

NER - II Transmission Limited

Technical Due Diligence Report

IndiGrid Trust
New Delhi | India

RESTRICTED

19 March 2021

REPORT

Final

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DUE DILIGENCE REPORT



Our ref.: Document No. P.017470-U-00201-001

Imputation: Project No. P.017470

RESTRICTED

Client : «India Grid Trust»
Project : **NER – II Transmission Ltd.**
Subject : **Submission of Technical Due Diligence Report**
Comments:

Revision No.	Date	Prepared / Revision By	Description
C	2021/03/19	DMA	Issued for Submission

REV.	YY/MM/DD	STAT.	WRITTEN	VERIFIED	APPROVED	VALIDATED
C	2021/03/19	Final	DMA	SDM	DMA	DMA
B	2021/03/03	Final	DMA	SDM	DMA	DMA
A	2021/02/26	Draft	DMA	SDM	DMA	DMA

NORTH EASTERN REGION – II TRANSMISSION LIMITED
Technical Due Diligence Report

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1. EXECUTIVE SUMMARY

The Government of India, Ministry of Power, vide its Gazette notification No. 2454 dated 17th November, 2015 notified REC Transmission Projects Company Limited as the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish Transmission System for NER System Strengthening Scheme – II (Part B) and V, (NER – II B & V) through tariff based competitive bidding process.

North Eastern Region II Transmission Limited (NERTL) (hereinafter referred to as “Project Company”) is a Special Purpose Vehicle incorporated for establishing Transmission System Strengthening in NE on Build, Own, Operate and Maintain basis and to provide transmission service on a long term basis to the Long Term Transmission Customers (LTTCs).

Bid evaluation Committee, vide its letter dated 22nd February, 2017 issued by Ministry of Power, Govt. of India, selected M/s. Sterlite Grid 4 Limited as the successful bidder as the TSP.

Indigrd Trust (IT) has appointed Tractebel Engineering Pvt. Ltd. as Independent Engineer (IE) to undertake Technical Due Diligence study for the above mentioned Transmission System Project.

Accordingly, IE has prepared this Due Diligence Report based on the site visit from 23rd to 27th February 2021 and documents/ information furnished by the Project Company.

Key Details of the Project is indicated in the table below:

Particulars	:	Details
Effective Date as per TSA	:	31 st March, 2017
SCOD of the Project	:	44 months from the effective date i.e. 30 th November, 2020
Scope	:	<ul style="list-style-type: none">✓ 132kV D/C Transmission Line Biswanath Chariyalli – Itanagar (67.46 kms)✓ LILO of one circuit of Biswanath Chariyalli (PG) – Itanagar 132kV DC Line at Gohpur (8.49 kms)✓ 400kV D/C Transmission Line Silchar – Misa (178.28 kms)✓ 400kV D/C Transmission Line Surajmaninagar – P. K. Bari (17.72 kms)✓ 400kV D/C Transmission Line Surajmaninagar – P. K. Bari (through Multi – Circuit Line) (59.57 kms)✓ 132kV D/C Transmission Line AGTPP (NEEPCO) – P.K. Bari Multicircuit and normal transmission line (23.8 kms)✓ 2 nos. of 400/132 kV Substations at Surajmaninagar and P.K. Bari

Particulars	:	Details
		✓ 6 nos. of Line Bays (2nos. at Itanagar, 2 nos. at NEEPCO and 2 nos. at P.K Bari)
Transmission Service Agreement Signed Date	:	27 th December, 2016
Share Purchase Agreement Signed Date	:	31 st March, 2017
EPC Contract Signed date	:	26 th September, 2017

The Transmission Service Agreement (TSA) is signed between NER II Transmission Limited and 7 nos. of Long Term Transmission Customers (LTTCS). The project has been awarded under tariff – based competitive bidding process wherein annual tariffs have been quoted for the next 35 years from the scheduled COD of the Project.

The schedule TSA COD (hereinafter to be referred as Original L2), element – wise from the effective date of 31st March, 2017 is indicated below –

S. No.	Name of Transmission Element	Scheduled COD in months from effective Date	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre – required for declaring the COD of respective elements
NERSS – II (Part – B)				
1.	Biswanath Chariyalli (PGCIL) – Itanagar 132 kV D/C (Zebra Conductor) line	36 months (31/03/2020)	3.38%	Elements at Sl. No. 1 & 2 are required simultaneously
2.	2 nos. 132 kV Line bays at Itanagar for termination of Biswanath Chariyalli (PGCIL) – Itanagar	36 months (31/03/2020)	0.49%	Elements at Sl. No. 1 & 2 are required simultaneously
3.	LILO of one circuit of Biswanath Chariyalli (PGCIL) – Itanagar 132 kV D/C	36 months (31/03/2020)	0.29	After commissioning of elements at Sl. 1 & 2
4.	Silchar (PGCIL) – Misa (PGCIL) 400 kV D/C (Quad) line	44 months (30/11/2020)	53.67%	Nil
NERSS – V				
5.	400/132 kV, 7X105 MVA S/S at Surajmaninagar	40 months (31/07/2020)	8.28 %	Elements at Sl. No. 5, 6, 7 & 8 are required simultaneously
6.	400/132 kV, 7X105 MVA S/S at P.K. Bari	40 months (31/07/2020)	8.28 %	Elements at Sl. No. 5,6,7 & 8 are required simultaneously
7.	Surajmaninagar – P K Bari 400 kV D/C line	40 months (31/07/2020)	17.38 %	Elements at Sl. No. 5,6,7 & 8 are required simultaneously

S. No.	Name of Transmission Element	Scheduled COD in months from effective Date	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre – required for declaring the COD of respective elements
8.	2 nos. of 400 kV line bays at Palatana GBPP switchyard for termination of Palatana – Surajmaninagar 400 kV D/C line	40 months (31/07/2020)	1.51 %	Elements at Sl. No. 5,6,7 & 8 are required simultaneously
9.	AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line with high Capacity HTLS conductor	36 months (31/03/2020)	5.74 %	Elements at Sl. No. 9, 10 & 11 are required simultaneously
10.	2 no. of 132 kV line bays at AGTPP generation switchyard for termination of AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line	36 months (31/03/2020)	0.49%	Elements at Sl. No. 9, 10 & 11 are required simultaneously
11.	2 no. of 132 kV line bays at P K Bari (TSECL) S/S for termination of AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line	36 months (31/03/2020)	0.49%	Elements at Sl. No. 9, 10 & 11 are required simultaneously

As per TSA, the construction of 2 nos. of 400 kV Line Bays at Palatana GBPP switchyard, is not under the purview of SPGVL. It is agreed that the expenses towards the construction of the two bays amounting to Rs. 24.00 crores including management and engineering consultancy fees & applicable taxes shall be paid to ONGC Tripura Power Company (OTPC) and the construction works shall be carried out by OTPC.

The schedule COD of the overall Project as per TSA is 44 months from the Effective Date. Hence, considering 44 months from 31st March, 2017 the SCOD for the Project was 30th November, 2020.

Due to events beyond the control of the Project Company, as stated below, consequently delayed the execution works. As per the actual progress status, all the Elements are yet to achieve electrical & mechanical completion. Project Company has intimated the LTTCs time and again, regarding the Force Majeure events as per Article 11.5 of TSA, indicating the below mentioned reasons –

1. Delay in allotment of Government Land for 400/132 kV Substations at PK Bari and Surajmaninagar
2. Stoppage of Construction works due to protest against CAA in North – Eastern India
3. Delay of NOC from Airport Authority of India for 132 kV Biswanath Chariyalli to Itanagar Transmission Line
4. Delay in receipt of Forest Clearance for 400 kV Silchar – Misa Line, 400 kV Multi circuit Transmission Line from Surjamaninagar – PK Bari and 132 kV D/C AGTPP (NEEPCO) – PK Bari (TSECL) Transmission Line.

5. Impact of COVID – 19 lockdown.

IE opines that the actual acceptance of the FM events or reasons beyond the control of the Project Company can be ascertained by the CERC and CEA after the Project Completion based on the petitions filed by Project Company.

Letter from Ministry of Power –

As per the Ministry of Power Letter dated 27th July, 2020, All inter – state transmission projects, which were under construction as on date of lock – down i.e. 25th March, 2020, shall get an extension of 5 months in respect of SCOD. This order shall not apply to those projects, whose SCOD date was prior to 25th March, 2020.

NER – II Transmission Limited has signed the EPC Contract for design, engineering, manufacturing, supply, construction, erection, testing, commissioning works for the entire Project with M/s. Sterlite Power Grid Ventures Limited vide agreement dated 26th September, 2017. The effective date of the Contract is 26th September, 2017, and the completion date for each of the element is indicated below:

S. No.	Name of Element	Completion Date/ SCOD	Revised Completion Date
1.	132kV D/C Transmission Line Biswanath Chariyalli – Itanagar	31 st March 2020	31 st Mar'21
2.	LILO of one circuit of Biswanath Chariali (PG) – Itanagar 132kV DC Line at Gohpur	31 st March 2020	31 st Mar'21
3.	2 nos. 132kV line bays at Itanagar Substation	31 st March 2020	31 st Mar'21
4.	400kV D/C Transmission Line Silchar – Misa	30 th Nov'2020	28 th Feb'2021 (POSOCO letter yet to be received)
5.	Establishment of 400/132 kV, 2x315 MVA S/s at Surajmaninagar	31 st July 2020	6 th Jan'2021 (As per provisional charging letter from POSOCO)
6.	Establishment of 400/132 kV, 2x315 MVA S/s at P.K. Bari	31 st July 2020	28 th Jan'2021 (As per provisional charging letter from POSOCO)
7.	400kV D/C Transmission Line Surajmaninagar – P. K. Bari	31 st July 2020	16 th Jan'2021 (As per provisional charging letter from POSOCO)
8.	132kV D/C Transmission Line AGTPP (NEEPCO) – P.K. Bari Multicircuit of both 400kV & 132kV	31 st March 2020	27 th Jan'2021 (As per provisional charging letter from POSOCO)
9.	2 nos. 132kV line bays at NEEPCO Substation	31 st March 2020	27 th Jan'2021 (As per provisional charging letter from POSOCO)
10.	2 nos. 132kV line bays at PK Bari Substation	31 st March 2020	27 th Jan'2021

S. No.	Name of Element	Completion Date/ SCOD	Revised Completion Date
			(As per provisional charging letter from POSOCO)

Elements 4 to 11 indicated in the above table are electrically and mechanically complete. CEA inspection certifying the electrical readiness of the Elements is also in place. However, after successful completion of trial – run operation and certification from POSOCO, only then the actual commissioning date of the Elements can be determined.

SPGVL, the Main EPC Contractor of NER II Transmission Limited (“the Project”) has further subcontracted the works, facility – wise to the following Contractors:

1. M/s. Tata Project Limited – Engineering, Procurement and Construction of following Transmission Lines:
 - i. 132kV D/C Transmission Line Biswanath Chariyalli – Itanagar
 - ii. LILO of one circuit of Biswanath Chariyalli (PG) – Itanagar 132kV DC Line at Gohpur
 - iii. 400kV D/C Transmission Line Silchar – Misa
2. M/s. Kalpataru Power Transmission Limited – Engineering, Procurement and Construction of following Transmission Lines:
 - i. 400kV D/C Transmission Line Surajmaninagar – P. K. Bari
 - ii. 400kV D/C Transmission Line Surajmaninagar – P. K. Bari (Multi – Circuit Line)
 - iii. 132kV D/C Transmission Line AGTPP (NEEPCO) – P.K. Bari Multicircuit and normal transmission line
3. M/s. GE T&D India Limited – Design, Engineering, Procurement, Supply, Erection, Testing and Commissioning of following elements :
 - i. 400/132 kV S/S at Surajmaninagar
 - ii. 400/132 kV S/S at P.K. Bari
 - iii. Construction of 2 no. of 132 kV line bays at AGTPP generation switchyard
 - iv. Construction of 2 no. of line bays at P.K. Bari
 - v. Construction of 2 nos. of 132 kV line bays at Itanagar
4. M/s. Sterlite Power Transmission Limited – the LOA was signed on 31st March, 2017, for supply of ACSR Moose, ACSR Zebra and HTLS Conductor (Mischmetal), for 400 kV D/C and 132 kV D/C Transmission Lines.
5. M/s. Apar Industries Limited – The LOA was signed on 8th August, 2017, for supply of ACSR Moose Conductor for 400 kV D/C Transmission Lines.
6. The Supply of OPGW (48 Fires) is under the purview of SPGVL.

Physical Progress of Substation and Bays –

1. Land
 - a. Substation at Surajmaninagar – the entire land requirement of 24.93 acres is acquired. IE opines that the acquired land is adequate for present scope of work including space for future expansion, as indicated in TSA
 - b. Substation at PK Bari – the entire land requirement of 20.76 acres is acquired. IE opines that the acquired land is adequate for present scope of work including space for future expansion, as indicated in TSA.
2. Engineering progress – 100% engineering works are complete for all the Substations and Bays for the Project.

3. Procurement Progress – procurement is 100% complete for both the substation and bays construction works.
4. Construction Progress
 - a. 400/132 kV Substation at Surajmaninagar – The TSA SCOD date was 31st July, 2020. The substation is 100% mechanically and electrically complete. The CEA inspection was conducted on 13/11/2020. CEA approval granting the readiness for electrical energization was accorded vide letter dated 01/12/2020. Provisional charging approval is accorded by POSOCO vide letter dated 6th January, 2021.
 - b. 400/132 kV Substation at PK Bari – The TSA SCOD date was 31st July, 2020. The substation is 100% mechanically and electrically complete. The CEA inspection was conducted on 12/11/2020. CEA approval granting the readiness for electrical energization was accorded vide letter dated 01/12/2020. Provisional charging approval has been granted by POSOCO vide letter dated 16/01/2021.
 - c. 2 nos. of Bays at Palatana – as per the understanding between Project Company and ONGC, the updated progress is submitted yearly basis i.e. April month of every year. As on 31st March, 2020, the physical progress as indicated by ONGC was 87.0%. During site visit, IE was informed that CEA inspection was conducted on 13/11/2020. The element was expected to get commissioned by February, 2021, however, confirmation is still pending from ONGC.
 - d. 2 nos. of 132 kV Bays at AGTPP (NEEPCO) – The TSA SCOD was 31/03/2020. The physical progress is 100% complete. The CEA inspection was conducted on 13/11/2020. CEA approval granting the readiness for electrical energization was accorded vide letter dated 01/12/2020. Provisional approval for charging of the element was received vide POSOCO letter dated 27/01/2021.
 - e. 2 Nos. of Bays at PK Bari (TSECL) – The TSA SCOD was 31/03/2020. The physical progress is 100% complete. CEA inspection was conducted on 12/11/2020. CEA approval granting the readiness for electrical energization was accorded vide letter dated 01/12/2020. Provisional approval for charging of the element was received vide POSOCO letter dated 27/01/2021.
 - f. 2 Nos. of 132 kV Bays at Itanagar – The TSA SCOD was 31st March, 2020. IE observes that the works are 100% complete, however, the CEA inspection and 24 hour trial – run test is still pending for the element. The element shall be simultaneously commissioned along with 132 kV BNC to Itanagar Transmission Line i.e. during March, 2021.

Physical Progress of Transmission Lines –

1. 132 kV D/C Biswanath Chariyalli – Itanagar and LILO of one circuit of Biswanath Chariali (PG) – Itanagar at Gohpur – the latest physical progress as on 07/03/2021 vis-à-vis the catch – up plan is indicated below–

Activity	Total Target	Catch – up Plan as on 07/03/2021	Actual % as on 07/03/2021
Enablement	17	17	17
Procurement	100%	100%	100%
Total Foundation (No)	241	241	241

Activity	Total Target	Catch – up Plan as on 07/03/2021	Actual % as on 07/03/2021
Tower Erection (No.)	241	241	241
Final Stringing (km)	76.35	76.35	73.76
Total Progress		100%	99.15%

The actual physical progress is 99.15% as against the Catch – up planned progress of 100.0% as on 7th March 2021.

The Scheduled COD for the above element as per the TSA was 31st March, 2020, however Project Company plans to complete the works by 31st March, 2021. Due to impact of COVID – 19 and subsequent lockdown, construction works were restricted. Work permit for the gangs in the Arunachal Portion of the BNC – Itanagar line was granted by September 2020. As on date around 10 stringing gangs are deployed. Project Company had set up heli – crane yard at Hollangi. All materials like water barrel, cement, aggregate, nuts & bolts etc were being air lifted and dropped at site locations.

Looking into the present physical progress of the element, IE opines that the revised completion schedule of 31st March, 2021 is achievable. The CEA inspection is expected during 3rd week of March, 2021.

2. 400 kV D/C Silchar – Misa line – the latest physical progress as on 7th March, 2021 vis-à-vis the catch – up plan is indicated below –

Activity	Total Target	Catch – up Plan as on 07/03/2021	Actual as on 07/03/2021
Enablement	35	35	35
Procurement	100%	100%	100.0%
Total Foundation (No)	487	487	487
Tower Erection (No.)	487	487	487
Final Stringing (km)	178.28	178.28	178.28
Total Progress		100%	100%

The Element is electrically and mechanically complete. The TSA SCOD was 30th November, 2020. The CEA Provisional Approval for Energization was granted vide CEA letter dt. 19/02/2021, which is valid up to 30th April, 2021. Final Approval for energization will issued after physical inspection of Electrical installations. Consequently the approval for trial – run operation from POSOCO is also pending.

3. 132 kV D/C and 400 kV D/C Transmission Line from Surajmaninagar to P.K. Bari (including the Multi – circuit towers) – The transmission line element constitutes of two elements with different SCOD.
 - a. 400 kV D/C Surajmaninagar (NERTL Substation) – PK Bari (NERTL Substation) Transmission Line – line length is 77.285 kms. The TSA SCOD is 31/07/2020.
 - b. 132 kV D/C AGTPP (NEEPCO) – PK Bari (TSECL) Transmission Line – line length is 83.451 kms. The TSA SCOD is 31/03/2020.

Since both the lines run parallel to each other for major portion of the line length and to reduce on the ROW & Forest area, Project Company decided to implement Multi – circuit towers (MCT), carrying two circuits of 400 kV and two circuits of 132 kV. The brief description of lines is indicated below:

- a. 400kV D/C Transmission Line Surajmaninagar – P. K. Bari (Normal Towers) (17.718 kms and around 53 locs)
- b. 400kV D/C and 132 kV D/C Transmission Line Surajmaninagar – P. K. Bari (Multi – Circuit Line) (59.567 kms and around 155 locs)
- c. 132kV D/C Transmission Line AGTTP (NEEPCO) – P.K. Bari (normal towers) transmission line (23.8 kms and around 80 locs)

The physical progress of the element vis-à-vis the catch – up plan, as on 07/03/2021 –

Activity	Total Target	Catch – up Plan as on 07/03/2021	Actual as on 07/03/2021
Enablement	21	21	21
Procurement	100%	100%	100.0%
Total Foundation (No)	289	289	289
Tower Erection (No.)	289	289	289
Final Stringing (km)	101.2	101.2	101.2
Total Progress		100%	100%

The elements are electrically and mechanically complete. The Scheduled COD for the above element as per the TSA was 31st March, 2020 for 132kV D/C Surajmaninagar – PK Bari Line and July, 2020 for 400kV D/C Surajmaninagar to PK Bari Transmission Line, while as per the catch – up plan the revised completion date for both the line was 31st October, 2020.

The CEA Provisional Approval for Energization was granted vide CEA letter dt. 11/01/2021, which is valid up to 31st March, 2021. Since the Regional Inspectorial Organisation (RIO) could conduct the mandatory physical site inspection, hence a provisional approval was granted. Final Approval for energization will issued after physical inspection of Electrical installations. Provisional Approval for charging of 400 kV Surajmaninagar to PK Bari Transmission Line was accorded vide POSOCO letter dated 16/01/2021. Provisional Approval for charging of 132 kV AGTCCP (NEEPCO) to PK Bari (TSECL) Transmission Line was accorded vide POSOCO letter dated 27/01/2021.

The overall transmission line construction progress is 99.82% as against the catch up plan construction progress of 100.0% as on 7th March, 2021.

The overall Project Construction progress (including Transmission Lines, Bays and Substations) is 99.77% as on 7th March, 2021.

Project Company has received all the critical approvals like under Section – 68, 164, 63 of Electricity Act, 2003, PTCC, Forest Clearance, Civil & Defence Aviation, transmission license etc. for commissioning of the Project.

The Project Cost is Rs 2933.00 crores with debt to equity ratio of 75:25 for around 192.846 kms of 400 kV D/C Transmission Line, 100.68 kms of 132 kV D/C Transmission Lines, 59.573 kms of Multi – circuit Tower Transmission Line, 2 nos. of 400/132 kV Substations at Surajmaninagar and P.K. Bari and 6 nos. of Line Bays.

As per Chartered Accountant's Certificate dated 15th February 2021 provided by the Project Company, IE noted that Project Company has incurred a Project Expenditure of Rs.2696.00 crores till 1st February 2021 which has been met from promoter contribution of Rs. 730.0 crores and Fund Based Loan of Rs.2042.0 crores. Project Company has cash in hand of Rs.76.0 crores as on 1st February 2021.

IE observed that around Rs. 2070.0 crores were incurred towards EPC Cost which is around 93.58% of the estimated EPC budget of Rs. 2212.0 crs, as on 1st February, 2021.

The Total Hard Cost expenditure (i.e. EPC Cost, SPV Acquisition, Land, Statutory expenses, Expenditure on Bays Extension, Forest and ROW) is Rs. 2296.0 crores, which is around 91.84% of the total estimated Hard Cost budget of Rs. 2500.0 crores, as on 1st February, 2021. As on 7th March, 2021, the physical construction progress of the Project (T/Ls, S/S and Bays) is around 99.77%.

2. INTRODUCTION

The Government of India, Ministry of Power, vide its Gazette notification No. 2454 dated 17th November, 2015 notified REC Transmission Projects Company Limited as the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish Transmission System for NER System Strengthening Scheme – II (Part B) and V, (NER – II B & V) through tariff based competitive bidding process.

North Eastern Region II Transmission Limited (NERTL) (hereinafter referred to as “Project Company”) is a Special Purpose Vehicle incorporated for establishing Transmission System Strengthening in NE on Build, Own, Operate and Maintain basis and to provide transmission service on a long term basis to the Long Term Transmission Customers (LTTCs).

Bid evaluation Committee, vide its letter dated 22nd February, 2017 issued by Ministry of Power, Govt. of India, selected M/s. Sterlite Grid 4 Limited as the successful bidder as the TSP.

IndiGrid Trust (IT) has appointed Tractebel Engineering Pvt. Ltd. as Independent Engineer (IE) to undertake Technical Due Diligence study for the above mentioned Transmission System Project.

2.1. Definitions

Project	:	North Eastern Region II Transmission Limited
Client	:	IndiGrid Trust
Project Company	:	Sterlite Grid 4 Limited (SGL 4)
Independent Engineer	:	Tractebel Engineering Pvt. Ltd.

2.2. Scope of Services

The scope of services includes Technical Due Diligence of North Eastern Region II Transmission Limited (NERTL)

2.3. Basis of Report

Based on the scope of service, IE has prepared this Technical Due Diligence Report based on site visit from 23rd to 27th February, 2021, discussion with site personnel and the documents/ information furnished by the Project Company.

Following are the documents received by the Project Company:

- Latest Physical Progress of Project as on 7th March, 2021.
- Material Supply Status as on 7th March, 2021.
- Status of Permits & Clearances

- CA Certificate indicating Project Expenditures till 1st February, 2021.

DISCLAIMER

Purpose, Authorized Use and User, Liability

IE has made no search of any public records nor independently validated the information provided by Project Company with any external source, and save for the reviewed documents listed above, IE has not examined any other documents relating to the matters of the Project Company for the purpose of this Report.

*IE's findings are strictly limited to the matters stated herein and is not to be read as extending by implication to any other matter. It is given as on the date of writing this Report solely for the benefit of, and disclosure to India Grid, IndiGrid Investment Managers Limited (formerly Sterlite Investment Managers Limited) (the "**Investment Manager**"), the Project Company, the investors and may not be disclosed to or relied upon by anyone else without IE's prior consent, provided that, this opinion may be disclosed to the auditors or any professional advisors of any of the Addressees or to any regulatory authority (as may be required by such regulatory authority) or otherwise pursuant to a court order or legal process. The IE hereby consents the use and inclusion of this Report in the letter of offer or any other material in relation to the proposed rights issue of India Grid Trust, in accordance with applicable law, including the Securities and Exchange Board of India (Infrastructure Investment Trusts) Regulations, 2014 read with the guidelines, circulars and notifications issued thereunder.*

IE categorically disclaims all responsibility and liability for any indirect, special, consequential or incidental damage, loss or costs or loss of profit, goodwill or business arising from anything done or omitted to be done by any party in reliance, whether wholly or partially, on any of the information contained in this Report.

The use of this Report by a party other than India Grid Trust, the Investment Manager, the Project Company or the investors is strictly prohibited and the IE disclaims all responsibility and liability whatsoever in regard thereto and resulting therefrom.

3. GENERAL DESCRIPTION OF PROJECT

The TSP i.e. North Eastern Region II Transmission Limited (NERTL), is required to establish the following transmission system for “Transmission System Strengthening in ER (hereinafter referred to as 'Project') on build, own, operate and maintain basis and to provide transmission service on a long term basis to the Long Term Transmission Customers (LTTCs).

The detail Scope of Works along with the SCOD as per the TSA is indicated below–

S. No.	Name of Transmission Element	Scheduled COD in months from effective Date	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre – required for declaring the COD of respective elements
NERSS – II (Part – B)				
1.	Biswanath Chariyalli (PGCIL) – Itanagar 132 kV D/C (Zebra Conductor) line	36 months (31/03/2020)	3.38%	Elements at Sl. No. 1 & 2 are required simultaneously
2.	2 nos. 132 kV Line bays at Itanagar for termination of Biswanath Chariyalli (PGCIL) – Itanagar	36 months (31/03/2020)	0.49%	Elements at Sl. No. 1 & 2 are required simultaneously
3.	LILO of one circuit of Biswanath Chariyalli (PGCIL) – Itanagar 132 kV D/C	36 months (31/03/2020)	0.29	After commissioning of elements at Sl. 1 & 2
4.	Silchar (PGCIL) – Misa (PGCIL) 400 kV D/C (Quad) line	44 months (30/11/2020)	53.67%	Nil
NERSS – V				
5.	400/132 kV, 7X105 MVA S/S at Surajmaninagar	40 months (31/07/2020)	8.28 %	Elements at Sl. No. 5, 6, 7 & 8 are required simultaneously
6.	400/132 kV, 7X105 MVA S/S at P.K. Bari	40 months (31/07/2020)	8.28 %	Elements at Sl. No. 5,6,7 & 8 are required simultaneously
7.	Surajmaninagar – P K Bari 400 kV D/C line	40 months (31/07/2020)	17.38 %	Elements at Sl. No. 5,6,7 & 8 are required simultaneously
8.	2 nos. of 400 kV line bays at Palatana GBPP switchyard for termination of Palatana – Surajmaninagar 400 kV D/C line	40 months (31/07/2020)	1.51 %	Elements at Sl. No. 5,6,7 & 8 are required simultaneously
9.	AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line with high Capacity HTLS conductor	36 months (31/03/2020)	5.74 %	Elements at Sl. No. 9, 10 & 11 are required simultaneously

S. No.	Name of Transmission Element	Scheduled COD in months from effective Date	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre – required for declaring the COD of respective elements
10.	2 no. of 132 kV line bays at AGTPP generation switchyard for termination of AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line	36 months (31/03/2020)	0.49%	Elements at Sl. No. 9, 10 & 11 are required simultaneously
11.	2 no. of 132 kV line bays at P K Bari (TSECL) S/S for termination of AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line	36 months (31/03/2020)	0.49%	Elements at Sl. No. 9, 10 & 11 are required simultaneously

Key Details of the Project is shown in the table below:

Particulars	:	Details
Effective Date as per TSA	:	31 st March, 2017
SCOD of the Project	:	44 months from the effective date i.e. 30 th November, 2020
Scope	:	<ul style="list-style-type: none"> ✓ 132kV D/C Transmission Line Biswanath Chariyalli – Itanagar (67.46 kms) ✓ LILO of one circuit of Biswanath Chariyalli (PG) – Itanagar 132kV DC Line at Gohpur (8.49 kms) ✓ 400kV D/C Transmission Line Silchar – Misa (178.28 kms) ✓ 400kV D/C Transmission Line Surajmaninagar – P. K. Bari (17.72 kms) ✓ 400kV & 132 kV D/C Transmission Line Surajmaninagar – P. K. Bari (through Multi – Circuit Line) (59.57 kms) ✓ 132kV D/C Transmission Line AGTPP (NEEPCO) – P.K. Bari Multicircuit and normal transmission line (23.8 kms) ✓ 2 nos. of 400/132 kV Substations at Surajmaninagar and P.K. Bari ✓ 6 nos. of Line Bays (2nos. at Itanagar, 2 nos. at NEEPCO and 2 nos. at P.K Bari)
Transmission Service Agreement Signed Date	:	27 th December, 2016
Share Purchase Agreement Signed Date	:	31 st March, 2017
EPC Contract Signed date	:	26 th September, 2017

3.1. Transmission and Sale of Power

The project has been awarded under tariff – based competitive bidding process wherein annual tariffs have been quoted for the next 35 years. NERTL, the TSP has signed the Transmission Service Agreements (“TSA”) with 7 nos. of the Long Term Transmission Customers (LTTCs), indicated below:

S. No.	Name of Long Term Transmission Customers	Allocated Project Capacity
1.	Assam Power Distribution Company Limited (APDCL)	48.99%
2.	Tripura State Electricity Corporation Limited (TSECL)	13.70%
3.	Meghalaya Power Distribution Corporation Limited	11.10%
4.	Manipur State Power Distribution Corporation Limited	8.56%
5.	Department of Power, Govt. of Arunachal Pradesh	7.13%
6.	Department of Power, Government of Nagaland	5.86%
7.	Power & Electricity Department, Govt. of Mizoram	4.66%

The schedule COD of the overall Project as per TSA is 44 months from the Effective Date. Hence, considering 44 months from 31st March, 2017 the SCOD for the Project was 30th November, 2020.

Due to events beyond the control of the Project Company, as stated below, consequently delayed the execution works. As per the actual progress status, all the Elements are yet to achieve electrical & mechanical completion. Project Company has intimated the LTTCs time and again, regarding the Force Majeure events as per Article 11.5 of TSA, indicating the below mentioned reasons –

- 1. Delay in allotment of Government Land for 400/132 kV Substations at PK Bari and Surajmaninagar***
- 2. Stoppage of Construction works due to protest against CAA in North – Eastern India***
- 3. Delay of NOC from Airport Authority of India for 132 kV Biswanath Chariyalli to Itanagar Transmission Line***
- 4. Delay in receipt of Forest Clearance for 400 kV Silchar – Misa Line, 400 kV Multi circuit Transmission Line from Surjamaninagar – PK Bari and 132 kV D/C AGTPP (NEEPCO) – PK Bari (TSECL) Transmission Line.***
- 5. Lockdown due to COVID – 19 impact.***

Letter from Ministry of Power –

As per the Ministry of Power Letter dated 27th July, 2020, all inter – state transmission projects, which were under construction as on date of lock – down i.e. 25th March, 2020, shall get an extension of 5 months in respect of SCOD. This order shall not apply to those projects, whose SCOD date was prior to 25th March, 2020.

IE opines that the actual acceptance of the delay or extension of COD by CERC, can be ascertained after the Project Completion based on the petition filed by the Project Company.

3.2. Status of Upstream and Downstream Elements of the Project

S. No.	Name of Transmission Element	Upstream Element Status	Downstream Element Status
1.	Biswanath Chariyalli (PGCIL) – Itanagar 132 kV D/C (Zebra Conductor) line	Biswanath Substation Operational	Chariyalli (PGCIL) 2 nos. 132 kV Line bays at Itanagar (NERTL) Ready
2.	2 nos. 132 kV Line bays at Itanagar for termination of Biswanath Chariyalli (PGCIL) – Itanagar	Biswanath Chariyalli– Itanagar 132 kV D/C line (NERTL) Expected by Mar'2021	Itanagar 132 kV Substation Operational
3.	LILO of one circuit of Biswanath Chariyalli (PGCIL) – Itanagar 132 kV D/C Line	Biswanath Chariyalli– Itanagar 132 kV D/C line (NERTL) Expected by Mar'2021	132 kV Gohpur Substation Under Construction and 24 months delay
4.	Silchar (PGCIL) – Misa (PGCIL) 400 kV D/C (Quad) line	Silchar (PGCIL) Substation Bays Ready	Misa (PGCIL) Substation Bays Ready
5.	400/132 kV, 7X105 MVA S/S at Surajmaninagar	Palatana – Surajmaninagar 400 kV D/C line (PGCIL) Under Construction Expected in March 2021 (CEA website)	Surajmaninagar – P K Bari 400 kV D/C line (NERTL) Physically complete (January, 2021)
6.	400/132 kV, 7X105 MVA S/S at P.K. Bari (NTL)	Surajmaninagar – P K Bari 400 kV D/C line (NERTL) Physically complete (January, 2021)	P K Bari – Silchar Transmission line (PGCIL) Under Construction Expected in March'21
7.	Surajmaninagar – P K Bari 400 kV D/C line	400/132 kV, 7X105 MVA S/S at Surajmaninagar (NERTL) Physically Complete (January, 2021)	400/132 kV, 7X105 MVA S/S at P.K. Bari (NERTL) Physically Complete (January, 2021)
8.	2 nos. of 400 kV line bays at Palatana GBPP switchyard for termination of Palatana – Surajmaninagar 400 kV D/C line	Palatana GBPP switchyard Under Operation	Palatana – Surajmaninagar 400 kV D/C line (PGCIL) Under Construction Expected in March 2021 (CEA website)
9.	AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line with high Capacity HTLS conductor	2 no. of 132 kV line bays at AGTPP Ready	P K Bari (TSECL) 132 kV substation Bays (NERTL) Ready
10.	2 no. of 132 kV line bays at AGTPP generation switchyard for termination of AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line	AGTPP (NEEPCO) switchyard Operational	AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line (NERTL) Physically Complete (January, 2021)
11.	2 no. of 132 kV line bays at P K Bari (TSECL) S/S for termination of AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line	AGTPP (NEEPCO) – P K Bari (TSECL) 132 kV D/C line (NERTL) Physically Complete (January, 2021)	P K Bari (TSECL) S/S Under Operation

Status of construction progress of the upstream and downstream elements of the Project –

- ✓ Palatana – Surajamaninagar 400 kV D/C Line – original line length was 2 Ckt KM which shall connect the new 400 kV Palatana Bays to New Surajamaninagar substation. The line extension work is under progress and is expected to get complete by March'2021 as per the CEA status update. The line length is revised to 11kms with around 42 tower locations. The EPC contractor is Unique Structures Tower Limited. As informed by the PGCIL personnel, the entire foundation works were complete within a month's time. Tower erection and stringing works are yet to start. PGCIL plans to complete the works by March, 2021. Proposals for all the permits & clearance are submitted. The permits & approval process for PGCIL assets does not take much time.
- ✓ P K Bari – Silchar line 400 kV D/C Line – original line length was 6 Ckt KM which seems to be connecting the existing & operating 400 kV line to New P.K Bari substation. The line length is revised to 8 kms with 35 tower locations. The EPC contractor is Sterling & Wilson. As per the information collected from site, PGCIL plans to complete the works by March, 2021.
- ✓ The Bays at Silchar substation for P K Bari – Silchar 400 kV D/C Line is operational
- ✓ 2X400 kV GIS bays at both Misa S/S and Silchar S/S for termination of 400 kV Misa – Silchar line under NERSS – IIB project is complete.
- ✓ 2X132 kV Line bays at Biswanath Chariali for termination of 132 kV Itanagar – Biswanath Chariali line under NERSS – II B project was anticipated to get complete by July, 2020 as per the 167th OCC (North – Eastern Region Power Committee) meeting held on 19th June, 2020. As on 14th Feb, 2021, the bays are ready.

3.3. Technical Feasibility for achieving SCOD – (Power flow capability)

Based on the above status, IE is of the view that NERTL still can complete following elements and declare Deemed COD

- ✓ LILO of one circuit of Biswanath Chariyalli (PGCIL) – Itanagar 132 kV D/C as the terminating Gohpur substation is presently delayed by 24 months.
- ✓ 400 kV D/C Transmission Line from Surajmaninagar (New Substation) to P K Bari (New Substation)
- ✓ 400/132 kV Substation at Surajmaninagar
- ✓ 400/132 kV Substation at P.K. Bari.

Nevertheless, charging and power flow can happen only after completion of Gohpur substation, Palatana – Surajmaninagar 400 kV D/C line and P K Bari – Silchar 400 kV D/C line respectively. The revenue impact is 35.74% of total Transmission charges for the project. NERTL needs to file petition with CERC post deemed COD of these elements to receive payment from the respective LTCCs.

As per Tripura State Electricity Corporation Limited (TSECL) letter dated 21st August, 2020, it is stated that, the Government of Tripura has accorded permission to the proposal of NER – II Transmission Ltd. for implementation of following 132 kV interconnection elements and NER – II Transmission Limited is hereby allowed to execute the same on behalf of TSECL without seeking any cost re – imbursement from TSECL for utilisation of the under implementation 400/132 kV TBCB sub – stations at Surajmaninagar and P.K. Bari –

- i. 132 kV S/C Ambassa to P.K. Bari line (TSECL) to be LILoed at TBCB sub – station P.K. Bari (2.5 kms approximate length)
- ii. One circuit of 132 kV D/C line from Surajmaninagar to Bodhjunnagar to be LILoed at TBCB sub – station Surajmaninagar (5.5 kms approximate length)

The proposed 2 nos. LILo connection would be part of Intra – State Transmission System and NER – II Transmission Limited will only construct the lines on behalf of TSECL. The implementation of the 132kV downstream inter – connecting lines by NER – II Transmission Limited on behalf of TSECL is supposed to match with the Commercial Operation Date (COD) of transmission system (400/132 kV TBCB sub – stations at Surajmaninagar and P.K. Bari) of NERSS – V (Part B) scheme under the scope of NER – II Transmission Limited.

IE opines that the contingency arrangement under the purview of TSECL which is being executed by NER – II Transmission Limited, shall help the commissioning and trail – run operation of the Elements 5, 6 and 7 of the Transmission Project. The scheme is also notified to CEA and does not require any further approval/ acceptance as on date. With a similar experience in the past for NRSS – 29 Transmission Limited (400 kV D/C Jalandhar – Samba Transmission Line), IE opines that the above alternate option for commissioning of the elements of NER – II Transmission Limited should be accepted. Since the scheme is already notified to CEA hence does not require any further approval/ acceptance as on date.

The physical progress for the LILo lines as on 7th March, 2021 –

Activity		Surajmaninagar LILo				PK Bari LILo			
		Scope	Completed	WIP	Gangs	Scope	Completed	WIP	Gangs
Foundation	Nos.	20	20	-	-	13	13	-	-
Erection	Nos.	20	20	-	-	13	13	-	-
Final Sag - Stringing	Km	5.19	5.19	-	-	2.97	2.97	-	-

NERTL can get the POSOCO Certificates of successful completion of trail – run operation for the following elements, without the dependency of completion of upstream and downstream elements :-

- ✓ 400 kV D/C Transmission Line from Silchar to Misa.
- ✓ 132 kV D/C Transmission Line from Biswanath Chariali to Itanagar
- ✓ 2 no. of Bays seach at AGTPP (NEEPCO), P.K. Bari and Itanagar

3.4. EPC Contract

NER – II Transmission Limited has signed the EPC Contract for design, engineering, manufacturing, supply, construction, erection, testing, commissioning works for the entire Project with M/s. Sterlite Power Grid Ventures Limited vide agreement dated 26th September, 2017.

The effective date of the Contract is 26th September, 2017, and the completion date for each of the element is indicated below:

S. No.	Name of Element	Completion Date/ SCOD	Revised Completion Date
11.	132kV D/C Transmission Line Biswanath Chariyalli – Itanagar	31 st March 2020	31 st Mar'21
12.	LILO of one circuit of Biswanath Chariyalli (PG) – Itanagar 132kV DC Line at Gohpur	31 st March 2020	31 st Mar'21
13.	2 nos. 132kV line bays at Itanagar Substation	31 st March 2020	31 st Mar'21
14.	400kV D/C Transmission Line Silchar – Misa	30 th Nov'2020	28 th Feb'2021 (POSOCO letter yet to be received)
15.	Establishment of 400/132 kV, 2x315 MVA S/s at Surajmaninagar	31 st July 2020	6 th Jan'2021 (As per provisional charging letter from POSOCO)
16.	Establishment of 400/132 kV, 2x315 MVA S/s at P.K. Bari	31 st July 2020	28 th Jan'2021 (As per provisional charging letter from POSOCO)
17.	400kV D/C Transmission Line Surajmaninagar – P. K. Bari	31 st July 2020	16 th Jan'2021 (As per provisional charging letter from POSOCO)
18.	132kV D/C Transmission Line AGTPP (NEEPCO) – P.K. Bari Multicircuit of both 400kV & 132kV	31 st March 2020	27 th Jan'2021 (As per provisional charging letter from POSOCO)
19.	2 nos. 132kV line bays at NEEPCO Substation	31 st March 2020	27 th Jan'2021 (As per provisional charging letter from POSOCO)
20.	2 nos. 132kV line bays at PK Bari Substation	31 st March 2020	27 th Jan'2021 (As per provisional charging letter from POSOCO)

Elements 4 to 11 indicated in the above table are electrically and mechanically complete. CEA inspection certifying the electrical readiness of the Elements is also in place. However, after successful completion of trial – run operation and certification from POSOCO, only then the actual commissioning date of the Elements can be determined.

SPGVL, the Main EPC Contractor of NER II Transmission Limited (“the Project”) has further subcontracted the works, facility – wise to the following Contractors:

1. M/s. Tata Project Limited – Engineering, Procurement and Construction of following Transmission Lines:

- i. 132kV D/C Transmission Line Biswanath Chariyalli – Itanagar
- ii. LILO of one circuit of Biswanath Chariyalli (PG) – Itanagar 132kV DC Line at Gohpur
- iii. 400kV D/C Transmission Line Silchar – Misa vacancy

The LOA was signed on 6th October, 2017, which is also the effective date of the Contract.

2. M/s. Kalpataru Power Transmission Limited – Engineering, Procurement and Construction of following Transmission Lines:

- i. 400kV D/C Transmission Line Surajmaninagar – P. K. Bari
- ii. 400kV D/C Transmission Line Surajmaninagar – P. K. Bari (Multi – Circuit Line)
- iii. 132kV D/C Transmission Line AGTPP (NEEPCO) – P.K. Bari Multicircuit and normal transmission line

The LOA was signed on 4th December, 2017, which is also the effective date of the Contract.

3. M/s. GE T&D India Limited – Design, Engineering, Procurement, Supply, Erection, Testing and Commissioning of following elements :

- i. 400/132 kV S/S at Surajmaninagar
- ii. 400/132 kV S/S at P.K. Bari
- iii. Construction of 2 no. of 132 kV line bays at AGTPP generation switchyard
- iv. Construction of 2 no. of line bays at P.K. Bari
- v. Construction of 2 nos. of 132 kV line bays at Itanagar

The LOA was signed on 8th December, 2017, which is also the effective date of the Contract.

4. M/s. Sterlite Power Transmission Limited – the LOA was signed on 31st March, 2017, for supply of ACSR Moose, ACSR Zebra and HTLS Conductor (Mischmetal), for 400 kV D/C and 132 kV D/C Transmission Lines.

5. M/s. Apar Industries Limited – The LOA was signed on 8th August, 2017, for supply of ACSR Moose Conductor for 400 kV D/C Transmission Lines.

Due to reasons beyond the control of Project Company, the execution works are delayed from their respective TSA SCOD, hence Project Company is advised to contractually amend the completion date in the EPC Contract and the sub – contracts as well.

4. ENGINEERING, PROCUREMENT AND CONSTRUCTION

As per the documents furnished by the Project Company, the status of Engineering, Procurement & Construction (EPC) activities being carried out by NER II through EPC Package for transmission lines have been discussed under the following heads –

4.1. Engineering

The engineering, drawing and design status of different types of foundations and Towers for all the 5 Transmission line elements, Bays and Substations is 100% complete.

4.2. Procurement and Supply of Materials

Procurement of materials is 100% complete for the project.

4.3. Construction and Erection Works

The construction progress is reviewed against the planned progress as per the catch – up plan shared by the Project Company vide email dated 9th July, 2020. The catch – up plan incorporates that impact of COVID – 19 crisis.

As discussed with the Project Company, IE considers the following weightages (activity – wise) to calculate the physical progress of the Transmission Lines –

1. Enablement – 20% (towards obtaining permits and clearances etc)
2. Procurement – 10%
3. Foundation – 25%
4. Erection – 20%
5. Stringing – 25%

The detail construction progress, element – wise is discussed below –

4.3.1. Physical Progress of Biswanath Chariyalli – Itanagar and LILO of 132 kV D/C Transmission Line

The estimated line length of 132 kV D/C BNC – to Itanagar was 67.46 kms which is now revised to 67.86 kms. The increase in line length is as per the recommendation from upcoming Hollongi Airport in Arunachal Pradesh, based on which the Civil Aviation is granted. There is increase in tower locations from 202 nos. to 211 nos. The line length for 132 kV D/C LILO at Gohpur is 8.487 kms with 30 nos. tower locations.

The total line length has 27.053 kms of forest land, 38.772 kms of non – forest and around 10.135 kms of Tea – estates.

The physical progress of the line when compared with the catch – up plan, as on 7th March, 2021 is indicated below –

Activity	Total Target	Catch – up Plan as on 07/03/2021	Actual % as on 07/03/2021
Enablement	17	17	17
Procurement	100%	100%	100%
Total Foundation (No)	241	241	241
Tower Erection (No.)	241	241	241
Final Stringing (km)	76.35	76.35	73.76
Total Progress		100%	99.15%

The actual physical progress is 99.15% as against the Catch – up planned progress of 100.0% as on 7th March 2021.

The Scheduled COD for the above element as per the TSA was 31st March, 2020, however Project Company plans to complete the works by 31st March, 2021. Due to impact of COVID – 19 and subsequent lockdown, construction works were restricted. Work permit for the gangs in the Arunachal Portion of the BNC – Itanagar line was granted by September 2020. As on date around 10 stringing gangs are deployed. Project Company had set up heli – crane yard at Hollangi. All materials like water barrel, cement, aggregate, nuts & bolts etc were being air lifted and dropped at site locations.

Looking into the present physical progress of the element, IE opines that the revised completion schedule of 31st March, 2021 is achievable. The CEA inspection is expected during 3rd week of March, 2021.

Status of permits & approvals is indicated below –

S. No	Description	Status
1.	Powerline Crossing – 3 nos.	Received for all
2.	Railway Crossings – 2 nos.	Received for all
3.	NH crossing – 2 nos.	Received for both
4.	Civil Aviation	As per the minutes of meeting of the Appellate Committee dated 15 th September, 2020, the Civil aviation approval is granted for the pending 8 locations in Arunachal Pradesh section.
5.	Defence Aviation	Received
6.	PTCC	Received vide letter dt. 11 th November, 2019.

From the above table, IE notes that Project Company has received all the critical approvals required for execution and commissioning of the element.

Following locations were visited during site visit –

LILO - 1/0 TO 3/0 STRINGING IN PROGRESS

1. Location 55/0 – tower erection under progress
2. Section 54/1 to 52/0 – stringing complete
3. Section 56/0 to 70A/0 – stringing complete
4. Section 89/0 to 91/0 – stringing complete
5. Location 102 – tower erection complete. Stringing works under progress
6. Section 103 & 104 – stringing complete.

4.3.2. Physical Progress of 400 kV D/C Silchar – Misa Line

The estimated Line length is 178.28 kms, and check survey is complete for the entire route length. Around 489 locs. were earlier anticipated which is now changed to 487.

The physical progress of the element vis-à-vis the catch – up plan, as on 7th March, 2021 –

Activity	Total Target	Catch – up Plan as on 07/03/2021	Actual as on 07/03/2021
Enablement	35	35	35
Procurement	100%	100%	100.0%
Total Foundation (No)	487	487	487
Tower Erection (No.)	487	487	487
Final Stringing (km)	178.28	178.28	178.28
Total Progress		100%	100%

The Element is electrically and mechanically complete. The TSA SCOD was 30th November, 2020. The CEA Provisional Approval for Energization was granted vide CEA letter dt. 19/02/2021, which is valid up to 30th April, 2021. Final Approval for energization will issued after physical inspection of Electrical installations. Consequently the approval for trial – run operation from POSOCO is also pending.

Following is the status of permits & clearances for the element –

S. No	Description	Status
1.	Powerline Crossing – 19 nos.	NOC received for all.
2.	Railway Crossings – 4 nos.	NOC is received for all
3.	NH crossing – 4 nos.	Received for all
4.	Civil Aviation	Received
5.	Defence Aviation	Received
6.	PTCC	Received

From the above table, IE opines that Project Company has received all the critical approvals required for execution and commissioning of the element.

IE visited the following locations during site visit–

1. Section 7/0 to 12/0 – stringing complete.

4.3.3. Physical progress of Surajmaninagar to P.K. Bari Line

During the RFP stage, two different lines were envisaged, first 400 kV D/C Twin Line from Surajmaninagar to P. K. Bari and another 132 kV D/C AGTTP (NEEPCO) to P. K. Bari (TSECL), since both the lines run parallel to each other for major portion of the line length and to reduce on the ROW area, Project Company decided to implement Multi – circuit towers (MCT), carrying two circuits of 400 kV and two circuits of 132 kV. The same has been approved by CEA vide letter dated 8th August, 2017. The brief description of lines is indicated below:

- i. 400kV D/C Transmission Line Surajmaninagar – P. K. Bari (Normal Towers) (17.718 kms and around 53 locs)
- ii. 400kV D/C and 132 kV D/C Transmission Line Surajmaninagar – P. K. Bari (Multi – Circuit Line) (59.573 kms and around 155 locs)
- iii. 132kV D/C Transmission Line AGTTP (NEEPCO) – P.K. Bari (normal towers) transmission line (23.8 kms and around 80 locs)

The physical progress of the element vis-à-vis the catch – up plan, as on 7th March, 2021 –

Activity	Total Target	Catch – up Plan as on 07/03/2021	Actual as on 07/03/2021
Enablement	21	21	21
Procurement	100%	100%	100.0%
Total Foundation (No)	289	289	289
Tower Erection (No.)	289	289	289
Final Stringing (km)	101.2	101.2	101.2
Total Progress		100%	100%

The elements are electrically and mechanically complete. The Scheduled COD for the above element as per the TSA was 31st March, 2020 for 132kV D/C Surajmaninagar – PK Bari Line and July, 2020 for 400kV D/C Surajmaninagar to PK Bari Transmission Line, while as per the catch – up plan the revised completion date for both the line was 31st October, 2020.

The CEA Provisional Approval for Energization was granted vide CEA letter dt. 11/01/2021, which is valid up to 31st March, 2021. Since the Regional Inspectorial Organisation (RIO) could conduct the mandatory physical site inspection, hence a provisional approval was granted. Final Approval for energization will issued after physical inspection of Electrical installations. Provisional Approval for charging of 400 kV Surajmaninagar to PK Bari Transmission Line was accorded vide POSOCO letter dated 16/01/2021. Provisional Approval for charging of 132 kV AGTCCP (NEEPCO) to PK Bari (TSECL) Transmission Line was accorded vide POSOCO letter dated 27/01/2021.

Status of permits & approvals as on 7th March, 2021 is indicated below –

S. No	Description	Status
1.	Powerline Crossing – 8 nos.	NOC received for all
2.	Railway Crossings – 1 no.	Received
3.	NH crossing – 1 nos.	Received

S. No	Description	Status
4.	Civil Aviation	Received
5.	Defence Aviation	Received
6.	PTCC	Received

IE opines that Project Company has received all the critical approvals required for execution and commissioning of the element.

4.3.4. 400/132 kV, 7X105 MVA S/S at Surajmaninagar

As per the substation plot plan and as informed by the Project Company, around 24.93 acres of land is acquired for Surajmaninagar S/s. As per the plot plan furnished by the Project Company, IE opines that the acquired land is adequate for present scope of work including space for future expansion, as indicated in TSA.

The physical progress of the element vis-à-vis the catch – up plan, as on 7th March, 2021 –

Activity	Catch – up Plan % as on 07/01/2021	Actual % as on 07/01/2021
Engineering	100%	100.00%
Procurement	100%	100.0%
Civil work	100%	96.87%
Erection work	100%	100%
Total Progress	100%	100%

The TSA SCOD date was 31st July, 2020. The substation is 100% mechanically and electrically complete. The CEA inspection was conducted on 13/11/2020. CEA approval granting the readiness for electrical energization was accorded vide letter dated 01/12/2020. Provisional charging approval is accorded by POSOCO vide letter dated 6th January, 2021.

4.3.5. 400/132 kV, 7X105 MVA S/S at P.K. Bari

As per the substation plot plan and as informed by the Project Company, around 20.76 acres of Land is acquired for P.K. Bari S/s. As per the plot plan furnished by the Project Company, IE opines that the acquired land is adequate for present scope of work including space for future expansion, as indicated in TSA.

The physical progress of the element vis-à-vis the catch – up plan, as on 7th March, 2021 –

Activity	Catch – up Plan % as on 07/01/2021	Actual % as on 07/01/2021
Engineering	100%	100.00%
Procurement	100%	100.0%
Civil work	100%	97.16%
Erection work	100%	100%

Activity	Catch – up Plan % as on 07/01/2021	Actual % as on 07/01/2021
Total Progress	100%	100%

The TSA SCOD date was 31st July, 2020. The substation is 100% mechanically and electrically complete. The CEA inspection was conducted on 12/11/2020. CEA approval granting the readiness for electrical energization was accorded vide letter dated 01/12/2020. Provisional charging approval has been granted by POSOCO vide letter dated 16/01/2021.

4.3.6. 2 Nos. of 132 kV Bays at AGTPP (NEEPCO)

The space for construction of Bays has been allocated to NER – II Transmission Limited. The TSA SCOD was 31/03/2020. The physical progress is 100% complete. The CEA inspection was conducted on 13/11/2020. CEA approval granting the readiness for electrical energization was accorded vide letter dated 01/12/2020. Provisional approval for charging of the element was received vide POSOCO letter dated 27/01/2021.

4.3.7. 2 Nos. of 132 kV Bays at P.K. Bari (TSECL)

The space for construction of Bays has been allocated to NER – II Transmission Limited. The TSA SCOD was 31/03/2020. The physical progress is 100% complete. CEA inspection was conducted on 12/11/2020. CEA approval granting the readiness for electrical energization was accorded vide letter dated 01/12/2020. Provisional approval for charging of the element was received vide POSOCO letter dated 27/01/2021.

4.3.8. 2 Nos. of 132 kV Bays at Itanagar

The space for construction of Bays is allocated to NER – II Transmission Ltd. The TSA SCOD was 31st March, 2020. ***IE observes that the works are 100% complete, however, the CEA inspection and 24 hour trial – run test is still pending for the element. The element shall be simultaneously commissioned along with 132 kV BNC to Itanagar Transmission Line i.e. during March, 2021.***

4.3.9. 2 nos. of Bays at Palatana

As per the understanding between Project Company and ONGC, the updated progress is submitted yearly basis i.e. April month of every year. As on 31st March, 2020, the physical progress as indicated by ONGC was 87.0%. During site visit, IE was informed that CEA inspection was conducted on 13/11/2020. The element was expected to get commissioned by February, 2021, however, confirmation is still pending from ONGC.

4.4. Overall Observation

The overall transmission line construction progress is 99.82% as against the catch up plan construction progress of 100.0% as on 7th March, 2021.

The overall Project Construction progress (including Transmission Lines, Bays and Substations) is 99.77% as on 7th March, 2021.

As per the Catch – up plan, element -wise revised COD is indicated below –

S. No.	Name of Element	Completion Date/ SCOD	Revised Completion Date
1.	132kV D/C Transmission Line Biswanath Chariyalli – Itanagar	31 st March 2020	31 st Mar'21
2.	LILO of one circuit of Biswanath Chariyalli (PG) – Itanagar 132kV DC Line at Gohpur	31 st March 2020	31 st Mar'21
3.	2 nos. 132kV line bays at Itanagar Substation	31 st March 2020	31 st Mar'21
4.	400kV D/C Transmission Line Silchar – Misa	30 th Nov'2020	28 th Feb'2021 (POSOCO letter yet to be received)
5.	Establishment of 400/132 kV, 2x315 MVA S/s at Surajmaninagar	31 st July 2020	6 th Jan'2021 (As per provisional charging letter from POSOCO)
6.	Establishment of 400/132 kV, 2x315 MVA S/s at P.K. Bari	31 st July 2020	28 th Jan'2021 (As per provisional charging letter from POSOCO)
7.	400kV D/C Transmission Line Surajmaninagar – P. K. Bari	31 st July 2020	16 th Jan'2021 (As per provisional charging letter from POSOCO)
8.	132kV D/C Transmission Line AGTPP (NEEPCO) – P.K. Bari Multicircuit of both 400kV & 132kV	31 st March 2020	27 th Jan'2021 (As per provisional charging letter from POSOCO)
9.	2 nos. 132kV line bays at NEEPCO Substation	31 st March 2020	27 th Jan'2021 (As per provisional charging letter from POSOCO)
10.	2 nos. 132kV line bays at PK Bari Substation	31 st March 2020	27 th Jan'2021 (As per provisional charging letter from POSOCO)

Elements 4 to 11 indicated in the above table are electrically and mechanically complete. CEA inspection certifying the electrical readiness of the Elements is also in place. However, after successful completion of trial – run operation and certification from POSOCO, only then the actual commissioning date of the Elements can be determined.

Due to below mentioned reasons, beyond the control of the Project Company, the execution works for the Project have been affected. The same has been intimated to the LTTCs time and again regarding the Force Majeure events as per Article 11.5 of TSA.

1. Delay in allotment of Government Land for 400/132 kV Substations at PK Bari and Surajmaninagar
2. Stoppage of Construction works due to protest against CAA in North – Eastern India
3. Delay in NOC from Airport Authority of India for 132 kV Biswanath Chariyalli to Itanagar Transmission Line
4. Delay in receipt of Forest Clearance for 400 kV Silchar – Misa Line, 400 kV Multi circuit Transmission Line from Surjamaninagar – PK Bari and 132 kV D/C AGTPP (NEEPCO) – PK Bari (TSECL) Transmission Line
5. Overall execution works were impacted due to COVID – 19 crisis.

As per the Ministry of Power Letter dated 27th July, 2020, all inter – state transmission projects, which were under construction as on date of lock – down i.e. 25th March, 2020, shall get an extension of 5 months in respect of SCOD. This order shall not apply to those projects, whose SCOD date was prior to 25th March, 2020.

IE opines that the actual acceptance of the events beyond the control of the Project Company, by the CERC, CEA and LTTCs can be determined towards the Project Commissioning phase.

Visual Chart, Project Physical Progress, CEA approval for Energization, Provisional Charging Certificates from POSOCO and Site Photographs are attached as **Annexure 1, 2, 3, 4 and 5** respectively.

5. OTHER PROJECT ASPECTS

5.1. Site Organization

As per the SPGVL organization chart furnished by the Project Company, IE observed that, there are four Project Heads reporting to a Project Director. The entire project is divided into four elements, and accordingly there are Site Commercial, Auditor, Finance officer, Site Planning Management Officer, Forest Manager, EHS Manager, FQA and Surveyor to look after the project activities and Four Construction Heads for Transmission Lines and Two construction heads for sub – stations respectively reporting to the Project Head. Separate team of qualified experienced engineers for each line are deployed who report to their respective Construction Heads.

The sub – contractors, M/s. TPL and M/s. KPTL have deployed separate Project Manager, Section in – charge for each line, one quality and safety personnel to each gang (activity wise).

5.2. Quality Control

SPGVL is adhering to the Quality Assurance Program and Field Quality Plan, as prepared, for execution of the Projects. Accordingly, Project Company should keep a strict vigil in implementing the Field Quality Plan. The sub – contractor's engineers are supervising the construction work and are following the Quality Plans. Quality Plans are also being followed during inspections at Manufacturer's Works.

5.3. Safety

To maintain the Safety Standards, Sterlite implements the following practices at site –

- Conduct all activities in a manner as to avoid harm to employees, contractors and the community
- Comply with all Statutory requirement related to QHSE
- Maintain and proactively improve the QHSE practices and performance through setting – up QHSE matrix
- Endeavour to achieve high quality standards and operate a robust testing program to continually offer quality products & services
- Create a culture of learning and practicing QHSE systems, procedures and practices among all the employees and contractors
- Minimize environmental impact by conserving resources, reducing waste generation and preventing pollution in all the activities at the work places
- Impart appropriate training and develop skills of the employees to keep them safe and healthy at workplace.
- Ensure continual improvement through the involvement and consultation of all employees, contractors and others in the development and implementation of effective QHSE programs and procedures.

The Project Company has deployed Safety Manager for each element of the Project who, on regular basis as indicated in the QHSE Report, monitors the safety & house – keeping of the works at site as well as health and safety of the Project Personnel at their respective Guest – House Facilities.

Similarly, the O&M Contractor has deployed a Safety Engineer for the Project, who is responsible for Quality, Health, Safety and Environment of the O&M services and its respective Engineers deployed at Site.

5.4. Progress Reporting

The sub – contractor submits monthly, weekly and daily progress report to Sterlite's Site Manager and to CMG/ Project Management Group covering the following aspects:

- Approved schedule of Supply, and its updated status.
- Achievement of interim milestone for the current month and for next month forecast plan
- S – Curves for supply and erection works progress and explanation of the gap between scheduled plan Vs actual progress including resources gap and action plan to mitigate resources gap.
- Critical issues related to supply, construction and erection works.
- Look ahead schedule for the next month that must contain progress backlog if any.
- Quality surveillance reports

6. PERMITS AND CLEARANCES

A list of all the permits and clearances required to be obtained by the Project Company along with their current status is given below:

Table 6.1 – Status of Clearances, Permits & Licenses

Sl. No.	Description	Authority	Present Status
1.	Transmission License	Central Electricity Regulatory Commission (CERC)	Approval received vide order dated 20 th June, 2017 and valid for 25 years.
2.	Company Registration	Registrar of Companies	Completed
3.	Environmental Clearance	MoEF	Not Applicable
4.	Forest Clearance	State Govt./ MOEF	Obtained
5.	Approval under Section 68 of Electricity Act, 2003	GOI, Ministry of Power	Obtained on 7 th February, 2017
6.	Approval from GoI under section 164 of Electricity Act 2003	GOI, Ministry of Power	Obtained vide letter no. CEA-PS-12-16/20/2018 – PSPA-II Division dated 31 st August, 2018
7.	Transmission Service Agreement (TSA)	NERTL and LTTCs	Signed on 27 th December, 2016
8.	Approval for adoption of Tariff under Section 63 of EA 2003.	CERC	Approval received vide order dated 12 th June, 2017
9.	Approval from CERC under Section 17(3)	CERC	Received vide letter dated 29 th January, 2020.
10.	Power & Telecommunication Coordination Committee Clearance (PTCC)	CEA / Ministry of Power	Approval received for BNC – Itanagar along with LILO of 132 kV line on 11/11/2019 Approval received for SMN – PK Bari 132 kV line on 20/09/2018. Approval received for SMN – PK Bari 400 kV line on 13/02/2019. Approval received for Silchar – Misa 400 kV line on 24/06/2019.
11.	Railway Crossing	Ministry of Railways	BNC – Itanagar: 2 no. NOC received on 22/08/2019. SMN – PK Bari: 1 no. Rly. Crossing. Approval received. SLC – Misa: 4 nos. Rly. Crossing. Approval received for all.
12.	Road Crossing	National Highway/ State Road Department	BNC – Itanagar: 2 nos. NH Crossing. Proposal prepared and submitted. NOC received for both. SMN – PK Bari: 1 no. NH Crossing. Proposal prepared and submitted. NOC received.

Sl. No.	Description	Authority	Present Status
			SLC – Misa: 4 nos. NH Crossing. Proposal prepared and submitted. NOC received for all.
13.	Power Line Crossings (PLCs)	Concerned State Power Utilities / PGCIL	BNC – Itanagar & LILO: Proposal submitted for 3 PLCs. Approval received for all. SMN – PK Bari: 8 P/L crossing. Approval received for all. SLC – Misa: Proposal submitted for 19 nos. NOC received all.
14.	Aviation Clearance	Airport Authority of India	Approval received for SM, Surajmaninagar – PK Bari and BNC lines.
15.	Defence clearance	Ministry of Defence	Approval received for all.

FOREST CLEARANCE

Transmission Lines	Division (Area in Hec.)	Line Length in Forest (in Kms)	Status
Biswanath Chariyali – Itanagar 132 kV	10.667 (Assam section) 48.147 (Arunachal section)	3.98 17.355	Stage – 1 along with tree Cutting permission received for Assam section. Stage – 1 along with tree cutting permission received for AP section.
Silchar – Misa 400 kV D/C	108.162	23.50	Stage – 1 along with Tree cutting permission received.
Biswanath Chariyali LILO	13.115	4.775	Stage – 1 along with Tree cutting permission received.
Surajmaninagar – P.K. Bari 400 kV D/C and MCT	139.931	30.42	Stage – 1 along with Tree cutting permission received
NEEPCO – P.K. Bari 132 kV D/C	17.569	6.507	Stage – 1 along with Tree cutting permission received

IE opines that Environment Clearance is not applicable to Transmission Lines, however Project Company should execute the construction works as per the MoEF guidelines. Project Company has received all the critical approvals like under Section – 68, 164, 63 of Electricity Act, 2003, PTCC, Forest Clearance, Civil & Defence Aviation, transmission license etc. for smooth execution and commissioning of the Project.

7. FINANCIAL ESTIMATION

The Project Cost is Rs 2933.00 crores with debt to equity ratio of 75:25 for around 192.846 kms of 400 kV D/C Transmission Line, 100.68 kms of 132 kV D/C Transmission Lines, 59.573 kms of Multi – circuit Tower Transmission Line, 2 nos. of 400/132 kV Substations at Surajmaninagar and P.K. Bari and 6 nos. of Line Bays.

7.1. Project Expenses

As per Chartered Accountant's Certificate dated 15th February 2021 provided by the Project Company, IE noted that Project Company has incurred a Project Expenditure of Rs.2696.00 crores till 1st February 2021 which has been met from promoter contribution of Rs. 730.0 crores and Fund Based Loan of Rs.2042.0 crores. Project Company has cash in hand of Rs.76.0 crores as on 1st February 2021.

IE observed that around Rs. 2070.0 crores were incurred towards EPC Cost which is around 93.58% of the estimated EPC budget of Rs. 2212.0 crs, as on 1st February, 2021.

The Total Hard Cost expenditure (i.e. EPC Cost, SPV Acquisition, Land, Statutory expenses, Expenditure on Bays Extension, Forest and ROW) is Rs. 2296.0 crores, which is around 91.84% of the total estimated Hard Cost budget of Rs. 2500.0 crores, as on 1st February, 2021. As on 7th March, 2021, the physical construction progress of the Project (T/Ls, S/S and Bays) is around 99.77%.

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