

Date: 18th June, 2024

OFFICE MEMORANDUM

Subject: Change in scope “Transmission system for evacuation of RE power from renewable energy parks in Leh (5 GW Leh-kaithal transmission corridor), awarded under Regulated Tariff Mechanism (RTM) – reg.

The undersigned is directed to refer to Ministry of Power Office Memorandum dated 13.01.2022 (copy enclosed) vide which, the transmission scheme, namely “Transmission system for evacuation of RE power from renewable energy parks in Leh (5 GW Leh-kaithal transmission corridor), were awarded to POWERGRID for their implementation under RTM mode. Subsequently change in scope/ allotment of new scheme were also conveyed vide OM dated 06.11.2023 (copy enclosed).

2. Now, based on the recommendations of 19th NCT, the following scope of Transmission system (EHVAC+HVDC) for evacuation of RE power from renewable energy parks in Leh (5 GW Leh- Kaithal transmission corridor) earlier approved in 7th NCT meeting held on 03.12.21 is modified as below:

S. No.	Scope as per OM dated 13.01.2022	Revised Scope
1.	<p><u>ISTS system for RE interconnection at Pang</u></p> <p>i. 400 kV PS-1 - Pang D/C (quad moose) line – 7 km ii. 400 kV PS-2 -Pang D/C (quad moose) line – 27 km iii. 400 kV PS-3 -Pang D/C (quad moose) line – 41 km</p> <p><i>Note :400 kV GIS line bays (2 Nos.) each at PS-1, PS-2 & PS-3 (under developer scope)</i></p>	<p><u>ISTS system for RE interconnection at Pang</u></p> <p>i. 400 kV PS-1 - Pang D/C (quad moose) line – 7 km ii. 400 kV PS-2 -Pang D/C (quad moose) line – 27 km iii. 400 kV PS-3 -Pang D/C (quad moose) line – 41 km</p> <p><i>Note :400 kV GIS line bays (2 Nos.) each at PS-1, PS-2 & PS-3 (under developer scope)</i></p>
2.	<p><u>Battery Energy Storage System (1GWh: 250 MW X 4 hr) at Pang</u></p> <p>i. BESS of suitable size (1 GWh: 250 MW x 4 hr) ii. 220 kV line bay (1 no) for BESS (ISTS) interconnection at Pang</p>	Deleted
3.	<u>HVDC System</u>	<u>HVDC System</u>

S. No.	Scope as per OM dated 13.01.2022	Revised Scope
	<p>i. Pooling point in Pang (Leh): ±350 kV, 2 Nos. of 2500 MW HVDC terminal Future provisions: Space for ❖ 400 kV line bays: 6 Nos. ❖ 400/220 kV ICTs along with bays: 2 Nos. ❖ 220 kV line bays: 4 Nos.</p> <p>ii. Pooling point in Kaithal (Haryana): ±350 kV, 2 Nos. of 2500 MW HVDC terminal Future provisions: Space for ❖ 765/400 kV ICTs along with bays : 1 No. ❖ 765 kV 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> <p>iii. 4 Nos. of 400 kV converter (VSC) bays at Pang</p> <p>iv. 4 Nos. of 400 kV converter (VSC) bays at Kaithal</p> <p>v. 2 Nos. of 400/220/33 kV, 315 MVA Transformers along with associated Bays at Pang</p> <p>vi. 3 Nos. of 765/400/33 kV, 1500 MVA Transformers along with associated bays at Kaithal</p> <p>vii. 2 Nos. of 400 kV line bays at Kaithal</p> <p>viii. 2 Nos. of 765 kV line bays at Kaithal</p> <p>ix. 6 Nos. of 400kV line bays at Pang for termination of lines from RE park</p>	<p>i. Pooling point in Pang (Leh): ±350 kV, 2 Nos. of 2500 MW HVDC terminal Future provisions: Space for ❖ 400 kV line bays: 6 Nos. ❖ 400/220 kV ICTs along with bays: 2 Nos. ❖ 220 kV line bays: 4 Nos.</p> <p>ii. Pooling point in Kaithal (Haryana): ±350 kV, 2 Nos. of 2500 MW HVDC terminal Future provisions: Space for ❖ 765/400 kV ICTs along with bays : 1 No. ❖ 765 kV line bays along with switchable line reactor : 4 Nos. ❖ 400kV line bays along with switchable line reactor : 6 Nos. ❖ 400/220 kV ICTs along with bays : 2 Nos. ❖ 220 kV line bay : 4 Nos.</p> <p>iii. 4 Nos. of 400 kV converter (VSC) bays at Pang</p> <p>iv. 4 Nos. of 400 kV converter (VSC) bays at Kaithal</p> <p>v. 2 Nos. of 400/220/33 kV, 315 MVA Transformers along with associated Bays at Pang</p> <p>vi. 3 Nos. of 765/400/33 kV, 1500 MVA Transformers along with associated bays at Kaithal</p> <p>vii. Deleted</p> <p>viii. Deleted</p> <p>ix. 6 Nos. of 400kV line bays at Pang for termination of lines from RE park</p>
	<p><i>DC GIS/ AIS</i></p> <p>i. DC GIS / AIS at Pang and DC AIS at Kaithal</p> <p>ii. 4 Nos. of transition stations</p>	<p><i>DC GIS/ AIS</i></p> <p>i. DC GIS / AIS at Pang and DC AIS at Kaithal</p> <p>ii. 4 Nos. of transition stations</p>

S. No.	Scope as per OM dated 13.01.2022 with DC GIS/ AIS	Revised Scope with DC GIS/ AIS
	<p data-bbox="459 315 847 349"><i>HVDC Line (OHL and UG Cable)</i></p> <p data-bbox="459 383 911 584">i. HVDC Line (OHL and UG Cable): 480 kms of ±350 kV HVDC line between Pang & Kaithal PS (combination of 465 km overhead line (Quad) and 15 km underground cable)</p>	<p data-bbox="935 315 1326 349"><i>HVDC Line (OHL and UG Cable)</i></p> <p data-bbox="935 383 1402 584">i. HVDC Line (OHL and UG Cable): 480 kms of ±350 kV HVDC line between Pang & Kaithal PS (combination of 465 km overhead line (Quad) and 15 km underground cable)</p>
4.	<p data-bbox="459 595 823 629"><u><i>EHVAC System beyond Kaithal</i></u></p> <p data-bbox="459 663 911 763">i. Kaithal – Bahadurgarh (PG) 400 kV D/c Line (Twin HTLS*) – 170 km</p> <p data-bbox="459 775 911 1077">ii. Kaithal – Modipuram (Meerut) (UPPTCL) 765 kV D/c Line along with 1x240 MVAR switchable line reactor on each circuit at Kaithal end (along with 2 Nos. switching equipment for 765 kV, 240 MVAR Switchable line reactor) – 210 km</p> <p data-bbox="459 1088 911 1424">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 associated bays incl. 500 MVA spare transformer unit (1-Phase)</p> <p data-bbox="459 1435 911 1491">iv. 2 Nos. of 400 kV line bays at Bahadurgarh (PG)</p> <p data-bbox="459 1503 911 1559">v. 2 Nos. of 765 kV line bays at Modipuram (Meerut) (UPPTCL)</p>	<p data-bbox="935 595 1302 629"><u><i>EHVAC System beyond Kaithal</i></u></p> <p data-bbox="935 663 1402 763">Deleted (Proposed to be delinked and formed as separate scheme)</p>
5.	<p data-bbox="459 1603 911 1671">ISTS system to provide reliable power supply to Ladakh:</p> <p data-bbox="459 1682 911 1904">i. 220 kV Pang – Leh (Phyang) (PG) S/C line (Deer conductor) (S/C line on D/c tower) along with 220 kV line bay each at Pang & Leh (Phyang) for line termination 151 km + 7 km underground cable.</p>	<p data-bbox="935 1603 1402 1671">ISTS system to provide reliable power supply to Ladakh:</p> <p data-bbox="935 1682 1402 1904">i. 220 kV Pang – Leh (Phyang) (PG) S/C line (Deer conductor) (S/C line on D/c tower) along with 220 kV line bay each at Pang & Leh (Phyang) for line termination 151 km + 7 km underground cable.</p>

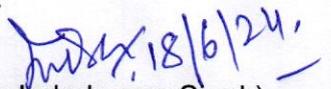
S. No.	Scope as per OM dated 13.01.2022	Revised Scope
Notes	<p>*With minimum capacity of 2100 MVA on each circuit at nominal voltage</p> <p>i. UPPTCL to provide space for 2 Nos. of 765 kV bays at Modipuram (Merrut) S/s</p> <p>ii. POWERGRID to provide space for 2 Nos. of 400 kV bays at Bahadurgarh S/s</p> <p>iii. The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey</p> <p>iv. implementation Time-frame: 5 years from approval</p>	<p>❖ Deleted</p> <p>i. Deleted</p> <p>ii. Deleted</p> <p>iii. The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey</p> <p>iv. Completion Schedule: FY 2029-30 (by 31st March 2030).</p>

**** due to urgent requirement of 1500 MVA, 765/400 kV ICT at Bhiwani S/s, this element was delinked from earlier RTM scope in 15th NCT meeting and MOP vide OM dated 06/11/23 allocated the implementation of the ICT to POWERGRID in RTM**

3. Further, the above delinked EHVAC system beyond Kaithal would be required in the matching timeframe of the HVDC system i.e. by 31.03.2030. Accordingly, considering the implementation time frame difference between HVDC (about 4.5 years) & EHVAC system (about 2 yrs), implementation of EHVAC system may be taken up with NCT in due course.

4. CTUIL may make note of above modifications for necessary action at their end.

5. This issues with the approval of Hon'ble Minister of Power.


 (Naorem Indrakumar Singh)
 Under Secretary (Trans)
 Tele-Fax: 2332 5242
 Email: transdesk-mop@nic.in

To,
 COO, CTUIL,
 Gurugram.

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