Transmission of Electricity (Annual Fixed Cost) for 2019-24 as per para 8.5 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 shared by the beneficiaries as per applicable Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2020 or as amended from to time.

In the circumstances mentioned above, it will be just and proper that the transmission tariff for the asset covered under this petition be allowed to be charged from the beneficiaries on the basis set out above. The Petitioner submits that the Encl-1 to Encl- 10 may please be treated as integral part of this petition.

10.0 PRAYER

It is respectfully prayed that the Hon'ble Commission may be pleased to

1) Admit the capital cost as claimed in the Petition and approve the Additional

Capitalisation incurred / projected to be incurred.

2) Approve the Transmission Tariff for the tariff block 2019-24 block for the asset covered under this petition, as per para –8.5 above.

3) Condone the time overrun in commissioning of Asset-2 covered under instant petition.

4) Allow the petitioner to recover the shortfall or refund the excess Annual Fixed Charges, on account of Return on Equity due to change in applicable Minimum Alternate/Corporate Income Tax rate as per the Income Tax Act, 1961 (as amended from time to time) of the respective financial year directly without making any application before the Commission as provided in Tariff Regulation 2019 as per para 8.5 above for respective block.

5) Approve the reimbursement of expenditure by the beneficiaries towards petition filing fee, and expenditure on 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 petition.

6) Allow the petitioner to bill and recover License fee and RLDC fees and charges, separately from the respondents in terms of Regulation 70 (3) and (4) Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019.

7) Allow the petitioner to bill and adjust impact on Interest on Loan due to change in Interest rate on account of floating rate of interest applicable during 2019-24 period, if any, from the beneficiaries.

8) Allow the Petitioner to claim the overall security expenses and consequential IOWC on that security expenses separately.

9) Allow the petitioner to claim the capital spares at the end of tariff block as per actual.

10) Allow the Petitioner to bill and recover GST on Transmission Charges separately from

the respondents, if GST on 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.

11) Allow interim tariff in accordance with Regulation 10 (3) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for purpose of inclusion in the PoC charges and

12) Pass such other relief as Hon'ble Commission deems fit and appropriate under the circumstances of the case and in the interest of justice.

FILED BY
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED
REPRESENTED BY
SHAIK MATA VENKATA NANAJI

CHIEF EXECUTIVE OFFICER
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED
PLACE: Secunderabad
DATED: 08/03/2024

BEFORE
THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

PETITION NO.: .....

IN THE MATTER OF: Approval under Regulation 23 of CERC (Conduct of Business) Regulations,2023 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission Tariff from Actual DOCO to 31-03-2024 for

Asset-1: 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and

Asset-2: Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED. **--- PETITIONER**

Registered office: B-9, Qutab Institutional Area,
Katwaria Sarai, New Delhi. 110 016.
Corporate Centre: 'SAUDAMINI', Plot No-2,
Sector-29, Gurgaon-122 001 (Haryana).

Tamil Nadu Generation and Distribution Corporation Ltd and others **----- RESPONDENTS**

AFFIDAVIT VERIFYING THE PETITION

I, Shaik Mata Venkata Nanaji, S/o Shri Pakeer Saheb Shaik, working as Chief Executive Officer, POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED., having its registered Office at B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016, do hereby solemnly affirm and state as follows:-

1. I am the Chief Executive Officer, POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED., the representative of the Petitioner in the above matter, and am duly authorized to make this affidavit.

2. I submit that the enclosed tariff Petition is being filed for approval of Transmission Tariff from actual DOCO to 31-03-2024 for **Asset-1:** 765kV Spare (1-ph) Reactor unit

RAMPALLY SRINIVAS B.Sc., LL.B. NOTARY GOMs No: 2459 Telangana State Appointed by Govt. of T.S.

18 MAR 2024

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at 765kV Chilakaluripeta Substation and **Asset-2**: Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

3. I submit that no other tariff Petition except this Petition has been filed directly or indirectly for approval of Transmission Tariff for 2019-24 Block for **Asset-1:** 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and **Asset-2:** Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

4. The statements made in the tariff Petition herein are based on petitioner company's official records maintained in the ordinary course of business and I believe them to be true and correct.

5. The documents attached with the petition are legible copies and duly attested by me.

(DEPONENT)

VERIFICATION

Solemnly affirmed at HYD—085 on this 08 **Day of** March **2024**.that the contents of the above affidavit are true to my knowledge and belief and no part of it is false and nothing material has been concealed there from.

RAMPALLY SRINIVAS B.Sc., LL.B NOTARY Code No: 2459 Telangana State NOTARIAL Appointed by Govt. of T.S.

ATTESTED
08 MAR 2024
RAMPALLY SRINIVAS
B.Sc., LL.B
ADVOCATE & NOTARY
H.No: 1-1-538/34/1, 1st Floor,
Near Andhra Cafe, Gandhinagar,
Hyderabad-20. Ph: 9396572505

(DEPONENT)

BEFORE

THE CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

IN THE MATTER OF: Approval under Regulation 23 of CERC (Conduct of Business) Regulations,2023 and CERC (Terms and Conditions of Tariff) Regulations, 2019 for determination of Transmission Tariff from Actual DOCO to 31-03-2024 for **Asset-1:** 765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation and **Asset-2:** Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta Substation in Southern Region.

Power Grid Corporation of India Ltd. **--- PETITIONER**
Registered office: B-9, Qutab Institutional Area,
Katwaria Sarai, New Delhi. 110 016.
Corporate Centre: 'SAUDAMINI', Plot No-2,
Sector-29, Gurgaon-122 001 (Haryana).

Tamil Nadu Generation and Distribution Corporation Ltd and others **--- RESPONDENT**

MEMO OF APPEARNACE

POWER GRID CORPORATION OF INDIA LTD. **-- PETITIONER**

1. SHAIK MATA VENKATA NANAJI

FILED BY
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED
REPRESENTED BY
SHAIK MATA VENKATA NANAJI

CHIEF EXECUTIVE OFFICER
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED
PLACE: Secunderabad
DATED: 08/03/2024

सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

₹50

e-Stamp

Certificate No.	:	IN-DL11667244458307V
Certificate Issued Date	:	12-Dec-2023 06:20 PM
Account Reference	:	IMPACC (IV)/ dl719703/ DELHI/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL71970387473055111048V
Purchased by	:	POWERGRID SOUTHERN INTERCONNECTOR TR SYSTEM LTD
Description of Document	:	Article 48(c) Power of attorney - GPA
Property Description	:	Not Applicable
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	POWERGRID SOUTHERN INTERCONNECTOR TR SYSTEM LTD
Second Party	:	NA
Stamp Duty Paid By	:	POWERGRID SOUTHERN INTERCONNECTOR TR SYSTEM LTD
Stamp Duty Amount(Rs.)	:	50 (Fifty only)

NOTARY PUBLIC GOVT OF ... KOMAL SINGH SUMAN NOTARY PUBLIC R. N. 41270/ NCT DELHI

Please write or type below this line

General Power of Attorney

Know all men by these presents, we POWERGRID Southern Interconnector Transmission System Limited (hereinafter referred to as PSITSL which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, and assigns) having its Registered Office at B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi – 110 016 do hereby constitute, appoint and authorize Shri Shaik Mata Venkata Nanaji, Project In-charge (CEO) of PSITSL residing at Quarter No. E-1, POWERGRID, Kavadiguda Main Road, Secunderabad, Telangana-500080 as our true and lawful attorney, to do in our name and our behalf, all of the acts or things hereinafter mentioned, that is to say:-

1. To constitute, and defend legal cases, sign and verify plaints, written statements, petitions and objections, memorandum of appeal, claims, affidavits, applications, re-applications and pleadings of all kinds and to file them in Central Electricity Regulatory

Statutory Alert:

1 The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2 The onus of checking the legitimacy is on the users of the certificate.
3 In case of any discrepancy please inform the Competent Authority.

Commission (CERC), State Electricity Regulatory Commissions (SERCs), Appellate Tribunal for Electricity (ATE), Civil, Criminal or Revenue courts, Arbitration, Labour Court, Industrial Tribunal, High Court and Supreme Court, whether having original or appellate jurisdiction and before Government or Local Authorities or Registration Authorities, Tax Authorities, Tribunals, etc.

2. To appear, before various Courts / Tribunals / CERC / SERCs / Appellate Tribunal for Electricity.

3. To appoint any Advocate, Vakil, Pleader, Solicitor or any other legal practitioner as Attorney to appear and conduct case proceedings on behalf of the company and to sign Vakalatnama.

4. To compromise, compound or withdraw cases from any Court / Tribunal / CERC / SERCs / Appellate Tribunal for Electricity.

5. To file petitions/applications or affidavits before the Supreme Court/ High Court/ CERC/ SERCs/ Appellate Tribunal for Electricity and to obtain the copies of documents, papers, records, etc.

6. To file and receive back documents, to deposit and withdraw money from Courts, Tribunal, Registrar's Office and other Government or Local Authorities and to issue valid receipts thereof.

7. To apply for and obtain refund of stamp duty or court fee, etc.

8 To issue notices and accept service of any summons, notices or orders issued by any Court / Tribunal / CERC / SERCs / Appellate Tribunal for Electricity on behalf of the Company.

9. To execute deeds, agreements, bonds and other documents and returns in connection with the affairs of the company and file them or cause to be filed for Registration, whenever necessary.

10. To issue Project Authority Certificate(s) in respect of contracts for Load Despatch & Communication Systems, Transmission Systems etc. and to lodge claims with the Railways, Transporters, Shipping Agents and Clearing Agents and to settle/compromise such claims.

11. To lodge claims with the Insurance companies, to settle/compromise such claims and on satisfactory settlement thereof, to issue letters of subrogation/power of attorney in favour of Insurance companies.

12. To execute, sign and file applications, undertakings, agreements etc. to or with the Central / State Government(s) / Body(ies) to obtain 'right of way' or any of other Right(s) / Privilege(s) etc.

13. To execute, sign and file applications, undertakings, agreements, bills, documents etc. to or with the Central / State Government(s) / Body(ies) and other authorities/ entities including Central Transmission Utility (CTU)/ GRID Controller of India Limited/ Central Electricity Authority (CEA)/ CERC with respect to Commissioning of the Project, realization of Transmission charges, to obtain 'right of way' or any of other Right(s) / Privilege(s) etc.

14. To execute Consultancy, Funding and other Agreements

15. To act as administrator for e-filing process with CERC and other Statutory authorities.

16. Generally, to do all lawful acts, necessary for the above-mentioned purposes.

17. To further delegate any of the aforesaid Powers except for Sl Nos. 9, 10 & 13 to any of the officers/employees (not below the level of Manager) of Power Grid Corporation of India Limited as deemed fit subject to rules, policy etc. of PSITSL or law in force & overall supervision of Delegatee.

The Company hereby agrees to ratify and confirm all and whatsoever the said Attorney shall lawfully do execute or perform or cause to be done, executed or performed in exercise of the power or authority conferred under and by virtue of this Power of Attorney.

.....

Signed by the within named (Shri B Anantha Sarma)
POWERGRID Southern Interconnector Transmission System Limited
through the hand of **Shri B Anantha Sarma, Chairman (Part-time)**
Duly authorized by the Board to issue such Power of Attorney

Dated this 29th **day of** December, 2023

NOTARY PUBLIC
KUNAL SINGH SUMAN
ADVOCATE
NOTARY PUBLIC
R.N. 4/2707
NCT DELHI
GOVT OF INDIA

ATTESTED

NOTARY PUBLIC, DELHI

Accepted

.....

Signature of Attorney

Name: Shri Shaik Mata Venkata Nanaji

Designation: Project In-charge (CEO), POWERGRID Southern Interconnector Transmission System Limited

Address: Quarter No. E-1, POWERGRID, Kavadiguda Main Road, Secunderabad, Telangana-500080

29 DEC 2023

Attested

.....

(Signature of the Executant)

Name: **Shri B. Anantha Sarma**

Designation: **Chairman (Part-time)**

Address: B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110 016

.....

Signature and Stamp of Notary of the place of execution

29/12/23

WITNESS

POWERGRID Southern Interconnector Transmission System Limited
Smt Seema Gupta

For POWERGRID Southern Interconnector Transmission System Ltd.

SHWETANK KUMAR
Company Secretary

POWERGRID Southern Interconnector Transmission System Limited
Shri Yashvir Singh

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-I
Power System Planning & Appraisal Division-I

सेवा में / To,

संलग्न सूची के अनुसार
As per enclosed list

विषय : दक्षिण क्षेत्र विद्युत समिति (पारेषण योजना) की तीसरी बैठक का कार्यवृत।
Subject: Minutes of 3rd meeting of Southern Regional Power Committee (Transmission Planning) [SRPC(TP)].

महोदया(Madam) / महोदय(Sir)

The 3rd meeting of Southern Regional Power Committee (Transmission Planning) [SRPC(TP)] was held on 24.08.2021 through VC (Microsoft Teams).

Minutes of the meeting are attached for kind information.

भवदीय/Yours faithfully,

Signature Not Verified
Digitally signed by ISHAN SHARAN
Date: 2021.10.08 10:40:36 IST

(ईशान शरण / Ishan Sharan)
मुख्य अभियंता / Chief Engineer

Copy for kind information to:
1) PPS to Member (Power System), CEA

List of addressee:

1. Member Secretary, Southern Region Power Committee, 29, Race Course Cross Road, Bangalore 560 009. FAX : 080-22259343	2. Chief Operating Officer (CTUIL), "Saudamini" Plot No. 2, Sector-29, Gurugram-122001 Tel. No. 0124-2571816
3. Director (System Operations), POSOCO B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi-110016	4. Managing Director Karnataka Power Transmission Corp. Ltd., Cauvery Bhawan, Bengaluru - 560 009.
5.Chairman and Managing Director, Transmission Corp. of Andhra Pradesh Ltd., (APTRANSCO) Gunadala, Eluru Road, Vijayawada, Andhra Pradesh	6. Chairman-cum-Managing Director Transmission Corp. of Telangana Ltd., (TSTRANSCO) Vidyut Soudha, Khairatabad Hyderabad – 500 082.
7. Chairman-cum-Managing Director, Kerala State Electricity Board, Vidyuthi Bhawanam, Pattom, Thiruvananthapuram - 695 004. Fax : 0471-2444738	8. Managing Director, Tamil Nadu Transmission Corporation Ltd (TANTRANSCO), 6th Floor, Eastern Wing, 800 Anna Salai, Chennai - 600002. Fax : 044-28516362
9. The Superintending Engineer –I, First Floor, Electricity Department, Gingy Salai, Puducherry – 605 001. Fax: 0413-2334277/2331556	10. Executive Engineer, Divisional Office, Lakshadweep Electricity Department, Kavaratti Island, UT of Lakshadweep
11. Chairman & Managing Director, NTPC Limited, NTPC Bhawan, SCOPE Complex, Institutional Area, Lodhi Road, New Delhi – 110003	12. Chairman & Managing Director, NHPC Limited, N.H.P.C. Office Complex, Sector-33, Faridabad - 121003 (Haryana)
13. Chairman, Solar Energy Corporation of India Limited, 1st Floor, D-3, A Wing, Primus Platinum Building, District Centre, Saket, New Delhi – 110017	

Other invitees:

Director (Operations), NPCIL, Mumbai dschoudhary@npcil.co.in	Director (Power), NLC India Limited Neyveli, Tamil Nadu dir.power@nlcindia.in	Director (Planning & Projects), NLC India Limited Neyveli, Tamil Nadu dpp.co@nlcindia.in

8.8. Chief Engineer (PSPA-I), CEA, opined that commissioning of the 3rd ICT at Tuticorin-II GIS would provide additional reliability only for limited period of time. Once the planned RE generation capacity is commissioned, the 'N-1' reliability would not be there. The common facility works associated with ICT-3 are yet to be commissioned. Without the common facility, additional RE generators cannot be connected to the sub-station.

8.9. CTUIL informed that as the 3rd ICT at Tuticorin-II GIS is being implemented as system strengthening scheme, POWERGID is liable to commission the 3rd ICT along with common facility works. Further, earlier LTA of about 1100 MW was granted and additional 540 MW LTA was granted recently with requirement of 4th ICT. Considering the above and recent tripping incident at Tuticorin-II, it is prudent to commission the 3rd ICT at Tuticorin-II.

8.10. Member (Power System), CEA, opined that the commissioning of 3rd ICT cannot be considered solely on the basis of 'N-1'non-compliance, as 'N-1' non-compliance will again persist with the planned RE generations getting pooled at Tuticorin-II S/s. Moreover, the commissioning of 3rd ICT just for the sake of 'N-1' contingency will have commercial implication on other states.

8.11. After deliberations, it was agreed that the 3rd ICT at Tuticorin-II GIS substation shall be commissioned along with the common facility works associated with ICT-3.

9. Requirement of 765 kV spare (1-Ph) Reactors units:

9.1. Director, CEA, stated that 765 kV transmission system forms backbone of the power transmission network. Hence, reliability of the 765 kV transmission system is of utmost importance.

9.2. Transportation of 765 kV equipment takes much more time than 400 kV units. Therefore, 765 kV S/s are generally planned with one spare unit (1-Ph) of 765/400 kV ICT, 240 MVAR/330 MVAR bus reactors and line reactors so that reliability of 765 kV grid can be maintained.

9.3. One spare unit (1-Ph) of 80 MVAR reactor has not been considered for 765 kV Warangal New and Chilkaluripeta TBCB substations. Therefore, it is proposed to provide one spare unit (1-Ph) of 80 MVAR reactor at each 765 kV Warangal New and Chilkaluripeta TBCB substations along with necessary arrangement to take spare reactor units into service as per requirement.

Deliberations in 3rd SRPC(TP) Meeting

9.4. TANTRANSCO informed that data of the number spare reactors available in Southern Region may be collected from PGCIL and the spare reactors at other substation may be utilized in case of requirement. TANTRANSCO suggested to have limited number of spare reactors for the Southern region instead of having one spare at each substation to reduce the cost burden.

9.5. After deliberations, members agreed to the proposal of providing one spare unit (1-Ph) of 80 MVAR reactor at each 765 kV Warangal New and Chilkaluripeta TBCB substations along with necessary arrangement to take spare reactor units into service as per requirement.

10. Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor

10.1. Director, CEA, informed that SRLDC in its operational feedback has suggested to implement NGR bypass arrangement for switchable line reactors to use them as bus reactor, in case of outage of line. Implementation of Vemagiri – Chilkaluripeta 765kV D/c line along with 240 MVAR switchable line reactor at both ends of each circuit and Chilkaluripeta – Cuddapah 765kV D/c line along with 240 MVAR switchable line reactors at both ends of each circuit as part of "Strengthening of transmission system beyond Vemagiri" was agreed as in the 37th meeting of the SCPSPSR held on 31.07.2014. As per present arrangement, NGR bypass arrangement has not been provided at Chilkaluripeta end for each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line and Vemagiri – Chilkaluripeta 765 kV D/c line.

10.2. To use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765kV D/c line at Chilkaluripeta 765kV S/s, it is proposed to implement NGR bypass scheme with suitable arrangement.

Deliberations in 3rd SRPC(TP) Meeting

10.3. SRLDC informed that if a line is taken out of service, switching of line reactor as bus reactor would be helpful in controlling the grid voltage. However, it was noticed that in some TBCB projects NGR bypass arrangement is not implemented. He suggested that NGR bypass arrangement should be implemented for all the planned and upcoming schemes.

10.4. SRPC informed that the proposed NGR bypass scheme to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilakaluripeta 765 kV D/c line and Chilakaluripeta – Cuddapah 765 kV D/c line at Chilakaluripeta 765 kV S/s was discussed and agreed in the OCC meeting of SRPC.

10.5. COO (CTUIL) suggested that as the cost of implementation of NGR bypass arrangement is very minimal, some generic guidelines may be framed for implementation of NGR bypass arrangement to use the switchable line reactors as bus reactor in case of outage of line for all schemes planned in near future.

10.6. After deliberations, members agreed to implement NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s.

भारत सरकार केंद्रीय विद्युत प्राधिकरण दक्षिण क्षेत्रीय विद्युत समिति बेंगलूर- 560 009	सत्यमेव जयते	Government of India Central Electricity Authority Southern Regional Power Committee Bangalore- 560 009
Email: mssrpc-ka@nic.in seoprnsrpc-ka@nic.in	Phone: 080-22384339	Fax: 080-2259343

सं/No.	SRPC/SE(O)/164th OCC/2019-20	दिनांक/ Date	25.02.2020

सेवा में / To: संलग्न सूचि के अनुसार / As per enclosed list

प्रचालन समन्वय समिति की 164 वी बैठक के कार्यवृत्त ।

MINUTES OF THE 164th MEETING OF THE OPERATION COORDINATION COMMITTEE

महोदय / Sir,

दिनांक 11 फरवरी 2020 (मंगलवार) को बेंगलुरु में संपन्न 164 वी प्रचालन समन्वय समिति की बैठक के कार्यवृत्त आपके अवलोकनार्थ हमारा वेबसाइट www.srpc.kar.nic.in में अपलोड किया गया है।
समिति की 165 वी बैठक दिनांक 13 मार्च 2020 (शुक्रवार) को बेंगलुरु, में होगी।

The minutes of the 164th Meeting of the Operation Coordination Committee held on 11th February 2020, is uploaded in our office website www.srpc.kar.nic.in for your perusal.

The 165th Meeting of the OCC will be held on 13th March 2020 (Friday) at SRPC, Bengaluru.

भवदीय / Yours faithfully,

(असित सिंह / ASIT SINGH)

अधीक्षक अभियंता/SUPERINTENDING ENGINEER

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- OCC opined that this issue should be brought to the notice of TSERC and special exemption may be sought for specific stations as few ISGS stations have received exemption.

Conclusion/*Observation*

- ***Forum noted that till specific CERC Order obtains by NLCIL, Technical Minimum of 55 % will be considered for NNTPP.***
- ***NLCIL was requested to explore with Original Equipment Manufacturer, the possibilities to run NLCIL units at technical minimum of 55 % and below, with suitable modifications if required.***

3.2 ***Conversion of Line Reactor(240 MVAR) to Bus Reactor at Chilakulripeta for 765 kV Cudapah-Chilakaluripeta-1&2***

- On 20.01.2020 SRLDC/NLDC had issued code for hand tripping 765 kV Cudapah-Chilakaluripeta-I and converting line reactors to bus reactors at both the ends to contain over voltage.
- Line was hand tripped at 19:52 hours but conversion of Line reactor to Bus Reactor at Chilakulripeta for 765 kV Cudapah-Chilakaluripeta-1 was not done by POWERGRID as per request of SRLDC/NLDC.

Meeting deliberations:

- SR I PGCIL, informed that the line reactor at Chilakaluripeta don't have provision for NGR bypass.(at Kadappa and Vemagiri provision is there for NGR Bypass). Line Reactors at M/s PSITSL's 765kV Chilakaluripeta Substation were constructed as per approval of Standing Committee and NGR By-Pass arrangement was not envisaged. In case Line Reactor is taken into service as Bus Reactor without NGR By-Pass, switching over voltages shall be developed in the system which may damage the equipment and may also result in disturbance in system. On 20th January 2020 as per SRLDC instruction conversion of line reactor to bus reactor was carried out with physically bypassing NGR with copper conductor and very next day reverted back to Line reactor. The issues were appraised to SRLDC & NLDC and NLDC vide mail dated 29.01.2020 has given approval for taking Line Reactor into service as Bus Reactor without By-Passing NGR. From 29th Jan'2020 onwards PGCIL is taking Line Reactor into service as per instructions of NLDC/SRLDC.
- SRLDC informed that switching of lines is the last option left out for SRLDC(due to lack of reactive support) to control the overvoltage& also by changing the line reactor to Bus reactor by NGR bypass to avoid cascade tripping of lines. At around 3500 MVAR reactive support is required to control the high voltage in SR system and also it is of great concern that reactors are not coming up in time.
- PGCIL, SR I expressed concern that the switching operation is being carried out beyond the capability of transmission element (at a high voltage) which further aggravates the deterioration of the equipment.
- SRLDC agreed that they will take up with NLDC to give the CODE for switching operation at a lower voltage.
- SE(O), SRPC suggested that as a proposal SRLDC may furnish the requirement of permanent arrangement of making the line reactors convertible (to bus reactor at Chilakkalluripeta) and subsequently after vetting by OCC it would be taken up with PSISTL.
- PGCIL requested that the switching operations carried out in every month may be part of the minutes of OCC which was agreed by the forum.
- SRLDC/SRPC had recalled that there were occasions when Powergrid themselves had taken up high voltage issues with SRLDC. As a system operator SRLDC can control the voltage with available lines, capacitors and reactors etc. POWERGRID informed that they have intimated SRLDC regarding high voltage in the system as it shall deteriorate EHV equipment.

Conclusion/*Observation*

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- SRLDC will take up with NLDC for switching of lines/reactors of 765 kV pre-emptively (expected high voltages nodes) at around 1.05 pu.
- SRLDC would take out the lines / reactors pre-emptively (expected high voltages nodes) at around 420 kV (which are likely to be taken out)
- SRLDC agreed to look into the possibility of minimizing the switching operations.
- PGCIL stated that switching details would be furnished (to be part of minutes). Also will bring out the instances where optimization could have been done.
- It was noted that the conversion from line to bus reactor on SOS at 765kV Chilakaluripeta Substation could be advised along with NGR bypass.
- SRLDC would furnish the requirement of permanent arrangement of making the line reactors convertible (to bus reactor) and subsequently after vetting by OCC and approval in next SRPC, it would be taken up with PSISTL to approach CERC for additional expenditure for making NGR bypass arrangement.

3.3 *Standard format for requesting the No Back Feeding Certificate(NBFC)*

- SR II vide E-mail dated 01.02.2020 had informed that around 90 substations from utilities like KPTCL/TNEB/KSEB/Pondy are requesting NBFC for line/station maintenance works through telephonic messages which is causing delay in processing the request. In view of this a standard message has been prepared by RTAMC ***(Annexure-3B)*** for requesting the NBFC. The information as per enclosed format is to be furnished for telephonic messages or E-mail messages.

Meeting deliberations:

- SR II, PGCIL informed that the information required is only the status of line isolator and line earth switch (ON or OFF). At present beyond the required information, many information are being furnished which leads to more time to take out the specific information, even different operators are giving different inputs over telephonic/E-mail communications. To bring out uniformity in furnishing the information PGCIL had furnished a Standard format which is circulated and requested all the concerned to make use of this format (telephonically as well as E-mail). It was clarified by PGCIL that earth switch operation is always carried out manually.

Conclusion/*Observation*

- All the entities agreed to furnish the information in the requisite format for NBFC to avoid operator dependent/lengthy communications. Word copy of Format would be shared by PGCIL.The information needs to be precise and no additional information was required.
  - Subsequently SR II had furnished the soft copy of word file which was shared to all concerned vide SRPC E-mail dated 13.02.2020.

3.4 *Ratification of projected demand and generation for PoC Q1(2020-21) at RPC forum*

- NLDC vide E-mail dated 03.02.2020 ***(Annexure-3C)*** had furnished demand and generation projections for PoC (Q1) 2020-21 for ratification at RPC forum. Data as received from constituents is also attached.

- All the entities were requested to furnish the comments / observations if, any, to Implementing Agency (NLDC) within one week. It was noted that Validation Committee Meeting is scheduled for 24.02.2020.

3.5 *Discrepancy observed in the RE(wind and solar) generation data*

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I/18213/2021

Minutes of 3rd meeting of Southern Regional Power Committee (Transmission Planning)

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-I
Power System Planning & Appraisal Division-I

सेवा में / To,

संलग्न सूची के अनुसार
As per enclosed list

विषय : दक्षिण क्षेत्र विद्युत समिति (पारेषण योजना) की तीसरी बैठक का कार्यवृत।

Subject: Minutes of 3rd meeting of Southern Regional Power Committee (Transmission Planning) [SRPC(TP)].

महोदया(Madam) / महोदय(Sir)

The 3rd meeting of Southern Regional Power Committee (Transmission Planning) [SRPC(TP)] was held on 24.08.2021 through VC (Microsoft Teams).

Minutes of the meeting are attached for kind information.

भवदीय/Yours faithfully,

Signature Not Verified
Digitally signed by ISHAN SHARAN
Date: 2021.10.08 10:40:36 IST

(ईशान शरण / Ishan Sharan)
मुख्य अभियंता / Chief Engineer

Copy for kind information to:
1) PPS to Member (Power System), CEA

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9.5. After deliberations, members agreed to the proposal of providing one spare unit (1-Ph) of 80 MVAR reactor at each 765 kV Warangal New and Chilkaluripeta TBCB substations along with necessary arrangement to take spare reactor units into service as per requirement.

10. Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor

10.1. Director, CEA, informed that SRLDC in its operational feedback has suggested to implement NGR bypass arrangement for switchable line reactors to use them as bus reactor, in case of outage of line. Implementation of Vemagiri – Chilkaluripeta 765kV D/c line along with 240 MVAR switchable line reactor at both ends of each circuit and Chilkaluripeta – Cuddapah 765kV D/c line along with 240 MVAR switchable line reactors at both ends of each circuit as part of "Strengthening of transmission system beyond Vemagiri" was agreed as in the 37th meeting of the SCPSPSR held on 31.07.2014. As per present arrangement, NGR bypass arrangement has not been provided at Chilkaluripeta end for each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line and Vemagiri – Chilkaluripeta 765 kV D/c line.

10.2. To use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765kV D/c line at Chilkaluripeta 765kV S/s, it is proposed to implement NGR bypass scheme with suitable arrangement.

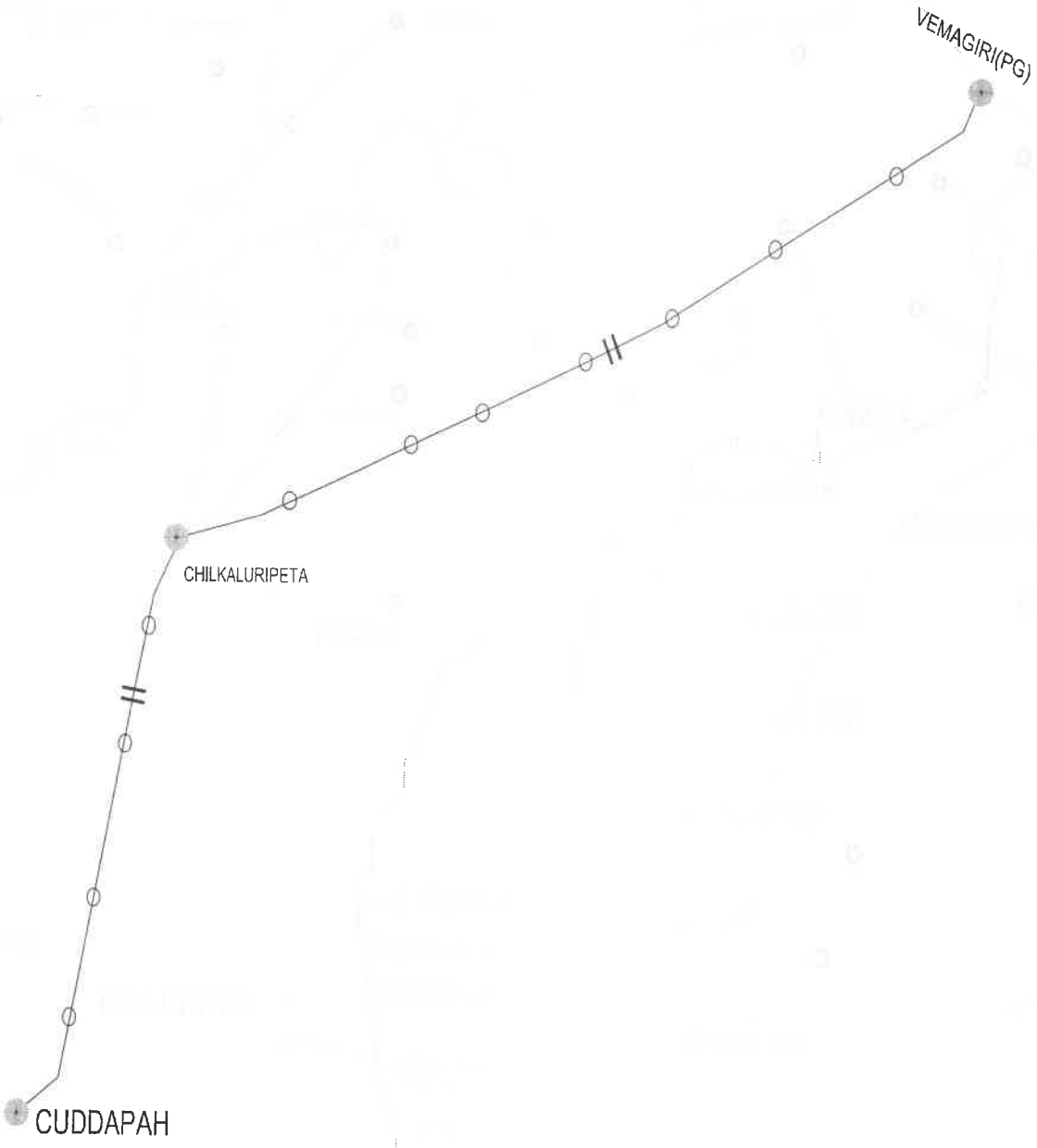
Deliberations in 3rd SRPC(TP) Meeting

10.3. SRLDC informed that if a line is taken out of service, switching of line reactor as bus reactor would be helpful in controlling the grid voltage. However, it was noticed that in some TBCB projects NGR bypass arrangement is not implemented. He suggested that NGR bypass arrangement should be implemented for all the planned and upcoming schemes.

10.4. SRPC informed that the proposed NGR bypass scheme to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilakaluripeta 765 kV D/c line and Chilakaluripeta – Cuddapah 765 kV D/c line at Chilakaluripeta 765 kV S/s was discussed and agreed in the OCC meeting of SRPC.

10.5. COO (CTUIL) suggested that as the cost of implementation of NGR bypass arrangement is very minimal, some generic guidelines may be framed for implementation of NGR bypass arrangement to use the switchable line reactors as bus reactor in case of outage of line for all schemes planned in near future.

10.6. After deliberations, members agreed to implement NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s.



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E-Mail /Website

भारत सरकार केंद्रीय विद्युत प्राधिकरण **दक्षिण क्षेत्रीय विद्युत समिति** 29, रेसकोर्स क्रास रोड बेंगलूर- 560 009		Government of India Central Electricity Authority **Southern Regional Power Committee** 29, Race Course Cross Road Bengaluru-560 009
Email:mssrpc-ka@nic.in	Phone: 080-22287205	Fax: 080-22259343
सं/No. SRPC/39 (SRPC&TCC)/2021/ 08-86		दिनांक/ Date **03rd January 2022**

To:

(As per the distribution list)

Subject: Minutes of 39th Meetings of TCC (03.12.2021) & SRPC (06.12.2021)-reg.

Sir/Madam,

Enclosed, please find a copy of the combined Minutes of the 39th Meetings of TCC (03.12.021) and SRPC (06.12.2021) convened through Video Conferencing. This is also available on SRPC website **http://www.srpc.kar.nic.in**

Thanking you,

भवदीय/Yours faithfully,

न. भंडारी

(नरेश भंडारी/ Naresh Bhandari)

सदस्य सचिव/ Member Secretary

Distribution List:

A. Members of SRPC:

1) Shri Rajesh Lakhoni, Chairperson, SRPC & CMD, TANGEDCO, Chennai
2) Shri B K Arya, Member (GO & D), CEA, New Delhi.
3) Dr. Srikanth Nagulapalli, CMD, APTRANSCO, Vijayawada
4) Shri B Sreedhar, Managing Director, APGENCO, Vijayawada
5) Shri K Praveen Kumar, Director (Grid &Tr.Mgmt), APTRANSCO, Vijayawada
6) Shri J Padma Janardhana Reddy, CMD, APCPDCL, Vijayawada
7) Dr .N Manjula, Managing Director, KPTCL, Bengaluru
8) Shri V Ponnuraj, Managing Director, KPCL, Bengaluru
9) Shri V Krishnappa, Managing Director, PCKL, Bengaluru
10) Shri G R Chandrashekaraiah , Director (Transmission), KPTCL, Bengaluru
11) Shri B Gurumurthy, Chief Engineer (E), SLDC, KPTCL, Bengaluru
12) Dr B Ashok,CMD, KSEBL, Thiruvananthapuram

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Meenakshi Energy Limited(MEL)	07-11-2019	19,74,790	19,88,276	39,63,066
MEL PH-2	07-11-2019	30,19,347	55,50,726	85,70,073
Simhapuri Energy Limited (SEL)	27-06-2020	33,03,938	39,88,047	72,91,985
TOTAL		**90,70,054**	**2,07,20,721**	**2,97,90,775**
Dues to SR Pool Accounts				
LANCO ST-II	24-04-2019	-	4,40,870	4,40,870
LANCO ST-III	24-04-2019	-	97,580	97,580
Meenakshi Energy Limited(MEL)	07-11-2019	1,71,44,405	5,40,75,575	7,12,19,980
MEL PH-2	07-11-2019	75,97,389	2,932	76,00,321
Simhapuri Energy Limited (SEL)	27-06-2020	87,98,231	64,57,835	1,52,56,066
TOTAL		**3,35,40,025**	**6,10,74,792**	**9,46,14,817**

9.2 **TCC Deliberation**

SRLDC informed that there are dues in respect of SRLDC fees and charges and SR Pool accounts from the entities under NCLT/ CIRP (Corporate Insolvency Resolution Process). CIRP Resolution officer has requested SRLDC to deregister MEL PH- 2 as "user" of SRLDC from November 2021 and hence MEL Ph-2 has been deregistered as a user of SRLDC from November 2021. SRLDC would intimate the pending dues from these entities to CERC through a Petition. The mechanism of settlement of these dues and further course of action needs to be understood from CERC. The details of outstanding dues have been furnished for information of TCC/ SRPC.

SRPC noted the above

V. Items for Update

i. Operation

Ou.1. Proposals agreed in the 3rd Meeting of Southern Regional Power Committee (Transmission Planning).

1.1 The 3rd meeting of Southern Regional Power Committee (Transmission Planning) [SRPC (TP)] was held on 24.08.2021 through VC. The Minutes of the meeting available at CEA website: **https://cea.nic.in**under Committees>Regional Power Committee (Transmission Planning) (RPCTPs) > Southern Region

1.2 The following schemes/proposals agreed in the meeting needed to be taken up for implementation:

1) Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor:

a) SRLDC in its operational feedback has suggested to implement NGR bypass arrangement for switchable line reactors to use them as bus reactor, in case of

outage of line. Implementation of Vemagiri – Chilkaluripeta 765kV D/c line along with 240 MVAR switchable line reactor at both ends of each circuit and Chilkaluripeta – Cuddapah 765kV D/c line along with 240 MVAR switchable line reactors at both ends of each circuit as part of "Strengthening of transmission system beyond Vemagiri" was agreed as in the 37th meeting of the SCPSPSR held on 31.07.2014.

b) SRPC (TP) has agreed to implement NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s.

c) This has been discussed in the 184th meeting of OCC held on 10.11.2021 wherein PGCIL informed that formal letter from CTUIL is required for implementation. CTUIL has informed that they would take up with PGCIL.

In the TCC meeting (03.12.2021), CTUIL informed that the work has been allocated to PGCIL on 16.11.2021.

SRPC noted the above.

2) **Assessment of online Dynamic Line Rating:**

a) As per the directions of CERC regarding implementation of assessment of Dynamic Line Loadings in real time / day ahead for optimal utilization of transmission lines, the matter was discussed in 37th SRPC and 167th OCC meetings held on 01.02.2020 and 13.03.2020 respectively. In the OCC meeting it was decided that SRPC may take up the matter with POSOCO/CTU to have a pilot project on any critical line in Southern Region. Member Secretary, SRPC vide letter dated 16.03.2020 had requested to have a pilot project on any critical line in Southern Region.

b) SRPC (TP)has agreed to consider the following lines for assessment of Dynamic Line Loadings as a pilot project and SRPC was requested to take further action on the issue:

i. **Tuticorin PS- Madurai 400 kV D/c (quad) line (line length 95 km)**

ii. **Kalpakka – Simhadri 400 kV D/c line (line length 4 km)**

c) This has been discussed in the 184th meeting of OCC held on 10.11.2021 wherein PGCIL was requested to implement the scheme

In the TCC meeting (03.12.2021) the following concluded:

- ✓ For the time being pilot scheme on 400 kV Tuticorin PS- Madurai D/C line would be taken up for implementation.
- ✓ PGCIL shall be the Nodal agency for implementation of pilot scheme on 400 kV Tuticorin PS- Madurai D/C line.

- ✓ PGCIL to have discussion with experts and finalise the scheme/ estimated cost etc. and put up for discussion in SRPC Sub-Committees.
- ✓ Funding etc. would be decided subsequently.

SRPC noted the above.

3) **Requirement of 765 kV spare (1-Ph) Reactors units:**

a) One spare unit (1-Ph) of 80 MVAR reactor has not been considered for 765 kV Warangal New and Chilkaluripeta TBCB substations. Therefore, it is proposed to provide one spare unit (1-Ph) of 80 MVAR reactor at each 765 kV Warangal New and Chilkaluripeta TBCB substations along with necessary arrangement to take spare reactor units into service as per requirement.

b) SRPC (TP) has agreed to the proposal of providing **one spare unit (1-Ph) of 80 MVAR reactor at each 765 kV Warangal New and Chilkaluripeta TBCB substations along with necessary arrangement** to take spare reactor units into service as per requirement.

c) This has been discussed in the 184th meeting of OCC held on 10.11.2021 wherein PGCIL informed that formal letter from CTUIL is required for implementation. CTUIL has informed that they would take up with PGCIL.

In the TCC meeting (03.12.2021), CTUIL informed that the work has been allocated to PGCIL on 16.11.2021.

SRPC noted the above.

4) **Conversion of fixed line reactor into switchable line reactor / bus reactor:**

a) Veltoor – Raichur 400 kV S/c line (about 74 km) is installed with 50 MVAR fixed line reactor at Raichur TPS end under the ownership of Raichur TPS. SRLDC has reported resonance phenomena on above mentioned line during tripping. In view of above, it is proposed to convert fixed line reactor installed at Raichur TPS for Veltoor – Raichur 400 kV S/c into switchable line reactor with inter trip scheme. If due to space constraint or any other issue it is not possible to convert fixed line reactor as switchable line reactor, then same could be converted into bus reactor at Raichur TPS.

b) SRPC (TP) has agreed that **KPTCL will take up the matter with KPCL for converting fixed line reactor installed at Raichur TPS end of Veltoor – Raichur 400 kV S/c line into switchable line reactor with inter –trip scheme**.

c) This has been discussed in the 184th meeting of OCC held on 10.11.2021 wherein KPCL was requested to implement the scheme.

In the TCC meeting (03.12.2021), KPCL informed that they have taken up the issue with KPTCL.

SRPC noted the above.

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-I
Power System Planning & Appraisal Division-I

सेवा में / To,

संलग्न सूची के अनुसार
As per enclosed list

विषय : दक्षिण क्षेत्र विद्युत समिति (पारेषण योजना) की तीसरी बैठक का कार्यवृत।
Subject: Minutes of 3rd meeting of Southern Regional Power Committee (Transmission Planning) [SRPC(TP)].

महोदया(Madam) / महोदय(Sir)

The 3rd meeting of Southern Regional Power Committee (Transmission Planning) [SRPC(TP)] was held on 24.08.2021 through VC (Microsoft Teams).

Minutes of the meeting are attached for kind information.

भवदीय/Yours faithfully,

Signature Not Verified
Digitally signed by ISHAN SHARAN
Date: 2021.10.08 10:40:36 IST

(ईशान शरण / Ishan Sharan)
मुख्य अभियंता / Chief Engineer

Copy for kind information to:
1) PPS to Member (Power System), CEA

PSITSL Secunderabad

8.8. Chief Engineer (PSPA-I), CEA, opined that commissioning of the 3rd ICT at Tuticorin-II GIS would provide additional reliability only for limited period of time. Once the planned RE generation capacity is commissioned, the 'N-1' reliability would not be there. The common facility works associated with ICT-3 are yet to be commissioned. Without the common facility, additional RE generators cannot be connected to the sub-station.

8.9. CTUIL informed that as the 3rd ICT at Tuticorin-II GIS is being implemented as system strengthening scheme, POWERGID is liable to commission the 3rd ICT along with common facility works. Further, earlier LTA of about 1100 MW was granted and additional 540 MW LTA was granted recently with requirement of 4th ICT. Considering the above and recent tripping incident at Tuticorin-II, it is prudent to commission the 3rd ICT at Tuticorin-II.

8.10. Member (Power System), CEA, opined that the commissioning of 3rd ICT cannot be considered solely on the basis of 'N-1'non-compliance, as 'N-1' non-compliance will again persist with the planned RE generations getting pooled at Tuticorin-II S/s. Moreover, the commissioning of 3rd ICT just for the sake of 'N-1' contingency will have commercial implication on other states.

8.11. After deliberations, it was agreed that the 3rd ICT at Tuticorin-II GIS substation shall be commissioned along with the common facility works associated with ICT-3.

9. Requirement of 765 kV spare (1-Ph) Reactors units:

9.1. Director, CEA, stated that 765 kV transmission system forms backbone of the power transmission network. Hence, reliability of the 765 kV transmission system is of utmost importance.

9.2. Transportation of 765 kV equipment takes much more time than 400 kV units. Therefore, 765 kV S/s are generally planned with one spare unit (1-Ph) of 765/400 kV ICT, 240 MVAR/330 MVAR bus reactors and line reactors so that reliability of 765 kV grid can be maintained.

9.3. One spare unit (1-Ph) of 80 MVAR reactor has not been considered for 765 kV Warangal New and Chilkaluripeta TBCB substations. Therefore, it is proposed to provide one spare unit (1-Ph) of 80 MVAR reactor at each 765 kV Warangal New and Chilkaluripeta TBCB substations along with necessary arrangement to take spare reactor units into service as per requirement.

Deliberations in 3rd SRPC(TP) Meeting

9.4. TANTRANSCO informed that data of the number spare reactors available in Southern Region may be collected from PGCIL and the spare reactors at other substation may be utilized in case of requirement. TANTRANSCO suggested to have limited number of spare reactors for the Southern region instead of having one spare at each substation to reduce the cost burden.

9.5. After deliberations, members agreed to the proposal of providing one spare unit (1-Ph) of 80 MVAR reactor at each 765 kV Warangal New and Chilkaluripeta TBCB substations along with necessary arrangement to take spare reactor units into service as per requirement.

10. Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor

10.1. Director, CEA, informed that SRLDC in its operational feedback has suggested to implement NGR bypass arrangement for switchable line reactors to use them as bus reactor, in case of outage of line. Implementation of Vemagiri – Chilkaluripeta 765kV D/c line along with 240 MVAR switchable line reactor at both ends of each circuit and Chilkaluripeta – Cuddapah 765kV D/c line along with 240 MVAR switchable line reactors at both ends of each circuit as part of "Strengthening of transmission system beyond Vemagiri" was agreed as in the 37th meeting of the SCPSPSR held on 31.07.2014. As per present arrangement, NGR bypass arrangement has not been provided at Chilkaluripeta end for each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line and Vemagiri – Chilkaluripeta 765 kV D/c line.

10.2. To use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765kV D/c line at Chilkaluripeta 765kV S/s, it is proposed to implement NGR bypass scheme with suitable arrangement.

Deliberations in 3rd SRPC(TP) Meeting

10.3. SRLDC informed that if a line is taken out of service, switching of line reactor as bus reactor would be helpful in controlling the grid voltage. However, it was noticed that in some TBCB projects NGR bypass arrangement is not implemented. He suggested that NGR bypass arrangement should be implemented for all the planned and upcoming schemes.

10.4. SRPC informed that the proposed NGR bypass scheme to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilakaluripeta 765 kV D/c line and Chilakaluripeta – Cuddapah 765 kV D/c line at Chilakaluripeta 765 kV S/s was discussed and agreed in the OCC meeting of SRPC.

10.5. COO (CTUIL) suggested that as the cost of implementation of NGR bypass arrangement is very minimal, some generic guidelines may be framed for implementation of NGR bypass arrangement to use the switchable line reactors as bus reactor in case of outage of line for all schemes planned in near future.

10.6. After deliberations, members agreed to implement NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s.

सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED
(Wholly Owned Subsidiary of Power Grid Corporation of India Limited)
(A Government of India Enterprise)

Ref.: C/CTU/AI/00/1st CCTP

16th November 2021

OFFICE MEMORANDUM

Sub: Inter State Transmission Schemes (costing up to Rs.100 Cr.) to be taken up for implementation under Regulated Tariff Mechanism (RTM).

The undersigned is directed to inform that CTU has approved implementation of the following ISTS costing less than or equal to Rs.100 Cr. in line with MoP office order dated 28.10.2021 under the Regulated Tariff Mechanism (RTM) mode by the implementing agencies as indicated in the table below:

Sl.	Name of scheme	Implementing Agency
Northern Region		
1.	Implementation of 220 kV bays for RE generators and 400/220kV ICTs at Bikaner-II PS	Bikaner-II Bhiwadi Transco Ltd. (a subsidiary of Power Grid Corporation of India Ltd.) [now known as POWERGRID Bikaner Transmission System Ltd.]
2.	Augmentation of transformation capacity at 400/220 kV Ludhiana (PG) Substation	Power Grid Corporation of India Ltd.
3.	Augmentation of Transformation capacity at 400/220 kV Kurukshetra (PG) & Patiala (PG) Substations	Power Grid Corporation of India Ltd.
Southern Region		
4.	Requirement of 765 kV spare (1-Ph) Reactors unit at 765kV Warangal New (Part-A)	Warora Kurnool Transmission Ltd. (a subsidiary of Adani Transmission Ltd.)
5.	Requirement of 765 kV spare (1-Ph) Reactors unit at 765kV Chilkaluripeta (Part-B)	POWERGRID Southern Interconnector Transmission System Ltd. (a subsidiary of Power Grid Corporation of India Ltd.)
6.	Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765kV Chilkaluripeta	POWERGRID Southern Interconnector Transmission System Ltd. (a subsidiary of Power Grid Corporation of India Ltd.)
7.	1 no. 400 kV bay at 765/400 kV Kurnool (New) Substation	Power Grid Corporation of India Ltd.
Eastern Region		
8.	Eastern Region Expansion Scheme-XXVI (ERES-XXVI)	Power Grid Corporation of India Ltd.
North Eastern Region		
9.	Additional scope under NERSS-XIII scheme	Power Grid Corporation of India Ltd.

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Western Region		
10.	Transmission Network Expansion in Gujarat to increase its ATC from ISTS (Part-A)	Power Grid Corporation of India Ltd.

Detailed scope of works for the above schemes, as approved by CTU are given at **Annexure-I**.

Respective agencies shall enter into concession agreement with CTU for implementation of the above-mentioned schemes through Regulated Tariff Mechanism (RTM).

This issues with the approval of Competent Authority.

(Partha Sarathi Das)
Sr. General Manager

Encl: as stated.

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To:

1. **Director (Projects)** Power Grid Corporation of India Ltd., Saudamini, Plot No. 2, Sector-29, Gurgaon- 122 001	2. **CEO** M/s POWERGRID Southern Interconnector Transmission Ltd. (PSITL) (a subsidiary of Power Grid Corporation of India Ltd.) B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi – 110016
3. **Shri Ajit Ranjan N R Das** Project Incharge M/s Bikaner-II Bhiwadi Transco Ltd. (BBTL) (a subsidiary of Power Grid Corporation of India Ltd.) [POWERGRID Bikaner Transmission System Limited] C/o ED (TBCB) Power Grid Corporation of India Ltd. Saudamini, Plot No. 2, Sector-29, Gurgaon- 122 001	4. **Shri Ankesh Kumar** M/s Warora Kurnool Transmission Ltd. (WKTL) (a subsidiary of Adani Transmission Ltd.) Adani Corporate House, Shantigram, S.G. Highway, Ahmedabad -382421

Copy to:

1. **Sh. Ishan Sharan** Chief Engineer & Member Secretary (NCT) Central Electricity Authority Sewa Bhawan, R.K.Puram, New Delhi-110 066.	2. **Sh. Goutam Ghosh** Director (Trans) Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110 001

Secunderabad

PSITL

Annexure-I

Northern Region:

1. **Implementation of 220 kV bays for RE generators and 400/220kV ICTs at Bikaner-II PS**

S. No.	Scope of the Transmission Scheme	Capacity	Implementation timeframe
1.	2x500MVA, 400/220 kV ICT at Bikaner-II PS	400/220 kV, 500 MVA ICT –2 nos. 400 kV ICT bays – 2 nos. 220 kV ICT bays – 2 nos.	ICT-I: Mar' 2023 ICT-II: Apr' 2023
2.	4 nos. 220 kV line bays	220 kV line bays - 4 nos.	1 no. of bay: Mar' 2023 1 no. of bay: Apr' 2023 2 no. of bays: Dec' 2023
	Total Estimated Cost:	**70 Cr.**	

2. **Augmentation of transformation capacity at 400/220 kV Ludhiana (PG) Substation:**

S. No.	Scope of the Transmission Scheme	Capacity	Implementation timeframe
1	Replacement of 1x315 MVA, 400/220 kV ICT by 1x500 MVA, 400/220kV ICT at Ludhiana (PG) S/s	400/220 kV, 500 MVA ICT – 1 no.	15 months from issue of OM by CTU
	Total Estimated Cost	**14 Cr.**	

3. **Augmentation of Transformation capacity at 400/220 kV Kurukshetra (PG) & Patiala (PG) Substations:**

S. No.	Scope of the Transmission Scheme	Capacity	Implementation timeframe
1	1x 500 MVA, 400/220 kV ICT at Kurukshetra (PG) S/s	400/220kV 500 MVA ICT:1 no 400 kV ICT bay – 1 no. 220 kV ICT bay – 1 no.	15 months from issue of OM by CTU
2	1x 500 MVA, 400/220 kV ICT at Patiala (PG) S/s	400/220kV 500 MVA ICT:1 no 400 kV ICT bay – 1 no. 220 kV ICT bay – 1 no.	May'23
	Total Estimated Cost	**54 Cr.**	

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Southern Region

4. **Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Warangal New (Part-A):**

Sl. No	Scope of the Transmission Scheme	Capacity	Implementation timeframe
Part-A	One spare unit (1-Ph) of 80 MVAR reactor at 765 kV Warangal New along with necessary arrangement to take spare reactor units into service as per the operational requirement.	80 MVAR (1-Ph)	15 months from issue of OM by CTU
	Estimated Cost (Rs Crores)	**5.5 Cr.**	

5. **Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B):**

Sl. No	Scope of the Transmission Scheme	Capacity	Implementation timeframe
Part-B	One spare unit (1-Ph) of 80 MVAR reactor at 765 kV Chilkaluripeta along with necessary arrangement to take spare reactor units into service as per the operational requirement.	80 MVAR (1-Ph)	15 months from issue of OM by CTU
	Estimated Cost (Rs Crores)	**5.5 Cr.**	

6. **Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765kV Chilkaluripeta**

Sl. No	Scope of the Transmission Scheme	Capacity	Implementation timeframe
1	NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line at Chilkaluripeta 765 kV S/s	NGR bypass arrangement	6 months from issue of OM by CTU
2	NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Chilkaluripeta – Cuddapah	NGR bypass arrangement	6 months from issue of OM by CTU

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	765 kV D/c line at Chilkaluripeta 765 kV S/s..		
	Total Estimated Cost (Rs Lakhs)	**32 Lakhs (approx.)**	

7. **1 no. 400 kV bay at 765/400 kV Kurnool (New) Substation**

Sl. No	Scope of the Transmission Scheme	Capacity /km	Implementation timeframe
1	1 no. of 400 kV bay at 765/400 kV Kurnool (New)	400kV line bay-1 no	Oct'22
	Total Estimated Cost (Rs Crores)	**9 Cr.**	

Eastern Region

8. **Eastern Region Expansion Scheme-XXVI (ERES-XXVI):**

Sl. No.	Scope of the Transmission Scheme	Capacity /km	Implementation timeframe
1.	Installation of 500 MVA, 400/220kV ICT (3rd) at Ranchi (PG)	400/220 kV, 500 MVA ICT- 1 no. 400 kV ICT bays- 1 nos. 220 kV ICT bays- 1 nos.	15 months from issue of OM by CTU
	Total Estimated Cost (Rs. Crore)	**27 Cr.**	

North Eastern Region

9. **Additional scope under NERSS-XIII scheme**

Sl. No.	Scope of the Transmission Scheme	Capacity /km	Implementation timeframe
1.	CT of 132kV Imphal (POWERGRID) – Imphal (Manipur) bay-2 to be upgraded to 1200 A at Imphal (POWERGRID) S/s	NIL	In matching timeframe to SCOD of NERSS-XIII, i.e. Sep'2022
	Total Estimated Cost (Rs. Lakhs)	**10 lakhs (approx.)**	

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Western Region

10. Transmission Network Expansion in Gujarat to increase its ATC from ISTS (Part-A)

Sl. No.	Scope of the Transmission Scheme	Capacity /km	Implementation timeframe
1.	Augmentation of transformation capacity at Vadodara 765/400/220kV S/s by 1x1500MVA, 765/400kV ICT (3rd) along with associated 765kV ICT bay*	765/4000 kV, 1500 MVA ICT- 1 no. 765 kV ICT bays- 1 nos.	Apr'22
	Total Estimated Cost (Rs. Crore)	**70 Cr. (approx.)**	

**Out of the 2 nos. 400kV line bays already constructed by POWERGRID for DGEN – Vadodara line, 1no. line bay to be utilized for 765/400kV ICT (3rd) at Vadodara*

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Annexure-III

A. **POWERGRID Ramgarh Transmission Limited (PRTL)** a subsidiary of POWERGRID is implementing "Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II – Part A" under Tariff based competitive bidding (TBCB), as per the following details:

S.No.	Scheme/ Transmission Works	Scheduled COD in months from Effective Date
1.	Establishment of 400/220 kV, 4x500 MVA at Ramgarh – II (Fatehgarh-III) PS with 420kV (2x125 MVAR) bus reactor	**08th Sept.'2022** (18 months from the date of acquisition i.e. 09th March'21)
2.	Ramgarh-II (Fatehgarh-III) PS – Fatehgarh- II PS 400kV D/c line (Twin HTLS*)	
3.	2 no. of 400 kV line bays at Fatehgarh- II for Ramgarh – II (Fatehgarh-III) PS– Fatehgarh- II PS 400kV D/c line	
4.	2 no. of 400 kV line bays each at Jaisalmer- II for Ramgarh – II (Fatehgarh-III) - Jaisalmer-II 400kV D/c line	

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B. **POWERGRID Bikaner Transmission System Limited (PBTSL)** a subsidiary of POWERGRID is implementing "Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II – Part F" under Tariff based competitive bidding (TBCB), as per the following details:

Sr.	Name of the Transmission Element	Schedule COD
1.	Establishment of 400 kV switching station at Bikaner – II PS with 420kV (2x125 MVAR) bus reactor 400 kV line bays – 4 nos. 125 MVAr, 420 kV bus reactor - 2 nos. 400 kV bus reactor bay – 2 nos. 400 kV, 80MVAr line reactor on each circuit at Bikaner –II end of Bikaner -II – Khetri 400 kV 2xD/c Line – 4 nos. Switching equipment for 400 kV switchable line reactor – 4 nos. Future provisions: Space for 400/220 kV ICTs along with bays – 10 nos. 400 kV line bays – 6 nos. 220 kV line bays – 16 nos. 420 kV reactors along with bays – 2 nos. Suitable bus sectionaliser arrangement at 400 kV and 220 kV	**24th Sept.'2022** (18 months from the date of acquisition i.e. 25th March'21)
2.	Bikaner-II PS – Khetri 400 kV 2xD/c line (Twin HTLS on M/c Tower)	
3.	1x80MVAr Fixed Line reactor on each circuit at Khetri end of end of Bikaner -II – Khetri 400 kV 2xD/c Line - 4 nos.	
4.	4 no. of 400 kV line bays at Khetri for Bikaner –II PS – Khetri 400kV 2xD/c line	
5.	Khetri- Bhiwadi 400 kV D/c line (Twin HTLS)	
6.	2 no. of 400 kV line bays at Khetri for Khetri - Bhiwadi 400kV D/c line	
7.	2 no of 400 kV(GIS) line bays at Bhiwadi for Khetri-Bhiwadi 400 kV D/c line	
8.	STATCOM at Bikaner-II S/s ± 300 MVAr, 2x125 MVAr MSC, 1x125 MVAr MSR	

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C. POWERGRID Southern Inter connector Transmission System Limited (PSITSL) a subsidiary of POWERGRID established Transmission System for Strengthening of Transmission System beyond Vemagiri, as per the following details:

Sl. No.	Scheme/ Transmission Works	COD
1	Vemagiri-II – Chilakaluripeta 765kV D/C line with 240 MVAR switchable line reactors at both ends.	**All the elements are commissioned progressively from Aug.'18 to Jan.'20**
2	Chilakaluripeta – Cuddapah 765kV D/C line with 240 MVAR switchable line reactors at both ends.	
3	Chilakaluripeta – Narsaraopeta (Sattenapalli) 400kV (quad) D/C line 2 no. 400 kV line bays at Narsaraopeta (Sattenapalli) 400kV sub-station of APTRANSCO	
4	Cuddapah – Madhugiri 400kV (quad) D/C line with 50 MVAR switchable line reactors at both ends.	
5	Srikaukulam Pooling Station – Garividi 400 kV (Quad) D/C line 2 no. 400 kV line bays at Garividi 400kV S/s of APTRANCO	
6	Establishment of 765/400 kV substation at Chilakaluripeta with 2x1500 MVA transformers and 2x240 MVAR (7x80 MVAR units, one spare unit) bus reactors each. **Transformers:** 765/400 kV, 7 x 500 MVA (One-unit spare) **765 kV Bays** ICT bays : 2 nos. Line bays : 6 nos. 765 kV Bus Reactor Bays : 2 nos. Spare bays (Space) : 6 nos. **400 kV Bays** ICT bays : 2 nos. Line bays : 2 nos. Spare bays (Space) : 8 nos.	

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No. 15/3/2018-Trans-Part(1)
Government of India
Ministry of Power
Shram Shakti Bhawan, Rafi Marg, New Delhi-110001
****

Dated, 16th July, 2021

OFFICE MEMORANDUM

Subject: New transmission schemes to be taken up under Regulated Tariff Mechanism (RTM).

The undersigned is directed to inform that Hon'ble Minister for Power has approved the implementation of following transmission schemes, which were recommended by 4th meeting of the National Committee on Transmission (NCT), under the Regulated Tariff Mechanism (RTM) mode by agencies as indicated in the table below:

Sl. No.	Elements	Agency
1	Implementation of 400kV bays for RE generators at Bhadla-II PS, Fatehgarh-II.	PGCIL
2	Implementation of 400kV bay for RE generators at Fatehgarh-III (erstwhile Ramgarh-II) PS	Powergrid Ramgarh Transmission Ltd. (Subsidiary of PGCIL)
3	Implementation of 220 kV bay at Shahjahanpur 400/220 substation (PGCIL)	PGCIL
4	Implementation of 1x80 MVAR, 765kV Spare Reactor at Bhadla-II S/s	PGCIL
5	Implementation of the 1x500 MVA, 400/220kV ICT (8th) at Bhadla Pooling Station	PGCIL
6	ICT Augmentation at 2x315 MVA, 400/220 kV Shujalpur (PG) substation	PGCIL
7	Regional System Strengthening scheme to mitigate the overloading of 400 kV NP Kunta-Kolar S/C line	PGCIL
8	Augmentation of transformation capacity at existing Hiriyur and Kochi S/stns	PGCIL
9	Restoring of one circuit of Kudankulam – Tuticorin PS 400 kV (quad) D/c line at Tirunelveli to control loadings/un-balancing on Kudankulam – Tirunelveli 400 kV (quad) lines.	PGCIL
10	Implementation of 1 no. of 230 kV bay at Tuticorin-II GIS PS	PGCIL

2. Detailed scope of works for the above schemes, as recommended by the NCT is at **Annexure**.

3. These schemes are awarded to CTUIL for their implementation under RTM mode. The CTUIL is requested to take necessary action for entering into a

23/12/2021

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concession agreement with agencies as mentioned in table at para 1 above, for implementation of these schemes.

4. This issues with the approval of Competent Authority.

Encl: as stated.

16/12/2021

(Bihari Lal)
Bihari Lal (Trans)
Tele: 011-23325242

To

COO, CTUIL,
Gurugram.

Copy to:

1. Member(PS), CEA, New Delhi.
2. CMD, PGCIL, Gurugram.

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Annexure

Detailed scope of works for new ISTS schemes to be developed in RTM Mode

1) **Implementation of 400 kV bays for RE generators at Bhadla-II PS, Fatehgarh-II PS:**

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	3 no. of 400 kV bays at Bhadla-II	400 kV line bays – 3
2.	2 no. of 400 kV bay at Fatehgarh-II	400 kV line bays – 2

Implementation Timeframe: 15 months from MoP OM allocating the scheme or RE generator commissioning schedule whichever is later.

2) **Implementation of 400 kV bays for RE generators at Fatehgarh-III (erstwhile Ramgarh-II) PS:**

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	1 no. of 400 kV bay at Fatehgarh-III	400 kV line bays – 1

Implementation Timeframe: 15 months from MoP OM allocating the scheme or RE generator commissioning schedule whichever is later.

3) **Implementation of 220 kV bay at Shahjahanpur (PG) 400/220 substation**

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	Line bay at Shahjahanpur (PG) 400/220 kV substation	220 kV line bay(AIS) - 1 no.

Implementation Timeframe: 12 months from MoP OM allocating the scheme or matching timeframe of LILO of Sitapur – Shahjahanpur 220 kV S/c line at Shahjahanpur by UPPTCL, whichever is later.

4) **Implementation of 1x80 MVAR, 765 kV Spare Reactor at Bhadla-II S/s**

Sl. No	Scope of the Transmission Scheme	Capacity / line length km
1.	1x80 MVAR, 765 kV Spare Reactor at Bhadla-II S/s for 2x240 MVAR switchable line reactors associated with Fatehgarh-II – Bhadla-II 765 kV 2nd D/C line.	1x80 MVAR, 765kV reactor-1

Implementation time: Matching time frame of Fatehgarh-II – Bhadla-II 765 kV 2nd D/C line.

5) **Implementation of the 1x500 MVA, 400/220 kV ICT (8th) at Bhadla Pooling Station**

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	1x500 MVA, 400/220kV ICT (8th) at Bhadla Pooling Station	500 MVA, 400/220kV ICT – 1 no. 400 kV ICT bay- 1 no. 220 kV ICT bay- 1 no.

Implementation time: 15 months from date of MoP OM allocating the scheme

6) **ICT Augmentation at 2x315 MVA, 400/220 kV Shujalpur (PG) substation**

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km

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1.	1x500MVA, 400/220 kV ICT augmentation at Shujalpur (PG) alongwith associated bays	400/220 kV, 500 MVA ICT-1 400 kV ICT bays- 1 220 kV ICT bays- 1

Implementation Timeframe: In matching time frame of Reconductoring of Shujalpur (PG) Shujalpur (MP) 220kV D/c line by MPPTCL.

7) **Regional System Strengthening scheme to mitigate the overloading of 400 kV NP Kunta-Kolar S/C line**

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	Temporary Bypassing of Cudappah – NP Kunta 400 kV S/c line and NP Kunta – Kolar 400 kV S/c line with suitable arrangement at NP Kunta sub-station to form Cudappah – Kolar 400 kV S/c line	
2.	Re-conductoring of the NP Kunta – Kolar 400 kV S/c line (twin Moose) section with high capacity conductors (like twin HTLS equivalent or Quad Moose).	131
3.	Upgradation of 400 kV bays equipments at NP Kunta and Kolar for NP Kunta – Kolar 400 kV line section: **Kolar Substation:** Bay equipments (Circuit Breaker, Isolators , CT, Wave traps, Erection hardware etc.) of complete 400kV diameter is to be upgraded to 3150A rating. **NP Kunta substation:** 7 nos. 400KV, 2000A DBR existing Isolators and Existing erection hardware needs to be upgraded to suit proposed high capacity conductors (current rating of 3150A).	
4.	Restoration of LILO arrangement to form Cuddapah – NP Kunta 400 kV S/c line and NP Kunta – Kolar 400 kV S/c line upon completion of re-conductoring works of NP Kunta – Kolar line.	

Implementation Timeframe: 15 months from date of MoP OM allocating the scheme.

8) **Augmentation of transformation capacity at existing Hiriyur and Kochi S/stns**

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	1x500 MVA, 400/220 kV ICT augmentation at Hiriyur (PGCIL) alongwith associated bays	400/220 kV, 500 MVA ICT-1 400 kV ICT bays- 1 220 kV ICT bays- 1
2.	1x500 MVA, 400/220 kV ICT augmentation at Kochi (PGCIL) alongwith associated bays	400/220 kV, 500 MVA ICT-1 400 kV ICT bays- 1 220 kV ICT bays- 1

Implementation Timeframe: 15 months from date of MoP OM allocating the scheme

9) **Restoring of one circuit of Kudankulam – Tuticorin PS 400 kV (quad) D/c line at Tirunelveli to control loadings/un-balancing on Kudankulam – Tirunelveli 400 kV (quad) lines**

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Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	Restoring of one circuit of Kudankulam – Tuticorin PS 400 kV (quad) D/c line at Tirunelveli to control loadings/un-balancing on Kudankulam – Tirunelveli 400 kV (quad) lines	

Implementation Timeframe: Already Implemented (as intimated by PGCIL/CTUIL vide email dated 24.05.2021)

10) Implementation of 1 no. of 230 kV bay at Tuticorin-II GIS PS

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	1 no. of 230 kV bay at Tuticorin-II GIS PS	230 kV line bay- 1

Implementation Timeframe: In matching timeframe of 230 MW solar Project of NTPC at Ettayapuram, Tuticorin, Tamil Nadu or 12 months from the date of MoP OM allocating the scheme, whichever is later.

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16/12/21

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POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED

(A Wholly Owned Subsidiary of Power Grid Corporation of India Limited)

Extract from the Minutes of the 66th Meeting of Board of Directors of POWERGRID Southern Interconnector Transmission System Limited held on Friday, 29th July, 2022 at 11:10 a.m. at "Saudamini", Plot No. 2, Sector-29, Gurgaon-122001 through Video Conferencing.

Item No. 66.2.6.:

Approval of Investment Approval (IA) for the RTM projects allotted to PSITSL.

x x x

The Board passed the following resolution:

"**RESOLVED THAT** Investment Approval, be and is hereby accorded for an amount of Rs. 7.77 Crores for 765 KV spare (1Ph) Reactor unit at 765 KV Chilakaluripeta substation and Rs 0.70 Crores for by pass NGR to use switchable line reactor as Bus reactor at 765 KV Chilakaluripeta substation."

RESOLVED FURTHER THAT the approval of Board, be and is hereby accorded to borrow further funds up to Rs. 5.93 Crore by way of Inter-Corporate Loan from POWERGRID on such terms and conditions and with or without security as the Board of Directors may think fit in pursuance of Section 179(3)(d) and other applicable provisions, if any, of the Companies Act, 2013.

RESOLVED FURTHER THAT any Director or CEO, be and is hereby authorized to undertake necessary action including entering into Inter-Corporate Loan agreement/any other agreements or documents, in this regard."

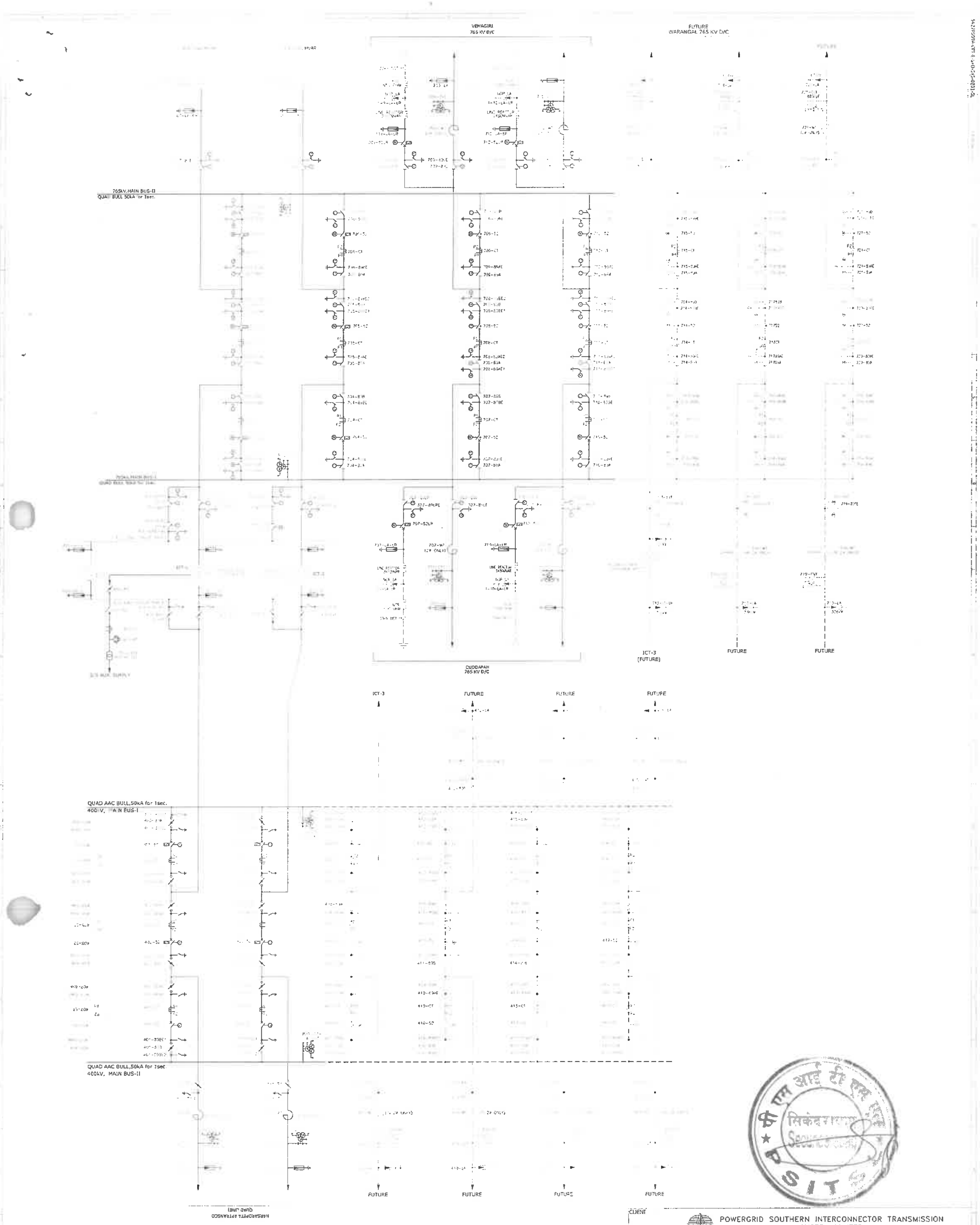
*****

Certified to be True Copy

For POWERGRID Southern Interconnector Transmission System Limited

02/08/2022

Shwetank Kumar
Company Secretary
M.No. 17887
Address: Plot. No. 2, 'Saudamini',
Near Iffco Chowk, Sector-29, Gurgaon, Haryana-122001



REV.No.	DESCRIPTION		DATE	DRAWN	REVIEW	ELE. CHECKED	CIVIL	MECH	APPROVED	STATUS
		Name								
		Date								
		Sign								
		Name								
		Date								
		Sign								
		Name		VKY		ALK			KNS	
		Date		12 06 19		12 06 19			12 06 19	AS BUILT
		Sign								
		Name		VKY		ALK				
		Date		30 05 18		30 05 18				FOR APPROVAL
		Sign								
R0		Name		SUR		DPK/ABK				
		Date		17 08 17		17 08 17				FOR APPROVAL
		Sign								

REFERENCE NO.	DESCRIPTION

CLIENT

POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED

PROJECT: SUBSTATION PACKAGE SS-1 FOR (a) CONSTRUCTION OF 765/400KV CHILKALURIPETA SUBSTATION (INCLUDING CIVIL WORKS FOR 765/400KV TRANSFORMER & 765 KV REACTOR) (b) EXTENSION OF 400 KV SATENAPAALI (NARASAROPETA) SUBSTATION (c) EXTENSION OF 400 KV GARIVIDI SUBSTATION ASSOCIATED WITH "BEYOND VEMAGIRI" TRANSMISSION SYSTEM UNDER TBCB ROUTE SPECIFICATION NO - TBCB/765KV/09(BEVEM)SS01/G11)

CONTRACTOR

GE T&D INDIA LTD.
(FORMERLY ALSTOM T&D INDIA LTD)
A-7, SECTOR-65, NOIDA - 201301
UTTAR PRADESH (INDIA)

KEY SINGLE LINE DIAGRAM OF
765/400kV CHILAKULARIPETA SUBSTATION

DRAWING No	TOTAL SH	SH No	REV
5427PS096-CPT-E-SYD-SYS-0201-SL	01	01	01
	SCALE NTS		

65

65

DETAILED PROJECT REPORT FOR
Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765kV Chilkaluripeta

1.0 CONTEXT / BACKGROUND

(i) Implementation of Vemagiri – Chilkaluripeta 765 kV D/c line along with 240 MVAR switchable line reactor at both ends of each circuit and Chilkaluripeta – Cuddapah 765 kV D/c line along with 240 MVAR switchable line reactors at both ends of each circuit as part of "Strengthening of transmission system beyond Vemagiri" was agreed in the 37th meeting of the SCPSPSR held on 31.07.2014. In 164th OCC meeting held on 25.02.2020, SRLDC had suggested to implement NGR bypass arrangement for switchable line reactors at 765kV Chilkaluripeta Substation to use them as bus reactors in case of outage of line.

(ii) In 3rd meeting of SRPC (TP) held on 24.08.2021, it was agreed to implement NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s.

(iii) Subsequently, vide OM ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021, CTUIL has allocated "Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta" under Regulatory Tariff Mechanism (RTM) to POWERGRID Southern Interconnector Transmission System Ltd (PSITSL). Accordingly, it is proposed that PSITSL shall implement this scheme. As mentioned in the OM, CTUIL has to enter into a concession agreement with the implementing agency (PSITSL) for implementation of this scheme.

(iv) It is to be mentioned here that, Chilkaluripeta 765 kV S/s has been established and commissioned through TBCB route by POWERGRID Southern Interconnector Transmission System Ltd (a 100% wholly owned subsidiary of POWERGRID).

(v) Given that the additional scope "Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta", is to be established under the Regulatory Tariff Mechanism, an application shall be filed before CERC for grant of separate transmission license for the additional scope of work under RTM.

(vi) Approval for filing the application before CERC and consultancy assignment to POWERGRID has been obtained vide note CC-TBCB-12-17/0027/2019/TBCB Grp1dated 01.10.2019. The proposal for Related Party Transaction between POWERGRID and PSITSL for carrying out additional scope of work shall be put up to the PSITSL Board.

(vii) The present DPR covers Transmission scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta. Scheme involves implementation of NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s.

The Transmission System schematic diagram is shown at **Exhibit-1.0**

2.0 SCOPE OF WORK

66 66

Substation:

a) **765 kV Chilkaluripeta Sub Station**

- NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line at Chilkaluripeta 765 kV S/s

- NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s

2.1 PROJECT HIGHLIGHTS

a)	Project	:	Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta
b)	Location of the Project	:	Southern Region
c)	Project Cost	:	**Rs. 0.70 Crores** at September 2021 Price Level (including IDC of Rs. 0.**01 Crores**) excl. consultancy*
d)	Monthly Fixed Charges	:	**Rs. 0.92 Lakhs** on Base Cost **Rs. 0.92 Lakhs** on Projected Completed Cost
e)	Commissioning schedule	:	Transmission System is proposed to be implemented within **4.5 months from the date of investment approval i.e. 01.01.2022**

**The project cost is Rs. 0.73 Crores (incl. IDC Rs 0.01 Cr. + Consultancy @ 5% of project cost& GST @18% thereon Rs 0.04 Cr.)*

3.0 PROJECT APPROVAL BY CONSTITUENTS / SHARING OF TRANSMISISION CHARGES

3.1.1 In 164th OCC meeting held on 25.02.2020, SRLDC had suggested to implement NGR bypass arrangement for switchable line reactors at 765kV Chilkaluripeta Substation to use them as bus reactors in case of outage of line. The scheme was agreed in 3rd meeting of SRPC (TP) held on 24.08.2021 to implement NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line and Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s

3.1.2 Subsequently, vide OM ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021, CTUIL has allocated "Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta" to PSITSL for implementation under Regulated Tariff Mechanism (RTM). As mentioned in the OM, CTUIL has to enter into a concession agreement with the implementing agency (PSITSL) for implementation of this scheme.

3.1.3 An application shall be filed before CERC for grant of separate transmission license for the additional scope of work under RTM. Approval for filing the application and

consultancy assignment to POWERGRID has been obtained vide note CC-TBCB-12-17/0027/2019/TBCB Grp1dated 01.10.2019

Copies of the relevant minutes of meetings are enclosed at **ANNEXURE - 8.0.**

3.2 SHARING OF TRANSMISSION CHARGES

The transmission charges for this project shall be shared by the beneficiaries in line with the Sharing Regulations notified by CERC from time to time.

4.0 PROJECT STRATEGY

The various elements of this transmission scheme have been evolved by CTU and other stakeholders. The implementation of the scheme has been assigned to PSITSL under RTM by CTUIL vide office memorandum ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021. PSITSL shall establish "Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta" through POWERGRID under consultancy.

5.0 LEGAL FRAMEWORK

It is proposed to execute the above entire transmission scheme as per provisions contained in the Indian Electricity Act, 2003 and the rules made there-under and the Electricity (Supply) Act, 1910 and 1948, in so far as these are applicable.

6.0 EQUIPMENT SELECTION PHILOSOPHY

The system and equipment parameters are chosen keeping in view the present trend in technology. The conductors are selected such that the losses in them due to internal resistance as well as due to external effects are bare minimum. The bus bar materials and the clamps and connectors are chosen meeting the stringent international requirements so that there is least loss of energy in them. Other switchgears are also suitably selected and evaluated before award itself for most efficient operation from thermal and loss efficiency point of view. The energy thus saved is energy transmitted to the beneficiaries. This is a major step in energy conservation as the energy saved on account of losses is construed as energy generated.

7.0 TECHNOLOGY ISSUES

7.1 Salient features of 765/400 kV Substation Equipment and facilities

The design and specification of substation equipment are to be governed by the following factors:

7.1.1 Insulation Coordination

765/400 KV System would be designed to limit the switching overvoltage to 2.5 pu and power frequency overvoltage of 1.5 p.u. In case of 765/420 KV system, the initial value of temporary overvoltage could be 2 p.u for 1-2 cycles. Consistent with these values and protective levels provided by lightning arrestors, the following insulation levels are proposed to be adopted for 765 kV and 400 kV systems: 132KV System would be designed to limit the Switching overvoltage to 2 pu for 1-2 cycles Consistent with these values and protective levels provided by lightning arrestors, the following insulation levels are proposed to be adopted:

		765 KV	420 KV	145 KV
a	Impulse withstand voltage for - Transformers - for Other Equipment	1950 kVP 2100 kVP	1300 kVP 1550 kVP	650 kVP 650 kVP
b	Switching surge withstand voltage	1550 kVP	1050 kVP	-
c	Minimum creepage distance	13020 mm	10500 mm	3625 mm
d	Max. fault current	40kA	50 kA	31.5 kA
e	Duration of fault	1 Sec	1 Sec	1 Sec
f	Corona extinction voltage	508kV rms	320kV rms	-

7.1.2 Steady State Stability

The Steady State Stability is the ability of a system, to return/remain in the state of equilibrium when subjected to small or gradual changes of disturbances. The steady state stability limit is the maximum power that can flow through some lines in the system when the entire or part of the system to which the stability limit refers is subjected to a small disturbance without loss of its stability.

The steady state stability is usually quantified by measuring the relative angular displacement (also called as swing curve) between the two buses (nodes) in a network when a small disturbance is applied somewhere into the system.

In an integrated power system consisting of large number of generator, load and line etc., a maximum relative angular separation of about 30 deg. between the two buses may be assumed to be acceptable (safest) limit for maintaining the steady state stability of the system. Angular separation for different alternatives have been studied and found to be in order.

7.1.3 Switching Schemes

It is essential that the system should remain secured even under conditions of major equipment or bus-bar failure. Sub-stations being the main connection points have large influence on the security of the system as a whole. The selection of the bus switching scheme is governed by the various technical and other related factors

7.1.4 765/400KV Substation equipment:

The switchgear shall be designed and specified to withstand operating conditions and duty requirements. Further, switchgear for all voltage levels shall be generally of conventional type air insulated switchgear due to economy, subject to availability of suitable land.

7.1.4.1 Circuit Breakers

Circuit breakers shall in general comply to IEC 62271-100 & IEC-60694 and shall be of SF6 Type. The rated break time shall not exceed 60ms for 220/132 KV and 40 ms for 765 KV and 400kV circuit breakers. Circuit breakers shall be provided with single phase and three phase auto reclosing. The short line fault capacity shall be same as the rated capacity and this is proposed to be achieved without use of opening resistors

7.1.5 Substation Support facilities

Certain facilities required for operation & maintenance of substations as described below had been provided in existing substation and would be extended, wherever required.

7.1.5.1 Firefighting System

Firefighting system in general conforms to fire insurance regulations of India. Extension of the existing firefighting system with both AC motor & diesel engine driven pumps is proposed.

7.1.6 Control Concept

All the EHV breakers in extended portion of substation/switching stations shall be controlled and synchronized from the switchyard control room / remote control center. Each breaker would have two sets of trip circuits which would be connected to separately fused DC supplies for greater reliability. All the isolators shall have control from remote/local whereas the earth switches shall have local control only.

8.0 MEANS OF FINANCE AND PROJECT BUDGET

8.1 Project Cost Estimate

The estimated cost of the project based on **September 2021 price level** is as follows:

(Rs. in crores)

		Total cost
1.	Transmission System	0.69
2.	Interest during Construction	0.01
	TOTAL	**0.70***

**The project cost is Rs. 0.73 Crores (incl. IDC Rs 0.01 Cr. + Consultancy @ 5% of project cost& GST @18% thereon Rs 0.04 Cr.)*

The abstract cost estimate for Substation portion are given at **ANNEXURE - 1.0**. The break-up of the cost estimate for civil works and substations are given at **ANNEXUREs - 1.1** and **1.2** respectively.

The detailed cost estimates for the civil works for Substation has been given at **ANNEXUREs - 1.1.2**.

8.2 Basis of Cost Estimate

The estimated cost of the project as on **September 2021 price level** works out to **Rs. 0.70 crores** including IDC of **Rs. 0.01 crores,** excluding consultancy**. The project cost is Rs. 0.73 Crores (incl. IDC Rs 0.01 Cr. + Consultancy @ 5% of project cost& GST @18% thereon Rs 0.04 Cr.).** Unit rates for 765/400kV substation works have been taken from ***Schedule of Rates*** of POWERGRID (*which has been prepared based on the average of unit rates of latest LOAs/Bids and/or from Raw material prices*) for **September 2021** Price level. Engineering estimate has been considered for few items for which in house rates are not available.

The cost estimate is inclusive of GST as applicable for different equipment (supply & services portion). F&I @ 4% have been considered in the Estimate for plain terrain.

8.3 Project Overheads

The following overheads have been charged on to the cost of the transmission system as a percentage of the equipment cost:

	For Substation
i) Incidental Expenditure During Construction	10.75%
ii) Contingencies	3.00%
iii) Consultancy & GST @18% thereon	*5% of project cost*

8.4 Funding arrangement

8.4.1 Phased Fund Requirement

The anticipated year wise fund requirement for the project including interest during construction is given below:

YEAR	TOTAL (Rs in Crores)
2021 – 2022	0.56
2022 – 2023	0.14
Total	**0.70**

8.4.2 Mode of Financing

The project is proposed to be funded through Internal Resources (IR) and through domestic borrowings/bonds/External Commercial borrowings. The equity component **(30%)** is proposed to be met through the Internal Resources (IR) and the loan component **(70%)** through domestic borrowings/bonds/External Commercial borrowings.

8.5 Interest during Construction

Based on the assumptions that the project will be financed through loan and equity in the ratio of **70:30** and the equity component shall be released simultaneously along with the loan component, the interest during construction works out to **Rs. 0.01 crores**. The interest rate for the loan amount has been considered @ **9.00%** for domestic loan. The details of calculation are furnished in **ANNEXURE - 4.0**.

The interest during construction would, however, be based on the actual financial structure of the project and applicable terms of interest on loan(s), etc.

8.6 Monthly Fixed Charges

Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 have been referred for calculation of monthly fixed charges. Considering:

i. Rate of interest on Domestic Loan @ 9.00% p.a.;
ii. Return on equity @ 15.5%;
iii. Depreciation @ 0% for land, @ 3.34% for building, @ 5.28% for transmission lines & substations and @ 6.33% for PLCC;
iv. Debt:Equity ratio 70:30;
v. Interest on working capital @ 10.50%;

The tentative monthly fixed charges work out as **Rs. 0.92 Lakhs** on Base Cost and Rs. **0.92 Lakhs** on Projected Completed Cost (**ANNEXURE - 3.0**).

8.7 Completion Cost

The completion cost of the project is expected to be **Rs. 0.71 crores** including IDC of **Rs. 0.01 crores excluding consultancy charges**. The cost has been worked out on the basis of average movement of WPI (80% weightage) and CPI (20% weightage) for the preceding 12 month period as per guide lines dated 06.08.1997. Details of calculation are enclosed at **ANNEXURE - 5.0**. The abstract cost estimate for completed cost is enclosed at **ANNEXURE - 1.0a**. The phased fund requirement and calculation for IDC for completed cost are enclosed at **ANNEXURES - 2.0a** and **4.0a** respectively.

8.8 IRR Calculation

The Project IRR, Equity IRR and Economic IRR on Projected Completed Cost have been calculated for the project and the same is tabulated below:-

	For Completed Cost
Project IRR	12.03%
Equity IRR	19.49%
Economic IRR	13.69%

The details of calculation are furnished in **ANNEXURE - 7.0**.

9.0 TIME FRAME

The project is scheduled to be commissioned within **4.5 months** from the date of investment approval. Implementation schedule is given at **EXHIBIT- 2.0**. Project is to be implemented by May 2022.

10.0 RISK ANALYSIS

Revenue Risk

The capital cost of the transmission system comprises of i) an equity component and ii) a loan component. This is recovered through the annual transmission charges

consisting of return required for the equity, an interest for the loan component together with the depreciation charges, the O & M charges and interest on working capital from the beneficiaries as per CERC Notifications. In addition to annual charges Income Tax, FERV and incentives, etc. as per notification would also be payable. Transmission charges payable have been worked out presently based CERC Tariff Regulations, 2019 and same shall be as per the applicable tariff regulations as issued by CERC from time to time during useful life of the assets

Regulatory Risk

For the additional scope that is to be established under the Regulatory Tariff Mechanism, an application shall be filed for grant of separate transmission license for the additional scope of work under RTM by PSITSL

Environmental Risk

Transmission line projects are environmentally friendly and do not involve any disposal of solid effluents and hazardous substance in land, air and water.

Legal / Contractual Risks

The project would be established under a Consultancy assignment to POWERGRID wherein all inputs and services would be provided by POWERGRID. The procurement practices of POWERGRID are in line with best practices followed internationally. Further, requisite due diligence is carried out prior to award of contracts which inter-alia includes assessment of capacity and capability of bidders to perform the contract, thereby mitigating contractual risks. In the unlikely event of such risk, adequate provisions such as Dispute Resolution, Risk & Cost procurement, etc are in built in the Bidding/Contract Document to deal with the same.

The legal framework governing the contracts in India is well established and finally in place. As such, there is minimal probability of any legal risk.

Project Management Risks

The project would be established under a Consultancy assignment to POWERGRID wherein all inputs and services would be provided by POWERGRID. POWERGRID holds vast experience in the area of construction of 400kV and 765 kV long Inter-state Transmission lines and associated substations. It has commissioned a large number of 400 kV and 765 kV Transmission Lines and Substation projects successfully which are under operation.

POWERGRID has developed and implemented systems & procedures aligned with Integrated Management System.

11.0 SUSTAINABILITY

11.1 System Design Philosophy

The system and equipment parameters are chosen according to the present trends in technology, the conductors available are such that the losses in them due to internal resistance as well as due to external effects such as corona and RIV are bare minimum. The busbar materials and the clamps and connectors are chosen after meeting the stringent international requirements so that there is least loss of energy in them. The transformers, reactors and other switchgear are also similarly selected and

evaluated before award itself for most efficient operation from thermal loss and efficiency.

11.2 Spare parts Management System

The primary objective of spare part management system will be to ensure timely availability of proper spare parts for efficient maintenance of the substations and lines without excessive build-up on non-moving and slow moving inventory.

11.3 O&M Manuals

a) Adequate O & M manuals will be distributed to all concerned as per the policy of the company.

b) O & M manuals will be available to all concerned prior to commissioning of substations and transmission lines to avoid problems in preparation of commissioning documents as well as proper installation & commissioning of equipment.

पावरग्रिड
POWERGRID

विस्तृत परियोजना प्रतिवेदन (DPR)

765 केवी चिलकालूरिपेटा (भाग-बी) में 765 केवी अतिरिक्त (1-phase) रिएक्टर इकाई की आवश्यकता")

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)
[TB – 202135]

September 2021 Price Level

January 2022

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)

POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

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पंजीकृत कार्यालय: बी -9, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली -110 016. दूरभाष: 011-26560112, 26560121, 26564812, 26564892, CIN: L40101DL1989GOI038121
Registered Office: B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016. Tel: 011-26560112, 26560121, 26564812, 26564892, CIN : L40101DL1989GOI038121

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SCOPE OF WORKS FOR

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(I)	**Substation Works**	
	Chilkaluripeta 765 kV S/s	
		765 kV
A	One spare unit (1-Ph) of 80 MVAR reactor at 765 kV Chilkaluripeta along with necessary arrangement to take spare reactor units into service as per the operational requirement	1 X 80 MVAR (1-ph) Spare Reactor

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PREAMBLE

This proposal covers the Detailed Project Report for

Requirement Of 765 Kv Spare (1-Ph) Reactors Unit At 765 Kv Chilkaluripeta (Part-B)

The total estimated cost of the project based on **Setember 2021 price level** is as follows:

(Rs. in crores)

		Total cost
1.	Transmission System	7.50
2.	Interest during Construction	0.27
	TOTAL	**7.77***

*Excluding consultancy charges

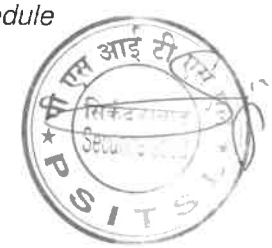
CONTENTS

ANNEXURES

Annex. No.	Description
1.0	Abstract Cost Estimate - Summary
1.1	Abstract Cost Estimate - Preliminary & General Civil Works
1.2	Abstract Cost Estimate - Substation
2.0	Phased Fund Requirement (for Base cost)
2.0a	Phased Fund Requirement (for Completed cost)
3.0	Monthly Fixed Charges (for Base cost)
3.0a	Monthly Fixed Charges (for Completed cost)
4.0	Calculation of Interest during Construction (for Base cost)
4.0a	Calculation of Interest during Construction (for Completed cost)
5.0	Calculation of Completed Cost of Project
6.0	Indexation adopted for calculation of Completed Cost
7.0	IRRs Calculation on Completed Cost
8.0	Copy of relevant extracts of the following Minutes of Meetings: (i) 3rd meeting of SRPC (TP) held on 24.08.2021 (ii) CTUIL OM ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021 (iii) TBCB IOM dated:25.11.2021 & 23.12.2021 (iv) Approved note CC-TBCB-13-16/0020/2021/TBCB Grp2 dated 08.12.2021

EXHIBITS

Exhibit No.	***Description***
1.0	*Schematic Diagram*
2.0	*Project Implementation Schedule*



DETAILED PROJECT REPORT FOR REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

1.0 CONTEXT / BACKGROUND

(i) In 3rd SRPC(TP) meeting held on 24.08.2021, it was discussed that reliability of the 765kV transmission system is of utmost importance and transportation of 765 kV equipment takes much more time than 400 kV units. Therefore, 765 kV S/s are generally planned with one spare unit (1-Ph) of 765/400 kV ICT, 240 MVAR/330 MVAR bus reactors and line reactors so that reliability of 765 kV grid can be maintained.

(ii) Further discussed that one spare unit (1-Ph) of 80 MVAR reactor has not been considered for 765 kV Chilkaluripeta TBCB substation. After deliberation, it was agreed to provide one spare unit (1-Ph) of 80 MVAR reactor at Chilkaluripeta substation along with necessary arrangement to take spare reactor unit into service as per the operational requirement.

(iii) Subsequently, vide OM ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021, CTUIL has allocated "Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)" under Regulatory Tariff Mechanism (RTM) to POWERGRID Southern Interconnector Transmission System Ltd (PSITSL). Accordingly, it is proposed that PSITSL shall implement this scheme. As mentioned in the OM, CTUIL has to enter into a concession agreement with the implementing agency (PSITSL) for implementation of this scheme.

(iv) It is to be mentioned here that, Chilkaluripeta 765 kV S/s has been established and commissioned through TBCB route by POWERGRID Southern Interconnector Transmission System Ltd (a 100% wholly owned subsidiary of POWERGRID).

(v) Given that the additional scope "Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)", is to be established under the Regulatory Tariff Mechanism, an application shall be filed before CERC for grant of separate transmission license for the additional scope of work under RTM.

(vi) Approval for filing the application before CERC and consultancy assignment to POWERGRID has been obtained vide note CC-TBCB-13-16/0020/2021/TBCB Grp2 dated 08.12.2021. The proposal for Related Party Transaction between POWERGRID and PSITSL for carrying out additional scope of work shall be put up to the PSITSL Board.

(vii) The present DPR covers Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B). Scheme involves implementation of one spare unit (1-Ph) of 80 MVAR reactor at 765 kV Chilkaluripeta substation along with necessary arrangement to take spare reactor unit into service as per the operational requirement.

The Transmission System schematic diagram is shown at **Exhibit-1.0**

2.0 SCOPE OF WORK

Substation:

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a) **765 kV Chilkaluripeta Sub Station**

- One spare unit (1-Ph) of 80 MVAR reactor at 765 kV Chilkaluripeta along with necessary arrangement to take spare reactor units into service as per the operational requirement.

2.1 PROJECT HIGHLIGHTS

a)	Project	:	Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)
b)	Location of the Project	:	Southern Region
c)	Project Cost	:	**Rs. 7.77 Crores** at September 2021 Price Level (including IDC of Rs. 0.**27 Crores**) excl. consultancy*
d)	Monthly Fixed Charges	:	**Rs. 10.67 Lakhs** on Base Cost **Rs. 11.13 Lakhs** on Projected Completed Cost
e)	Commissioning schedule	:	Transmission System is proposed to be implemented within **13 months from the date of investment approval.**

**The project cost is Rs. 8.16 Crores (incl. IDC Rs 0.27 Cr. + Consultancy @ 5% of project cost & GST @18% thereon Rs 0.39 Cr.)*

3.0 PROJECT APPROVAL BY CONSTITUENTS / SHARING OF TRANSMISISION CHARGES

3.1.1 In 3rd SRPC(TP) meeting held on 24.08.2021, it was discussed and agreed to provide one spare unit (1-Ph) of 80 MVAR reactor at Chilkaluripeta substation along with necessary arrangement to take spare reactor unit into service as per the operational requirement.

3.1.2 Subsequently, vide OM ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021, CTUIL has allocated "Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)" to PSITSL for implementation under Regulated Tariff Mechanism (RTM). As mentioned in the OM, CTUIL has to enter into a concession agreement with the implementing agency (PSITSL) for implementation of this scheme.

3.1.3 An application shall be filed before CERC for grant of separate transmission license for the additional scope of work under RTM. Approval for filing the application and consultancy assignment to POWERGRID has been obtained vide note CC-TBCB-13-16/0020/2021/TBCB Grp2 dated 08.12.2021.

Copies of the relevant minutes of meetings are enclosed at **ANNEXURE - 8.0.**

3.2 SHARING OF TRANSMISSION CHARGES

The transmission charges for this project shall be shared by the beneficiaries in line with the Sharing Regulations notified by CERC from time to time.

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4.0 PROJECT STRATEGY

The various elements of this transmission scheme have been evolved by CTU and other stakeholders. The implementation of the scheme has been assigned to PSITSL under RTM by CTUIL vide office memorandum ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021. PSITSL shall implement the scheme "Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)" through POWERGRID under consultancy.

5.0 LEGAL FRAMEWORK

It is proposed to execute the above entire transmission scheme as per provisions contained in the Indian Electricity Act, 2003 and the rules made there-under and the Electricity (Supply) Act, 1910 and 1948, in so far as these are applicable.

6.0 EQUIPMENT SELECTION PHILOSOPHY

The system and equipment parameters are chosen keeping in view the present trend in technology. The conductors are selected such that the losses in them due to internal resistance as well as due to external effects are bare minimum. The bus bar materials and the clamps and connectors are chosen meeting the stringent international requirements so that there is least loss of energy in them. The reactors and other switchgears are also suitably selected and evaluated before award itself for most efficient operation from thermal and loss efficiency point of view. The energy thus saved is energy transmitted to the beneficiaries. This is a major step in energy conservation as the energy saved on account of losses is construed as energy generated.

7.0 TECHNOLOGY ISSUES

7.1 Salient features of 765 kV Substation Equipment and facilities

The design and specification of substation equipment are to be governed by the following factors:

7.1.1 Insulation Coordination

765 kV System would be designed to limit the switching overvoltage to 2.5 pu and is expected to decay to 1.5 p.u. in 5 to 6 cycles. Consistent with these values and protective levels provided by lightning arrestors, the following insulation levels are proposed to be adopted for 765 kV systems:

Sl. No.	Description	765 kV
A	Impulse withstand voltage for - Transformer and reactors - for Other Equipment	 1950 kVP 2100 kVP
B	Switching surge withstand voltage	1550 kVP
c	Minimum creepage distance	13020 mm
d	Max. fault current	50kA
e	Duration of fault	1 Sec
f	Corona extinction voltage	508 kV rms

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To control the steady state, transient and dynamic overvoltage to specified levels, compensation equipment shall be provided

7.1.2 Steady State Stability

The Steady State Stability is the ability of a system, to return/remain in the state of equilibrium when subjected to small or gradual changes of disturbances. The steady state stability limit is the maximum power that can flow through some lines in the system when the entire or part of the system to which the stability limit refers is subjected to a small disturbance without loss of its stability.

The steady state stability is usually quantified by measuring the relative angular displacement (also called as swing curve) between the two buses (nodes) in a network when a small disturbance is applied somewhere into the system.

In an integrated power system consisting of large number of generator, load and line etc., a maximum relative angular separation of about 30 deg. between the two buses may be assumed to be acceptable (safest) limit for maintaining the steady state stability of the system. Angular separation for different alternatives have been studied and found to be in order.

7.1.3 Switching Schemes

It is essential that the system should remain secured even under conditions of major equipment or bus-bar failure. Sub-stations being the main connection points have large influence on the security of the system as a whole. The selection of the bus switching scheme is governed by the various technical and other related factors

7.1.4 765 KV Substation equipment:

The switchgear shall be designed and specified to withstand operating conditions and duty requirements. Further, switchgear for all voltage levels shall be generally of conventional type air insulated switchgear due to economy, subject to availability of suitable land.

7.1.4.1 Shunt Reactors

Shunt Reactors, wherever provided, shall comply to IEC:289/IS:5553 in general. 765 kV shunt reactors shall be designed for switching surge overvoltage of 2.5 pu. These should be ONAN Cooled. The neutral of line reactors shall be grounded through adequately rated neutral grounding reactors to facilitate single phase recloser against trapped charges. The neutral of 765 kV class shunt reactors shall be insulated to 550 kV peak for lightning impulse and shall be protected by means of 145 kV Class surge arresters

7.1.5 Substation Support facilities

Certain facilities required for operation & maintenance of substations as described below had been provided in existing substation and would be extended, wherever required.

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7.1.5.1 Firefighting System

Firefighting system in general conforms to fire insurance regulations of India. Extension of the existing firefighting system with both AC motor & diesel engine driven pumps is proposed.

7.1.5.2 Lighting

Adequate normal & emergency AC & DC lighting shall be provided in the outdoor switchyard.

8.0 MEANS OF FINANCE AND PROJECT BUDGET

8.1 Project Cost Estimate

The estimated cost of the project based on **September 2021 price level** is as follows:

(Rs. in crores)

		Total cost
1.	Transmission System	7.50
2.	Interest during Construction	0.27
	TOTAL	**7.77***

**The project cost is Rs. 8.16 Crores (incl. IDC Rs 0.27 Cr. + Consultancy @ 5% of project cost& GST @18% thereon Rs 0.39 Cr.)*

The abstract cost estimate for Substation portion are given at **ANNEXURE - 1.0**. The break-up of the cost estimate for civil works and substations are given at **ANNEXUREs - 1.1** and **1.2** respectively.

The detailed cost estimates for the civil works for Substation has been given at **ANNEXUREs - 1.1.2**.

8.2 Basis of Cost Estimate

The estimated cost of the project as on **September 2021 price level** works out to **Rs. 7.77 crores** including IDC of **Rs. 0.27 crores.** Unit rates for 765/400kV substation works have been taken from ***Schedule of Rates*** of POWERGRID (*which has been prepared based on the average of unit rates of latest LOAs/Bids and/or from Raw material prices*) for **September 2021** Price level.

The cost estimate is inclusive of GST as applicable for different equipment (supply & services portion). F&I @ 4% have been considered in the Estimate for plain terrain.

8.3 Project Overheads

The following overheads have been charged on to the cost of the transmission system as a percentage of the equipment cost:

	For Substation
i) Incidental Expenditure During Construction	10.75%
ii) Contingencies	3.00%
iii) Consultancy & GST @18% thereon	5% of project cost

8.4 Funding arrangement

8.4.1 Phased Fund Requirement

The anticipated year wise fund requirement for the project including interest during construction is given below:

YEAR	TOTAL (Rs in Crores)
2021 – 2022	2.26
2022 – 2023	4.98
2023 – 2024	0.53
Total	**7.77**

8.4.2 Mode of Financing

The project is proposed to be funded through Internal Resources (IR) and through domestic borrowings/bonds/External Commercial borrowings. The equity component **(30%)** is proposed to be met through the Internal Resources (IR) and the loan component **(70%)** through domestic borrowings/bonds/External Commercial borrowings.

8.5 Interest during Construction

Based on the assumptions that the project will be financed through loan and equity in the ratio of **70:30** and the equity component shall be released simultaneously along with the loan component, the interest during construction works out to **Rs. 0.27 crores**. The interest rate for the loan amount has been considered @ **9.00%** for domestic loan. The details of calculation are furnished in **ANNEXURE - 4.0**.

The interest during construction would, however, be based on the actual financial structure of the project and applicable terms of interest on loan(s), etc.

8.6 Monthly Fixed Charges

Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 have been referred for calculation of monthly fixed charges. Considering:

i. Rate of interest on Domestic Loan @ 9.00% p.a.;
ii. Return on equity @ 15.5%;
iii. Depreciation @ 0% for land, @ 3.34% for building, @ 5.28% for transmission lines & substations and @ 6.33% for PLCC;
iv. Debt:Equity ratio 70:30;
v. Interest on working capital @ 10.50%;

The tentative monthly fixed charges work out as **Rs. 10.67 Lakhs** on Base Cost and Rs. **11.13 Lakhs** on Projected Completed Cost (**ANNEXURE - 3.0**).

8.7 Completion Cost

The completion cost of the project is expected to be **Rs. 8.07 crores** including IDC of **Rs. 0.28 crores excluding consultancy charges**. The cost has been worked out on the basis of average movement of WPI (80% weightage) and CPI (20% weightage) for the preceding 12 month period as per guide lines dated 06.08.1997. Details of

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calculation are enclosed at **ANNEXURE - 5.0**. The abstract cost estimate for completed cost is enclosed at **ANNEXURE - 1.0a**. The phased fund requirement and calculation for IDC for completed cost are enclosed at **ANNEXURES - 2.0a** and **4.0a** respectively.

8.8 IRR Calculation

The Project IRR, Equity IRR and Economic IRR on Projected Completed Cost have been calculated for the project and the same is tabulated below:-

	For Completed Cost
Project IRR	11.58%
Equity IRR	18.10%
Economic IRR	13.87%

The details of calculation are furnished in **ANNEXURE - 7.0**.

9.0 TIME FRAME

The project is scheduled to be commissioned within **13 months** from the date of investment approval. Implementation schedule is given at **EXHIBIT- 2.0**. Project is to be implemented by Feb 2023.

10.0 RISK ANALYSIS

Revenue Risk

The capital cost of the transmission system comprises of i) an equity compo¬nent and ii) a loan component. This is recovered through the annual transmission charges consisting of return required for the equity, an interest for the loan component together with the depreciation charges, the O & M charges and interest on working capital from the beneficiaries as per CERC Notifications. In addition to annual charges Income Tax, FERV and incentives, etc. as per notification would also be payable. Transmission charges payable have been worked out presently based CERC Tariff Regulations, 2019 and same shall be as per the applicable tariff regulations as issued by CERC from time to time during useful life of the assets

Regulatory Risk

For the additional scope that is to be established under the Regulatory Tariff Mechanism, an application shall be filed for grant of separate transmission license for the additional scope of work under RTM.

Environmental Risk

Transmission line projects are environmentally friendly and do not involve any disposal of solid effluents and hazardous substance in land, air and water.

Legal / Contractual Risks

The project would be established under a Consultancy assignment to POWERGRID wherein all inputs and services would be provided by POWERGRID. The procurement practices of POWERGRID are in line with best practices followed internationally. Further, requisite due diligence is carried out prior to award of contracts which inter-alia

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includes assessment of capacity and capability of bidders to perform the contract, thereby mitigating contractual risks. In the unlikely event of such risk, adequate provisions such as Dispute Resolution, Risk & Cost procurement, etc are in built in the Bidding/Contract Document to deal with the same.

The legal framework governing the contracts in India is well established and finally in place. As such, there is minimal probability of any legal risk.

Project Management Risks

The project would be established under a Consultancy assignment to POWERGRID wherein all inputs and services would be provided by POWERGRID. POWERGRID holds vast experience in the area of construction of 400kV and 765 kV long Inter-state Transmission lines and associated substations. It has commissioned a large number of 400 kV and 765 kV Transmission Lines and Substation projects successfully which are under operation.

POWERGRID has developed and implemented systems & procedures aligned with Integrated Management System.

11.0 SUSTAINABILITY

11.1 System Design Philosophy

The system and equipment parameters are chosen according to the present trends in technology, the conductors available are such that the losses in them due to internal resistance as well as due to external effects such as corona and RIV are bare minimum. The busbar materials and the clamps and connectors are chosen after meeting the stringent international requirements so that there is least loss of energy in them. The transformers, reactors and other switchgear are also similarly selected and evaluated before award itself for most efficient operation from thermal loss and efficiency.

11.2 Spare parts Management System

The primary objective of spare part management system will be to ensure timely availability of proper spare parts for efficient maintenance of the substations and lines without excessive build-up on non-moving and slow moving inventory.

11.3 O&M Manuals

a) Adequate O & M manuals will be distributed to all concerned as per the policy of the company.

b) O & M manuals will be available to all concerned prior to commissioning of substations and transmission lines to avoid problems in preparation of commissioning documents as well as proper installation & commissioning of equipment.

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ANNEXURES

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ANNEXURE - 1.0

ABSTRACT COST ESTIMATE

(BASE COST)

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(Cost updated to SEP 2021 price level) Prolect ID:TB- 202135

Sl. No.	DESCRIPTION		AMOUNT (Rs. in Crs.)
A	**Civil Works (Annexure - 1.1)**		
	i) Infrastructure for substations		0.20
B	**Equipment Cost**		
	a) Sub-Stations (Annexure - 1.2)		6.39
C	**Sub Total A TO B**		**6.59**
D	Incidental Expediture During construction (IEDC)	**@ 10.75% of C**	0.71
E	Contingencies @ 3% of C		0.20
	Sub Total (A TO F)		**7.50**
F	Interest During Construction(IDC)		0.27
	GRAND TOTAL EXCL. CONSULTANCY		**7.77**
	Consultancy charges @5% and GST thereon		**0.39**
	GRAND TOTAL ICL. CONSULTANCY		**8.16**

Note:
1. Loan has been assumed to be available from Domestic sources.
2. Interest rate on Loan has been considered @ 9.00% for Domestic Loan subject to actuals.
3. Debt:Equity ratio has been considered as 70:30.
4. **The project is scheduled to be commissioned within 13 months from the date of investment approval .However, for the purpose of phasing of funds, the Investment approval has been assumed on 01.02.2022.**

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ANNEXURE - 1.0a

ABSTRACT COST ESTIMATE

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(FOR COMPLETED COST)

(Rupees in Crores)

Sl. No.	DESCRIPTION		TOTAL COST
A	**Civil Works**		
	i) Infrastructure for substations		0.21
B	**Equipment Cost**		
	a) Sub-Stations (Annexure - 1.2)		6.65
C	**Sub Total A TO B**		**6.85**
D	Incidental Expediture During construction (IEDC)	**@ 10.75% of C**	0.74
E	Contingencies @ 3% of C		0.21
	Sub Total (A TO F)		**7.80**
F	Interest During Construction(IDC)		0.28
	GRAND TOTAL EXCL. CONSULTANCY		**8.07**
	Consultancy charges @5% and GST thereon		**0.40**
	GRAND TOTAL ICL. CONSULTANCY		**8.48**

1. Loan has been assumed to be available from Domestic sources.
2. Interest rate on Loan has been considered @ 9.00% for Domestic Loan subject to actuals.
3. Debt:Equity ratio has been considered as 70:30.

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ANNEXURE - 1.1
All figures in Rs. Lakhs

ABSTRACT COST ESTIMATE
PRELIMINARY & GENERAL CIVIL WORKS

PROJ: REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

Sl. No.	Sub station	Preliminary Survey & Soil Investigation	Land Cost	R & R Cost	Infrastructure	Non-Residential Buildings	Colony	Total Cost
A.	**Substations**							
1.0	One spare unit (1-Ph) of 80 MVAR reactor at 765 kV Chilkaluripeta along with necessary arrangement to take spare reactor units into service as per the operational requirement		-		20.00	-		20.00
	Sub total	-	-	-	20.00	-	-	20.00

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ANNEXURE - 1.1.1

DETAILS OF CIVIL WORKS PROPOSED AT EXISTING SUBSTATIONS

INFRASTRUCTURE FOR SUBSTATION

Misc. Infrastructure works e.g., Levelling, modification of existing Fencing/Boundary wall, modification of existing Roads, etc. are being proposed for the following Substations where bay extension works are to be carried out :

One spare unit (1-Ph) of 80 MVAR reactor at 765 kV Chilkaluripeta along with necessary arrangement to take spare reactor units into service as per the operational requirement	Rs.20.00 LAKHS
Total	**Rs.20.00 LAKHS**

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Annexure: 1.2

ABSTRACT COST ESTIMATE OF SUBSTATION

PROJECT REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(Amount in Rs. Lakhs)

Sl. No.	Description	REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)	Total
		TB-202135-01-01	
1.0	HVDC Equipment	0.00	0.00
2.0	Transformer	0.00	0.00
3.0	Reactor	**520.32**	**520.32**
4.0	765 KV GIS Equipment	0.00	0.00
5.0	765 KV AIS Equipment	0.00	0.00
5.1	a- Circuit Breaker	0.00	0.00
5.2	b- Isolator	0.00	0.00
5.3	c- Current Transformer	0.00	0.00
5.4	d- Capacitive Voltage Transfor	0.00	0.00
5.5	e- Lightning Arrestor	0.00	0.00
6.0	400 KV GIS Equipment	0.00	0.00
7.0	400 KV AIS Equipment	0.00	0.00
7.1	a- Circuit Breaker	0.00	0.00
7.2	b- Isolator	0.00	0.00
7.3	c- Current Transformer	0.00	0.00
7.4	d - Capacitive Voltage Transfo	0.00	0.00
7.5	e- Lightning Arrestor	0.00	0.00
8.0	220 KV GIS Equipment	0.00	0.00
9.0	220 KV AIS Equipment	0.00	0.00
9.1	a- Circuit Breaker	0.00	0.00
9.2	b- Isolator	0.00	0.00
9.3	c- Current Transformer	0.00	0.00
9.4	c- Capacitive Voltage Transfor	0.00	0.00
9.5	e- Lightning Arrestor	0.00	0.00
10.0	132 KV GIS Equipment	0.00	0.00
11.0	132 KV AIS Equipment	**0.00**	**0.00**
11.1	a- Circuit Breaker	0.00	0.00
11.2	b- Isolator	0.00	0.00

Annexure: 1.2

ABSTRACT COST ESTIMATE OF SUBSTATION

PROJECT REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(Amount in Rs. Lakhs)

Sl. No.	Description	REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)	Total
		TB-202135-01-01	
11.3	c- Current Transformer	0.00	0.00
11.4	d- Capacitive Voltage Transfor	0.00	0.00
11.5	e- Lightning Arrestor	0.00	0.00
12.0	72.5 KV AIS Equipment	0.00	0.00
13.0	33 KV AIS Euipment	0.00	0.00
14.0	72.5 KV GIS Equipment	0.00	0.00
15.0	33 KV GIS Euipment	0.00	0.00
16.0	Control and Relay Panels	**0.00**	**0.00**
17.0	PLCC Equipment	0.00	0.00
18.0	Voice and Data Connectivity	**0.00**	**0.00**
19.0	Switchyard Erection	**119.16**	**119.16**
19.1	a- Equipment Structure	0.00	0.00
19.2	b- Other Equipment (Busbar mat	0.00	0.00
19.3	c- Equipment Civil Works	104.70	104.70
19.4	d- Erection	14.46	14.46
20.0	Substation Auxillaries	**0.00**	**0.00**
21.0	Substation Spare	**0.00**	**0.00**
	TOTAL	**639.48**	**639.48**
22.0	Custom Duty (Plus 2 % Handling Charges)	0.00	0.00
23.0	Overheads Payable to SEB	0.00	0.00
24.0	Preliminary and General civil	20.00	20.00
Grand Total		**659.48**	**659.48**

Annexure: 1.2.1

COST BREAK UP

PROJECT REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)
Substation Chilkaluripeta 765 kV S/s

(Amount in Rs.)

Activity Description	Activity Type	Component / Services	Description	Quantity	Unit	Unit Rate	Total Price	GST of supply	F&I @ 4%	Erc / Civil	GST of Service @ 18%	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
WBS Element: TB-202135-01-01												
Supply of 765kV 1ph Spare Reactor	S2	1000006178	80MVAR, 765KV, 1-PH SHUNT REACTOR	1.00	EA	4,26,49,171.00	4,26,49,171.00	76,76,850.78	17,05,966.84	0.00	0.00	5,20,31,988.62
Supply of 765kV 1ph Spare Reactor	S2	1000013992	INSULATING OIL-80MVAR,765KV, 1PH REACTOR	1.00	SET	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insta. of 765kV 1ph Reactor	AG	100000044	80MVAR, 765KV, 1-PH SHUNT REACTOR	1.00	EA	12,25,831.00	0.00	0.00	0.00	12,25,831.00	2,20,649.58	14,46,480.58
Insta. of 765kV 1ph Reactor	AG	100000045	INSULATING OIL-80MVAR,765KV, 1PH REACTOR	1.00	SET	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Civil works	AM	100001325	PLAIN CEMENT CONCRETE (PCC-1:4:8)	45.00	M3	4,053.00	0.00	0.00	0.00	1,82,385.00	32,829.30	2,15,214.30
Civil works	AM	100001327	REINFORCEMENT CEMENT CONCRETE (RCC-M25)	598.00	M3	6,411.00	0.00	0.00	0.00	38,33,778.00	6,90,080.04	45,23,858.04
Civil works	AM	100001329	STEEL REINFORCEMENT	13.00	MT	62,084.00	0.00	0.00	0.00	8,07,092.00	1,45,276.56	9,52,368.56
Civil works	AM	100001331	MISC STRUCTURAL STEEL	32.00	MT	78,679.00	0.00	0.00	0.00	25,17,728.00	4,53,191.04	29,70,919.04
Civil works	AM	100001720	CNS MATERIAL	15.00	M3	464.00	0.00	0.00	0.00	6,960.00	1,252.80	8,212.80
Civil works	AM	100001721	STONE BOULDERS MIXED WITH SAND	30.00	M3	727.00	0.00	0.00	0.00	21,810.00	3,925.80	25,735.80
Civil works	AM	100002581	RAIL CUM ROAD-2 RAILS	1,338.00	M2	1,056.00	0.00	0.00	0.00	14,12,928.00	2,54,327.04	16,67,255.04
Civil works	AM	100002911	EARTHWORK-SOIL-SOFT ROCK- JUNGLE CLEAR	200.00	M3	385.00	0.00	0.00	0.00	77,000.00	13,860.00	90,860.00
Civil works	AM	100004518	EXCAVATION FOR FOUNDATION-GENERAL WORK	55.00	M3	233.00	0.00	0.00	0.00	12,815.00	2,306.70	15,121.70
Chilkaluripeta 765 kV S/s							**4,26,49,171**	**76,76,851**	**17,05,967**	**1,00,98,327**	**18,17,699**	
TOTAL							**4,26,49,171**	**76,76,851**	**17,05,967**	**1,00,98,327**	**18,17,699**	**6,39,48,014**

ANNEXURE - 2.0

PHASED FUND REQUIREMENT
(BASE COST)

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

FIGS. IN RS. CRORES

YEAR	EXP. EXCL. IDC	IDC	TOTAL
2021 - 2022	2.25	0.01	2.26
2022 - 2023	4.73	0.26	4.98
2023 - 2024	0.53	0.00	0.53
TOTAL	**7.50**	**0.27**	**7.77**

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ANNEXURE - 2.0a

PHASED FUND REQUIREMENT
(COMPLETED COST)

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

FIGS. IN RS. CRORES

YEAR	EXP. EXCL. IDC	IDC	TOTAL
2021 - 2022	2.26	0.01	2.28
2022 - 2023	4.94	0.26	5.21
2023 - 2024	0.59	0.00	0.59
TOTAL	**7.80**	**0.28**	**8.07**

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WHEELING CHARGES
(AS PER NEW CERC NORMS)
(BASE COST)

ANNEXURE - 3.0

(Considering Return on Equity @ 15.5%)

PROJ : REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

1.0. Project Cost (Equity 30%, Debt 70%)	Rs.	7.77 Crs.
2.0. Fixed Charges		
2.1. O & M Charges for Transmission Lines & Substations	Rs.	0.00 Crs.
2.2. Depreciation (@5.28% for TL, @0% for land, @3.34% for building, @5.28% for Sub station, @6.33% for PLCC)	Rs.	0.41 Crs.
(TL = Rs - Crs. ; S/S= Rs 7.77 Crs. ; Land= Rs - Crs. Building: Rs - Crs. ; PLCC= Rs - Crs.)		
2.3. Return on Equity @15.5%	Rs.	0.36 Crs.
2.4. Interest on Domestic Loan @ 9.00%	Rs.	0.49 Crs.
2.5. Interest on Working Capital @ 10.50% a) on 45 days receivables b) O & M (1 month) c) Maintenance spares @ 15% of O&M expenses	Rs.	0.02 Crs.
Total Annual Fixed Charges	**Rs.**	**1.28 Crs.**
3.0. Monthly Fixed Charges (for Base Cost)	**Rs.**	**10.67 Lakhs.**

Note : The wheeling charges have been calculated as per new CERC NORMS (Notification dated 07.03.2019).
Taxes & Incentives shall be taken as per Actuals.

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WHEELING CHARGES
(AS PER CERC NORMS)
(COMPLETED COST)

ANNEXURE - 3.0a

(Considering Return on Equity @ 15.5%)

PROJ : REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

1.0. Project Cost (Equity 30%, Debt 70%)	Rs.	8.07 Crs.
2.0. Fixed Charges		
2.1. O & M Charges for Transmission Lines & Substations	Rs.	0.00 Crs.
2.2. Depreciation (@5.28% for TL, @0% for land, @3.34% for building, @5.28% for Sub station, @6.33% for PLCC)	Rs.	0.43 Crs.
2.3. Return on Equity @15.5%	Rs.	0.38 Crs.
2.4. Interest on Domestic Loan @ 9.00% and on Domestic Loan @ 10.5%	Rs.	0.51 Crs.
2.5. Interest on Working Capital @ 10.50% a) on 45 days receivables b) O & M (1 month) c) Maintenance spares @ 15% of O&M expenses	Rs.	0.02 Crs.
Total Annual Fixed Charges	**Rs.**	**1.34 Crs.**
3.0. **Monthly Fixed Charges (for Completed Cost)**	**Rs.**	**11.13 Lakhs.**

Note : The wheeling charges have been calculated as per new CERC NORMS (Notification dated 07.03.2019).
Taxes & Incentives shall be taken as per Actuals.

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CALCULATION OF INTEREST DURING CONSTRUCTION FOR

ANNEXURE -4.0

(Rupees in Crores)

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(FOR BASE COST)

	Rate of	Feb 2022 - March 2022 (2 months)				April 2022-Feb 2023 (11 months)				March 2023 (1 month)				(2023-2024)		GRAND
	Interest	Original Phasing	IDC	TOTAL for the year	TOTAL Closing Bal.	Original Phasing	IDC	TOTAL for the year	TOTAL Closing Bal.	Original Phasing	IDC	TOTAL for the year	TOTAL Closing Bal.	Original Phasing	TOTAL Closing Bal.	TOTAL
Domestic Loan	9.00%	1.57	0.01	1.58	1.58	3.07	0.26	3.33	4.91	0.16	0.00	0.16	5.07	0.37	5.44	5.44
Equity (IR) 30%		0.68		0.68	0.68	1.43		1.43	2.11	0.07		0.07	2.17	0.16	2.33	2.33
TOTAL		2.25	0.01	2.26	2.26	4.50	0.26	4.76	7.02	0.23	0.00	0.23	7.25	0.53	7.77	7.77
Equity as % of Total cost					30.000%				30.000%				30.000%		30.000%	30.000%

NOTE :

1. The project is scheduled to be commissioned within 13 months from the date of investment approval .However, for the purpose of phasing of funds, the Investment approval has been assumed on 01.02.2022.
2. Rate of Interest on Domestic Loan is considered as 9.00% payable at the end of the year.
3. The Transmission System has been considered to be executed by the POWERGRID with a Debt : Equity ratio of 70:30.

GRAND TOTAL (2021 - 2023)

(FOR BASE COST)

Financing Details	Rate of Interest	Original Phasing	IDC	Total incl. IDC
Domestic Loan	9.00%	5.17	0.27	5.44
Equity (IR) 30%		2.33		2.33
TOTAL		**7.50**	**0.27**	**7.77**

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CALCULATION OF INTEREST DURING CONSTRUCTION FOR

ANNEXURE -4.0a
(Rupees in Crores)

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(FOR COMPLETED COST)

(Rupees in Crores)

	Rate of Interest	Feb 2022 - March 2022 (2 months)				April 2022-Feb 2023 (11 months)				March 2023 (1 month)				(2023-2024)		GRAND TOTAL
		Original Phasing	IDC	TOTAL for the year	TOTAL Closing Bal.	Original Phasing	IDC	TOTAL for the year	TOTAL Closing Bal.	Original Phasing	IDC	TOTAL for the year	TOTAL Closing Bal.	TOTAL for the year	TOTAL Closing Bal.	
Domestic Loan	9.00%	1.58	0.01	1.59	1.59	3.21	0.26	3.47	5.07	0.17	0.00	0.17	5.24	0.41	5.65	5.65
Equity (IR) 30%		0.68		0.68	0.68	1.49		1.49	2.17	0.07		0.07	2.24	0.18	2.42	2.42
TOTAL		2.26	0.01	2.28	2.28	4.70	0.26	4.96	7.24	0.24	0.00	0.24	7.48	0.59	8.07	8.07
Equity as % of Total cost					30.000%				30.000%				30.000%		30.000%	30.000%

NOTE :

1. The project is scheduled to be commissioned within 13 months from the date of investment approval. However, for the purpose of phasing of funds, the Investment approval has been assumed on 01.02.2022.
2. Rate of Interest on Domestic Loan is considered as 9.00% payable at the end of the year.
3. The Transmission System has been considered to be executed by the POWERGRID with a Debt : Equity ratio of 70:30.

GRAND TOTAL (2021 - 2023)

(FOR COMPLETED COST)

Financing Details	Rate of Interest	Original Phasing	IDC	Total incl. IDC
Domestic Loan	9.00%	5.37	0.28	5.65
Equity (IR) 30%		2.42		2.42
TOTAL		7.80	0.28	8.07

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ANNEXURE -5.0

CALCULATION OF COMPLETED COST OF PROJECT

(Figures in Rs. Crores)

YEAR	Base Cost excl. IDC		Indian Escln. Rate		Compln. Cost excl. IDC		Completed Cost excl. IDC
	Cost excl. Afforestn. Cost	Afforestn. Cost	Based on WPI (80%)	Based on CPI (20%)	Cost excl. Afforestn. Cost	Afforestn. Cost	
Feb 2022 - March 2022 (2 months)	2.25		1.26%	0.82%	2.26	0.00	2.26
April 2022-Feb 2023 (11 months)	4.50		6.92%	4.48%	4.70		4.70
March 2023 (1 month)	0.23		0.63%	0.41%	0.24		0.24
(2023-2024)	0.53		7.55%	4.89%	0.59		0.59
	7.50	0.00			7.80	0.00	7.80

Assumptions :

1. For Indigenous escalation, GOI guidelines dated 6.8.97 have been referred. Labour component has been assumed as 20% of the total Indigenous component and balance 80% updated based on average WPI (for all commodities).
2. Details of CPI and WPI indices for last 12 months are enclosed at **Annexure -6.0.**

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ANNEXURE - 6.0

INDEXATION ADOPTED FOR CALCULATION OF COMPLETED COST

MONTH/ YEAR	CPI (2001= 100)	Increase	WPI (2011-12 = 100)	Increase
10/2019	325	1.0762	122.0	1.0000
11/2019	328	1.0861	122.3	1.0058
12/2019	330	1.0963	123.0	1.0276
01/2020	330	1.0749	123.4	1.0352
02/2020	328	1.0684	122.2	1.0226
03/2020	326	1.0550	120.4	1.0042
04/2020	329	1.0545	119.2	0.9843
05/2020	330	1.0510	117.5	0.9663
06/2020	332	1.0506	119.3	0.9819
07/2020	336	1.0533	121.0	0.9975
08/2020	338	1.0563	122.0	1.0041
09/2020	340	1.0554	122.9	1.0132
10/2020	344	1.0590	123.6	1.0131
11/2020	345	1.0528	125.1	1.0229
12/2020	342	1.0368	125.4	1.0195
01/2021	340	1.0316	126.5	1.0251
02/2021	343	1.0449	128.1	1.0483
03/2021	344	1.0566	129.9	1.0789
04/2021	346	1.0513	132.0	1.1074
05/2021	347	1.0525	132.9	1.1311
06/2021	350	1.0557	133.7	1.1207
07/2021	354	1.0526	135.0	1.1157
08/2021	354	1.0480	136.2	1.1164
09/2021	355	1.0449	136.0	1.1066
	Average	**1.0489**	**Average**	**1.0755**

NOTE :

1. For calculating completed cost, 20% of Average rate of increase of CPI and 80% of average rate of increase of WPI has been considered in Annexure - 5.0.
2. Source of the above data : CPI - Labour Bureau, Shimla
   WPI - Min. of Commerce & Industry

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ANNEXURE - 7.0

IRRs CALCULATION ON COMPLETED COST

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TRANSMISSION PROJECTS

CASHFLOW STATEMENT FOR CALCULATION OF PROJECT IRR

COMPLETED COST | SEPTEMBER 2021 PL

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(Rs. Crores)

Sl. No.	Year	INFLOW					OUTFLOW	Net Benefit
		PAT	Depreciation	Interest on Term Loan	Salvage Value	Total	Capital Cost	
1	2021					-	2.28	-2.28
2	2022	0.03	0.04	0.03		0.09	5.21	-5.12
3	2023	0.34	0.43	0.49		1.26	0.59	0.67
4	2024	0.33	0.43	0.51		1.26		1.26
5	2025	0.30	0.43	0.50		1.23		1.23
6	2026	0.29	0.43	0.48		1.19		1.19
7	2027	0.29	0.43	0.44		1.15		1.15
8	2028	0.29	0.43	0.39		1.11		1.11
9	2029	0.30	0.43	0.35		1.07		1.07
10	2030	0.30	0.43	0.31		1.04		1.04
11	2031	0.30	0.43	0.27		1.00		1.00
12	2032	0.31	0.43	0.22		0.96		0.96
13	2033	0.31	0.43	0.18		0.92		0.92
14	2034	0.31	0.43	0.14		0.88		0.88
15	2035	0.33	0.16	0.10		0.59		0.59
16	2036	0.35	0.16	0.05		0.57		0.57
17	2037	0.37	0.16	0.02		0.55		0.55
18	2038	0.37	0.16	0.00		0.54		0.54
19	2039	0.38	0.16	0.00		0.54		0.54
20	2040	0.38	0.16	0.00		0.54		0.54
21	2041	0.38	0.16	0.00		0.54		0.54
22	2042	0.38	0.16	0.00		0.54		0.54
23	2043	0.38	0.16	0.00		0.54		0.54
24	2044	0.38	0.16	0.00		0.54		0.54
25	2045	0.38	0.16	0.00		0.54		0.54
26	2046	0.38	0.16	0.00	-	0.54		0.54
27	2047	0.34	0.15	0.00	0.81	1.30		1.30
						Total	8.07	
							Rate Of Return	11.58%

Note: i) Year 2021 means Financial Year 2021-22 and so on.

ii) Phasing of Capital Cost is including IDC.

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TRANSMISSION PROJECTS

CASHFLOW STATEMENT FOR CALCULATION OF ECONOMIC IRR

COMPLETED COST — SEPTEMBER 2021 PL

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(Rs. Crores)

Sl. No.	Year	INFLOW					OUTFLOW	Net Benefit
		PAT	Depreciation	Interest on Term Loan	Salvage Value	Total	Capital Cost - Taxes &Duties	
1	2021					-	2.00	-2.00
2	2022	0.03	0.04	0.03		0.09	4.57	-4.48
3	2023	0.34	0.43	0.49		1.26	0.52	0.74
4	2024	0.33	0.43	0.51		1.26		1.26
5	2025	0.30	0.43	0.50		1.23		1.23
6	2026	0.29	0.43	0.48		1.19		1.19
7	2027	0.29	0.43	0.44		1.15		1.15
8	2028	0.29	0.43	0.39		1.11		1.11
9	2029	0.30	0.43	0.35		1.07		1.07
10	2030	0.30	0.43	0.31		1.04		1.04
11	2031	0.30	0.43	0.27		1.00		1.00
12	2032	0.31	0.43	0.22		0.96		0.96
13	2033	0.31	0.43	0.18		0.92		0.92
14	2034	0.31	0.43	0.14		0.88		0.88
15	2035	0.33	0.16	0.10		0.59		0.59
16	2036	0.35	0.16	0.05		0.57		0.57
17	2037	0.37	0.16	0.02		0.55		0.55
18	2038	0.37	0.16	0.00		0.54		0.54
19	2039	0.38	0.16	0.00		0.54		0.54
20	2040	0.38	0.16	0.00		0.54		0.54
21	2041	0.38	0.16	0.00		0.54		0.54
22	2042	0.38	0.16	0.00		0.54		0.54
23	2043	0.38	0.16	0.00		0.54		0.54
24	2044	0.38	0.16	0.00		0.54		0.54
25	2045	0.38	0.16	0.00		0.54		0.54
26	2046	0.38	0.16	0.00	-	0.54		0.54
27	2047	0.34	0.15	0.00	0.71	1.20		1.20
						Total	7.09	
							Rate Of Return	13.87%

Note: i) Year 2021 means Financial Year 2021-22 and so on.

ii) Phasing of Capital Cost is including IDC and excluding Taxes & Duties amounting to Rs. 0.99 Crores

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TRANSMISSION PROJECTS

CASHFLOW STATEMENT FOR CALCULATION OF EQUITY IRR

COMPLETED COST SEPTEMBER 2021 PL

REQUIREMENT OF 765 KV SPARE (1-PH) REACTORS UNIT AT 765 KV CHILKALURIPETA (PART-B)

(Rs. Crores)

Sl. No.	Year	INFLOW			OUTFLOW		Net Benefit
		PAT	Depreciation	Salvage Value	Equity Investment	Principal Repayment	
1	2021				0.68		-0.68
2	2022	0.03	0.04		1.56	-	-1.50
3	2023	0.34	0.43		0.18	-	0.59
4	2024	0.33	0.43			-	0.75
5	2025	0.30	0.43			0.13	0.59
6	2026	0.29	0.43			0.44	0.28
7	2027	0.29	0.43			0.47	0.25
8	2028	0.29	0.43			0.47	0.25
9	2029	0.30	0.43			0.47	0.25
10	2030	0.30	0.43			0.47	0.26
11	2031	0.30	0.43			0.47	0.26
12	2032	0.31	0.43			0.47	0.26
13	2033	0.31	0.43			0.47	0.27
14	2034	0.31	0.43			0.47	0.27
15	2035	0.33	0.16			0.47	0.02
16	2036	0.35	0.16			0.47	0.04
17	2037	0.37	0.16			0.34	0.19
18	2038	0.37	0.16			0.03	0.50
19	2039	0.38	0.16			-	0.54
20	2040	0.38	0.16			-	0.54
21	2041	0.38	0.16			-	0.54
22	2042	0.38	0.16			-	0.54
23	2043	0.38	0.16			-	0.54
24	2044	0.38	0.16			-	0.54
25	2045	0.38	0.16			-	0.54
26	2046	0.38	0.16	-		-	0.54
27	2047	0.34	0.15	0.81		-	1.30
					2.42		
					Rate Of Return		18.10%

Note: i) Year 2021 means Financial Year 2021-22 and so on.

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ANNEXURE - 8.0

Copy of relevant extracts of minutes of following meetings:

(i)3rd meeting of SRPC (TP) held on 24.08.2021
(ii)CTUIL OM ref. no. C/CTU/AI/00/1STCCTP dated 16.11.2021
(iii)TBCB IOM dated:25.11.2021 & 23.12.2021
(iv)Approved note CC-TBCB-13-16/0020/2021/TBCB Grp2 dated 08.12.2021

पी एस आई टी एल लि.
सिकंदराबाद
Secunderabad
PSITSL

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पावरग्रिड सदरन् इंटरकनेक्टर ट्रान्समिशन सिस्टम लिमिटेड
[पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड की %100पूर्ण स्वामित्व वाली सहायक कंपनी]
POWERGRID Southern Interconnector Transmission System Limited
[A 100% wholly owned subsidiary of Power Grid Corporation of India Limited]
D.No.6-6-8/32&395/E, Kavadiguda Secunderabad-500080,Telangana.
STD/EPABX: 040-27546633,27546650 FAX040-27546637
[Registered Office: 59, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016]

PSITSL: 2023-24: DOCO/ Dt. 07.09.2023

NOTIFICATION OF COMMERCIAL OPERATION

Consequent to successful commissioning, the following asset under the Project **"Requirement of 765kV Spare (1-Ph) Reactors unit at Chilakaluripeta (Part-B)"** has been put under Commercial Operation with effect from **00.00 hours of 31st Aug, 2023** in terms of Regulation 5 of CERC (Terms and Conditions of Tariff) Regulations, 2019 & Clause (4) of Regulation 6.3A of CERC (Indian Electricity Grid Code Regulations), 2010:

List of Assets:

- One spare unit (1-Ph) of 80 MVAR reactor at 765 kV Chilkaluripeta SS along with necessary arrangement to take spare reactor units into service as per the operational requirement.

The transmission charges for the above assets are payable with effect from **31st Aug, 2023**

Sharma 07.09.23

(Alok Kumar Sharma)
Chief Executive Officer (PSITSL)

To:
As per enclosed Distribution List

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Distribution List

Director (PSPM) Central Electricity Authority PSPM Division, Sewa Bhawan, Rama Krishna Puram, New Delhi-110 066	**Member Secretary, SRPC,** 29, Race Course Road, Bangalore- 560009	**Chairman & Managing Director,** Grid Controller of India Ltd, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110016
Chief Operating Officer, Central Transmission Utility, Saudamini Plot No: 2, Sector- 29, Near IFFCO Chowk, Gurgaon Haryana- 122001	**Executive Director** Southern Region Load Despatch Centre, 29, Race Course Road, Bangalore- 560009	**Chairman & Managing Director,** APTRANSCO, Vidyut Soudha, Gunadala, Vijayawada- 520004
Chairman & Managing Director, TSTRANSCO, Vidyut Soudha, Khairathabad, Hyderabad- 500082	**Managing Director,** Karnataka Power Transmission Corporation Ltd, Kaveri Bhavan K. G. Road, Bengaluru-560009	**Managing Director,** Tamilnadu Transmission Corporation Ltd, 144, Anna Salai Chennai – 600002
Chairman & Managing Director Kerala State Electricity Board Ltd Vidyuthi Bhawanam, Pattom Thiruvanthapuram- 695 004	**Chief Secretary (Power)** Electricity Department Govt. of GOA, Vidhyut Bhawan, Panaji GOA – 403001	**Chief Secretary (Power)** Electricity Department Govt of Puducherry 137, Nethaji Subhash Chandra Bose Salai Puducherry – 605001
Chairman & Managing Director, Power Grid Corporation of India Ltd Saudamini Plot No: 2, Sector- 29, Near IFFCO Chowk, Gurgaon Haryana- 122001	**Executive Director, SRTS-I** Power Grid Corporation of India Ltd, 6-6-8/32&395/E, Kavadiguda , Secunderabad-500080, Telangana	**Executive Director, SRTS-II** Power Grid Corporation of India Ltd, Near R.T.O Driving Test Track, Singnayakanahalli, Yelahanka, Hobli, Bengaluru-560064

पावरग्रिड सदर्न इंटरकनेक्टर ट्रान्समिशन सिस्टम लिमिटेड
[पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड की %100पूर्ण स्वामित्व वाली सहायक कंपनी]
POWERGRID Southern Interconnector Transmission System Limited
[A 100% wholly owned subsidiary of Power Grid Corporation of India Limited]
POWERGRID, SR1 HQ, D.no.6-6-2/323&325/E, Kavadiguda , Secunderabad-500080,Telangana,
STD/PABX: 040-27546636,2754-6655 :FAX040-27548857
[Registered Office: B9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016]

PSITSL: 2023-24: DOCO/ Dt. 20.06.2023

NOTIFICATION OF COMMERCIAL OPERATION

Consequent to successful completion of Trial Operation, the following assets under the Project **"Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta SS"** have been put under Commercial Operation with effect from **00.00 hours of 12th May, 2023** in terms of Regulation 5 of CERC (Terms and Conditions of Tariff) Regulations, 2019 & Clause (4) of Regulation 6.3A of CERC (Indian Electricity Grid Code Regulations), 2010:

List of Assets:

- NGR bypass arrangement to use Switchable Line Reactors (240 MVAR each) as Bus Reactors, installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/C line at Chilkaluripeta 765 kV S/S
- NGR bypass arrangement to use Switchable Line Reactors (240 MVAR each) as Bus Reactors, installed on each circuit of Chilkaluripeta – Kadapa 765 kV D/C line at Chilkaluripeta 765 kV S/S

The transmission charges for the above assets are payable with effect from **12th May, 2023**

Sharma 20/06/23.

(Alok Kumar Sharma)
Chief Executive Officer (PSITSL)

To:
As per enclosed Distribution List

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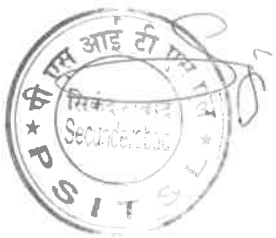
Distribution List

Director (PSPM) Central Electricity Authority PSPM Division, Sewa Bhawan, Rama Krishna Puram, New Delhi-110 066	**Member Secretary, SRPC,** 29, Race Course Road, Bangalore- 560009	**Chairman & Managing Director,** Grid Controller of India Ltd, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110016
Chief Operating Officer, Central Transmission Utility, Saudamini Plot No: 2, Sector- 29, Near IFFCO Chowk, Gurgaon Haryana- 122001	**Executive Director** Southern Region Load Despatch Centre, 29, Race Course Road, Bangalore- 560009	**Chairman & Managing Director,** APTRANSCO, Vidyut Soudha, Gunadala, Vijayawada- 520004
Chairman & Managing Director, TSTRANSCO, Vidyut Soudha, Khairathabad, Hyderabad- 500082	**Managing Director,** Karnataka Power Transmission Corporation Ltd, Kaveri Bhavan K. G. Road, Bengaluru-560009	**Managing Director,** Tamilnadu Transmission Corporation Ltd, 144, Anna Salai Chennai – 600002
Chairman & Managing Director Kerala State Electricity Board Ltd Vidyuthi Bhawanam, Pattom Thiruvanthapuram- 695 004	**Chief Secretary (Power)** Electricity Department Govt. of GOA, Vidhyut Bhawan, Panaji GOA – 403001	**Chief Secretary (Power)** Electricity Department Govt of Puducherry 137, Nethaji Subhash Chandra Bose Salai Puducherry – 605001
Chairman & Managing Director, Power Grid Corporation of India Ltd Saudamini Plot No: 2, Sector- 29, Near IFFCO Chowk, Gurgaon Haryana- 122001	**Executive Director, SRTS-I** Power Grid Corporation of India Ltd, 6-6-8/32&395/E, Kavadiguda Secunderabad-500080, Telangana	**Executive Director, SRTS-II** Power Grid Corporation of India Ltd, Near R.T.O Driving Test Track, Singnayakanahalli, Yelahanka, Hobli, Bengaluru-560064

Sharma 20/06/23.



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ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[Formerly Power System Operation Corporation Limited (POSOCO)]
दक्षिण क्षेत्रीय भार प्रेषण केन्द्र / Southern Regional Load Despatch Centre
कार्यालय : 29,रेस कोर्स क्रॉस रोड, बेंगलुरु-560009
Office : 29, Race Course Cross Road, Bengaluru - 560009
CIN : U40105DL2009GOI188682, Website : www.srldc.in, E-mail : srldc@grid-india.in, Tel.: 080-22250047/4525, Fax: 080 22268725

दिनांक /Date: 06-06-2023

सर्टिफिकेट नंबर:एस.आर.एल.डी.सी/ट्रांस/सर्टिफिकेट/23-24/**01**
Certificate Number: SRLDC/Trans/Certificate/23-24/**01**

प्रति/ To,

मुख्य कार्यकारी अधिकारी, पी.एस.आई.टी.एस.एल/ Chief Executive Officer, PSITSL
एस.आर.टी.एस-1,पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड/
SRTS-I, Power Grid Corporation of India Ltd.
कवाड़ीगुड़ा मेन रोड / Kavadiguda Main Road,
सिकंदराबाद / Secunderabad - 500003, तेलंगाना/Telangana.

ट्रांसमिशन एलिमेंट के ट्रायल ऑपरेशन के सफल समापन का प्रमाण पत्र
Certificate of successful completion of Trial Operation of Transmission Element

सन्दर्भ/Reference:

(1) पी.एस.आई.टी.एस.एल अनुरोध दिनांक 24/04/2023 प्री-चार्जिंग फॉर्मेट / PSITL request dt. 24/04/2023 submitting pre-charging formats.
(2) पी.एस.आई.टी.एस.एल अनुरोध दिनांक 19/05/2023 पोस्ट-चार्जिंग प्रारूप प्रस्तुत करना / PSITL request dt. 19/05/2023 submitting post-charging formats.
(3) FTC पोर्टल दिनांक 19/05/2023 में आपके द्वारा आवश्यक दस्तावेज़ों का नवीनतम प्रस्तुतीकरण / Your latest submission of required documents in the FTC portal dated 19/05/2023.

एतद्द्वारा यह प्रमाणित किया जाता है कि निम्नलिखित ट्रांसमिशन एलिमेंट ने सफलतापूर्वक ट्रायल ऑपरेशन पूरा कर लिया है:

पंजीकृत कार्यालय : बी- 9, प्रथम तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली-110016
Registered Office : B-9, 1st Floor, Qutab Institutional Area, Katwaria Sarai, New Delhi- 110016
Website : www.grid-india.in

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It is hereby certified that the following transmission elements have successfully completed trial operation:

Sl. No	Name of the element/s	Start of Trial operation	Completion of Trial operation
1	132 KV 712R-52 (NGR BYPASS CB OF LR) at 765KV CHILUKALURIPETA (of 765KV C'PETA-VEMAGIRI-1)	19:59 hrs on 04-05-2023	20:00 hrs on 05-05-2023
2	132 KV 709R-52 (NGR BYPASS CB OF LR) at 765KV CHILUKALURIPETA (of 765KV C'PETA-VEMAGIRI-2)	20:12 hrs on 04-05-2023	20:13 hrs on 05-05-2023
3	132 KV 707R-52 (NGR BYPASS CB OF LR) at 765KV CHILUKALURIPETA (of 765KV C'PETA-KADAPA-1)	13:25 hrs on 10-05-2023	13:26 hrs on 11-05-2023
4	132 KV 710R-52 (NGR BYPASS CB OF LR) at 765KV CHILUKALURIPETA (of 765KV C'PETA-KADAPA-2)	13:34 hrs on 10-05-2023	13:35 hrs on 11-05-2023

यह प्रमाणपत्र ट्रांसमिशन एलिमेंट के ट्रायल ऑपरेशन के सफल समापन को प्रमाणित करने के लिए सीईआरसी (टैरिफ के नियम और शर्त) विनियम, 2019 के विनियम 5(2) के अनुसार जारी किया जा रहा है। किसी अन्य उद्देश्य के लिए इस प्रमाण पत्र का उपयोग वर्जित है।

This certificate is being issued in accordance with Regulation 5(2) of *CERC (Terms and Condition of Tariff) Regulations, 2019* to certify successful completion of trial operation of transmission element. Usage of this certificate for any other purpose is prohibited.

हस्ताक्षर/ **Signature:**

नाम/ **Name:** एस पी कुमार/ S P Kumar

पदनाम/ **Designation:** कार्यपालक निदेशक/ Executive Director

प्रतिलिपि / Copy to:

1) ई.डी, एस.आर.टी.एस-I, पावरग्रिड, सिकंदराबाद / ED, SRTS-I, POWERGRID, Secunderabad.
2) ई.डी, एस.आर.टी.एस-II, पावरग्रिड, बेंगलुरु / ED, SRTS-II, POWERGRID, Bengaluru.
3) सदस्य सचिव, एस.आर.पी.सी, बेंगलुरु/ Member Secretary, SRPC, Bengaluru.
4) सचिव, सी.ई.आर.सी, नई दिल्ली/ Secretary, CERC, New Delhi
5) ई.डी, एन.एल.डी.सी, नई दिल्ली/ ED, NLDC, New Delhi
6) मुख्य अभियंता, एस.एल.डी.सी, ए.पी.ट्रान्स्को / टी.एस.ट्रान्स्को / के.पी.टी.सी.एल / टैंट्रान्स्को / के.एस.ई.बी / Chief Engineer, SLDC, APTRANSCO/ TSTRANSCO/ KPTCL/ TANTRANSCO/KSEB
7) अधीक्षण अभियंता, एस.एल.डी.सी पुडुचेरी/गोवा
Superintending Engineer, SLDC Puducherry/ Goa

भारत सरकार
GOVERNMENT OF INDIA
विद्युत मंत्रालय
MINISTRY OF POWER
केंद्रीय विद्युत प्राधिकरण
CENTRAL ELECTRICTY AUTHORITY
क्षेत्रीय निरीक्षक संगठन
REGIONAL INSPECTORIAL ORGANIZATION

सत्यमेव जयते

केविप्रा CEA

ब्लॉक IV तल III Block IV Floor III, शास्त्री भवन Shastri Bhavan, चेन्नई Chennai - 600 006

No. 37/145/03/2023-RIO(S)/98-99 **Dated: 21.04.2023**

TO

Sh A RAMESH REDDY,
M/s POWERGRID, PSITSL,
CHILAKALURIPETA SUBSTATION,
CHILAKALURIPETA.

Approval for Energisation

(Under Regulation - 42)

Equipment: Installation of 4 No. of 145kV, 1250A SF6 Circuit Breaker along with 8 No. of Bus Post Insulators. (Details are Enclosed)	
Location:	M/s. PSITSL, Chilakaluripeta Substation, Chilakaluripeta
Inspected by:	Deputy Director, RIO, CEA, Chennai on 06.04.2023

Reference: -

Your letter No.	Online Application No: A/2023/11307	Dated	29.03.2022
Our_IR_No.	37/145/03/2023-RIO(S)/39-40	Dated	11.04.2023
Your_Com_R No	SRTS-I:PSITTSL: C.Peta :NGR	Dated	20.04.2023

With reference to the above, approval is hereby granted for energisation of the electrical installation as mentioned above. This approval is strictly subject to your full compliance with the relevant provisions of the CEA (Measures relating to Safety and Electric Supply) Regulations, 2010 (as amended till date) in every respect. The statement of Energisation particulars may please be forwarded to this office immediately after Energisation of the installation.

The next periodical inspection of the plant equipment under regulation 30 shall be due after two years from the date of this approval.

Yours faithfully,

(Lenin. B)
Deputy Director &
Electrical Inspector to the Govt. of India
उप निदेशक / Deputy Director
Regional Inspectorial Organisation
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
चेन्नै / Chennai-600 006

Copy to: The Chief Engineer (CEI), CEA, New Delhi – 110 066

PSITSL

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List of Equipments for 1-Ph NGR Bypass Scheme

S. No.	Description of Equipment	Rating	Quantity
1	1-Ph 145kV SF6 Circuit Breaker	145kV, 1250A	4
2	145kV Bus Post Insulators	145kV	8

उप निदेशक / Deputy Director
क्षेत्रीय निरीक्षण संगठन
Regional Inspectorial Organisation
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
चेन्नै / Chennai-600 006.

सेट्टी शिवा कोटय्या / SETTY SIVA KOTAIAH
प्रबंधक / Manager
पावरग्रिड Powergrid
चिलकलूरिपेट एस.एस. / Chilakaluripet SS

पी एस आइ टी एस एल
सिकंदराबाद
Secunderabad
PSITSL

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पावरग्रिड सदरन् इंटरकनेक्टर ट्रान्समिशन सिस्टम लिमिटेड
(पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड की 100% पूर्ण स्वामित्व वाली सहायक कंपनी)
POWERGRID Southern Interconnector Transmission System Limited
(A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)

POWERGRID, SRTS HQ, D.no.6-6-8/328&395/E, Kavadiguda, Secunderabad-500080,Telangana
Registered Office: B9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016]

Certificate as per CERC Tariff Regulations 2019
and
CERC (Indian Electricity Grid Code) (Fourth Amendment) Regulations 2016
(For Inter State Transmission System)

It is to certify that the asset **"Requirement of 765kV Spare (1-Ph) Reactors unit at Chilakaluripeta SS (Part-B)"** confirms to the relevant Grid Standard and Grid Code and has been capable of operation to its full capacity with effect from **00:00 Hrs on 30.08.2023**

(S M V NANAJI)

CHIEF EXECUTIVE OFFICER
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED

नानाजी एस.एम.वी / Nanaji SMV
सी ई ओ / C.E.O
पावरग्रिड सदरन् इंटरकनेक्टर ट्रान्समिशन सिस्टम लि. (पी.एस.आई.टी.एस.एल.)
Powergrid Southern Interconnector Transmission System Ltd.(PSITSL)
सिकंदराबाद / Secunderabad-500 080.

पी एस आई टी एस एल
सिकंदराबाद
Secunderabad
PSITSL

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पावरग्रिड सदर्न इंटरकनेक्टर ट्रान्समिशन सिस्टम लिमिटेड

(पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड की 100% पूर्ण स्वामित्व वाली सहायक कंपनी)

POWERGRID Southern Interconnector Transmission System Limited

[A 100% wholly owned subsidiary of Power Grid Corporation of India Limited]

POWERGRID, SR1 HQ, D.no.5-6-3/[illegible], [illegible], Secunderabad 500080, Telangana

Registered Office: B9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016

Certificate as per CERC Tariff Regulations 2019
and
CERC (Indian Electricity Grid Code) (Fourth Amendment) Regulations 2016
(For Inter State Transmission System)

It is to certify that the assets-

1) NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line at Chilkaluripeta 765 kV S/S and

2) NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/S

under the project "**scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 KV Chilakaluripeta**" confirm to the relevant Grid Standard and Grid Code and are capable of operation to their full capacity with effect from **20:13 Hrs on 05.05.2023**, & **13:35 Hrs on 11.05.2023** respectively.

(S M V NANAJI)

CHIEF EXECUTIVE OFFICER
POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED

नानाजी एस.एम.वी / Nanaji SMV
सी.ई.ओ. / C.E.O
Powergrid Southern Interconnector Transmission System Ltd.
सिकंदराबाद / Secunderabad-500 080.

पी एस आइ टी एल
सिकंदराबाद
Secunderabad
PSITSL

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KRISHNA & PRASAD
CHARTERED ACCOUNTANTS
Firm's Regn. No.: 001460S

CERTIFICATE

This is to certify that we have verified the relevant records and other documents of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED having its Registered Office at B-9 Qutab Institutional Area Katwaria Sarai New Delhi - 110016, and on the basis of our verification we certify that Capital Cost of Scheme - of **'Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)'** of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED which is under commercial operation w.e.f. 31.08.2023 is detailed as under:

(Rs. in Lakhs)

SL. NO.	PARTICULARS	Actual Expenditure 31.03.2023	Expenditure from 01.04.2023 to UP TO Date of Commercial Operation (DOCO)(i.e 30.08.2023)	Estimated Expenditure from DOCO to 31.03.2024	Estimated Expenditure from 01.04.2024 to 31.03.2025	TOTAL
1	LAND	-	-	-	-	-
2	BUILDING & CIVIL WORKS	-	-	-	-	-
3	Sub-Station	614.88	74.53	35.01	93.36	817.78
4	TRANSMISSION LINE	-	-	-	-	-
5	PLCC	-	-	-	-	-
6	Communication System/ULDC Equipment	-	-	-	-	-
	TOTAL	614.88	74.53	35.01	93.36	817.78

This is to further certify that the above summary has been prepared on the basis of the information drawn from the audited statements of accounts of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED for the period ended 31-03-2023.

M/s. Krishna & Prasad
Chartered Accountants
Firm's Regn No. 001460S

(B L N PHANI KUMAR)
Partner
Membership No. 028391
UDIN: 23028391BGUERA7383
Place: HYDERABAD
Date: 21-09-2023

26, Ground Floor, R.B.V.R. Reddy Hostel Complex, Tilak Road, Hyderabad-1
✆ : +91-040-24753171, 24767758
E-mail : krpcahyd@gmail.com, bhagwan.vyas@gmail.com,
GSTIN : 36AABFK9779M1ZH PAN AABFK9779M
BRANCHES : PUNE, NIZAMABAD, ZAHEERABAD, SECUNDERABAD, HYDERABAD.

KRISHNA & PRASAD
CHARTERED ACCOUNTANTS
Firm's Regn. No.: 001460S

CERTIFICATE

This is to certify that we have verified the relevant records and other documents of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED having its Registered Office at B-9 Qutab Institutional Area Katwaria Sarai New Delhi - 110016, and on the basis of our verification we certify that Capital Cost of Scheme "**Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)**" of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED which is under commercial operation w.e.f. 31-08-2023 is detailed as under:

(Rs. in Lakhs)

SL. NO.	PARTICULARS	CAPITAL COST	INTEREST DURING CONSTRUCTION (IDC)	INCIDENTAL EXPENDITURE DURING CONSTRUCTION (IEDC)	TOTAL
1	Actual Expenditure 31.03.2023	569.15	6.84	38.89	614.88
2	Expenditure from 01.04.2023 to UP TO Date of Commercial Operation (DOCO)(i.e 30.08.2023)	56.08	14.14	4.31	74.53
3	Estimated Expenditure from DOCO to 31.03.2024	35.01	-	-	35.01
4	Estimated Expenditure from 01.04.2024 to 31.03.2025	93.36	-	-	93.36
	TOTAL	**753.60**	**20.98**	**43.20**	**817.78**

KRISHNA & PRASAD FRN No: 001460S Chartered Accountants HYDERABAD

26, Ground Floor, R.B.V.R. Reddy Hostel Complex, Tilak Road, Hyderabad-1.
✆ : +91-040-24753171, 24767758
E-mail : knpcahyd@gmail.com, bhagwan.vyas@gmail.com,
GSTIN : 36AABFK9779M1ZH PAN AABFK9779M
BRANCHES : PUNE, NIZAMABAD, ZAHEERABAD, SECUNDERABAD, HYDERABAD

KRISHNA & PRASAD
CHARTERED ACCOUNTANTS
Firm's Regn. No.: 001460S

(Rs. in Lakhs)

Sl. No.	Particulars	TL	Sub station	Communication System/ULDC EQUIPMENT
1	Total Cost (Plant and Machinary cost excluding IDC, IEDC, Land cost and cost of Civil works for the purpose of Initial Spares)	-	753.60	-
2	Initial Spares included above	-	-	-

This is to further certify that the above summary has been prepared on the basis of the information drawn from the audited statements of accounts of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED for the period ended 31-03-2023.

M/s. Krishna & Prasad
Chartered Accountants
Firm's Regn No. 001460S

(B L N PHANI KUMAR)
Partner
Membership No. 028391
UDIN: 23028391BGUERA7383
Place: HYDERABAD
Date: 21-09-2023

26, Ground Floor, R.B.V.R. Reddy Hostel Complex, Tilak Road, Hyderabad-1.
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KRISHNA & PRASAD
CHARTERED ACCOUNTANTS
Firm's Regn. No.: 001460S

CERTIFICATE

This is to certify that we have verified the relevant records and other documents of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED having its Registered Office at B-9 Qutab Institutional Area Katwaria Sarai New Delhi - 110016, and on the basis of our verification we certify that Capital Cost of "NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/C line & Chilkaluripeta – Cuddapah 765 kV D/C line at Chilkaluripeta 765 kV S/S under the Project "Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta" of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED which is under commercial operation w.e.f. 12.05.2023 is detailed as under:

(Rs. in Lakhs)

SL. NO.	PARTICULARS	CAPITAL COST	INTEREST DURING CONSTRUCTION (IDC)	INCIDENTAL EXPENDITURE DURING CONSTRUCTION (IEDC)	TOTAL
1	Actual Expenditure Till 31.03.2023	54.65	0.85	5.45	60.95
2	Expenditure from 01.04.2023 to UP TO Date of Commercial Operation (DOCO)(i.e 11.05.2023)	7.30	0.39	0.15	7.84
3	Estimated Expenditure from DOCO to 31.03.2024	32.92	-	-	32.92
4	Estimated Expenditure from 01.04.2024 to 31.03.2025	20.00	-	-	20.00
	TOTAL	**114.87**	**1.24**	**5.60**	**121.71**

KRISHNA & PRASAD FRN No: 001460S Chartered Accountants HYDERABAD

पी.एस.आई.टी.एस.एल. सिकंदराबाद Secunderabad PSITS

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BRANCHES : PUNE, NIZAMABAD, ZAHEERABAD, SECUNDERABAD, HYDERABAD.

KRISHNA & PRASAD
CHARTERED ACCOUNTANTS
Firm's Regn. No.: 001460S

(Rs. in Lakhs)

Particulars	TL	Sub station	Communication System/ULDC EQUIPMENT
Total Cost (Plant and Machinary cost excluding IDC, IEDC, Land cost and cost of Civil works for the purpose of Initial Spares)	-	114.87	-
Initial Spares included above	-	-	-

This is to further certify that the above summary has been prepared on the basis of the information drawn from the audited statements of accounts of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED for the period ended 31-03-2023.

The Estimated Expenditure of Rs.32.92 Lakhs till 31.03.2024 and Estimated Expenditure of Rs.20.00 Lakhs from 01.04.2024 to 31.03.2025 are based on Management estimates.

M/s. Krishna & Prasad
Chartered Accountants
Firm's Regn No. 001460S

KRISHNA & PRASAD FRN No: 001460S Chartered Accountants HYDERABAD

(B L N PHANI KUMAR)
Partner
Membership No. 028391
UDIN: 24028391BJZWZS4013
Place: HYDERABAD
Date: 03/01/2024

PSITSL Secunderabad

26, Ground Floor, R.B.V.R. Reddy Hostel Complex, Tilak Road, Hyderabad-1.
✆ : +91-040-24753171, 24767758
E-mail : knpcahyd@gmail.com, bhagwan.vyas@gmail.com,
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BRANCHES : PUNE, NIZAMABAD, ZAHEERABAD, SECUNDERABAD, HYDERABAD

KRISHNA & PRASAD
CHARTERED ACCOUNTANTS
Firm's Regn. No.: 001460S

CERTIFICATE

This is to certify that we have verified the relevant records and other documents of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED having its Registered Office at B-9 Qutab Institutional Area Katwaria Sarai New Delhi - 110016, and on the basis of our verification we certify that Capital Cost of "NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/C line & Chilkaluripeta – Cuddapah 765 kV D/C line at Chilkaluripeta 765 kV S/S under the Project "Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta" of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED which is under commercial operation w.e.f. 12.05.2023 is detailed as under:

(Rs. in Lakhs)

SL. NO.	PARTICULARS	Actual Expenditure Till 31.03.2023	Expenditure from 01.04.2023 to UP TO Date of Commercial Operation (DOCO)(i.e 11.05.2023)	Estimated Expenditure from DOCO to 31.03.2024	Estimated Expenditure from 01.04.2024 to 31.03.2025	TOTAL
1	LAND	-	-	-	-	-
2	BUILDING & CIVIL WORKS	-	-	-	-	-
3	Sub-Station	60.95	7.84	32.92	20.00	121.71
4	TRANSMISSION LINE	-	-	-	-	-
5	PLCC	-	-	-	-	-
6	Communication System/ULDC Equipment	-	-	-	-	-
	TOTAL	60.95	7.84	32.92	20.00	121.71

This is to further certify that the above summary has been prepared on the basis of the information drawn from the audited statements of accounts of POWERGRID SOUTHERN INTERCONNECTOR TRANSMISSION SYSTEM LIMITED for the period ended 31-03-2023.

M/s. Krishna & Prasad
Chartered Accountants
Firm's Regn No. 001460S

(B L N PHANI KUMAR)
Partner
Membership No. 028391
UDIN: 24028391BJZWZS4013
Place: HYDERABAD
Date: 03/01/2024

KRISHNA & PRASAD FRN No: 001460S Chartered Accountants HYDERABAD

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BRANCHES : PUNE, NIZAMABAD, ZAHEERABAD, SECUNDERABAD, HYDERABAD

Name of Project & Element : Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)

SUMMARY OF ADD CAP & LIABLITY RELEASE FOR SS90					
			RS IN LAKHS		RS IN LAKHS
SL NO	NAME OF THE VENDOR	FY 23-24(ESTIMATED)		FY 24-25(ESTIMATED)	
		Work Executed	Liablity Release	Work Executed	Liablity Release
1	Hitachi Energy India Limited	-	3.89		59.34
1	Jakson Limited	1.10	30.02	-	14.02
3	SITE PACKAGES	-	-	20.00	-
	TOTAL	**1.10**	**33.91**	**20.00**	**73.36**

पी एस आई टी एल सिकंदराबाद Secunderabad PSITSL

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RECONCILIATION OF DOCO COST WITH BOOKS

Name of Project & Element : Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)

SAP Project Code :

DOCO Date : 31.08.2023

SL. No.	PARTICULARS	Upto DOCO	2023-24	2024-25
1	**Gross Block as per Books**	-	797.78	817.78
2	Add: Unadjusted advance	-	-	-
3	Add: CWIP and Construction Stores	796.68		
4	Less: Spares Capitalised as per IND AS	-	-	-
5	Less: MBOA and Other assets capitalized (not forming part of project cost)	-	-	-
6	Add: Accumulated Dep Adjusted as on 31.03.2015 as per IND AS 101	-	-	-
7	Add: Total amount of Fair Valuation Gain\Loss adjusted in IEDC up to DOCO	-	-	-
8	Add: Unamortised amount of Bond Issue expenses in the books as on DOCO	-	-	-
9	Less/Add: FERV capitalised after DOCO	-	-	-
10	**Adjusted Total Capital cost**	796.68	797.78	817.78
11	**Less: Liability**	107.27	73.36	-
12	**Total Capital Cost incurred as per Books (A)**	689.41	724.42	817.78
1	Land (Freehold Land)	-	-	-
2	Land (Leasehold)	-	-	-
3	Building & Civil Works	-		
4	Transmission Line	-		
5	Sub-Station	*689.41*	*724.42*	*817.78*
6	Communication System	-	-	-
7	I. T. Equipment including software	-	*0.00*	*0.00*
8	**Total Capital Cost as per Cost Certificate (B)**	689.41	724.42	817.78

Add Cap During the year		-	-
- Due to Unexecuted Work		35.01	93.36
- Due to Discharge of Liability		1.10	20.00
		33.91	73.36

Note :

1) All figures should be pertaining to element / Asset for relevant Certificate.

2) Total Capital Cost incurred as per Books (A) and Total Capital Cost as per Cost Certificate (B) should Match.

3) Liability shown at Sl. No. 11 above excludes O&M Liability for ₹0 Lakhs (Total Liability as per Books is ₹ 88.32 Lakhs) as on 31.03.2023

पी-एस आई टी एस एल Secunderabad PSITSL

SUMMARY OF ADD CAP & LIABLITY RELEASE FOR PSITSL RTM-2					
			RS IN LAKHS		RS IN LAKHS
SL NO	NAME OF THE VENDOR	FY 23-24(ESTIMATED)		FY 24-25(ESTIMATED)	
		Work Executed	Liablity Release	Work Executed	Liablity Release
1	POWER ENGINEERING ASSOCIATES	-	32.92		-
3	SITE PACKAGES	-	-	20.00	-
	TOTAL	**0.00**	**32.92**	**20.00**	**0.00**

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RECONCILIATION OF DOCO COST WITH BOOKS

Name of Project & Element : Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta

DOCO Date : 12.05.2023

SL. No.	PARTICULARS	Upto DOCO	2023-24	2024-25
1	**Gross Block as per Books**	-	101.71	121.71
2	Add: Unadjusted advance	-	-	-
3	Add: CWIP and Construction Stores	101.71		
4	Less: Spares Capitalised as per IND AS	-	-	-
5	Less: MBOA and Other assets capitalized (not forming part of project cost)	-	-	-
6	Add: Accumulated Dep Adjusted as on 31.03.2015 as per IND-AS 101	-	-	-
7	Add: Total amount of Fair Valuation Gain\Loss adjusted in IEDC up to DOCO	-	-	-
8	Add: Unamortised amount of Bond Issue expenses in the books as on DOCO	-	-	-
9	Less/Add: FERV capitalised after DOCO	-	-	-
10	**Adjusted Total Capital cost**	101.71	101.71	121.71
11	**Less: Liability**	32.92	-	-
12	**Total Capital Cost incurred as per Books (A)**	68.79	101.71	121.71
1	Land (Freehold Land)	-	-	-
2	Land (Leasehold)	-	-	-
3	Building & Civil Works	-		
4	Transmission Line	-		
5	Sub-Station	*68.79*	*101.71*	*121.71*
6	Communication System	-	-	-
7	I. T. Equipment including software	-	*0.00*	*0.00*
8	**Total Capital Cost as per Cost Certificate (B)**	68.79	101.71	121.71
			-	-

Add Cap During the year		32.92	20.00
- Due to Unexecuted Work		-	20.00
- Due to Discharge of Liability		32.92	-

Note : -

1) All figures should be pertaining to element / Asset for relevant Certificate.

2) Total Capital Cost incurred as per Books (A) and Total Capital Cost as per Cost Certificate (B) should Match.

3) Liability shown at Sl. No. 11 above excludes O&M Liability for ₹0 Lakhs (Total Liability as per Books is ₹ 0 Lakhs) as on 31.03.2023

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Statement showing IDC Discharged upto DOCO

Project:	**Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkalutipeta (Part-B)**
Element:	**Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkalutipeta (Part-B)**
DOCO: Actual	**31-Aug-23**

Loans	Amount	Interest Rate	Drawl Date	Total IDC	Annual Interest Payment Date upto DOCO	Interest Discharged upto DOCO		Annual Interest Payment Date after DOCO
						2022-23	2023-24	
LOAN-1 PSITSL	290.88	Floating	28-Dec-22	15.21	31-Jul-23	5.85	7.60	06-Sep-23
LOAN-2 PSITSL	45.37	Floating	30-Jan-23	2.08	31-Jul-23	0.61	1.20	06-Sep-23
LOAN-2 PSITSL	16.87	Floating	08-Feb-23	0.74	31-Jul-23	0.20	0.44	06-Sep-23
LOAN-3 PSITSL	37.62	Floating	10-Mar-23	1.32	31-Jul-23	0.17	0.92	06-Sep-23
LOAN-3 PSITSL	27.83	Floating	31-Mar-23	0.86	31-Jul-23	0.01	0.68	06-Sep-23
LOAN-4 PSITSL	4.01	Floating	11-Apr-23	0.12	31-Jul-23	-	0.09	06-Sep-23
LOAN-4 PSITSL	3.61	Floating	27-Apr-23	0.09	31-Jul-23	-	0.07	06-Sep-23
LOAN-4 PSITSL	0.92	Floating	28-Apr-23	0.02	31-Jul-23	-	0.02	06-Sep-23
LOAN-4 PSITSL	0.40	Floating	08-May-23	0.01	31-Jul-23	-	0.01	06-Sep-23
LOAN-4 PSITSL	0.09	Floating	23-May-23	0.00	31-Jul-23	-	0.00	06-Sep-23
LOAN-4 PSITSL	5.61	Floating	30-May-23	0.10	31-Jul-23	-	0.07	06-Sep-23
LOAN-5 PSITSL	25.48	Floating	13-Jun-23	0.40	31-Jul-23	-	0.25	06-Sep-23
LOAN-5 PSITSL	0.43	Floating	14-Jun-23	0.01	31-Jul-23	-	0.00	06-Sep-23
LOAN-5 PSITSL	0.19	Floating	21-Jun-23	0.00	31-Jul-23	-	0.00	06-Sep-23
LOAN-7 PSITSL	12.73	Floating	29-Aug-23	0.01	31-Jul-23	-	0.00	06-Sep-23
Total	**472.02**			**20.98**		**6.84**	**11.37**	

Total IDC as per Cost Certificate	20.98
IDC Discharged upto DOCO	18.21
Accrual IDC upto DOCO (Discharged during 2023-2024)	2.78
Accrual IDC upto DOCO (Discharged during 2024-2025)	0.00

Certified that Interest on loans is paid as per terms of loan agreement and no default has been made in respect of debt servicing.

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Statement showing IDC Discharged upto DOCO

Project:	**Scheme to Bypass NGR to use Switchable line reactor as Bus reactor at 765 kV Chilkalutipeta**							
Element:	**Scheme to Bypass NGR to use Switchable line reactor as Bus reactor at 765 kV Chilkalutipeta**							
DOCO: Actual	**12-May-23**							
Loans	**Amount**	**Interest Rate**	**Drawl Date**	**Total IDC**	**Annual Interest Payment Date upto DOCO**	**Interest Discharged upto DOCO**		**Annual Interest Payment Date after DOCO**
						2022-23	**2023-24**	
Inter Corporate Loan from POWERGRID	27.63	Floating	22-Dec-22	0.84	31-Mar-23	0.59	-	10-Jul-23
Inter Corporate Loan from POWERGRID	11.09	Floating	28-Dec-22	0.32	31-Mar-23	0.22	-	10-Jul-23
Inter Corporate Loan from POWERGRID	0.95	Floating	29-Dec-22	0.03	31-Mar-23	0.02	-	10-Jul-23
Inter Corporate Loan from POWERGRID	0.16	Floating	30-Jan-23	0.00	31-Mar-23	0.00	-	10-Jul-23
Inter Corporate Loan from POWERGRID	1.26	Floating	08-Feb-23	0.03	31-Mar-23	0.01	-	10-Jul-23
Inter Corporate Loan from POWERGRID	0.12	Floating	10-Mar-23	0.00	31-Mar-23	0.00	-	10-Jul-23
Inter Corporate Loan from POWERGRID	4.51	Floating	19-Apr-23	0.02	31-Mar-23	-	-	10-Jul-23
Inter Corporate Loan from POWERGRID	0.36	Floating	27-Apr-23	0.00	31-Mar-23	-	-	10-Jul-23
Inter Corporate Loan from POWERGRID	0.17	Floating	28-Apr-23	0.00	31-Mar-23	-	-	10-Jul-23
Total	**46.24**			**1.24**		**0.85**	-	

Total IDC as per Cost Certificate	1.24
IDC Discharged upto DOCO	0.85
Accrual IDC upto DOCO (Discharged during 2023-2024)	0.39
Accrual IDC upto DOCO (Discharged during 2024-2025)	0.00

Certified that Interest on loans is paid as per terms of loan agreement and no default has been made in respect of debt servicing.

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Summary of Tariff

Form No. - 1

Name of the Transmission Licensee:	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Year Days	0.00	0.00	0.00	0.00	366.00
Tariff Days	0.00	0.00	0.00	0.00	214.00
Depreciation-Form No. 10A	0.00	0.00	0.00	0.00	21.78
Interest on Loan-Form No. 9E	0.00	0.00	0.00	0.00	22.43
Return on Equity-Form No. 8	0.00	0.00	0.00	0.00	23.24
Int. on Working capital-Form No.11	0.00	0.00	0.00	0.00	1.01
Op. and maintenance-Form No.2	0.00	0.00	0.00	0.00	0.00
Total AFC	0.00	0.00	0.00	0.00	68.46

(Petitioner)

Summary of Asset Level Cost

Form No. - 1A

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

A) Summary of Capital Cost, Means of Finance of the Asset

(Amount in Rs. Lakh)

Particular	i) Apportioned Approved Cost		ii) Summary of Actual / Projected Capital Expenditure incurred						
	As Per IA	As per RCE	As on COD / 01.04.2019	2019-20	2020-21	2021-22	2022-23	2023-24	As on 31.03.2024
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	796.68	0.00	0.00	0.00	0.00	1.10	797.78
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Capital Cost as per Books	0.00	0.00	796.68	0.00	0.00	0.00	0.00	1.10	797.78
Less: Liability	0.00	0.00	110.05	0.00	0.00	0.00	0.00	0.00	0.00
Add:discharge of liability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36.69	73.36
De cap During Year As per Books	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Capital incurred	0.00	0.00	686.63	0.00	0.00	0.00	0.00	37.79	724.42
Equity	233.10	247.20	205.99	0.00	0.00	0.00	0.00	11.34	217.33
Debt	543.90	576.80	480.64	0.00	0.00	0.00	0.00	26.45	507.09

(Petitioner)

Details of Transmission Lines and Substations, Communication System covered in the project scope and O&M for instant asset

Form No. - 2

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

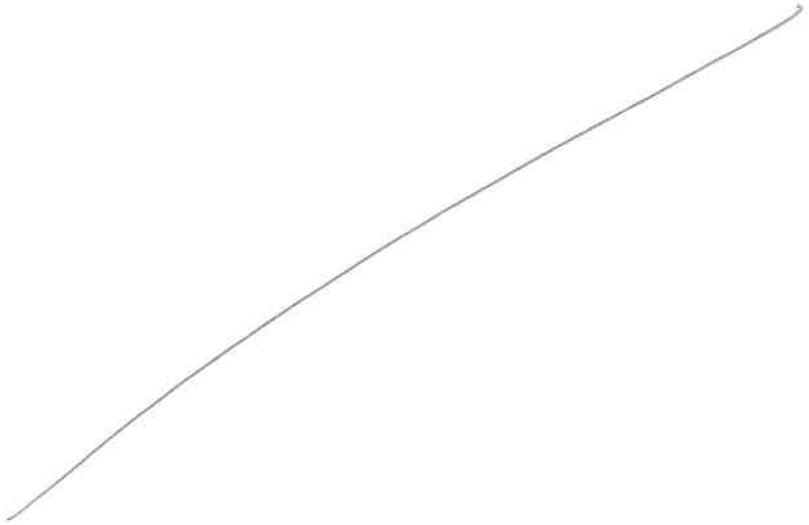
1. Transmission Lines

(Amount in Rs. Lakh)

Summary:

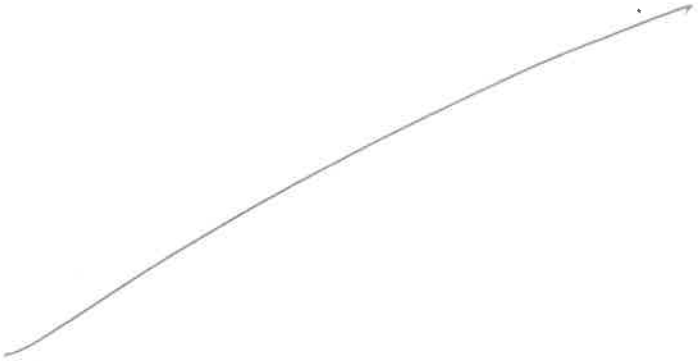
2. Sub Station

Summary:



3. Communication System

Summary:



Summary of O&M Expenses claim

(Amount in Rs. Lakh)

(Petitioner)

Normative parameters considered for tariff computations

Form No. - 3

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Base Rate of Return of Equity (in %)						
Tax Rate (in %)	21.55	17.472	17.472	17.472	17.472	17.472
Effective tax rate (in %)						
Grossed up Rate of ROE (in %)	19.758	18.782	18.782	18.782	18.782	18.782
Target availability - AC System (in %)	98.00	98.00	98.00	98.00	98.00	98.00
Target availability - HVDC System (in %)	96.00	96.00	96.00	96.00	96.00	96.00
Norms for sub-station Bays (Rs Lakh per bay)						
765 kV	96.20	45.01	46.60	48.23	49.93	51.68
400 kV	68.71	32.15	33.28	34.45	35.66	36.91
220 kV	48.10	22.51	23.30	24.12	24.96	25.84
132 kV and below	34.36	16.08	16.64	17.23	17.83	18.46
Norms for Transformers (Rs Lakh per MVA)						
765 kV	0.00	0.491	0.508	0.526	0.545	0.564
400 kV	0.00	0.358	0.371	0.384	0.398	0.411
220 kV	0.00	0.245	0.254	0.263	0.272	0.282
132 kV and below	0.00	0.245	0.254	0.263	0.272	0.282
Norms for AC and HVDC lines (Rs Lakh per km)						
Single Circuit (Bundled Conductor with six or more sub-conductors)	0.806	0.881	0.912	0.944	0.977	1.011
Single Circuit (Bundled conductor with four sub-conductors)	0.691	0.755	0.781	0.809	0.837	0.867
Single Circuit (Twin & Triple Conductor)	0.461	0.503	0.521	0.539	0.558	0.578

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Single Circuit (Single Conductor)	0.23	0.252	0.26	0.27	0.279	0.289
Double Circuit (Bundled conductor with four or more sub-conductors)	1.21	1.322	1.368	1.416	1.466	1.517
Double Circuit (Twin & Triple Conductor)	0.806	0.881	0.912	0.944	0.977	1.011
Double Circuit (Single Conductor)	0.346	0.377	0.391	0.404	0.419	0.433
Multi Circuit (Bundled Conductor with four or more sub-conductor)	2.123	2.319	2.401	2.485	2.572	2.662
Multi Circuit (Twin & Triple Conductor)	1.413	1.544	1.598	1.654	1.713	1.773
Norms for HVDC stations						
HVDC Back-to-Back stations (Rs Lakh per 500 MW) (Except Gazuwaka BTB)	0.00	834.00	864.00	894.00	925.00	958.00
Gazuwaka HVDC Back-to-Back station (Rs. Lakh per 500 MW)	0.00	1,666.00	1,725.00	1,785.00	1,848.00	1,913.00
500 kV Rihand-Dadri HVDC bipole scheme (Rs Lakh) (1500 MW)	0.00	2,252.00	2,331.00	2,413.00	2,498.00	2,586.00
±500 kV Talcher- Kolar HVDC bipole scheme (Rs Lakh) (2000 MW)	0.00	2,468.00	2,555.00	2,645.00	2,738.00	2,834.00
±500 kV Bhiwadi-Balia HVDC bipole scheme (Rs Lakh) (2500 MW)	0.00	1,696.00	1,756.00	1,817.00	1,881.00	1,947.00
±800 kV, Bishwanath-Agra HVDC bipole scheme (Rs Lakh) (3000 MW)	0.00	2,563.00	2,653.00	2,746.00	2,842.00	2,942.00

(Petitioner)

Abstract of existing transmission assets/elements under Project, Determination of Effective COD and weighted Average life for single AFC for the project as whole

Form No. - 4

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

A) Details of All the Asset Covered under the Scope of the Project

(Amount in Rs. Lakh)

Asset Name	Actual COD of the asset	COD considered for tariff purpose	Effective COD for the project as whole (Refer C)	Weighted Average useful life of the project (Refer D)	Lapsed useful Life of the project as on 01.04.2019 (Refer E)	Balance useful Life of the project as on 01.04.2019 (Refer E)
Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)	Aug 31, 2023	Aug 31, 2023				
Summary			Aug 31, 2023	25		

B) Details as on 01.04.2019 for determination of Single Tariff for the Project Commissioned prior to 01.04.2019

Asset Name	Capital Cost as on 31.03.2019	Cumulative Dep. as on 31.03.2019	Debt Equity Ratio as on 31.03.2019	Gross Equity for normative ROE as on 31.03.2019	Gross Loan as on 31.03.2019	Cumulative Re-payment of Loan as on 31.03.2019
Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)	686.63	0.00	0:*0	0.00	0.00	0.00
Total	686.63	0.00	0:*0	0.00	0.00	0.00

C) Computation of Effective COD for determining lapsed useful life of the project as whole

Asset Name	Actual COD of the asset	COD considered for tariff purpose	No of days between the COD of the asset considered for tariff and the COD of the Project	True Up Capital Cost as on 31.03.2019	Weight of the Cost of an asset (in %)	Weighted Days
Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)	Aug 31, 2023	Aug 31, 2023	0	686.63	100	0
Total			0	686.63	100	0
Effective COD	**Aug 31, 2023**					

D) Weighted Average useful Life of the Project as whole

Asset Name	Freehold Land	Building & Other Civil Works	Transmission Lines	Sub-Station Equipments	PLCC	Leasehold Land	IT Equipment & S/w	Total Cost
Requirement of 765 kV spare (1-Ph) Reactors unit at 765 kV Chilkaluripeta (Part-B)	0.00	0.00	0.00	686.63	0.00	0.00	0.00	686.63
Combined Cost	0.00	0.00	0.00	686.63	0.00	0.00	0.00	686.63
Useful life / Extended life	0.00	25.00	35.00	25.00	15.00	25.00	7.00	0.00
Weighted Cost	0.00	0.00	0.00	17,165.75	0.00	0.00	0.00	17,165.75
Weighted Average Life							0.00	**25.00**

E) Lapsed Weighted average useful life of the project & Balance weighted average Useful life
This refers to the No. of completed years from the effective COD till the last day of the previous tariff period (i.e. 31.03.2019)

1) Effective COD	Aug 31, 2023
2) Last date of the previous tariff control period	Mar 31, 2019

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3) No. of Completed years lapsed as on 01.04.2019 (2) - (1)	
4) Remaining useful life (in year) (WAL-lapsed year)	

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Statement of Capital cost

Form No. - 4A

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

A) Capital Cost

(Amount in Rs. Lakh)

Particular	Accrual Basis	Un-discharged Liabilities	Cash Basis
As on relevant date :2023-24			
a) Opening Gross Block Amount as per books	796.68	110.05	686.63
b) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in A(a) above	20.98	2.78	18.20
c) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in A(a) above	43.20	0.00	43.20
a) Addition in Gross Block Amount during the period	1.10	0.00	1.10
b) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in B(a) above	0.00	0.00	0.00
c) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in B(a) above	0.00	0.00	0.00
d) De-cap in gross block amount during the year	0.00	0.00	0.00
a) Closing Gross Block Amount as per books	797.78	73.36	724.42
b) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in C(a) above	20.98	0.00	20.98
c) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost)included in C(a) above	43.20	0.00	43.20

B) Flow of liability for the Asset

(Amount in Rs. Lakh)

Particular	2023-2024	2024-2025						

Opening balance of liability	110.05	73.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Add: Liability from ACE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discharge of liability by payment and claimed as ACE	36.69	73.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversal/cancelation (to be entered)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Closing Balance of Admitted liability	73.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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(Petitioner)

Abstract of Capital Cost Estimates and Schedule of Commissioning for New Project/Element		PART- III FORM- 4C
Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B)		
		(Amount in Rs. Lakh)
Board of Director/ Agency approving the Capital cost estimates:		
Date of approval of the Capital cost estimates:		
	Present Day Cost	**Completed Cost**
Price level of approved estimates		
Foreign Exchange rate considered for the Capital cost estimates		
Capital Cost excluding IDC, IEDC& FC		
Foreign Component, if any (In Million US $ or the relevant Currency)		
Domestic Component (Rs. Lakh)	659.48	753.60
Capital cost excluding IDC, FC, FERV & Hedging Cost (Rs. Lakh)	**659.48**	**753.60**
IDC, IEDC, FC, FERV & Hedging Cost		
Foreign Component, if any (In Million US $ or the relevant Currency)		
Domestic Component (Rs Lakh)	117.68	64.18
Total IDC, FC, FERV & Hedging Cost (Rs Lakh)	**117.68**	**64.18**
Rate of taxes & duties considered		
Capital cost Including IDC, IEDC, FC, FERV & Hedging Cost		
Foreign Component, if any (In Million US $ or the relevant Currency)		
Domestic Component (Rs Lakh)	**817.78**	
Capital cost Including IDC, IEDC& FC (Rs Lakh)	**817.78**	
Schedule of Commissioning		
COD of transmission system 1 /transmission element 1/Communication System 1	**31-08-2023**	
COD of transmission system 1/ transmission element 2/ Communication System 2		

COD of last transmission system /transmission element / Communication System	**31-08-2023**	

Note:
1. Copy of approval letter by the Board duly certified by the Company secretary should be enclosed
2. Details of Capital Cost are to be furnished as per FORM-5 or 5A as applicable
3. Details of IDC & Financing Charges are to be furnished as per FORM-12(B).

(Petitioner)

Part-III
FORM 5

Element wise Break-up of Project/Asset/Element Cost for Transmission System or Communication System

Name of the Transmission Asset: Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B)

(Amount in Rs. Lakh)

S. No. (1)	Particulars (2)	Cost in Lakh																
		As per Original Estimates (3)			As per Revised Cost Estimates (if any)(4)			Actual Capital Expenditure (Gross Block) as on COD as per Books of Account[2,4,5] (5)				The portion Capital cost included in col. 5 which is not eligible for transmission tariff (eg. Grant, other business etc.[6] (6)	Projected/actual cost of Deferred work to be capitalised after COD but before cut off date (7)	Variation between actual Cost and IA/RCE cost as on COD (8=(5-6+7)-(3 or 4))	Reasons for Variation (9)	Un-Discharge Liabilities included in Col. 5 (10)	Admitted cost[7] (11)	Capital Work in Progress as per Books of Account as on COD (12)
		Quantity	Rate	Estimated Cost	Quantity	Rate	Estimated Cost	Quantity	Rate	Gross Block of the asset	As on CoD	Cost upto ACOD (31-03-2023)						
B.	SUBSTATIONS																	
5.5	Misc. civil works			108.25						138.86	54.55	117.77		21.09	30.61		63.22	
5.6	Total Civil Works (5.1+5.2+5.3+5.4+5.5)			**108.25**						**138.86**	**54.55**	**117.77**	**0.00**	**21.09**	**30.61**		**63.22**	0
6	**Substation Equipment**																	
6.2	Transformers												0.00	0.00	**0.00**			
6.3	Compensating Equipment (Reactor, SVCs etc)	2		455.81						502.83	458.78	502.83		0.00	47.02	It is submitted that the variation in cost in substation equiometn is due ti variation awarded/executed cost received through competitive bidding.It is submitted that for procurement, open competitive bidding route is followed by providing equal opportunity to all eligible firms, best possible market prices for required product/services is obtained and contract is awarded on the basis of lowest evaluated bidder. The best competitive bid prices against tenders may happen to be lower or higher than the cost estimate depending upon prevailing market conditions	44.05		
6.4	Control , Relay & Protection Panel																	
6.5	PLCC																	
6.6	HVDC package																	
6.7	Bus Bars/ conductors / Insulators																	
6.8	Outdoor lighting																	
6.9	Emergency D.G. Set																	
6.1	Grounding System																	
6.11	Structure for switchyard																	
6.12	**Total Substation Equipment** (Sum of 6.1 to 6.11)			**455.81**						**502.83**	**458.78**	**502.83**	**0.00**	**0.00**	**47.02**	**0.00**	**44.05**	**0**

7	Spares														
8	Taxes and Duties														
8.1	Custom Duty														
8.2	Other Taxes & Duties			94.95		111.90	111.90	111.90	0	0.00	16.96				
8.3	Total Taxes & Duties (8.1+8.2+8.3)			94.95		111.90	111.90	111.90	0	0.00	16.96				
8.4	Total (Sub-station) (4.4+5.6+6.12+7+8.3)			659.01		753.60	625.23	732.50	0	21.09	94.59		107.27		
10	Cost of Plant & Machinery (3.4+8.4+9.4)			659.01		753.60	625.23	732.50	0	21.09	94.59		107.27		
12.0	Over heads														
12.1	Establishment														
12.2	Audit & Accounts														
12.3	Contigency			19.78						0.00	-17.80				
12.4	Other overheads			71.21		43.20	43.20	43.20							
12.5	Total Overheads (12.1+12.2+12.3+12.4)			91.00		43.20	43.20	43.20	0	0	-17.80				
13	IDC, FC, FERV & Hedging Cost														
13.1	Interest During Construction (IDC)			27.00		20.98	20.98	20.98		0	-6.03				
13.2	Financing Charges (FC)														
13.3	Foreign Exchange Rate Variation (FERV)														
13.4	Hedging Cost														
13.5	Total of IDC, FC, FERV & Hedging Cost (13.1+13.2+13.3+13.4)			27.00		20.98	20.98	20.98	0	0	-6.025				
14	Capital cost including IDC, FC, FERV & Hedging Cost (10+11.4+12.5+13.5)			777.00		817.78	689.41	796.68	0	21.09	40.77		107.27		0

B) Summary of Capital Cost as on COD

Particular	Plant & Machinery Cost including initial spare but excluding IDC&IEDC	Initial Spare capitalised	IEDC capitalised	IDC capitalised	Loan FERV	*Gross Block as per books of Account as on COD*	Deduction from Gross Block'	Gross block meant for tariff as on COD/ 01.04.2019 (after deductions)	Un- discharged liability included in 8	Capital Cost on Cash basis for tariff as on COD / as on 01-04-2019
	1	2	3	4	5	6=(1+3+4+5)	7	8=(6-7)	9	10=(8-9)
Land (Freehold Land)										
Land (Leasehold)										
Building & Civil Works										
Transmission Line										
Sub-Station	732.50	0	43.20	20.975	0	796.68	0.00	796.68	107.271	689.41
PLCC										
Total Capital Cost as per Books of Account	732.50									
Less: Un-discharged liabilities	107.27									
Total Capital Cost Claimed for tariff	625.23									
% of IDC / IEDC on the base of (Plant & Machinery cost including initial spare as per Books of Account)	10.26									
Means of Finance										

Note:

1. In case of cost variation, a detailed note giving reasons of such variation should be submitted clearly indicating whether such cost over- run was beyond the control of the transmission licensee.
2. Separate details of free hold/lease hold land should be submitted.
3. Deduction form Gross Block includes the Grant Received as on COD, Gross block as on COD which pertains to other business, Adjustment of excess initial spare etc.

Break-up of Construction/Supply/Service Packages

Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B)

(Amount in Rs. Lakh)

S. No.	Name/No. of Construction /supply/service package	Scope of works[1] (in line with head of cost break-ups as applicable)	Whether awarded through ICB/DCB/ Departmentall y/ Deposit Work, etc.	No. of bids received	Date of Award	Date of Start of work	Date of Completion of Work	Value of Award[2] in (Rs. Lakh).	Firm or With Escalation in prices	Actual expenditure till the completion or up to COD whichever is earlier (Rs. Lakh)	Taxes & Duties and IEDC (Rs. Lakh)	IDC, FC, FERV & Hedgi ng cost (Rs. Lakh)	Sub- Total (Rs. Lakh)
1	5002002072/ SUBSTATION/ DOM/ AOO/ CC CS-1/ NOA-1/ NR1- 150035 dtd 24.08.22	Supply & Service Contract for extension of Cpeta SS with Spare Reactor			24-08-2022	24-08-2022	31-08-2023	733.60	Firm	641.69	155.11	20.98	817.78

Note:
1 The scope of work in any package should be indicated in conformity of cost break-up in Form-5 to the extent possible.
2 If there is any package, which need to be shown in Indian Rupee and foreign currency(ies), the same should be shown separately along with the currency, the exchange rate and the date e.g. Rs. 800 Lakh. + US$ 5m=Rs. 4300 Lakh. at US$=Rs.70 as on say 01.04.2019.

DCB: Domestic Competitive Bidding
GCB: Global Competitive Bidding

(Petitioner)

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Financial Package upto COD

Form No. - 6

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	Financial Package as Approved		Financial Package as on COD 01/04/2019		As Admitted on COD 01/04/2019	
	Currency	Amount	Currency	Amount	Currency	Amount
Loans		0.00		0.00		0.00
Loan-Domestic		0.00		0.00		0.00
Loan-Foreign		0.00		0.00		0.00
Total Loans	INR	572.446	INR	480.64		0.00
Equity		0.00		0.00		0.00
Foreign		0.00		0.00		0.00
Domestic	INR	245.334	INR	205.99		0.00
Total Equity	INR	245.334	INR	205.99		0.00
Debt Equity Ratio					70:30	
Total Cost	INR	817.78	INR	686.63		0.00

Particulars	Debt	Equity	Total
Addcap for 2023 - 2024			37.79

Particulars	Actual	Normative
Addcap for 2023 - 2024		

Equity		11.34	
Debt		26.45	
Total		37.79	
Total Capital cost with Addcap		724.42	

(Petitioner)

Statement of Additional Capitalisation after COD

Form No. - 7

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	Addition into Gross Block as per books of Account during the year (2)	De-Cap into Gross Block as per books of Account during the year	Less: Deductions dr. the year towards				Add: Discharge of earlier admitted liability	ACE on cash basis for tariff purpose	Admitted Cost in final tariff (Rs Lakh)
			Grants Received (if any) (3)	Asset pertaining to other business (If any) (4)	Other Deduction (if any) (5)	Less: Un-discharged liability included in (2-4-5)			
ACE for the year :2019-20 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACE for the year :2020-21 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACE for the year :2021-22 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACE for the year :2022-23 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

ACE for the year :2023-24 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	1.10	0.00	0.00	0.00	0.00	0.00	36.69	37.79	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.10	0.00	0.00	0.00	0.00	0.00	36.69	37.79	0.00

Financing of Additional Capitalisation

Form No. - 7A

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Financial Year (Starting of COD)	Actual/Projected					Admitted				
	2019-20	2020-21	2021-22	2022-23	2023-24	2019-20	2020-21	2021-22	2022-23	2023-24
Amount capitilized in Work/ Equipment										
Financing Details										
Total Loan	0.00	0.00	0.00	0.00	26.45					
Equity	0.00	0.00	0.00	0.00	11.34					
Total	0.00	0.00	0.00	0.00	37.79					

(Petitioner)

PSITSL

Calculation of ROE

Form No. - 8

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No. of Days in the year	0.00	0.00	0.00	0.00	366.00
No. of days for which tariff claimed	0.00	0.00	0.00	0.00	214.00
Opening Normative Equity	0.00	0.00	0.00	0.00	205.99
Less: Adjustment in Equity*	0.00	0.00	0.00	0.00	0.00
Adjustment during the year	0.00	0.00	0.00	0.00	0.00
Net opening equity (Normal)	0.00	0.00	0.00	0.00	205.99
Add: Increase in Equity due to addition during the year / period	0.00	0.00	0.00	0.00	0.33
Less: Decrease due to de-capitalisation during the year / period	0.00	0.00	0.00	0.00	0.00
Add: Increase due to discharge during the year / period	0.00	0.00	0.00	0.00	11.01
Closing Normative Equity	0.00	0.00	0.00	0.00	217.33
Average Normative Equity	0.00	0.00	0.00	0.00	211.66
Rate of return on Equity (%)	0.00	0.00	0.00	0.00	18.782
Reduced rate of 1% decided by commission under Regulation 30(2) (if any)	0.00	0.00	0.00	0.00	0.00
Effective rate of ROE	0.00	0.00	0.00	0.00	15.50
MAT Rate	0.00	0.00	0.00	0.00	17.472
Grossed up rate of ROE	0.00	0.00	0.00	0.00	18.782
Return on Equity	0.00	0.00	0.00	0.00	39.75
Pro rata return on Equity	0.00	0.00	0.00	0.00	23.24

(Petitioner)

Calculation of WAR of interest on actual loan

Form No. - 9C

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Loan 1 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	290.88
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	290.88
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	18.24
Net Loan-Closing	0.00	0.00	0.00	0.00	272.64
Average Net Loan	0.00	0.00	0.00	0.00	281.76
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.10
Interest on loan	0.00	0.00	0.00	0.00	22.8226
Loan 2 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	45.37
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	45.37
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	2.84
Net Loan-Closing	0.00	0.00	0.00	0.00	42.53

Average Net Loan	0.00	0.00	0.00	0.00	43.95
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.15
Interest on loan	0.00	0.00	0.00	0.00	3.5819

Loan 2 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	16.87
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	16.87
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	1.06
Net Loan-Closing	0.00	0.00	0.00	0.00	15.81
Average Net Loan	0.00	0.00	0.00	0.00	16.34
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.15
Interest on loan	0.00	0.00	0.00	0.00	1.3317

Loan 3 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	37.62
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	37.62
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	2.36
Net Loan-Closing	0.00	0.00	0.00	0.00	35.26
Average Net Loan	0.00	0.00	0.00	0.00	36.44
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.40
Interest on loan	0.00	0.00	0.00	0.00	2.6966

Loan 3 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	27.83
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	27.83
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	1.74
Net Loan-Closing	0.00	0.00	0.00	0.00	26.09
Average Net Loan	0.00	0.00	0.00	0.00	26.96
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.40
Interest on loan	0.00	0.00	0.00	0.00	1.995

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	4.01
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	4.01
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.25
Net Loan-Closing	0.00	0.00	0.00	0.00	3.76
Average Net Loan	0.00	0.00	0.00	0.00	3.89
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.2925

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	3.61
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	3.61

Secunderabad PSITSL

Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.23
Net Loan-Closing	0.00	0.00	0.00	0.00	3.38
Average Net Loan	0.00	0.00	0.00	0.00	3.50
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.2632

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.92
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.92
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.06
Net Loan-Closing	0.00	0.00	0.00	0.00	0.86
Average Net Loan	0.00	0.00	0.00	0.00	0.89
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.0669

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.40
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.40
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.03
Net Loan-Closing	0.00	0.00	0.00	0.00	0.37
Average Net Loan	0.00	0.00	0.00	0.00	0.39

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Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.0293

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.09
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.09
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.01
Net Loan-Closing	0.00	0.00	0.00	0.00	0.08
Average Net Loan	0.00	0.00	0.00	0.00	0.09
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.0068

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	5.61
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	5.61
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.35
Net Loan-Closing	0.00	0.00	0.00	0.00	5.26
Average Net Loan	0.00	0.00	0.00	0.00	5.44
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.4091

Loan 5 PSITSL -DOCO LOAN

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Gross Loan- Opening	0.00	0.00	0.00	0.00	0.43
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.43
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.03
Net Loan-Closing	0.00	0.00	0.00	0.00	0.40
Average Net Loan	0.00	0.00	0.00	0.00	0.42
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.56
Interest on loan	0.00	0.00	0.00	0.00	0.0318

Loan 5 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.19
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.19
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.01
Net Loan-Closing	0.00	0.00	0.00	0.00	0.18
Average Net Loan	0.00	0.00	0.00	0.00	0.19
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.56
Interest on loan	0.00	0.00	0.00	0.00	0.0144

Loan 5 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	25.48
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	25.48
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00

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Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	1.60
Net Loan-Closing	0.00	0.00	0.00	0.00	23.88
Average Net Loan	0.00	0.00	0.00	0.00	24.68
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.56
Interest on loan	0.00	0.00	0.00	0.00	1.8658

Loan 7 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	12.73
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	12.73
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.00
Net Loan-Closing	0.00	0.00	0.00	0.00	12.73
Average Net Loan	0.00	0.00	0.00	0.00	12.73
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.50
Interest on loan	0.00	0.00	0.00	0.00	0.9548

Summary

Gross Loan- Opening	0.00	0.00	0.00	0.00	472.04
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	472.04
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	28.81
Net Loan-Closing	0.00	0.00	0.00	0.00	443.23
Average Net Loan	0.00	0.00	0.00	0.00	457.67

Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.9451
Interest on loan	0.00	0.00	0.00	0.00	36.3624

Loans in Foreign Currency

Form No. - 9D

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Petitioner)

Calculation of interest on Normative loan

Form No. - 9E

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No. of Days in the Year	0.00	0.00	0.00	0.00	366.00
No. of days for which Tariff claimed	0.00	0.00	0.00	0.00	214.00
Gross normative loan-Opening	0.00	0.00	0.00	0.00	480.64
Cumulative repayments of Normative loan upto previous year	0.00	0.00	0.00	0.00	0.00
Net normative loan-Opening	0.00	0.00	0.00	0.00	480.64
Addition in normative loan towards the ACE	0.00	0.00	0.00	0.00	26.45
Adjustment of normative gross loan pertaining to the decapitalised asset	0.00	0.00	0.00	0.00	0.00
Normative repayments of normative loan during the year	0.00	0.00	0.00	0.00	21.78
Adjustment of cumulative repayment pertaining to the decapitalised asset	0.00	0.00	0.00	0.00	0.00
Net normative loan - closing	0.00	0.00	0.00	0.00	485.31
Average normative loan	0.00	0.00	0.00	0.00	482.98
Weighted Average Rate of interest on actual loan	0.00	0.00	0.00	0.00	7.9451
Interest on normative loan	0.00	0.00	0.00	0.00	38.37
Pro rata interest on normative loan	0.00	0.00	0.00	0.00	22.43

(Petitioner)

Calculation of Depreciation Rate on Original Project Cost

Form No. - 10

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Name of Assets	Gross block at the beginning of the year	Add Cap during the year	Gross block at the end of the year	Average Gross Block	Depreciation Rate as per CERC's Depreciation Rate Schedule	Depreciation Amount for each year upto 31.03.2024
2023-24						
Land	0.00	0.00	0.00	0.00	0.00	0.00
Building	0.00	0.00	0.00	0.00	3.34	0.00
Transmission Line	0.00	0.00	0.00	0.00	5.28	0.00
Sub Station	686.63	37.79	724.42	705.53	5.28	21.78
PLCC	0.00	0.00	0.00	0.00	6.33	0.00
Leasehold Land	0.00	0.00	0.00	0.00	3.34	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	15.00	0.00
TOTAL	686.63	37.79	724.42	705.53	0.00	21.78
Weighted Average Rate of Depreciation(%)					3.087041	

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Statement of Depreciation

Form No. - 10A

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No of Days in the year	0.00	0.00	0.00	0.00	366.00
No of days for which tariff claimed	0.00	0.00	0.00	0.00	214.00
Life at the beginning of the year					
1.1 Weighted Average useful life of the Asset/ Project	0.00	0.00	0.00	0.00	25.00
1.2 Lapsed Weighted Average useful life of the Asset/Project(in completed no. of year)	0.00	0.00	0.00	0.00	0.00
1.3 Balance Weighted Average useful life of the Asset/Project(in completed no. of year)	0.00	0.00	0.00	0.00	25.00
Capital Base					
1.4 Opening capital cost	0.00	0.00	0.00	0.00	686.63
1.5 Additional Capital Expenditure dr. the year	0.00	0.00	0.00	0.00	37.79
1.6 De-Capitalisation During the year	0.00	0.00	0.00	0.00	0.00
1.7 Closing capital cost	0.00	0.00	0.00	0.00	724.42
1.8 Average capital cost	0.00	0.00	0.00	0.00	705.53
1.9 Freehold land included in 1.8	0.00	0.00	0.00	0.00	0.00
1.10 Asset having NIL salvage value included in 1.8	0.00	0.00	0.00	0.00	0.00
1.11 Asset having 10% salvage value included in 1.8	0.00	0.00	0.00	0.00	705.53
1.12 Depreciable Value(1.10+90% of 1.11)	0.00	0.00	0.00	0.00	634.98
Depreciation for the period and Cum. Depreciation					
1.13 Weighted Average Rate of depreciation	0.00	0.00	0.00	0.00	3.087041

1.14 Depreciation(for the period)	0.00	0.00	0.00	0.00	21.78
1.15 Depreciation(Annualised)	0.00	0.00	0.00	0.00	21.78
1.16 Cumulative depreciation at the beginning of the period	0.00	0.00	0.00	0.00	0.00
1.17 Less:Adj of Cum. Dep pertaining to decapitalised Asset	0.00	0.00	0.00	0.00	0.00
1.18 Cumulative depreciation at the end of the period	0.00	0.00	0.00	0.00	21.78
Unrecovered Depreciation for DECAP	0.00	0.00	0.00	0.00	0.00

(Petitioner)

Calculation of interest on working Capital

Form No. - 11

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No of Days in the year	0.00	0.00	0.00	0.00	366.00
No of days for which tariff claimed	0.00	0.00	0.00	0.00	214.00
O&M Expenses-one month	0.00	0.00	0.00	0.00	0.00
Maintenance spares 15% of O&M Expenses	0.00	0.00	0.00	0.00	0.00
Receivables equivalent to 45 days of AFC	0.00	0.00	0.00	0.00	14.40
Total Working capital	0.00	0.00	0.00	0.00	14.40
Bank Rate as on 01.04.2019 or as on 01st April of the COD year,whichever is later.	0.00	0.00	0.00	0.00	12.00
Interest on working capital	0.00	0.00	0.00	0.00	1.73
Pro rata interest on working capital	0.00	0.00	0.00	0.00	1.01

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PART-III
FORM-12A

Incidental Expnediture During Construction

Name of the Transmission Element : **Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B)**

Date of Commercial Operation: **31.08.2023**

(Amount in Rs. Lakh)

S. No.	Parameters	2022-23	2023-24 (Upto DOCO)	Total
A	**Expenses:**			
1	Employees' Remuneration & Benefits			-
2	Finance Costs			-
3	Water Charges			-
4	Communication Expenses			-
5	Power Charges			-
6	Depreciation			-
7	Other Office and Administrative Expenses			-
8	Others (Please Specify Details)			-
	Professional charges	38.89	4.31	43.20
9	Other pre-Operating Expenses			-
	Sub Total A	**38.89**	**4.31**	**43.20**
B	**Total Expenses**			
	Less: Income from sale of tenders			-
	Less: Income from guest house			-
	Less: Income recovered from Contractors			-
	Less: Interest on Deposits			-
	Less: other Income			-
	Sub Total B	-		-
	TOTAL	**38.89**	**4.31**	**43.20**

Drawdown schedule Calculation of IDC & Financing Charges

Form No. - 12B

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

(Amount in Rs. Lakh)

Particulars	Quarter 1			Quarter 2			Quarter n (COD)		
	Quantum in FC	Ex. Rate on Drawn Down Date	Amount in Indian Rupee	Quantum in FC	Ex. Rate on Drawn Down Date	Amount in Indian Rupee	Quantum in FC	Ex. Rate on Drawn Down Date	Amount in Indian Rupee
Loans									
Foreign Loans									
Total of Foreign Loans									
Indian Loans									
Loan 1 PSITSL -DOCO LOAN									
Draw Down Account									290.88
IDC									
Financing Charges									
Loan 2 PSITSL -DOCO LOAN									

Draw Down Account									45.37
IDC									
Financing Charges									
Loan 2 PSITSL -DOCO LOAN									
Draw Down Account									16.87
IDC									
Financing Charges									
Loan 3 PSITSL -DOCO LOAN									
Draw Down Account									37.62
IDC									
Financing Charges									
Loan 3 PSITSL -DOCO LOAN									
Draw Down Account									27.83
IDC									
Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									4.01

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IDC									
Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									3.61
IDC									
Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									0.92
IDC									
Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									0.40
IDC									
Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									0.09
IDC									

Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									5.61
IDC									
Financing Charges									
Loan 5 PSITSL -DOCO LOAN									
Draw Down Account									0.43
IDC									
Financing Charges									
Loan 5 PSITSL -DOCO LOAN									
Draw Down Account									0.19
IDC									
Financing Charges									
Loan 5 PSITSL -DOCO LOAN									
Draw Down Account									25.48
IDC									
Financing Charges									

Loan 7 PSITSL -DOCO LOAN									
Draw Down Account									12.73
IDC									
Financing Charges									
Total of Indian Loans									472.04
Total of Loan Drawn									472.04

(Petitioner)

Details of Initial Spares

Form No. - 13

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Element Description	765kV Spare (1-ph) Reactor unit at 765kV Chilakaluripeta Substation		
Region	Corporate Centre	DOCO Date	Aug 31, 2023

A) Determination of Excess initials spare and its adjustment from Capital cost

(Amount in Rs. Lakh)

Particular	Initial Spare Capitalised as per Books of Account up to Cut-off Date										Adjustment of Excess Initial Spare from Capital cost of Plant and machinery			
	Plant and machinery cost as on cut-off Date	As on COD	As ACE dr. Y1	As ACE dr. Y2	As ACE dr. Y3	As ACE dr. Y4	Total as on Cut off Date	Ceiling limit as mentioned in Regulations 23	Entitled Initial Spare as per Regulations	Excess of capitalised Initial Spare to be reduced from Capital cost	COD	ACE for Y1	ACE for Y2	ACE for Y3
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0	0				
Substation Green field	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0	0				
Substation Brown field	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0	0				
Series Com. devices and HVDC station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0	0				
GIS/S- Green field	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0	0				
GIS/S- Brown field	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0	0				
Communication System	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0	0				

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Static Synchronous Compensator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0	0				
IT Equip. & S/w	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				
Initial spare as per Books of Account	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				
Un-Discharge Liabilities including	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				
Discharge of Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				
Total Capitalized initial spare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				

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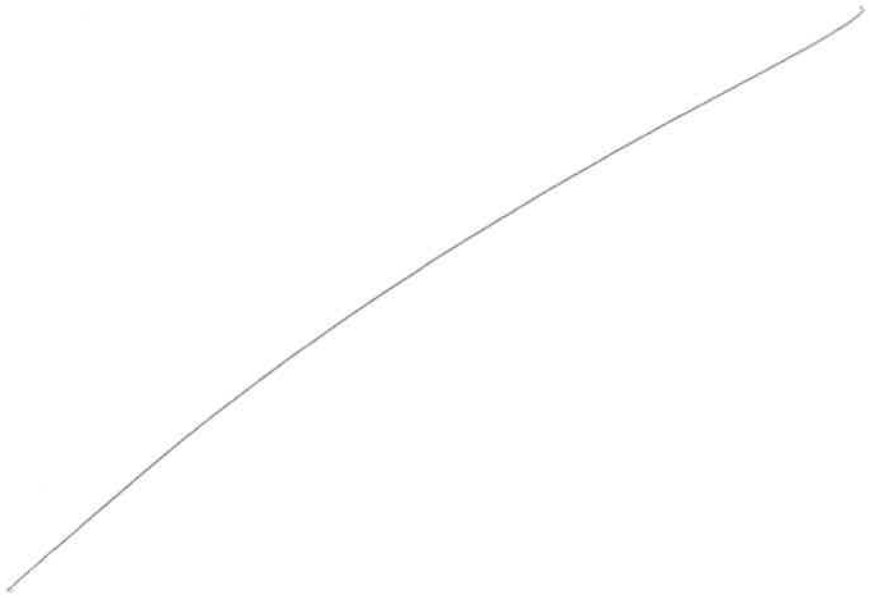

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Summary of Tariff

Form No. - 1

Name of the Transmission Licensee:	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Year Days	0.00	0.00	0.00	0.00	366.00
Tariff Days	0.00	0.00	0.00	0.00	325.00
Depreciation-Form No. 10A	0.00	0.00	0.00	0.00	3.99
Interest on Loan-Form No. 9E	0.00	0.00	0.00	0.00	4.10
Return on Equity-Form No. 8	0.00	0.00	0.00	0.00	4.25
Int. on Working capital-Form No.11	0.00	0.00	0.00	0.00	0.19
Op. and maintenance-Form No.2	0.00	0.00	0.00	0.00	0.00
Total AFC	0.00	0.00	0.00	0.00	12.53

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Summary of Asset Level Cost

Form No. - 1A

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

A) Summary of Capital Cost, Means of Finance of the Asset

(Amount in Rs. Lakh)

Particular	i) Apportioned Approved Cost		ii) Summary of Actual / Projected Capital Expenditure incurred						
	As Per IA	As per RCE	As on COD / 01.04.2019	2019-20	2020-21	2021-22	2022-23	2023-24	As on 31.03.2024
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	101.71	0.00	0.00	0.00	0.00	0.00	101.71
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Capital Cost as per Books	0.00	0.00	101.71	0.00	0.00	0.00	0.00	0.00	101.71
Less: Liability	0.00	0.00	33.31	0.00	0.00	0.00	0.00	0.00	0.00
Add:discharge of liability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.31	0.00
De cap During Year As per Books	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Capital incurred	0.00	0.00	68.40	0.00	0.00	0.00	0.00	33.31	101.71
Equity	21.00	37.00	20.52	0.00	0.00	0.00	0.00	9.99	30.51
Debt	49.00	85.00	47.88	0.00	0.00	0.00	0.00	23.32	71.20

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Details of Transmission Lines and Substations, Communication System covered in the project scope and O&M for instant asset

Form No. - 2

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

1. Transmission Lines

(Amount in Rs. Lakh)

Summary:

2. Sub Station

Summary:

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3. Communication System

Summary:

Summary of O&M Expenses claim

(Amount in Rs. Lakh)

(Petitioner)

Normative parameters considered for tariff computations

Form No. - 3

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Base Rate of Return of Equity (in %)						
Tax Rate (in %)	21.55	17.472	17.472	17.472	17.472	17.472
Effective tax rate (in %)						
Grossed up Rate of ROE (in %)	19.758	18.782	18.782	18.782	18.782	18.782
Target availability - AC System (in %)	98.00	98.00	98.00	98.00	98.00	98.00
Target availability - HVDC System (in %)	96.00	96.00	96.00	96.00	96.00	96.00
Norms for sub-station Bays (Rs Lakh per bay)						
765 kV	96.20	45.01	46.60	48.23	49.93	51.68
400 kV	68.71	32.15	33.28	34.45	35.66	36.91
220 kV	48.10	22.51	23.30	24.12	24.96	25.84
132 kV and below	34.36	16.08	16.64	17.23	17.83	18.46
Norms for Transformers (Rs Lakh per MVA)						
765 kV	0.00	0.491	0.508	0.526	0.545	0.564
400 kV	0.00	0.358	0.371	0.384	0.398	0.411
220 kV	0.00	0.245	0.254	0.263	0.272	0.282
132 kV and below	0.00	0.245	0.254	0.263	0.272	0.282
Norms for AC and HVDC lines (Rs Lakh per km)						
Single Circuit (Bundled Conductor with six or more sub-conductors)	0.806	0.881	0.912	0.944	0.977	1.011
Single Circuit (Bundled conductor with four sub-conductors)	0.691	0.755	0.781	0.809	0.837	0.867
Single Circuit (Twin & Triple Conductor)	0.461	0.503	0.521	0.539	0.558	0.578

Single Circuit (Single Conductor)	0.23	0.252	0.26	0.27	0.279	0.289
Double Circuit (Bundled conductor with four or more sub-conductors)	1.21	1.322	1.368	1.416	1.466	1.517
Double Circuit (Twin & Triple Conductor)	0.806	0.881	0.912	0.944	0.977	1.011
Double Circuit (Single Conductor)	0.346	0.377	0.391	0.404	0.419	0.433
Multi Circuit (Bundled Conductor with four or more sub-conductor)	2.123	2.319	2.401	2.485	2.572	2.662
Multi Circuit (Twin & Triple Conductor)	1.413	1.544	1.598	1.654	1.713	1.773
Norms for HVDC stations						
HVDC Back-to-Back stations (Rs Lakh per 500 MW) (Except Gazuwaka BTB)	0.00	834.00	864.00	894.00	925.00	958.00
Gazuwaka HVDC Back-to-Back station (Rs. Lakh per 500 MW)	0.00	1,666.00	1,725.00	1,785.00	1,848.00	1,913.00
500 kV Rihand-Dadri HVDC bipole scheme (Rs Lakh) (1500 MW)	0.00	2,252.00	2,331.00	2,413.00	2,498.00	2,586.00
±500 kV Talcher- Kolar HVDC bipole scheme (Rs Lakh) (2000 MW)	0.00	2,468.00	2,555.00	2,645.00	2,738.00	2,834.00
±500 kV Bhiwadi-Balia HVDC bipole scheme (Rs Lakh) (2500 MW)	0.00	1,696.00	1,756.00	1,817.00	1,881.00	1,947.00
±800 kV, Bishwanath-Agra HVDC bipole scheme (Rs Lakh) (3000 MW)	0.00	2,563.00	2,653.00	2,746.00	2,842.00	2,942.00

Abstract of existing transmission assets/elements under Project, Determination of Effective COD and weighted Average life for single AFC for the project as whole

Form No. - 4

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

A) Details of All the Asset Covered under the Scope of the Project

(Amount in Rs. Lakh)

Asset Name	Actual COD of the asset	COD considered for tariff purpose	Effective COD for the project as whole (Refer C)	Weighted Average useful life of the project (Refer D)	Lapsed useful Life of the project as on 01.04.2019 (Refer E)	Balance useful Life of the project as on 01.04.2019 (Refer E)
Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta	May 12, 2023	May 12, 2023				
Summary			May 12, 2023	25		

B) Details as on 01.04.2019 for determination of Single Tariff for the Project Commissioned prior to 01.04.2019

Asset Name	Capital Cost as on 31.03.2019	Cumulative Dep. as on 31.03.2019	Debt Equity Ratio as on 31.03.2019	Gross Equity for normative ROE as on 31.03.2019	Gross Loan as on 31.03.2019	Cumulative Re-payment of Loan as on 31.03.2019
Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta	78.97	0.00	0:*0	0.00	0.00	0.00
Total	78.97	0.00	0:*0	0.00	0.00	0.00

C) Computation of Effective COD for determining lapsed useful life of the project as whole

Asset Name	Actual COD of the asset	COD considered for tariff purpose	No. of days between the COD of the asset considered for tariff and the COD of the Project	True Up Capital Cost as on 31.03.2019	Weight of the Cost of an asset (in %)	Weighted Days
Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta	May 12, 2023	May 12, 2023	0	78.97	100	0
Total			0	78.97	100	0
Effective COD	**May 12, 2023**					

D) Weighted Average useful Life of the Project as whole

Asset Name	Freehold Land	Building & Other Civil Works	Transmission Lines	Sub-Station Equipments	PLCC	Leasehold Land	IT Equipment & S/w	Total Cost
Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765 kV Chilkaluripeta	0.00	0.00	0.00	78.97	0.00	0.00	0.00	78.97
Combined Cost	0.00	0.00	0.00	78.97	0.00	0.00	0.00	78.97
Useful life / Extended life	0.00	25.00	35.00	25.00	15.00	25.00	7.00	0.00
Weighted Cost	0.00	0.00	0.00	1,974.25	0.00	0.00	0.00	1,974.25
Weighted Average Life							0.00	**25.00**

E) Lapsed Weighted average useful life of the project & Balance weighted average Useful life
This refers to the No. of completed years from the effective COD till the last day of the previous tariff period (i.e. 31.03.2019)

1) Effective COD	May 12, 2023
2) Last date of the previous tariff control period	Mar 31, 2019

3) No. of Completed years lapsed as on 01.04.2019 (2) - (1)	
4) Remaining useful life (in year) (WAL-lapsed year)	

(Petitioner)

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Statement of Capital cost

Form No. - 4A

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

A) Capital Cost

(Amount in Rs. Lakh)

Particular	Accrual Basis	Un-discharged Liabilities	Cash Basis
As on relevant date :2023-24			
a) Opening Gross Block Amount as per books	101.71	33.31	68.40
b) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in A(a) above	1.24	0.39	0.85
c) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in A(a) above	5.60	0.00	5.60
a) Addition in Gross Block Amount during the period	0.00	0.00	0.00
b) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in B(a) above	0.00	0.00	0.00
c) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost) included in B(a) above	0.00	0.00	0.00
d) De-cap in gross block amount during the year	0.00	0.00	0.00
a) Closing Gross Block Amount as per books	101.71	0.00	101.71
b) Amount of (i) IDC (ii) FC (iii) FERV & (iv) Hedging cost included in C(a) above	1.24	0.00	1.24
c) Amount of IEDC (excluding IDC, FC, FERV & Hedging cost)included in C(a) above	5.60	0.00	5.60

B) Flow of liability for the Asset

(Amount in Rs. Lakh)

Particular	2023-2024	2024-2025						

Opening balance of liability	33.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Add: Liability from ACE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Discharge of liability by payment and claimed as ACE	33.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reversal/cancelation (to be entered)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Closing Balance of Admitted liability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(Petitioner)

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Abstract of Capital Cost Estimates and Schedule of Commissioning for New Project/Element		PART- III FORM- 4C
NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line at Chilkaluripeta 765 kV S/s & NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s		
		0
Board of Director/ Agency approving the Capital cost estimates:		
Date of approval of the Capital cost estimates:		
	Present Day Cost	**Completed Cost**
Price level of approved estimates	As of II Qtr. of the FY 2021-22	As on Scheduled COD of the transmission system/transmission element/ Communication System
Foreign Exchange rate considered for the Capital cost estimates		
Capital Cost excluding IDC, IEDC& FC		
Foreign Component, if any (In Million US $ or the relevant Currency)		
Domestic Component (Rs. Lakh)	60.55	114.87
Capital cost excluding IDC, FC, FERV & Hedging Cost (Rs. Lakh)	**60.55**	**114.87**
IDC, IEDC, FC, FERV & Hedging Cost		
Foreign Component, if any (In Million US $ or the relevant Currency)		
Domestic Component (Rs Lakh)	9.33	6.84
Total IDC, FC, FERV & Hedging Cost (Rs Lakh)	**9.33**	**6.84**
Rate of taxes & duties considered		
Capital cost Including IDC, IEDC, FC, FERV & Hedging Cost		
Foreign Component, if any (In Million US $ or the relevant Currency)		
Domestic Component (Rs Lakh)	**121.71**	
Capital cost Including IDC, IEDC& FC (Rs Lakh)	**121.71**	
Schedule of Commissioning		
COD of transmission system 1 /transmission element 1/Communication System 1	**12-05-2023**	
COD of transmission system 1/ transmission element 2/ Communication System 2		

COD of last transmission system /transmission element / Communication System	**12-05-2023**	

Note:
1. Copy of approval letter by the Board duly certified by the Company secretary should be enclosed
2. Details of Capital Cost are to be furnished as per FORM-5 or 5A as applicable
3. Details of IDC & Financing Charges are to be furnished as per FORM-12(B).

पी एस आई टी एल (Petitioner) सिकंदराबाद Secunderabad PSITSL

Element wise Break-up of Project/Asset/Element Cost for Transmission System or Communication System

Part-III
FORM 5

Name of the Transmission Asset: NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line at Chilkaluripeta 765 kV S/s & NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s

(Amount in Rs. Lakh)

S. No. (1)	Particulars (2)	Cost in Lakh											Variation between actual Cost and IA/RCE cost as on COD (8=(5-6+7)-(3 or 4))	Reasons for Variation [1] (9)	Un-Discharge Liabilities included in Col. 5 (10)	Admitted cost [7] (11)	Capital Work in Progress as per Books of Account as on COD (12)
		As per Original Estimates (3)			As per Revised Cost Estimates (if any) (4)			Actual Capital Expenditure (Gross Block) as on COD as per Books of Account [3,4,5] (5)				The portion Capital cost included in col. 5 which is not eligible for transmission tariff (eg. Grant, other business etc. [6] (6)	Projected/actual cost of Deferred work to be capitalised after COD but before cut-off date (7)				
		Quantity	Rate	Estimated Cost	Quantity	Rate	Estimated Cost	Quantity	Rate	Gross Block of the asset	As on CoD	Cost upto ACOD (31-03-2023)					
B.	SUBSTATIONS																
5.5	Misc. civil works			22.97						31.37	11.37	11.37		20.00	8.40	Minor increase in cost as per actual site Requirement.	0		0
5.6	Total Civil Works (5.1+5.2+5.3+5.4+5.5)			22.97						31.37	11.37	11.37	0	20.00	8.40		0	0	
6	Substation Equipment																		
6.1	Switchgear (CT,PT, Circuit Breaker, Isolator etc)	2		27.13						59.40	26.48	59.40		-	32.27	It is submitted that the variation in cost in substation equipmetn is due ti variation awarded/executed cost received through competitive bidding.It is submitted that for procurement, open competitive bidding route is followed by providing equal oppurtunity to all eligible firms, best possible market prices for required product/services is obtained and contract is awarded on the basis of lowest evaluated bidder. The best competitive	32.92		
6.2	Transformers												0	0.00	0.00				
6.3	Compensating Equipment (Reactor, SVCs etc)																		
6.4	Control , Relay & Protection Panel																		
6.5	PLCC/ SAS			3.00						4.89	4.89	4.89			1.89				
6.6	HVDC package										0.00								
6.7	Bus Bars/ conductors / Insulators			1.88						4.80	4.80	4.80			2.92				
6.8	Outdoor lighting																		
6.9	Emergency D.G. Set																		
6.1	Grounding System																		
6.11	Structure for switchyard																		
6.12	Total Substation Equipment (Sum of 6.1 to 6.11)			32.01						69.09	36.17	69.09	0	0.00	37.09	0.00	32.92	0	0
7	Spares																		
8	Taxes and Duties																		
8.1	Custom Duty																		
8.2	Other Taxes & Duties			6.03						14.41	14.41	14.41	0	0.00	8.38				
8.3	Total Taxes & Duties (8.1+8.2+8.3)			6.03						14.41	14.41	14.41	0	0.00	8.38				
8.4	Total (Sub-station) (4.4+5.6+6.12+7+8.3)			61.00						114.87	61.95	94.87	0	20.00	53.87	0.00	32.92	0.00	
10	Cost of Plant & Machinery (9.4+8.4+9.4)			61.00						114.87	61.95	94.87	0	20.00	53.87	0.00	32.92	0.00	

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12.0	Over heads																		
12.1	Establishment																		
12.2	Audit & Accounts																		
12.3	Contigency																		
12.4	Other overheads			8.00					5.60	5.60	5.60	0	0	-2.40					
12.5	**Total Overheads (12.1+12.2+12.3+12.4)**			**8.00**					**5.60**	**5.60**	**5.60**	**0**	**0**	**-2.4**					
13	IDC, FC, FERV & Hedging Cost																		
13.1	Interest During Construction (IDC)			1.00					1.24	1.24	1.24		0	0.24					
13.2	Financing Charges (FC)																		
13.3	Foreign Exchange Rate Variation (FERV)																		
13.4	Hedging Cost																		
13.5	**Total of IDC, FC, FERV & Hedging Cost (13.1+13.2+13.3+13.4)**			**1.00**					1.24	1.24	1.24	0	0	0.24					
14	**Capital cost including IDC, FC, FERV & Hedging Cost (10+11.4+12.5+13.5)**			**70.00**					**121.71**	**68.79**	**101.71**	**0**	**20.00**	**51.71**	**0.00**	**32.92**	**0**	**0**	

B) Summary of Capital Cost as on COD

Particular	Plant & Machinery Cost including initial spare but excluding IDC&IEDC	Initial Spare capital ised	IEDC capitalised	IDC capitalised	Loan FERV	*Gross Block as per books of Account as on COD*	Deduction from Gross Block'	Gross block meant for tariff as on COD / 01.04.2019 (after deductions)	Un- discharged liability included in 8	Capital Cost on Cash basis for tariff as on COD / as on 01-04-2019
	1	2	3	4	5	6=(1+3+4+5)	7	8=(6-7)	9	10=(8-9)
Land (Freehold Land)										
Land (Leasehold)										
Building & Civil Works										
Transmission Line										
Sub-Station	94.87	0	5.60	1.24	0	101.71	0	101.71	32.92	68.79
PLCC										
Total Capital Cost as per Books of Account	94.87									
Less: Un-discharged liabilities	32.92									
Total Capital Cost Claimed for tariff	61.95									
% of IDC / IEDC on the base of (Plant & Machinery cost including initial spare as per Books of Account)	**7.21**									
Means of Finance										
Equity										
Debt										

Note:

1. In case of cost variation, a detailed note giving reasons of such variation should be submitted clearly indicating whether such cost over- run was beyond the control of the transmission licensee.
2. Separate details of free hold/lease hold land should be submitted.
3. Deduction form Gross Block includes the Grant Received as on COD, Gross block as on COD which pertains to other business, Adjustment of excess initial spare etc.

(Petitioner)

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Break-up of Construction/Supply/Service Packages

NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line at Chilkaluripeta 765 kV S/s & NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s

(Amount in Rs. Lakh)

S. No.	Name/No. of Construction /supply/service package	Scope of works[1] (in line with head of cost break-ups as applicable)	Whether awarded through ICB/DCB/ Departmentally/ Deposit Work, etc.	No. of bids received	Date of Award	Date of Start of work	Date of Completion of Work	Value of Award[2] in (Rs. Lakh).	Firm or With Escalation in prices	Actual expenditure till the completion or up to COD whichever is earlier (Rs. Lakh)	Taxes & Duties and IEDC (Rs. Lakh)	IDC, FC, FERV & Hedging cost (Rs. Lakh)	Sub- Total (Rs. Lakh)
1	SR-1/C&M/I-2486/2022/ PO: 2434/ SAP PO: 6900011009/ Tele PO/VC: 2100054238 dtd 23.03.22	Supply, Installation, Testing and Commissioning of NGR Bypass arrangement to use SLR as Bus Reactor at 765kV Cpeta			23-03-2022	23-03-2022	12-05-2023	89.17	Firm	100.46	20.01	1.24	121.71
2	SR-1/C&M/WC-2776/LOA-2812/2022/CNMO-112919/022 dtd 12.09.22	Supply of Digital Input & Output cards and SAS Integration for NGR Bypass Scheme- GE T&D			12-09-2022	12-09-2022	12-05-2023	5.70	Firm				

Note:

1 The scope of work in any package should be indicated in conformity of cost break-up in Form-5 to the extent possible.

2 If there is any package, which need to be shown in Indian Rupee and foreign currency(ies), the same should be shown separately along with the currency, the exchange rate and the date e.g. Rs. 800 Lakh. + US$ 5m=Rs. 4300 Lakh. at US$=Rs.70 as on say 01.04.2019.

DCB: Domestic Competitive Bidding
GCB: Global Competitive Bidding

(Petitioner)

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Part-III
Form 5B

Details of all the assets covered in the project

Name of the Transmission Project : 1) Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B) &
(2) Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765kV Chilkaluripeta under Regulatory Tariff Mechanism (RTM)

SCOD **Asset-1 : 01.11.2023**
Asset-2 : 01.02.2023

(Rs. In Lakhs)

Sl.No	Name of Asset	COD	Delay (in No of days)	Apportioned approved cost	Revised Cost estimates,if applicable	Completed Cost	Covered in the present petition	
							Yes/No	If No,Petition No.
1	One spare unit (1-ph) of 80MVAR reactor at 765kV Chilakaluripeta S/s.	31.08.2023	0	777	824	817.78	Yes	
2	NGR bypass arrangement to use switchable line Reactors (240 MVAR each) as bus reactors installed on each circuit of a) Vemagiri- Chilakaluripeta 765kV D/C line and b) Chilakaluripeta – Cuddapah 765 kV D/c line at Chilakaluripeta765 kV S/s.	12.05.2023	100	70	122	121.71	Yes	
Total				**847**	**946**	**939.49**		

Petitioner

Financial Package upto COD

Form No. - 6

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	Financial Package as Approved		Financial Package as on COD 01/04/2019		As Admitted on COD 01/04/2019	
	Currency	Amount	Currency	Amount	Currency	Amount
Loans		0.00		0.00		0.00
Loan-Domestic		0.00		0.00		0.00
Loan-Foreign		0.00		0.00		0.00
Total Loans	INR	49.00	INR	47.88		0.00
Equity		0.00		0.00		0.00
Foreign		0.00		0.00		0.00
Domestic	INR	21.00	INR	20.52		0.00
Total Equity	INR	21.00	INR	20.52		0.00
Debt Equity Ratio					70:30	
Total Cost	INR	70.00	INR	68.40		0.00

Particulars	Debt	Equity	Total	
Addcap for 2023 - 2024			33.31	

Particulars	Actual	Normative	
Addcap for 2023 - 2024			

Equity		9.99	
Debt		23.32	
Total		33.31	
Total Capital cost with Addcap		101.71	

Statement of Additional Capitalisation after COD

Form No. - 7

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	Addition into Gross Block as per books of Account during the year (2)	De-Cap into Gross Block as per books of Account during the year	Less: Deductions dr. the year towards				Add: Discharge of earlier admitted liability	ACE on cash basis for tariff purpose	Admitted Cost in final tariff (Rs Lakh)
			Grants Received (if any) (3)	Asset pertaining to other business (If any) (4)	Other Deduction (if any) (5)	Less: Un-discharged liability included in (2-4-5)			
ACE for the year :2019-20 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACE for the year :2020-21 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACE for the year :2021-22 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACE for the year :2022-23 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

ACE for the year :2023-24 (Actual/Projected)									
Land (Freehold Land)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building & Civil Works	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substations	0.00	0.00	0.00	0.00	0.00	0.00	33.31	33.31	0.00
PLCC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Land (Leasehold)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	33.31	33.31	0.00

(Petitioner)

Financing of Additional Capitalisation

Form No. - 7A

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Financial Year (Starting of COD)	Actual/Projected					Admitted				
	2019-20	2020-21	2021-22	2022-23	2023-24	2019-20	2020-21	2021-22	2022-23	2023-24
Amount capitilized in Work/ Equipment										
Financing Details										
Total Loan	0.00	0.00	0.00	0.00	23.32					
Equity	0.00	0.00	0.00	0.00	9.99					
Total	0.00	0.00	0.00	0.00	33.31					

(Petitioner)

Calculation of ROE

Form No. - 8

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No. of Days in the year	0.00	0.00	0.00	0.00	366.00
No. of days for which tariff claimed	0.00	0.00	0.00	0.00	325.00
Opening Normative Equity	0.00	0.00	0.00	0.00	20.52
Less: Adjustment in Equity*	0.00	0.00	0.00	0.00	0.00
Adjustment during the year	0.00	0.00	0.00	0.00	0.00
Net opening equity (Normal)	0.00	0.00	0.00	0.00	20.52
Add: Increase in Equity due to addition during the year / period	0.00	0.00	0.00	0.00	0.00
Less: Decrease due to de-capitalisation during the year / period	0.00	0.00	0.00	0.00	0.00
Add: Increase due to discharge during the year / period	0.00	0.00	0.00	0.00	9.99
Closing Normative Equity	0.00	0.00	0.00	0.00	30.51
Average Normative Equity	0.00	0.00	0.00	0.00	25.52
Rate of return on Equity (%)	0.00	0.00	0.00	0.00	18.782
Reduced rate of 1% decided by commission under Regulation 30(2) (if any)	0.00	0.00	0.00	0.00	0.00
Effective rate of ROE	0.00	0.00	0.00	0.00	15.50
MAT Rate	0.00	0.00	0.00	0.00	17.472
Grossed up rate of ROE	0.00	0.00	0.00	0.00	18.782
Return on Equity	0.00	0.00	0.00	0.00	4.79
Pro rata return on Equity	0.00	0.00	0.00	0.00	4.25

(Petitioner)

Calculation of WAR of interest on actual loan

Form No. - 9C

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Loan 1 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	27.63
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	27.63
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	1.73
Net Loan-Closing	0.00	0.00	0.00	0.00	25.90
Average Net Loan	0.00	0.00	0.00	0.00	26.77
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.10
Interest on loan	0.00	0.00	0.00	0.00	2.1684

Loan 1 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	11.09
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	11.09
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.70
Net Loan-Closing	0.00	0.00	0.00	0.00	10.39

Average Net Loan	0.00	0.00	0.00	0.00	10.74
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.10
Interest on loan	0.00	0.00	0.00	0.00	0.8699

Loan 1 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.95
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.95
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.06
Net Loan-Closing	0.00	0.00	0.00	0.00	0.89
Average Net Loan	0.00	0.00	0.00	0.00	0.92
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.10
Interest on loan	0.00	0.00	0.00	0.00	0.0745

Loan 2 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.16
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.16
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.01
Net Loan-Closing	0.00	0.00	0.00	0.00	0.15
Average Net Loan	0.00	0.00	0.00	0.00	0.16
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.15
Interest on loan	0.00	0.00	0.00	0.00	0.013

Loan 2 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	1.26
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	1.26
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.08
Net Loan-Closing	0.00	0.00	0.00	0.00	1.18
Average Net Loan	0.00	0.00	0.00	0.00	1.22
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.15
Interest on loan	0.00	0.00	0.00	0.00	0.0994

Loan 3 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.12
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.12
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.01
Net Loan-Closing	0.00	0.00	0.00	0.00	0.11
Average Net Loan	0.00	0.00	0.00	0.00	0.12
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.40
Interest on loan	0.00	0.00	0.00	0.00	0.0089

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	4.51
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	4.51

Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.28
Net Loan-Closing	0.00	0.00	0.00	0.00	4.23
Average Net Loan	0.00	0.00	0.00	0.00	4.37
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.3286

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.36
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.36
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.02
Net Loan-Closing	0.00	0.00	0.00	0.00	0.34
Average Net Loan	0.00	0.00	0.00	0.00	0.35
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.0263

Loan 4 PSITSL -DOCO LOAN					
Gross Loan- Opening	0.00	0.00	0.00	0.00	0.17
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	0.17
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	0.01
Net Loan-Closing	0.00	0.00	0.00	0.00	0.16
Average Net Loan	0.00	0.00	0.00	0.00	0.17

Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	7.52
Interest on loan	0.00	0.00	0.00	0.00	0.0128

Summary

Gross Loan- Opening	0.00	0.00	0.00	0.00	46.25
Cumulative repayments of Loans upto previous year	0.00	0.00	0.00	0.00	0.00
Net loan-Opening	0.00	0.00	0.00	0.00	46.25
Add: Drawl(s) during the year	0.00	0.00	0.00	0.00	0.00
Less: Repayment(s) of loan during the year	0.00	0.00	0.00	0.00	2.90
Net Loan-Closing	0.00	0.00	0.00	0.00	43.35
Average Net Loan	0.00	0.00	0.00	0.00	44.82
Rate of Interest on Loan on Annual Basis	0.00	0.00	0.00	0.00	8.0361
Interest on loan	0.00	0.00	0.00	0.00	3.6018

(Petitioner)

Form No. - 9D

Loans in Foreign Currency

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Petitioner)

Calculation of interest on Normative loan

Form No. - 9E

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No. of Days in the Year	0.00	0.00	0.00	0.00	366.00
No. of days for which Tariff claimed	0.00	0.00	0.00	0.00	325.00
Gross normative loan-Opening	0.00	0.00	0.00	0.00	47.88
Cumulative repayments of Normative loan upto previous year	0.00	0.00	0.00	0.00	0.00
Net normative loan-Opening	0.00	0.00	0.00	0.00	47.88
Addition in normative loan towards the ACE	0.00	0.00	0.00	0.00	23.32
Adjustment of normative gross loan pertaining to the decapitalised asset	0.00	0.00	0.00	0.00	0.00
Normative repayments of normative loan during the year	0.00	0.00	0.00	0.00	3.99
Adjustment of cumulative repayment pertaining to the decapitalised asset	0.00	0.00	0.00	0.00	0.00
Net normative loan - closing	0.00	0.00	0.00	0.00	67.21
Average normative loan	0.00	0.00	0.00	0.00	57.55
Weighted Average Rate of interest on actual loan	0.00	0.00	0.00	0.00	8.0361
Interest on normative loan	0.00	0.00	0.00	0.00	4.62
Pro rata interest on normative loan	0.00	0.00	0.00	0.00	4.10

(Petitioner)

Calculation of Depreciation Rate on Original Project Cost

Form No. - 10

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Name of Assets	Gross block at the beginning of the year	Add Cap during the year	Gross block at the end of the year	Average Gross Block	Depreciation Rate as per CERC's Depreciation Rate Schedule	Depreciation Amount for each year upto 31.03.2024
2023-24						
Land	0.00	0.00	0.00	0.00	0.00	0.00
Building	0.00	0.00	0.00	0.00	3.34	0.00
Transmission Line	0.00	0.00	0.00	0.00	5.28	0.00
Sub Station	68.40	33.31	101.71	85.06	5.28	3.99
PLCC	0.00	0.00	0.00	0.00	6.33	0.00
Leasehold Land	0.00	0.00	0.00	0.00	3.34	0.00
IT Equipment and software	0.00	0.00	0.00	0.00	15.00	0.00
TOTAL	68.40	33.31	101.71	85.06	0.00	3.99
Weighted Average Rate of Depreciation(%)					4.690806	

(Petitioner)

Statement of Depreciation

Form No. - 10A

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No of Days in the year	0.00	0.00	0.00	0.00	366.00
No of days for which tariff claimed	0.00	0.00	0.00	0.00	325.00
Life at the beginning of the year					
1.1 Weighted Average useful life of the Asset/ Project	0.00	0.00	0.00	0.00	25.00
1.2 Lapsed Weighted Average useful life of the Asset/Project(in completed no. of year)	0.00	0.00	0.00	0.00	0.00
1.3 Balance Weighted Average useful life of the Asset/Project(in completed no. of year)	0.00	0.00	0.00	0.00	25.00
Capital Base					
1.4 Opening capital cost	0.00	0.00	0.00	0.00	68.40
1.5 Additional Capital Expenditure dr. the year	0.00	0.00	0.00	0.00	33.31
1.6 De-Capitalisation During the year	0.00	0.00	0.00	0.00	0.00
1.7 Closing capital cost	0.00	0.00	0.00	0.00	101.71
1.8 Average capital cost	0.00	0.00	0.00	0.00	85.06
1.9 Freehold land included in 1.8	0.00	0.00	0.00	0.00	0.00
1.10 Asset having NIL salvage value included in 1.8	0.00	0.00	0.00	0.00	0.00
1.11 Asset having 10% salvage value included in 1.8	0.00	0.00	0.00	0.00	85.06
1.12 Depreciable Value(1.10+90% of 1.11)	0.00	0.00	0.00	0.00	76.55
Depreciation for the period and Cum. Depreciation					
1.13 Weighted Average Rate of depreciation	0.00	0.00	0.00	0.00	4.690806

1.14 Depreciation(for the period)	0.00	0.00	0.00	0.00	3.99
1.15 Depreciation(Annualised)	0.00	0.00	0.00	0.00	3.99
1.16 Cumulative depreciation at the beginning of the period	0.00	0.00	0.00	0.00	0.00
1.17 Less:Adj of Cum. Dep pertaining to decapitalised Asset	0.00	0.00	0.00	0.00	0.00
1.18 Cumulative depreciation at the end of the period	0.00	0.00	0.00	0.00	3.99
Unrecovered Depreciation for DECAP	0.00	0.00	0.00	0.00	0.00

(Petitioner)

Calculation of interest on working Capital

Form No. - 11

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No of Days in the year	0.00	0.00	0.00	0.00	366.00
No of days for which tariff claimed	0.00	0.00	0.00	0.00	325.00
O&M Expenses-one month	0.00	0.00	0.00	0.00	0.00
Maintenance spares 15% of O&M Expenses	0.00	0.00	0.00	0.00	0.00
Receivables equivalent to 45 days of AFC	0.00	0.00	0.00	0.00	1.73
Total Working capital	0.00	0.00	0.00	0.00	1.73
Bank Rate as on 01.04.2019 or as on 01st April of the COD year,whichever is later.	0.00	0.00	0.00	0.00	12.00
Interest on working capital	0.00	0.00	0.00	0.00	0.21
Pro rata interest on working capital	0.00	0.00	0.00	0.00	0.19

(Petitioner)

PART-III
FORM-12A

Incidental Expnediture During Construction

Name of the Transmission Element : NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Vemagiri – Chilkaluripeta 765 kV D/c line at Chilkaluripeta 765 kV S/s & NGR bypass arrangement to use switchable line reactors (240 MVAR each) as bus reactors installed on each circuit of Chilkaluripeta – Cuddapah 765 kV D/c line at Chilkaluripeta 765 kV S/s

Date of Commercial Operation: 12.05.2023

(Amount in Rs. Lakh)

S. No.	Parameters	2022-23	2023-24 (Upto DOCO)	Total
A	**Expenses:**			
1	Employees' Remuneration & Benefits			-
2	Finance Costs			-
3	Water Charges			-
4	Communication Expenses			-
5	Power Charges			-
6	Depreciation			-
7	Other Office and Administrative Expenses	0.00	0.00	-
8	Others (Please Specify Details)			-
	Professional charges	5.45	0.15	5.60
	Tender expenses			-
	Printing & Stationary			-
	Hiring of vehicles			-
	Advertisement and Publicity			-
	Legal Expenses			-
	Travelling			-
	Security Expenses			-
	Training Expenses			-
	CC/RHQ Allocation			-
8	Other pre-Operating Expenses			-
	Sub Total A	**5.45**	**0.15**	**5.60**
B	**Total Expenses**			
	Less: Income from sale of tenders			-
	Less: Income from guest house			-
	Less: Income recovered from Contractors			-
	Less: Interest on Deposits			-
	Less: other Income			-
	Sub Total B	-		-
	TOTAL	**5.45**	**0.15**	**5.60**

पी एस आई टी एस एल
सिकंदराबाद
Secunderabad
PSITSL

Drawdown schedule Calculation of IDC & Financing Charges

Form No. - 12B

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

(Amount in Rs. Lakh)

Particulars	Quarter 1			Quarter 2			Quarter n (COD)		
	Quantum in FC	Ex. Rate on Drawn Down Date	Amount in Indian Rupee	Quantum in FC	Ex. Rate on Drawn Down Date	Amount in Indian Rupee	Quantum in FC	Ex. Rate on Drawn Down Date	Amount in Indian Rupee
Loans									
Foreign Loans									
Total of Foreign Loans									
Indian Loans									
Loan 1 PSITSL -DOCO LOAN									
Draw Down Account									27.63
IDC									
Financing Charges									
Loan 1 PSITSL -DOCO LOAN									

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Draw Down Account									11.09
IDC									
Financing Charges									
Loan 1 PSITSL -DOCO LOAN									
Draw Down Account									0.95
IDC									
Financing Charges									
Loan 2 PSITSL -DOCO LOAN									
Draw Down Account									0.16
IDC									
Financing Charges									
Loan 2 PSITSL -DOCO LOAN									
Draw Down Account									1.26
IDC									
Financing Charges									
Loan 3 PSITSL -DOCO LOAN									
Draw Down Account									0.12

IDC									
Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									4.51
IDC									
Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									0.36
IDC									
Financing Charges									
Loan 4 PSITSL -DOCO LOAN									
Draw Down Account									0.17
IDC									
Financing Charges									
Total of Indian Loans									46.25

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Total of Loan Drawn									46.25

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Details of Initial Spares

Form No. - 13

Name of the Transmission Licensee	POWERGRID Southern Interconnector Transmission System Limited		
Project	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Element Description	Scheme to bypass NGR to use Switchable line reactor as Bus reactor at 765kV Chilakaluripeta		
Region	Corporate Centre	DOCO Date	May 12, 2023

A) Determination of Excess initials spare and its adjustment from Capital cost

(Amount in Rs. Lakh)

Particular		Initial Spare Capitalised as per Books of Account up to Cut-off Date									Adjustment of Excess Initial Spare from Capital cost of Plant and machinery			
	Plant and machinery cost as on cut-off Date	As on COD	As ACE dr. Y1	As ACE dr. Y2	As ACE dr. Y3	As ACE dr. Y4	Total as on Cut off Date	Ceiling limit as mentioned in Regulations 23	Entitled Initial Spare as per Regulations	Excess of capitalised Initial Spare to be reduced from Capital cost	COD	ACE for Y1	ACE for Y2	ACE for Y3
Transmission Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0	0				
Substation Green field	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0	0				
Substation Brown field	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0	0				
Series Com. devices and HVDC station	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0	0				
GIS/S- Green field	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0	0				
GIS/S- Brown field	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0	0				
Communication System	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0	0				

Static Synchronous Compensator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0	0				
IT Equip. & S/w	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				
Initial spare as per Books of Account	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				
Un-Discharge Liabilities including	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				
Discharge of Liabilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				
Total Capitalized initial spare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0				

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PART-III
Check List

Checklist of Forms and other information/ documents for tariff filing for Transmission System& Communication System

Form No.	Title of Tariff Filing Forms (Transmission& Communication System)	Tick
FORM- 1	Summary of Tariff	✓
FORM- 1A	Summary of Asset level cost	✓
FORM-2	Details of Transmission Lines and Substations and Communication System covered in the project scope and O&M for instant asset	✓
FORM-3	Normative parameters considered for tariff computations	✓
FORM- 4	Abstract of existing transmission assets/elements under project, Determination of Effective COD and Weighted Average Life for single AFC for the project as whole.	N.A.
FORM- 4A	Statement of Capital cost	✓
FORM- 4B	Statement of Capital Works in Progress	N.A.
FORM- 4C	Abstract of Capital Cost Estimates and Schedule of Commissioning for the New Project/Element	✓
FORM-5	Element wise Break-up of Project/ Asset/ Element Cost for Transmission System or Communication System	✓
FORM-5A	Break-up of Construction/Supply/Service packages	✓
FORM-5B	Details of all the assets covered in the project	✓
FORM- 6	Actual Cash Expenditure and Financial Package up to COD	✓
FORM- 7	Statement of Additional Capitalisation after COD	✓
FORM- 7A	Financing of Additional Capitalisation	✓
FORM- 7B	Statement of Additional Capitalisation during five year before the end of the useful life of the project.	N.A.
FORM- 8	Calculation of Return on Equity	✓
FORM-8A	Details of Foreign Equity	N.A.
FORM-9	Details of Allocation of corporate loans to various transmission elements	N.A.
FORM-9A	Details of Project Specific Loans	N.A.
FORM-9B	Details of Foreign loans	N.A.
FORM-9C	Calculation of Weighted Average Rate of Interest on Actual Loans	✓
FORM-9D	Loans in Foreign Currency	N.A.
FORM-9E	Calculation of Interest on Normative Loan	✓
FORM- 10	Calculation of Depreciation Rate on original project cost	✓
FORM- 10A	Statement of Depreciation	✓
FORM- 10B	Statement of De-capitalisation	N.A.
FORM- 11	Calculation of Interest on Working Capital	✓
FORM- 12	Details of time over run	✓
FORM- 12A	Incidental Expenditure during Construction	✓
FORM- 12B	Calculation of IDC & Financing Charges	✓
FORM- 13	Details of Initial spares	N.A.
FORM- 14	Non-Tariff Income	N.A.
FORM- 15	Summary of issue involved in the petition	✓
FORM A	Summary of Capital Cost & Annual Fixed Cost (AFC) Claimed for ALL	✓

Other Information/ Documents

S. No.	Information/Document	Tick
1	Certificate of incorporation, Certificate for Commencement of Business, Memorandum of Association, & Articles of Association (For New Project(s) setup by a company making tariff application for the first time to CERC)	N.A.
2	Region wise and Corporate audited Balance Sheet and Profit & Loss Accounts with all the Schedules & Annexure for the new Transmission System & Communication System for the relevant years.	N.A
3	Copies of relevant loan Agreements	N.A.
4	Copies of the approval of Competent Authority for the Capital Cost and Financial package.	Yes
5	Copies of the Equity participation agreements and necessary approval for the foreign equity.	N.A.
6	Copies of the BPTA/TSA/PPA with the beneficiaries, if any	N.A.
7	Detailed note giving reasons of cost and time over run, if applicable. List of supporting documents to be submitted: a. Detailed Project Report b. CPM Analysis c. PERT Chart and Bar Chart d. Justification for cost and time Overrun	Yes
8	Transmission Licensee shall submit copy of Cost Audit Report along with cost accounting records, cost details, statements, schedules etc. for the transmission system as submitted to the Govt. of India for first two years i.e. 2019-20 and 2020-21 at the time of mid-term true-up in 2021- 22 and for balance period of tariff period 2019-24 at the time of final true-up in 2024-25. In case of initial tariff filing the latest available Cost Audit Report should be furnished.	N.A
9.	BBMB is maintaining the records as per the relevant applicable Acts. Formats specified herein may not be suitable to the available information with BBMB. BBMB may modify formats suitably as per available information to them for submission of required information for tariff purpose.	N.A.
10.	Any other relevant information, (Please specify)	N.A.

Note 1: Electronic copy of the petition (in words format) and detailed calculation as per these formats (in excel format) and any other information submitted has to be uploaded in the e-filing website and shall also be furnished in pen drive/flash drive.

Summary of issue involved in the petition

PART-III
FORM- 15

1. Name of the Petitioner	Power Grid Corporation of India Limited
2. Petition Category	Transmission
3. Tariff Period	2019-24
4. Name of the Project	Asset-1: Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B) & Asset-2: Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765kV Chilkaluripeta under Regulatory Tariff Mechanism (RTM)
5. Investment Approval date	02.08.2022
6. SCOD of the Project	Asset-1 -01.11.2023 Asset-2 : 01.02.2023
7. Actual COD of the project	Asset-1 -31.08.2023 Asset-2 : 12.05.2023
8. Whether entire scope is covered in the present petition.	Yes
9. No. of Assets covered in instant petition	2
10. No. of Assets having time over run	1
11. Estimated Project Cost as per IA	Rs. 847 Lakh
12. Is there any RCE? if so, provide the date	Yes
13. Revised Estimated Project Cost (if any)	Rs.946 Lakh
14. Completion cost for all the assets covered in the instant petition.	Rs. 939.49 Lakh
15. No. of Assets covered in instant petition and having cost overrun.	2
16	**Prayer in brief**
17	**Key details and any Specific issue involved**
18	**Respondents**
	Name of Respondents

	1	Tamil Nadu Generation and Distribution Corporation Ltd NPKRR Maaligai, 800, Anna Salai, Chennai – 600 002	9	Southern Power Distribution Company of Telangana Limited (TSSPDCL) #6-1-50, Corporate Office, Mint Compound, HYDERABAD – 500 063, Telangana.
	2	Power Company of Karnataka Limited (PCKL) 5th Floor, KPTCL Building, Kaveri Bhawan, Bangalore – 560 009	10	Northern Power Distribution Company of Telangana Limited (TSNPDCL) #2-5-3 1/2, Vidyut Bhawan, Corporate Office, Nakkal Gutta, Hanamkonda, Warangal – 506 001, Telangana
	3	Bangalore Electricity Supply Company Ltd., (BESCOM), Corporate Office, K.R.Circle Bangalore – 560 001, Karnataka.	11	Electricity Department, Govt of Pondicherry, Pondicherry - 605001
	4	Gulbarga Electricity Supply Company Ltd., (GESCOM) Station Main Road, Gulbarga, Karnataka-585102	12	Electricity Department, Government of Goa Vidyuti Bhawan, Panaji, Goa
	5	Hubli Electricity Supply Company Ltd., (HESCOM) Navanagar, PB Road, Hubli, Karnataka.	13	Southern Power Distribution Company of Andhra Pradesh Limited (APSPDCL) Srinivasasa Kalyana Mandapam Backside, Tiruchanoor Road, Kesavayana Gunta, Tirupati-517 501, Chittoor District, Andhra Pradesh
	6	Mangalore Electricity Supply Company Limited (MESCOM) Corporate Office, Paradigm Plaza, AB Shetty Circle Mangalore – 575 001, Karnataka.	14	Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL), APEPDCL, P&T Colony, Seethmmadhara, Vishakapatnam, Andhra Pradesh
	7	Chamundeswari Electricity Supply Corporation Ltd., (CESC) # 927, L J Avenue, Ground Floor, New Kantharaj Urs Road Saraswatipuram, Mysuru – 570 009, Karnataka.	15	Andhra Pradesh Central Power Distribution Corporation Limited Corporate Office,Beside Polytechnic College ITI Road,Vijayawada - 520 008, Krishna DistA.P., INDIA
	8	Kerala State Electricity Board VaidyuthiBhawanam, Pattom, Thiruvananthapuram – 695004	16	Chief Engineer, Power System Project Monitoring Division, Central Electricity Authority, Sewa Bhawan, R. K. Puram, Sector-1, New Delhi - 110 066
			17	Chief Operating Officer, CTUIL Saudamini, Plot no.2, Sector -29, Gurgaon 122001

(Petitioner)

PART-III

Summary of Capital Cost & Annual Fixed Cost (AFC) Claimed for ALL the assets covered in the present petition.

Name of the Petitioner	Powergrid Corporation of India Limited
Tariff Period	**2019-24**
Name of the Transmission Project	Asset-1: Requirement of 765 kV spare (1-Ph) Reactors units at 765kV Chilkaluripeta (Part-B) & Asset-2: Scheme to bypass NGR to use Switchable Line Reactor as Bus Reactor at 765kV Chilkaluripeta under Regulatory Tariff Mechanism (RTM)
Proposed COD	Asset-1 -31.08.2023 Asset-2 : 12.05.2023

Rupees in lakhs

A) Summary of Capital Cost as on COD and Additional Capital Expenditure claimed for all the assets Covered in the instant petition.

S. No.	Asset No.	COD	Cut-off Date	*i) Apportioned Approved Cost*		ii) Summary of Actual / Projected Capital Cost					Capital Cost as on Cut-off Date
				As per IA	As per RCE	As on COD	2023-24	2024-25	2025-26	Capital Cost as on 31.03.2024	
		1	2	3	4	5	6	7	8	11= (5+6+7+8)	12
1	Aseet -1	31.08.2023	31.08.2026	777	824	686.63	37.79	93.36	0.00	817.78	
2	Aseet -2	12.05.2023	31.05.2026	70	122	68.4	33.31	20.00	0.00	121.71	
\				**847.00**	**946.00**	**755.03**	**71.10**	**113.36**	**0.00**	**939.49**	

B) Summary of Annual Fixed Cost (AFC) claimed for all the assets covered in the instant petition.

S. No.	Asset No.	Asset Name and its location	2019-20	2020-21	2021-22	2022-23	2023-24
1	Aseet -1	One spare unit (1-ph) of 80MVAR reactor at 765kV Chilakaluripeta Substation	-	-	-	-	68.46
2	Aseet -2	NGR bypass arrangement to use switchable line Reactors (240 MVAR each) as bus reactors installed on each circuit of a) Vemagiri- Chilakaluripeta 765kV D/C line and b) Chilakaluripeta – Cuddapah 765 kV D/c line at Chilakaluripeta765 kV S/s	-	-	-	-	12.53
Total AFC for all the Assets			**0**	**0.00**	**0.00**	**0.00**	**80.99**

Note: 1) The purpose of this form is to summarise the Capital cost & AFC claimed for all the assets covered in the instant petition.

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