

I/19355/2021



सत्यमेव जयते
भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत प्रणाली योजना एवं मूल्यांकन - I प्रभाग

Power System Planning & Appraisal - I Division

सेवा में / To

-As per enclosed list-

विषय: "ट्रांसमिशन पर राष्ट्रीय समिति" (एनसीटी) की 7th बैठक के कार्यवृत्त।

Subject: Minutes of the 7th meeting of "National Committee on Transmission (NCT)"

महोदया / महोदय / Sir / Madam,

The 7th meeting of the "National Committee on Transmission" (NCT) was held on 03/12/2021 under the chairmanship of Chairperson, CEA & Chairman, NCT, through Video Conferencing (Microsoft Teams). The minutes for the meeting is enclosed herewith.

भवदीय,

रविन्द्र गुप्ता
17/12/21
(रविन्द्र गुप्ता/ Ravinder Gupta)

मुख्य अभियन्ता /Chief Engineer & Member Secretary (NCT)

Copy to:

- (i) Joint Secretary (Trans), Ministry of Power, Shram Shakti Bhawan, New Delhi-110001.

I/19355/2021

List of addressees:

1.	Chairperson, Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	2.	Member (Power System), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.
3.	Member (Economic & Commercial), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	4.	Director (Trans), Ministry of Power Shram Shakti Bhawan, New Delhi-110001.
5.	Sh. Dilip Nigam, Scientist ‘G’, MNRE, Block no. 14, CGO Complex, Lodhi Road, New Delhi – 110003	6.	Chief Operating Officer, CTUIL, Saudamini, Plot No. 2, Sector-29, Gurgaon – 122 001.
7.	Sh. Rajnath Ram, Adviser (Energy), NITI Aayog, Parliament Street, New Delhi – 110 001.	8.	CMD, POSOCO, B-9, Qutub, Institutional Area, Katwaria Sarai, New Delhi – 110010
9.	Dr. Radheshyam Saha, Ex. Chief Engineer, Central Electricity Authority	10	Shri Sushanta Kumar Ray Mohapatra, Ex. Chief Engineer, Central Electricity Authority

I/19355/2021

Minutes for the 7th meeting of National Committee on Transmission

List of participants is attached as **Annexure-I**

Chairman (NCT) welcomed the members of NCT and requested Member (Power System) to apprise the members of NCT with the recent developments in respect of the process of Inter-state transmission system planning and approval, particularly in reference to RE development.

Member (PS) apprised the following:

- i) MoP vide its office order dated 20.10.2021 has dissolved the five Regional Power Committees (Transmission Planning), thereby doing away with the present practice of dual consultations at regional level. However, Regional Power Committees will be consulted for planning of ISTS system.
- ii) MoP vide its office order dated 28.10.2021 has revised the Terms of Reference of the NCT delegating powers for approval of ISTS system based on the cost of the ISTS schemes. The following structure for approval of ISTS scheme has been put in place:
 - Schemes costing less than or equal to Rs. 100 Cr. to be approved by CTU along with mode of implementation under intimation to NCT & MoP.
 - Schemes costing between Rs. 100 Cr. to 500 Cr. to be approved by NCT along with mode of implementation under intimation to MoP.
 - Schemes costing more than Rs. 500 Cr to be recommended by NCT to MoP for approval.
 - CTU after consulting Regional Power Committee(s) [RPC(s)] shall submit the proposal for expansion of ISTS to the NCT for their consideration. For proposal up to Rs.500 crores, prior consultation with RPC would not be required.
- iii) MoP vide its OM dated 15/11/2021 and 02/12/2021 has provided certain aspects to be kept in mind while planning the ISTS system, few of which are mentioned below:
 - New ISTS system will be planned and developed based on system requirement without linking it with LTA requirement. There will be no distinction of Generation linked and System Strengthening scheme for network expansion.
 - In the bid documents of TBCB projects, provision for stage wise commissioning shall be built into.
 - New ISTS approved by CTU /NCT/MoP shall be taken up for bidding by Bid Process Coordinators (TBCB projects) or for tendering by project implementing agency (RTM projects). Projects shall be awarded after SECI or any other REIA notified by MNRE awards first bid of RE projects.
- iv) MoP vide its letter dated 23.11.2021 to Secretary (MNRE) has requested the following to facilitate timely development of ISTS required for evacuation of RE sources:
 - In order to plan transmission system for potential RE zones, MNRE shall provide area wise RE potential (Wind/solar/hybrid) data along with schedule of

I/19355/2021

development to MoP. Thereafter, MoP shall share the same with CEA and CTU for planning of Transmission system for such RE potential projects.

- SECI or any other REIA nominated by MNRE shall give period of commissioning in Power Purchase Agreement after consulting CTU & CEA.
- SECI or any other REIA shall take steps for optimal utilization of transmission capacity by conducting bids for RE capacity development along with storage capacity from at least 4-5 RE national project sites with more capacity.

Members deliberated on the various orders/directions given by MoP and observed that planning, approval and bidding process of the RE linked ISTS schemes would be initiated in advance based on inputs i.e. likely quantum of associated RE bids, their implementation schedule etc. furnished by MNRE, without linking them with LTA requirement. However, the award of the transmission schemes would be done only after SECI or any other REIA notified by MNRE awards first bid of RE project. Therefore, before approval of any transmission scheme by CTU/NCT/MoP, the likely quantum of associated RE bids along with their implementation schedule needs to be confirmed/intimated by MNRE after consultation with SECI/REIA so as to firm up various elements of the pooling sub-station/s. MNRE would be the nodal agency to furnish the information pertaining to RE zones for planning purposes, the status of award of RE projects, their schedule of development and need to develop the ISTS system in phases, etc.

Member (E & C) enquired about the expenses to be incurred for allocation/notification of the ISTS scheme costing between Rs 100 to 500 Crore, to be done by NCT. He stated that since the publication of Gazette Notification for the schemes costing more than Rs. 100 Crs and less than Rs. 500 Crs approved by NCT would be carried out by CEA, so CEA need to seek necessary budget allocation from MoP under this head.

Agenda Items:

A. New Transmission schemes submitted by CTUIL for consideration of 7th NCT

1.1. CTU vide its letter dated 16th November' 2021 has submitted the following ISTS proposals (details at **Annexure-II**) for information/recommendation/approval of NCT :

- (i) Transmission Network Expansion in Gujarat to increase its ATC from ISTS : Part A, with estimated cost of Rs 70 crores, for information of NCT
- (ii) Transmission Network Expansion in Gujarat to increase its ATC from ISTS: Part B, with estimated cost of Rs 1983 crores, for recommendation of NCT.
- (iii) Transmission Network Expansion in Gujarat to increase its ATC from ISTS : Part C, with estimated cost of Rs 148 crores, for approval of NCT
- (iv) Transmission Network Expansion in Gujarat associated with integration of RE projects from Khavda potential RE zone, with estimated cost of Rs 1047 crores, for recommendation of NCT

I/19355/2021

The above ISTS schemes are basically four parts of the transmission scheme “**System Strengthening in Gujarat associated with the integration of RE projects from Khavda potential REZ**” that has already been deliberated in the 5th NCT meeting held on 25.08.2021 & 02.09.2021. The scheme, inter-alia, included establishment of Kosamba 765/400/220 kV substation and GETCO had suggested shifting of the location of the substation from Kosamba to South Gujarat. Accordingly, NCT had deferred the scheme and had suggested that scheme may be reviewed for optimization of the proposed transmission system for evacuation of power from Khavda RE park.

1.2. Subsequently, in a meeting taken by Secretary (Power), Govt. of India on 02.11.2021 (MoM attached as **Annexure -III**) regarding Resource Advocacy Plan for the state of Gujarat, the following was agreed as part of short term and long term measures to increase the ATC from ISTS for the state of Gujarat :

- Expeditious implementation of 3rd 765/400kV ICT at Vadodara S/s with approval of CTU with SCoD of April'22
- Expeditious implementation of 765/400 kV Ahmedabad sub-station and 765/400/220 kV Kosamba sub-station in South Gujarat area, planned as a part of Khavda RE Park. Since these sub-stations are at planning stage, NCT must meet in November, 2021 to consider these sub-stations. The work may be given in Regulated Tariff Mechanism to POWERGRID and compressed time schedule, latest by 15th December, 2021.

1.3. In this regard, a Joint Study Meeting was held on 05.11.2021 amongst CEA, CTU, POSOCO & GETCO to deliberate over the already planned scheme based on updated inputs received from GETCO. In the meeting, it was decided to phase the schemes already deliberated in the 5th meeting of NCT with minor modifications based on ATC requirement of GETCO as well as system strengthening requirements associated with the integration of RE projects from Khavda potential RE zone. Based on the deliberations, CTU has submitted the proposal for consideration of NCT as given below.

S.No	Transmission scheme	Broad Scope
1.	Transmission Network Expansion in Gujarat to increase its ATC from ISTS : Part A	i) Augmentation of transformation capacity at Vadodara 765/400/220 kV S/s by 1x1500 MVA, 765/400 kV ICT (3 rd)
2.	Transmission Network Expansion in Gujarat to increase its ATC from ISTS: Part B	i) Establishment of 765/400/220 kV Navsari (new) (South Gujarat) S/s (GIS) ii) Navsari (new) (South Gujarat) (GIS)- Kala (GIS) 400 kV D/c line with 63MVAR switchable line reactor on each ckt at Kala (GIS) end iii) Navsari(New) (South Gujarat) (GIS) – Magarwada (GIS) 400 kV D/c line.

I/19355/2021

		<p>iv) Navsari(New) (South Gujarat) (GIS) – Padghe (GIS) 765 kV D/c line with 330 MVAR, 765 kV Switchable line reactor on each ckt at Navsari(New) (South Gujarat) end.</p> <p>v) Augmentation of transformation capacity at Padghe (GIS) 765/400 kV substation by 1x1500 MVA ICT</p>
3.	Transmission Network Expansion in Gujarat to increase its ATC from ISTS : Part C	<p>i) Augmentation of transformation capacity at 765/400 kV ICT Banaskantha S/S by 1x1500 MVA,</p> <p>ii) Establishment of Banaskantha -Sankhari 400 kV 2nd D/c line.</p>
4.	Transmission Network Expansion in Gujarat associated with integration of RE projects from Khavda potential RE zone	<p>i) Establishment of Banaskantha - Ahmendabad 765 kV D/c line</p> <p>ii) Augmentation of transformation capacity at Navsari (New) (South Gujarat) 765/400 kV S/s by 1x1500 MVA ICT.</p>

- 1.4. Due to space constraint for installation of line reactors at Kala 400/220 kV substation , CTU suggested installation of the 63MVAR switchable line reactors associated with Navsari (New) (South Gujarat) (GIS) - Kala (GIS) 400 kV D/c line at Navsari (New) end instead of at Kala (GIS) end. Also, for termination of Navsari(New) (South Gujarat) (GIS) – Padghe (GIS) 765 kV D/c line at Padghe (GIS) S/stn, two no. of equipped GIS bays are already available. Accordingly, the requirement of GIS bays at Padghe may not be included in the detailed scope of works.
- 1.5. NCT noted the scheme “Transmission Network Expansion in Gujarat to increase its ATC from ISTS- Part A”, approved by CTUIL with the compressed implementation time-frame of April’22 under RTM to POWERGRID.
- 1.6. Establishment of 765/400/220 kV sub-station in South Gujarat area under RTM has already been decided by MoP in its meeting dated 02.11.2021. CTU in its proposal has included the same (establishment of Navsari(new) (South Gujarat) 765/400/220 kV substation) under the transmission scheme” Transmission Network Expansion in Gujarat to increase its ATC from ISTS: Part B” along with 400 kV and 765 KV interconnection lines.
- 1.7. The scheme ‘Transmission Network Expansion in Gujarat to increase its ATC from ISTS-Part C’. This includes
- i) Augmentation of transformation capacity at 765/400 kV ICT Banaskantha S/S by 1x1500 MVA,
 - ii) Establishment of Banaskantha -Sankhari 400 kV 2nd D/c line.

I/19355/2021

NCT observed that both the elements cannot be implemented as single scheme through TBCB route as one of the element is upgradation /augmentation of an existing substation. The other element, Banaskantha-Sankhari 400 kV 2nd D/c line being a 26 km line, would be small scheme to be bid out for implementation through TBCB route. Accordingly, NCT approved the scheme to be implemented through RTM route, matching with establishment of Prantij 400/220 kV and Sankhari- Prantij 400 kV D/C line by GETCO (presently expected by Mar'25).

- 1.8. The scheme 'Transmission Network Expansion in Gujarat associated with integration of RE projects from Khavda potential RE zone' includes Establishment of Banaskantha-Ahmedabad 765 kV D/c line and Augmentation of transformation capacity at Navsari (New) (South Gujarat) 765/400 kV S/s by 1x1500 MVA ICT.

As Navsari (New) 765/400 kV substation has already been recommended by MoP for implementation through RTM route, NCT observed that 1x1500 MVA, 765/400 kV ICT augmentation could also be clubbed with establishment of Navsari(new) substation under RTM. The augmentation work would be implemented in matching time frame of Banaskantha - Ahmedabad 765 kV D/c line.

Transmission Network Expansion in Gujarat associated with integration of RE projects from Khavda potential RE zone includes only Banaskantha – Ahmedabad 765 kV D/C line (excluding the Augmentation of 1x1500 MVA ICT). The estimated cost of the scheme is Rs 953 Crore with implementation time-frame matching with Khavda Phase-A (Ph-II) (5GW) scheme. Earlier NCT has recommended its implementation with a time-line of 24 months from SPV transfer for Khavda Phase-A (Ph-II) (5GW) scheme. Since the cost of the scheme is greater than Rs 500 Crore, NCT recommended for implementation of the scheme through TBCB route.

- 1.9. POSOCO suggested that uniform guidelines needs to be framed for deciding what works could be identified as technical upgradation / augmentation works. In many of the schemes the associated line bays at existing substation has been included in the scope of the TBCB scheme. On similar grounds the ICT augmentation works can also be implemented through TBCB route.

CEA clarified that the associated bays of transmission line have generally been included as the part of transmission line to avoid any mismatch in their implementation schedule.

To have uniformity, it was agreed that CTU in consultation with CEA would frame guidelines for identifying works that could be considered as technical upgradation / augmentation works for implementation through RTM route.

- 1.10. The decisions taken by NCT in respect of the ISTS schemes submitted by CTUIL for information/approval/recommendation of NCT is tabulated below:

I/19355/2021

S. No.	Name of the scheme/est. cost	Decision of NCT	Purpose /Justification
1.	Transmission Network Expansion in Gujarat to increase ATC from ISTS: Part A Estimated Cost: Rs 70 Crore Implementation Time-frame: Apr'22	NCT noted that the scheme being less than Rs 100 Cr has already been approved by CTUIL for implementation under RTM to the original asset owner (Powergrid) as decided in the meeting held at MoP on 2.11.2021	To increase Gujarat's ATC (Available Transfer Capability) from ISTS
2.	Transmission Network Expansion in Gujarat to increase ATC from ISTS: Part B Estimated Cost: Rs 2077 Crore Implementation Time-frame: July '22	Since the cost of the scheme is greater than Rs 500 Crore, NCT has to make recommendations to MoP. In the meeting taken by Secretary (Power), GoI on 02.11.2021 regarding Resource Adequacy Plan for the state of Gujarat, it was agreed to allot the works pertaining to implementation 765/400/220 kV sub-station in South Gujarat area through Regulated tariff mechanism to POWERGRID in compressed time schedule. Accordingly, NCT recommends implementation of the scheme through RTM route.	To increase Gujarat's ATC (Available Transfer Capability) from ISTS
3.	Transmission Network Expansion in Gujarat to increase ATC from ISTS: Part C Estimated Cost: Rs 148 Crore Implementation Time-frame: <i>Matching with establishment of Prantij 400/220 kV and Sankhari-Prantij 400 kV D/C line by GETCO (presently expected by Mar'25).</i>	Since the cost of the scheme lies between Rs 100 to 500 Crore, NCT has to approve the scheme. Accordingly, NCT approved the scheme for implementation through RTM mode as it involves ICT augmentation at existing substation at Banaskantha and a 26 km 400 kV line. (Line works too small scheme to be implemented through TBCB route)	To increase Gujarat's ATC (Available Transfer Capability) from ISTS
4.	Transmission Network Expansion in Gujarat associated with integration of RE projects from	Since the cost of the scheme is greater than Rs 500 Crore, NCT has to make recommendations to MoP. Accordingly, NCT recommended for	Transmission network expansion

I/19355/2021

S. No.	Name of the scheme/est. cost	Decision of NCT	Purpose /Justification
	Khavda potential RE zone Estimated Cost: Rs 953 Crore Implementation Time-frame Matching with Khavda Phase-A (Ph-II) (5GW) scheme. NCT has recommended a time-line of 24 months from SPV Transfer for Khavda Phase-A (Ph-II) (5GW) scheme.	implementation of the scheme through TBCB route.	associated with integration of RE projects from Khavda potential RE zone

Detailed scope of the above scheme is enclosed as Annexure-IV.

B. Schemes already deliberated and recommended by NCT in its previous meetings

1.1. Transmission Scheme for Solar Energy Zone in Gadag (2500 MW), Karnataka –Part A

1.2. In the 4th meeting of NCT held on 20.01.2020 and 28.01.2020, the following phase-wise segregation for Transmission scheme for evacuation of RE power from Gadag SEZ to be implemented as two separate transmission schemes was agreed by NCT:

A. Transmission scheme for evacuation of 1000 MW from Gadag SEZ under Phase-I

Sr. No.	Scope of the Transmission Scheme	Capacity /km
1.	Establishment of 400/220 kV, 2x500 MVA Gadag Pooling Station with 400 kV (1x125 MVAR) bus reactor Future provisions: • Space for 400 kV Line bay with switchable line reactor: 8 nos. • 400/220kV ICT along with associated bay: 4 nos. 220kV • Bus sectionalizer bay: 2 nos. (One no. bay for each Main Bus) • Bus coupler bay: 2 nos. • Transfer Bus coupler bay: 2 nos.	400/220 kV, 500 MVA ICT – 2 400 kV ICT bays – 2 220 kV ICT bays – 2 400 kV line bays – 2 220 kV line bays – 4 125 MVA, 420 kV reactor - 1 420 kV reactor bay – 1

I/19355/2021

	<ul style="list-style-type: none"> • Space for future 400/220kV ICT bay: 4 nos. • Space for future line bay: 8 nos. 	
2.	Gadag PS-Narendra (New) PS 400 kV (high capacity equivalent to quad moose) D/C Line	Length - 100
3.	400 kV line bays at Narendra (new) for Gadag PS-Narendra (New) PS 400 kV D/c line.	400 kV line bays – 2

Note:

- (i) Powergrid to provide space for 2 no. of 400 kV line bays at Narendra (New) 400 kV substation for termination of Gadag PS- Narendra (New) 400 kV (high capacity equivalent to quad moose) D/C Line
- (ii) The schedule of implementation would be matching with schedule of RE developers or 18 months from the date of transfer of SPV whichever is later.

B. Transmission scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II

Sl. No.	Scope of the Transmission Scheme	Capacity /km
1.	400/220 kV, 3x500 MVA ICT Augmentation at Gadag Pooling Station	400/220 kV, 500 MVA ICT – 3 400 kV ICT bays – 3 220 kV ICT bays – 3 400 kV line bays – 2 220 kV line bays – 4(to be taken up as per Connectivity/LTA applications received)
2.	Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/c line	Length – 60
3.	400 kV line bays at Koppal PS for Gadag PS-Koppal PS 400 kV D/c line	line bays – 2

Note:

- (i) Developer of Koppal PS to provide space for 2 no. of 400 kV line bays at Koppal PS for termination of Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/C Line.
- (ii) Phase-II scheme to be taken up only after receipt of Connectivity/LTA applications beyond 1000 MW at Gadag or beyond 1500 MW at Koppal P.S
- (iii) The schedule of implementation of Phase-II of the scheme would be matching with schedule of RE developers or 18 months from the date of transfer of SPV whichever is later.

The Transmission scheme for evacuation of 1000 MW from Gadag SEZ under Phase-I has already been notified by Ministry of Power in Gazette of India dated 19.07.2021 and the scheme is under bidding.

I/19355/2021

Transmission scheme for evacuation of 1500 MW from Gadag SEZ under Phase-II was referred back to the NCT. The NCT was requested to recommend the scheme for implementation to MoP as and when there is certainty of RE generation.

Further, in the 8th meeting of Sub Committee on cross cutting issues held on 26.11.2021, SECI had informed that sufficient connectivity applications are there at Gadag PS and the scheme may be taken up for implementation.

As on 30.11.2021, CTU has granted/agreed for grant of Stage-II Connectivity for 760 MW & LTA for 460 MW (including applications agreed in the recently held meeting on 26.11.2021) at Gadag PS, Karnataka. The details are as below:

Sl. No.	Applicant name	St-II Connectivity Granted (MW)	LTA granted (MW)
1	Vena Energy Vidyuth Private Limited	160	160
2	Renew Solar Power Pvt Ltd	300	300
3	Azure Power India Private Ltd	120	NA
4	Green Infra Wind Energy Ltd	180	NA
	Total	760	460

In addition, CTU has also received 1 no. of Stage-II Connectivity application for 50 MW in the month of Nov'2021 at Gadag PS which is under process & shall be deliberated in the meeting to be held in December, 2021.

- 1.3. MNRE stated that as per the information received from SECI regarding award of RE projects, the action for development of 2nd phase of Gadag PS beyond 1000 MW needs to be taken up on priority basis. In addition to the above developers, Adani Energy Four Limited would also be applying stage-II connectivity for 450 MW. With this total stage-II connectivity would be 1260 MW.
- 1.4. CTU informed that Gadag-Phase I scheme already under bidding would be sufficient for evacuation of 460 MW RE power whose LTA has already been granted. Further, the augmentation of transformation capacity to be implemented under Phase-II may be taken up based on receipt of further LTA applications at Gadag PS.
- 1.5. NCT observed that the scheme includes augmentation of transformation capacity at Gadag PS which is still under bidding and its implementing agency is still to be identified. Therefore, the augmentation part of the scheme may be approved by CTU based on requirement of connectivity and LTA application. This would also provide flexibility in optimizing the transformation capacity based on the progress of RE generations. The balance portion of the scheme, Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/c line can be approved for implementation through TBCB route.
- 1.6. After deliberations, NCT agreed that ICT augmentation at Gadag PS scheme may be approved by CTU based on the progress of RE generations so that the transformation capacity can be optimized. The balance part of the scheme approved by NCT is as given under :

I/19355/2021

S.no	Name of the scheme/est. cost	Decision of NCT	Purpose /Justification
1	Transmission Scheme for Solar Energy Zone in Gadag (1500 MW), Karnataka: Phase-II: Part B Est Cost: Rs 191 Cr Implementation Timeframe: 18 months from SPV acquisition date.	Since the cost of the scheme is lies between Rs 100 to 500 Crore, NCT has to approve the scheme. Accordingly, NCT approved the scheme for implementation through TBCB mode.	Evacuation of RE power to be pooled at Gadag P.S.

Detailed scope of the scheme is given below:

Transmission scheme for evacuation of 1500 MW from Gadag SEZ under Phase- II

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1.	ICT augmentation at Gadag PS scheme may be approved by CTU based on requirement	
2.	Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/c line	Length – 60
3.	2 nos. of 400 kV line bays at each end of Gadag PS-Koppal PS 400 kV D/c line	Line bays – 4

Note:

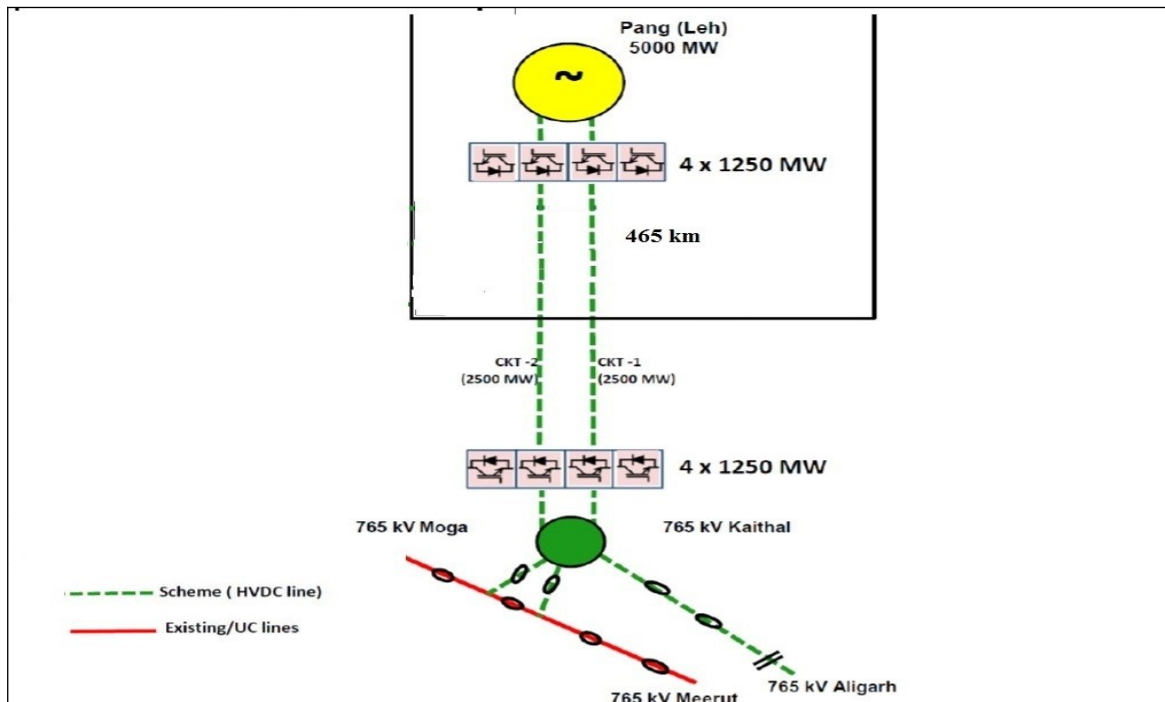
- (i) *Developer of Koppal PS to provide space for 2 no. of 400 kV line bays at Koppal PS for termination of Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/C Line.*
- (ii) *Developer of Gadag-Ph I PS to provide space for 2 no. of 400 kV line bays at Gadag PS for termination of Gadag PS-Koppal PS 400 kV (high capacity equivalent to quad moose) D/C Line.*

Implementation Timeframe: 18 months from SPV acquisition date.

2. Transmission system for evacuation of RE power from renewable energy parks in Leh

I/19355/2021

2.1. In the 6th NCT meeting held on 29.10.2021, the following Transmission system for evacuation of RE power from renewable energy parks in Leh was agreed:



- i.) **Pooling point in Pang (Leh):** ± 350 kV, 2 nos. of 2500 MW HVDC terminal
- ii.) **Pooling point in Kaithal New(Haryana):** ± 350 kV, 2 nos. of 2500 MW HVDC terminal (Each 2500 MW Symmetrical monopole link shall consist of 2 x 1250 MW parallel converter of symmetric monopoles along with Interface transformers of suitable capacity at both terminals)
- iii.) 4 Nos. of 400 kV converter (VSC) bays at Pang
- iv.) 4 Nos. of 765 kV converter (VSC) bays at Kaithal New
- v.) 2 Nos. of 400/220/33 kV, 200 MVA Transformers along with associated Bays at Pang
- vi.) 2 Nos. of 765/400/33 kV, 1500 MVA Transformers along with associated bays at Kaithal New along with 2 nos. of 400kV line bays and 2 nos. of 765 kV line bays.

Future provisions:

(i) Space provision to be kept at Kaithal New for future augmentation of AC system:

- 2 no. of 765/400kV ICT at Kaithal New
- 4 no. of line bays both at 400kV and 765kV at Kaithal New

(ii) Space provision to be kept at Pang on AC side:

- 4 nos. of 220kV line bays
- 4 nos. of 400kV line bays for pooling of RE generation (to be confirmed from MNRE/SECI)

I/19355/2021

<p>DC GIS/ AIS -</p> <p>vii.) DC GIS / AIS at Pang and DC AIS at Kaithal New</p> <p>viii.) 3 nos. of transition stations with DC GIS/ AIS</p>
<p>HVDC Line (OHL and UG Cable)</p> <p>ix.) 480 kms of ± 350kV HVDC line between Pang & Kaithal New PS (combination of 465km overhead line (Quad) and 15 km underground cable)</p>
<p>x.) 6 nos. 400kV line bays at Pang for termination of lines from renewable energy Park developer's PS in Leh</p>

BESS was agreed in-principle with the timeframe of implementation matching with the above HVDC system. However, it was agreed that the quantum of storage to be installed would be discussed and finalised subsequently.

2.2. Subsequently, a meeting was held on 15.11.2021 under the Chairmanship of Hon'ble Union Minister of Power and NRE, wherein it was decided that POWERGRID would revise the DPR for setting up of 5GW transmission link from Pang (Leh) -Kaithal (Haryana) including 1-2 GWh of BESS and AC system strengthening in Ladakh and J&K to provide RE power within Ladakh and also to J&K. It was also decided that MNRE would move a proposal for providing Central Grant for development of the above transmission link as part of GEC.

2.3. Due to constraints observed in integration of the system with Moga and Aligarh, CTU has proposed the following AC interconnections from VSC terminal at Kaithal:

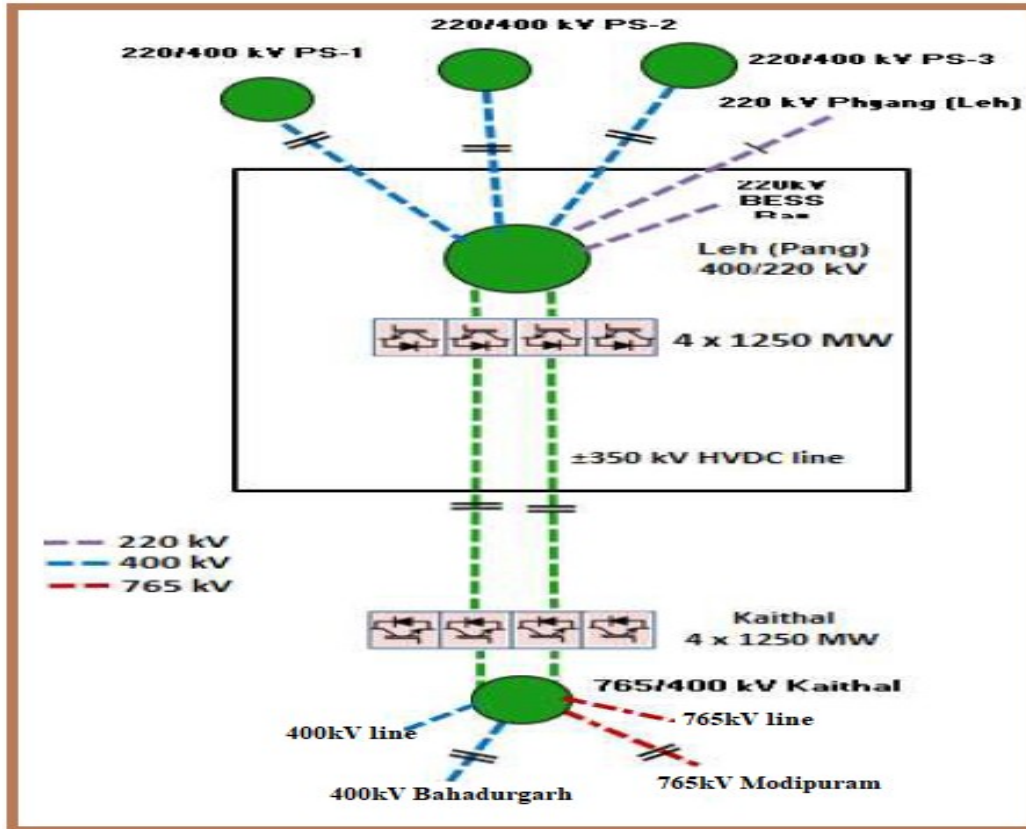
- i) Kaithal – Bahadurgarh (PG) 400 kV D/c Line(Twin HTLS)
- ii) Kaithal-Modipuram 765 kV D/c Line along with 1x240MVAr switchable line reactor on each ckt at Kaithal end
- iii) Augmentation of 765/400kV, 1500 MVA transformer (in addition to 2x1000MVA in other section) of Bhiwani S/s (one section has 1x1000MVA ICT whereas other has 2x1000MVA ICT split through series reactor)
- iv) 3 Nos. of 765/400/33 kV, 1500 MVA Transformers along with associated bays at Kaithal.

2.4. Incorporating the above system and MoP inputs PGCIL vide their letter date 24.11.2021 has forwarded revised DPR with composite Transmission System (HVDC+EHVAC) for evacuation of RE generation in LEH (Pang). In addition to the 5 GW HVDC system from Pang to Kaithal earlier agreed in the 6th NCT meeting, the present transmission system proposed in the DPR has revised HVAC system and have additional components under ISTS which are:

- (i) Transmission lines at 400kV level for interconnections with RE parks
- (ii) Connectivity at 220kV level with existing Leh S/s (for providing ISTS supply to Leh)
- (iii) BESS with capacity of 1 GWh at Pang as a part of transmission system.

I/19355/2021

The above revision/addition of the elements in the transmission system resulted in the escalation of the estimated cost of the system to Rs. 26966.54 Crs.(Sept 21 price level) against the cost estimate of Rs. 21976.12 Crs (March 21 price level), as per previous DPR (no battery). MoP vide its letter dated 25.11.2021 has forwarded PGCIL DPR for seeking the recommendations of NCT.



2.5. Regarding the query on type of cable being proposed and the losses in the HVDC system, CTU clarified that the 15 km underground cable proposed in the DPR is with XLPE cable. Further, the losses in HVDC system is around 6-7% (2% as HVDC terminal losses and 4-5% loss in HVDC transmission line). The conductor design has been proposed as Quad Lapwing considering the ± 350 kV voltage.

CTU informed that the transmission system is sufficient for evacuation of 13GW (9 GW Solar + 4 GW Wind) RE capacity along with 12GWh BESS capacities at RE parks. The 1 GWh (250 MW for 4 hours) BESS at Pang is part of the transmission system that would mainly be utilized to keep the transmission line charged during non-solar hours. The capacity utilization factor for the transmission system would be around 76% considering the above arrangements.

The time-period for implementation of transmission system has been revise from 7 years to 5 years based on the recommendations of MoP and the same have been agreed by POWERGRID.

CTU further informed that 5 GW Transmission corridor (HVDC) from Pang to Kaithal comprising of two circuits of 2500 MW each has been planned keeping in view techno-economics considerations. In case of outage of one circuit, 2500 MW power will have to be

I/19355/2021

curtailed during peak RE/solar condition, if adequate BESS capacity is not available during such conditions.

- 2.6. MNRE informed that the transmission system proposed includes the central grant component of 40% of the total cost. The in-principle approval from DoE has already been received for the grant and the grant would be under GEC funding. MNRE is under process for preparation of EFC note for the central grant.
- 2.7. NCT observed that out of the total 12 GWh BESS, 1 GWh BESS has been proposed as transmission element and balance 11 GWh BESS would be installed as a part of RE generation projects. It was suggested that 1GWh of BESS (which is part of the transmission system for evacuation of RE power from Leh) also needs to be incorporated in the EFC note being prepared by MNRE.
- 2.8. In the 6th NCT meeting members have requested for details of the report on the BESS capacity that has been assessed by SECI. The report is yet to be shared by SECI. MNRE informed that that the earlier studies were carried out for RE potential of 7.5 GW and later it was increased to 10 GW. MNRE agreed to furnish the studies carried out by SECI for assessment of BESS capacity as well as the capacity utilization factor of the transmission system.
- 2.9. As regard for the mode of implementation of the project, it was discussed that the matter was deliberated in the 6th NCT meeting held on 29.10.202, wherein members deliberated on the pros and cons of implementation of the project as under:

Under the RTM mode

The project may be implemented by a Central agency such as Powergrid which has experience of implementation of VSC based system and had worked in relatively inhospitable areas of Ladakh. Further, the project is of National importance and considerable Central Government grant is also involved in it and also Ladakh is a sensitive area. However, if the project is awarded through TBCB route, all parameters of the scheme (design, transmission route, difficult terrain, high altitude and harsh weather etc.) would be required to be frozen before bidding out of the scheme. It would be very difficult to freeze these inputs in advance.

Under TBCB mode

The TBCB mode of implementation as per the new Tariff policy is meant to increase competition in transmission sector by giving Private players the opportunity to implement HVDC system in India. As such, there is a possibility for discovery of a competitive price through bidding. In addition, Powergrid can also participate in the bidding process for implementation of the project.

- 2.10. After deliberations, NCT recommended the following:

Name of the Scheme: Transmission system for evacuation of RE power from renewable energy parks in Leh (5GW Leh- Kaithal transmission corridor)

I/19355/2021

Name of the scheme/est. cost/schedule	Mode of implementation	Purpose /Justification
Transmission system for evacuation of RE power from renewable energy parks in Leh (5 GW Leh-Kaithal transmission corridor) Estimated Cost: 26966.54 Crores Implementation Timeframe: 5 years	*	For evacuation of 13 GW power from renewable energy parks in Ladakh region.

* Ministry of Power may like to decide the mode of implementation considering the pros and cons of RTM vis a vis TBCB route in this particular case as discussed by the NCT and mentioned below:

The NCT opined that while TBCB mode of implementation of the project may lead to discovering of a competitive price, the following two aspects are specific to this project:

- i) it involves substantial amount of GoI grant;
- ii) it involves work in UT of Ladakh, which is considered strategically a sensitive area.

NCT suggested that MoP may like to take a view regarding the mode of implementation taking into consideration the above aspects.

The detailed scope of works in the scheme is as given below:

S.No	Scope / Transmission system	Cost (in Rs. Cr)
1	ISTS system for RE interconnection at Pang: (i) 400kV PS-1 - Pang D/C (quad moose) line - 7 km (ii) 400kV PS-2 - Pang D/C (quad moose) line - 27 km (iii) 400kV PS-3 - Pang D/C (quad moose) line - 41 km <i>Note: 400kV GIS line bays (2 nos) each at PS-1, PS-2 & PS-3 is under RE developer scope</i>	1838
2	Battery Energy Storage System at Pang: (i) BESS of suitable size (1 GWh: 250MW x 4 hr) (ii) 220kV line bay (1 no.) for BESS (ISTS) interconnection at Pang	1934
3	HVDC System: (i) Pooling point in Pang (Leh) : ± 350 kV, 2 nos. of 2500 MW HVDC terminal <i>Future provisions: Space for</i>	19616

I/19355/2021

	<ul style="list-style-type: none"> • 400 kV line bays : 6 nos. • 400/220 kV ICTs along with bays : 2 nos. • 220 kV line bays : 4 nos <p>(ii) Pooling point in Kaithal (Haryana): ± 350 kV, 2 nos. of 2500 MW HVDC terminal <i>Future provisions: Space for</i></p> <ul style="list-style-type: none"> • 765/400kV ICTs along with bays : 1 no. • 765kV line bays along with switchable line reactor : 2 nos. • 400kV line bays along with switchable line reactor : 4 nos. • 400/220 kV ICTs along with bays : 2 nos. • 220 kV line bay : 4 nos. <p>(iii) 4 Nos. of 400 kV converter (VSC) bays at Pang (iv) 4 Nos. of 400 kV converter (VSC) bays at Kaithal (v) 2 Nos. of 400/220/33 kV, 315 MVA Transformers along with associated Bays at Pang (vi) 3 Nos. of 765/400/33 kV, 1500 MVA Transformers along with associated bays at Kaithal (vii) 2 nos. of 400 kV line bays at Kaithal (viii) 2 nos. of 765 kV line bays at Kaithal (ix) 6 nos. of 400 kV line bays at Pang for termination of lines from RE parks</p> <p>DC GIS/ AIS</p> <p>(i) DC GIS / AIS at Pang and DC AIS at Kaithal (ii) 4 nos. of transition stations with DC GIS/ AIS</p> <p>HVDC Line (OHL and UG Cable)</p> <p>(i) HVDC Line (OHL and UG Cable): 480 kms of ± 350kV HVDC line between Pang & Kaithal PS (combination of 465km overhead line (Quad) and 15 km underground cable)</p>	
4	<p>EHVAC System beyond Kaithal:</p> <p>(i) Kaithal - Bahadurgarh (PG) 400 kV D/C Line (Twin HTLS*) - 170 km (ii) Kaithal - Modipuram (Meerut) (UPPTCL) 765 kV D/C Line along with 1x240MVAr switchable line reactor on each ckt at Kaithal end (along with 2 nos. switching equipment for 765kV, 240 MVAR Switchable line reactor)- 210 km (iii) Augmentation of 765/400 kV, 1500 MVA transformer of Bhiwani S/s (one section has 2x1000 MVA ICT wherein 1500 MVA augmentation will take place, whereas other has 1x1000 MVA ICT through series reactor) along with</p>	2292

I/19355/2021

	associated bays incl. 500 MVA spare transformer unit (1-Phase) (iv) 2 nos. of 400 kV line bays at Bahadurgarh(PG) (v) 2 nos. of 765 kV line bays at Modipuram (Merrut) (UPPTCL)	
5	ISTS system to provide reliable power supply to Ladakh: (i) 220kV Pang – Leh (Phyang) (PG) S/c line (Deer conductor) (S/c line on D/c tower) along with 220kV line bay each at Pang & Leh (Phyang) for line termination- 151 km + 7 km underground cable	1287
	Total Estimated Cost	26967

**with minimum capacity of 2100 MVA on each circuit at nominal voltage*

(i) UPPTCL to provide space for 2nos. of 765kV bays at Modipuram (Merrut) S/s

(ii) POWERGRID to provide space for 2nos. of 400V bays at Bahadurgarh S/s

(iii) The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey

Implementation Timeframe: 5 years

3. 400 kV Khandukhal (Srinagar) - Rampura (Kashipur) D/c line

3.1. In the 3rd NRPC(TP) meeting, implementation of 400 kV D/c Khandukhal(Srinagar) - Rampura (Kashipur) line was agreed to be taken up under central sector as an ISTS scheme with the matching time frame of commissioning of Vishnugad Pipalkoti HEP of THDC or Tapovan Vishnugad HEP of NTPC, whichever is earlier.

Subsequently, the scheme was taken up for discussions in 5th meeting of NCT and 80 MVAR switchable line reactor in each circuit at any end of 400kV Khandukhal(Srinagar) - Rampura (Kashipur) D/c line with inter-tripping arrangement were proposed due to the change in the line length to 195 km from the earlier noted line length of 150 km. In the 6th meeting of NCT the following transmission system was agreed:

400 kV Khandukhal (Srinagar) - Rampura (Kashipur) D/c line

Sl. No.	Scope of the Transmission Scheme	Capacity /km
1	400 kV D/c Khandukhal(Srinagar)-Rampura (Kashipur) line (Twin HTLS)	Length – 195 km
2	1x80MVAR switchable line reactor at Rampura (Kashipur) end on each circuit of Khandukhal(Srinagar) - Rampura (Kashipur) line	Switching equipment for 420 kV 80 MVAR switchable line reactor –2

I/19355/2021

Sl. No.	Scope of the Transmission Scheme	Capacity /km
		420 kV, 80 MVAr Switchable line reactor- 2
3	2 nos. of 400 KV bays both at Rampura(Kashipur) S/s	400 kV line bays -2
4	Upgradation of existing 400kV bays at Khandukhal (Srinagar)	Upgradation works for 400 kV line bays -2

In the 6th meeting, NCT also recommended that a joint visit to be carried out by CEA, CTU and PTCUL for confirmation of space availability for switchable line reactor at Kashipur end. In case space is not available for switchable line reactor, feasibility of fixed line reactor could be ascertained.

- 3.2. A joint site visit of Rampura (Kashipur) 400/220kV substation was done on 15.11.2021 by team comprising of officers from CEA, CTUIL & PTCUL to assess the availability of space for installation of switchable line reactors on 400kV D/C Khandukhal (Srinagar) - Rampura (Kashipur) line at Kashipur end.

As per the site visit report (enclosed as Annex V), Rampura (Kashipur) S/s is having One and Half breaker scheme with Double bus (Main-I and Main-II). In the substation, one complete diameter is existing, for termination of one 315MVA 400/200kV ICT (2nd) (already in place) and one 400kV circuit from Srinagar (400kV bay without switchable line reactor is existing). Further, adjacent space for another 400kV diameter is available which would accommodate 1 no. 400kV line bay with switchable line reactor and 315MVA, 400/200kV (3rd) ICT (proposed by PTCUL under their scope). The 400kV line bay equipment at Rampura (Kashipur) S/s in existing dia are having rating of 2000 A which needs to be upgraded with rating of 3150 A. Space is available for installation of switchable line reactors on 400kV D/C Khandukhal (Srinagar) - Rampura (Kashipur) line at Kashipur end.

- 3.3. NCT deliberated on the joint visit report and agreed for inclusion of bay upgradation works at Kashipur 400/220 kV (PTCUL) substation in the already agreed scope of the scheme.
- 3.4. NCT recommended the following:

400 kV Khandukhal(Srinagar) - Rampura (Kashipur) D/c line

Name of the scheme/est. cost/schedule	Mode of implementation	Purpose /Justification
400 kV Khandukhal(Srinagar)-Rampura (Kashipur) D/c line Estimated Cost: Rs 800 Crores Implementation Timeframe: The	TBCB	To evacuate power from upcoming hydro-electric projects in the Alaknanda river basin

I/19355/2021

Name of the scheme/est. cost/schedule	Mode of implementation	Purpose /Justification
timeline to be considered as matching time frame of commissioning of Vishnugad Pipalkoti HEP (Dec'23) of THDC or Tapovan Vishnugad HEP of NTPC, whichever is earlier.		

The detailed scope of works in the scheme is as given below:

Sl. No.	Scope of the Transmission Scheme	Capacity /km
1	400 kV D/c Khandukhal(Srinagar) - Rampura (Kashipur) line (Twin HTLS*)	Length – 195 km
2	1x80MVAr switchable line reactor at Rampura (Kashipur) end on each circuit of Khandukhal(Srinagar) - Rampura (Kashipur) line	Switching equipment for 420 kV 80 MVAR switchable line reactor –2 420 kV, 80 MVAr Switchable line reactor- 2
3	1 no. of 400 kV line bay at Rampura (Kashipur) S/ s	400 kV line bay -1
4	Upgradation of existing 400kV bays at Khandukhal (Srinagar)	Upgradation works for 400 kV line bays -2
5	Upgradation of existing 1 no. of 400 kV diameter comprising line bay (Srinagar) and ICT bay alongwith associated Tie bay at Rampura (Kashipur)	Upgradation works for 400 kV line bay – 1 Upgradation works for 400 kV ICT bay – 1 Upgradation of Tie bay -1

**with minimum capacity of 2500 MVA on each circuit at nominal voltage*

Note:

- (i) **Implementation Timeframe** : *The timeline to be considered as matching timeframe of commissioning of Vishnugad Pipalkoti HEP (December, 2023) of THDC or Tapovan Vishnugad HEP of NTPC, whichever is earlier.*
- (ii) *The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey*
- (iii) *PTCUL to provide space for 1 nos. of 400kV bay at Rampura (Kashipur) along with the space for switchable line reactors.*

I/19355/2021

C. Proposals costing upto Rs 100 Crore- approved by CTU along with their mode of implementation

NCT noted the schemes approved by CTU vide their letter dated 16.11.2021. The same is enclosed as **Annexure-VI**

D. Other items

1.0 Format for furnishing of ISTS scheme proposals by CTU to NCT.

- 1.1.** NCT deliberated on the format for furnishing of ISTS scheme proposals for expansion of ISTS, circulated along with the agenda. Members opined that estimation of tariff impact due to new ISTS proposal would be difficult to calculate, however, CTU may furnish the Annual Transmission Charges due to proposed scheme in percentage of the existing Annual Transmission Charges as well as in absolute terms.
- 1.2.** POSOCO suggested to include the power flow studies (for at least nine scenarios) for all the proposals proposed by CTU. CTU opined that instead of including the studies for each individual scheme, power flow studies for nine scenarios would be done for a specific time frame and it would be common for all the transmission schemes proposed in that time frame. The same would be presented before NCT.
- 1.3.** Member (PS), CEA informed that inclusion of information pertaining to any wildlife/protected area along the transmission line route has been proposed in view of the decision taken in the Meeting to discuss the issue of Rationalization of Corridors for Laying of Transmission lines in Forest/Wildlife areas held on 27.07.2021 under the chairmanship of Secretary (Power). In this meeting, it was decided that “As use of Multi-circuit towers could have some reliability issues compared to use of different circuits avoiding Wildlife/protected areas, it would be preferable to plan new transmission line route avoiding wild-life/protected areas identified by MoEFCC. In case, it is not possible to avoid wild-life/protected areas, use of multi-circuit towers for laying of new transmission lines could be considered.”
- 1.4.** After deliberations, the following **Format of proposal for expansion of ISTS for submission to NCT** was agreed:

S.no	Items	Details
1.	Name of Scheme	
2.	Scope of the scheme	
3.	Depiction of the scheme on Transmission Grid Map	
4.	Upstream/downstream system associated with the scheme	
5.	Objective / Justification	
6.	Estimated Cost	
7.	Impact on the total Annual Transmission charges in % along with the existing	

I/19355/2021

	ATC	
8.	Need of phasing, if any	
9.	Implementation timeframe	
10.	Inclusion of any wild life/protected area along the transmission line route	
11.	Deliberations with RPC alongwith their comments	
12.	System Study for evolution of the proposal	

2.0 Evaluation of functioning of National Grid.

- 2.1. POSOCO made a brief presentation highlighting the restriction being faced wrt maximum power order on Raigarh-Pugalur HVDC link during WR-SR export/import scenario post bus splitting at Raigarh 765/400 kV substation. During high RE generation in SR coupled with high generation at Kudgi TPS, power flow is reversed in HVDC Raigarh – Pugalur as well as other HVDCs to control overloading of Kolhapur (PG) – Kolhapur (MSETCL) 400 kV D/C line. Therefore, there is requirement of strengthening of SR-WR corridor on immediate basis.
- 2.2. Further there are restriction on Maximum Power Order on Raigarh – Pugalur HVDC (reverse power flow i.e., SR to WR) post bus-split at Raigarh 765/400 kV pooling station during high generation at Raigarh PS and Lara TPS. During low generation at Raigarh PS and high generation at Lara TPS, there are restriction on Maximum Power Order on Raigarh – Pugalur HVDC (WR to SR). This requires 765/400 kV ICT augmentation at Raigarh 765/400 kV substation in both bus-sections as well as strengthening of Lara- Raigarh 400 kV D/C line.
- 2.3. POSOCO also highlighted the need for implementation of Wardha bus- splitting scheme at the earliest.
- 2.4. Chairman NCT enquired about the remedial measures for the operational constraints being faced by POSOCO.
- 2.5. CTU stated that re-conductoring of Kolhapur (PG) – Kolhapur (MSETCL) 400 kV D/C line with HTLS has already been approved by MoP. Additional strengthening of WR-SR corridor, ICT augmentation at Raigarh 765/400 kV substation is under study. These proposals would be placed before NCT after consultation with the stakeholders.

E. Summary of the deliberations of the 7th NCT meeting held on 03.12.2021.

- 1.0 ISTS Transmission schemes, costing upto Rs 100 Crore, noted by NCT: The transmission schemes costing upto Rs 100 Crore, approved by CTU is enclosed as Annexure –VI
- 2.0 ISTS Transmission schemes, costing between Rs 100 Crore to Rs 500 Crore, approved by NCT :

The transmission schemes approved by NCT is given below:

I/19355/2021

S.no	Transmission Scheme	Implementation Mode	Implementation Timeframe	Allocated for Bid Processing to	Estimated Cost (Rs Crore)
1.	Transmission Network Expansion in Gujarat to increase ATC from ISTS: Part C	RTM	Matching with establishment of Prantij 400/220 kV and Sankhari-Prantij 400 kV D/C line by GETCO (presently expected by March, 2025).	CTU through OM/letter by CEA	148
2.	Transmission Scheme for Solar Energy Zone in Gadag (1500 MW), Karnataka: Phase-II: Part B	TBCB	18 months from SPV acquisition date	RECPDCL Through Gazette Notification by CEA	191

The broad scope of above ISTS scheme, approved for implementation through TBCB mode by NCT to be notified in Gazette of India is as given below:

S.No	Name of Scheme & Implementation timeframe	Broad Scope	Bid Process Coordinator
1	Transmission Scheme for Solar Energy Zone in Gadag (1500 MW), Karnataka: Phase-II: Part B	i) Gadag PS-Koppal PS 400 kV D/c line ii) Associated line bays (Detailed scope as approved by NCT)	RECPDCL

3.0 ISTS Transmission schemes, costing greater than Rs 500 Crore, recommended by NCT :

The ISTS transmission schemes recommended to MoP are given below:

S.no	Transmission Scheme	Implementation Mode	Implementation Timeframe	Survey Agency	Estimated Cost (Rs Cr.)
1.	Transmission Network Expansion in Gujarat to increase ATC from	RTM (Already decided by MoP in	June '2023		2077

I/19355/2021

	ISTS: Part B	meeting dated 02.11.2021)			
2.	Transmission Network Expansion in Gujarat associated with integration of RE projects from Khavda potential RE zone	TBCB	Matching with Khavda Phase-A (Ph-II) (5GW) scheme. NCT has recommended a time-line of 24 months from SPV Transfer for Khavda Phase-A (Ph-II) (5GW) scheme.	RECPDC L	953
3.	Transmission system for evacuation of RE power from renewable energy parks in Leh (5 GW Leh - Kaithal transmission corridor)	MoP may like to decide	5 years		26967
4.	400 kV Khandukhal (Srinagar) - Rampura (Kashipur) D/c line	TBCB	Matching time frame of commissioning of Vishnugad Pipalkoti HEP (Dec'23) of THDC or Tapovan Vishnugad HEP of NTPC, whichever is earlier.	PFCCCL	800

The broad scope of ISTS schemes, recommended to MoP for implementation through TBCB mode by NCT, to be notified in Gazette of India is as given below:

S.No	Name of Scheme & Implementation timeframe	Broad Scope	Bid Process Coordinator
1	Transmission Network Expansion in Gujarat associated with integration of RE projects from Khavda potential RE zone Timeframe: Matching with Khavda Phase-A (Ph-II)	i) Banaskantha – Ahmedabad 765 kV D/c line with 330MVAR, 765 kV Switchable line reactor on each ckt at Ahmedabad S/s end ii) Associated line bays (Detailed scope as approved	(To be decided by MoP)

I/19355/2021

	(5GW) scheme. NCT has recommended a time-line of 24 months from SPV Transfer for Khavda Phase-A (Ph-II) (5GW) scheme.	by NCT)	
2	400 kV Khandukhal (Srinagar) - Rampura (Kashipur) D/c line Timeframe: Matching time frame of commissioning of Vishnugad Pipalkoti HEP (Dec'23) of THDC or Tapovan Vishnugad HEP of NTPC, whichever is earlier.	i) 400 kV D/c Khandukhal(Srinagar) - Rampura (Kashipur) line (Twin HTLS) ii) Associated bays and line reactors (Detailed scope as approved by NCT)	(To be decided by MoP)

- 4.0** The proposal for expansion of ISTS to be submitted by CTU in the format at item D (1.4).
- 5.0** CTU in consultation with CEA to frame guidelines for identifying works that could be considered as technical upgradation / augmentation works for implementation through RTM route.
- 6.0** CTU to study ISTS proposal for strengthening of WR-SR corridor, ICT augmentation at Raigarh 765/400 kV substation to overcome the operational constraints being faced by POSOCO and submit the proposal to NCT after consultation with the stakeholders.
- 7.0** MNRE to furnish the studies carried out by SECI for assessment of BESS capacity as well as the capacity utilization factor of the transmission system for Leh RE Park.
- 8.0** MNRE to incorporate 1GWh of BESS (which is part of the transmission system for evacuation of RE power from Leh RE Park) in the EFC note for grant.
- 9.0** MNRE to furnish the information pertaining to RE zones for planning purposes, the status of award of RE projects, their schedule of development & the need to phase out the ISTS system etc

Annexure-I

List of participants of 7th NCT meeting held on 03.12.2021 through VC

Sl. No.	Name (Sh./Smt.)	Designation
Central Electricity Authority		
1.	Dinesh Chandra	Chairperson
2.	Goutam Roy	Member (Power System)
3.	G. Veera Mahendar	Member (E&C)
4.	Awdhesh Kumar Yadav	Director (PSPA-I)
5.	Ganesh Rao	Deputy Director
6.	Priyam Srivastava	Deputy Director
7.	Nitin Deswal	Asst. Director
8.	Komal Dupare	Asst. Director
9.	Kanhaiya Singh Kushwaha	Asst. Director
Ministry of Power		
10.	Gautam Ghosh	Director (Trans)
MNRE		
11.	Irfan Ahmad	Director
12.	Rohit Thakwani	Scientist-C
NITI Aayog		
13.	Manoj Upadhyay	Deputy Adviser (Energy)
Technical Experts		
14.	Dr. Radheshyam Saha	Technical Expert
15.	S. K. Ray Mohapatra	Technical Expert
Central Transmission Utility of India Limited		
16.	P.C Garg	COO
17.	Ashok Pal	Dy. COO
POSOCO		
18.	K.V.S. Baba	CMD
19.	S. R. Narasimhan	Director (System Operation)
20.	Priyam Jain	Manager

I/19355/2021