



भारत सरकार / Government of India  
विद्युत मंत्रालय / Ministry of Power  
केन्द्रीय विद्युत प्राधिकरण / Central Electricity Authority  
सेवा भवन, आर. के. पुरम, नई दिल्ली-110066  
Sewa Bhawan, R. K. Puram, New Delhi-110066



ISO: 9001:2008

No. 1/9/2013-SP&PA/

Dated: 22<sup>nd</sup> October, 2014

**-As per List Enclosed-**

**Subject: The 35<sup>th</sup> Meeting of the Standing Committee on Power System Planning of Northern Region**

Sir,

In continuation of earlier notice vide even no. dated 24<sup>th</sup> September, it is to intimate that the 35<sup>th</sup> Meeting of the Standing Committee on Power System Planning of Northern Region would be held at 1100 Hrs. on 3<sup>rd</sup> November, 2014 instead of 27<sup>th</sup> October, 2014 at **Board Room, PTCUL, Vidyut Bhavan, Near ISBT Crossing, Majra, Dehradun Uttarakhand**. The Agenda for the Meeting has also been uploaded in the CEA website [www.cea.nic.in](http://www.cea.nic.in) (path to access-Home page-wing specific documents/Power System wing/Standing Committee/ Northern Region). You are requested to make it convenient to attend the meeting.

**Nodal Officer for the meeting in Uttarakhand**

**S. K. Sharma, Director (Project), PTCUL**  
**Tele Phone No. 0135-2645753,**  
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Yours Sincerely,

Sd/-  
(Goutam Roy)  
Director SP&PA  
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**Copy for information to:**

- 1) PPS to Chairperson, CEA
- 2) PPS to Member PS, CEA
- 3) Joint Secretary(Trans.), Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi

**List of Addressee-**

1 - Member Secretary NRPC, 18-A Shajeed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi - 110016 (Fax-01 1-26865206)	2. Director (W&P) UPPTCL, Shakti Bhawan Extn,3rd floor, 14, Ashok Marg, Lucknow - 226 001 (Fax-0522-2287822)	3. CEO, POSOCO B-9, Qutab Institutional Area Katwaria Sarai New Delhi - 110016. (Fax : 26852747)
4. Director (Projects) NTPC, NTPC Bhawan, Core 7,Scope complex- 6,Institutional Area, Lodhi Road, New Delhi- (Fax-01 1-24361018)	5. Director (Projects) PTCUL, Urja Bhawan, Campus, Kanwali Road Dehradun- 248001. Uttarakhand (Fax-0135-2763431)	6. Member (Power) BBMB, Sectot-19 B Madya Marg, Chandigarh-1 60019 (Fax-01 72-2549857)
7. Director (T&RE) NHPC Office Complex, Sector - 33, NHPC, Faridabad - 121 003 (Fax-0129-2256055)	8. Director (Operations) Delhi Transco Ltd. Shakti Sadan, Kotla Marg, New Delhi - 11 0 002 (Fax-01 1-23234640)	9. Chief Engineer(Transmission) NPCIL,9- S-30, Vikram Sarabhai Bhawan, Anushakti Nagar, Mumbai - 400 094 (Fax-022-25993570, 25563350)
10. Director (Projects) POWERGRID, Saudamini, Plot no. 2, Sector - 29, Gurgaon-122 001 Fax-0124-2571932'	11. Director(Technical), Punjab State Transmission corporation Ltd. (PSTCL), Head Office The Mall, Patiala - 147 001 (Fax-0 1 75-230401 7 )	12. Chief Engineer(Operation) Ministry of Power, UT Secretariat, Sector-9 D Chandigarh - 161 009 (Fax-01 72-2637880)
13. Director (Technical) RRVPL, Vidyut Bhawan, Jaipur- 302 005. Fax 0141-2740794	14. Director (Technical) HVPNL, Shakti Bhawan, Sector -6, Panchkula - 134 109 (Fax-01 72-2560640)	15. Managing Director, HP PowerTransmission Corporation Ltd., Barowalias, Khalini, SHIMLA-171002 (Fax-01 77-2623415)
16. Director(Technical) HPSEB Ltd. Vidyut Bhawan, SHIMLA-171004 (Fax-01 77-2813554)	17. Director(Technical) THDC Ltd. Pragatipuram, Bypass Road, Rishikesh- 249201 Uttarakhand, (Fx-0135-2431519)	18. Development Commissioner (Power), Power Development Department, Grid Substation Complex, Janipur, Jammu. Fax No. 191-2534284
19. COO(CTU), POWERGRID, Saudamini, Plot no. 2, Sector - 29, Gurgaon-122 001 (Fax-0124-2571809)		

**Draft Agenda note for 35<sup>th</sup> Standing Committee Meeting on Power System Planning in Northern Region.**

**1. Confirmation of the minutes of 34<sup>th</sup> Meeting of the Standing Committee on Power System Planning in Northern Region held on 23/12/2013**

1.1 The minutes of the 34th meeting of Standing Committee on Power System Planning in Northern Region held on 8th August 2014 at Delhi at NRPC, Katwaria Sarai, New Delhi, were circulated vide CEA letter No. No. 1/9/SP&PA-2013 / Dated: 25.08.2014.

POWERGRID had indicated that the reactive compensation associated with Inter-Regional system strengthening scheme for WR and NR part-B had some inadvertent errors. The same has been corrected and is given as below.

		<b>Approx Line length</b>	<b>Line Reactor- From bus</b>	<b>Line Reactor- To bus</b>
	<b>Line Reactors</b>			
1.	Jabalpur Pooling station - Orai 765 KV D/c	419km	330 MVAR	330 MVAR
2.	Orai – Aligarh 765kV D/c line	300km	240 MVAR	240 MVAR
3.	Orai – Orai(UPPTCL) 400kV D/c (Quad	38km	-	-
4.	LILO of one circuit of Satna-Gwalior 765 KV 2XS/c at Orai	80 km		
	<b>Existing Satna-Gwalior 765kV S/c</b>	350km	<i>240 MVAR (Switchable)</i>	<i>240 MVAR*</i>
	Satna-Orai 765kV S/c	320km	240MVAR (Switchable to be retained)	<i>240 MVAR</i>
	Orai-Gwalior 765kV S/c	130km	-	-
5.	LILO of Agra-Meerut 765 kV S/c line at Aligarh	35km		
	<b>Existing Agra-Meerut 765kV S/c</b>	270 km		<i>240 MVAR (Switchable)</i>
	Agra-Aligarh 765kV S/c	130km	-	-
	Aligarh-Meerut 765kV S/c	200km		<i>240 MVAR (Switchable)</i>
6.	LILO of Kanpur – Jhatikara 765 kV S/c at Aligarh S/s	35km		
	<b>Existing Kanpur-Jhatikara 765kV S/c</b>	465 km	<i>330 MVAR (Switchable)</i>	<i>330 MVAR (Fixed)**</i>
	Kanpur-Aligarh 765kV S/c	330km	<i>330 MVAR (Switchable)</i>	<i>330 MVAR (Switchable)</i>
	Aligarh-Jhatikara 765kV S/c	190km		<i>330 MVAR (Presently fixed to be made Switchable)</i>

		<b>Approx Line length</b>	<b>Line Reactor- From bus</b>	<b>Line Reactor- To bus</b>
	<b>Bus Reactors</b>			
7.	2x1000MVA, 765/400KV substation at Orai GIS S/s	2x330MVAR bus reactor		
8.	765KV Switching Station at Aligarh (GIS)	2x330MVAR bus reactor		

\*\* Existing non-switchable Line reactor at Gwalior end of Satna-Gwalior line which is to be LILLOed at Orai shall be converted into switchable line reactor

\* Existing non-switchable Line reactor at Jhatikara end of Kanpur-Jhatikara line which is to be LILLOed at Orai shall be converted into switchable line reactor along with a spare unit.

No observations on any other items of the Minutes of the Meeting have been indicated by any of the constituents. Accordingly, the minutes of the meeting has been confirmed with the above change may please be confirmed.

**2. 220kV lines for connectivity of new 400/220kV ISTS substations under ISTS strengthening**

It is observed that many a times the 220 kV outlets from the new 400/220kV substations are not available matching with the commissioning of new 400/220kV substations which remain unutilized for need of connectivity at 220kV level. The issue was discussed in the 34<sup>th</sup> meeting of the Standing Committee of NR, wherein Members were of the view that when ever any state put up any proposal for construction of S/S under ISTS, it must be accompanied by planned 220 kV systems to be constructed by the STU. So that the underlying 220 kV STU network is available matching with the commissioning of the ISTS substation for drawl of power.

**Members may please deliberate and concur.**

**3. LILO of Koteshwar Pooling Station- Meerut 765 KV D/c line at proposed 765/400 KV Substation Rishikesh: Agenda by PTCUL**

The issue was discussed in the 34<sup>th</sup> SCM of NR. The issue was deferred as POWERGRID had requested the need for further study. PTCUL had proposed to upgrade the existing 400/220kV Substation at Rishikesh to 765kV voltage level through LILO of one ckt. of Koteshwar Pooling Station- Meerut 765kV D/c line. It was indicated that upgrading the

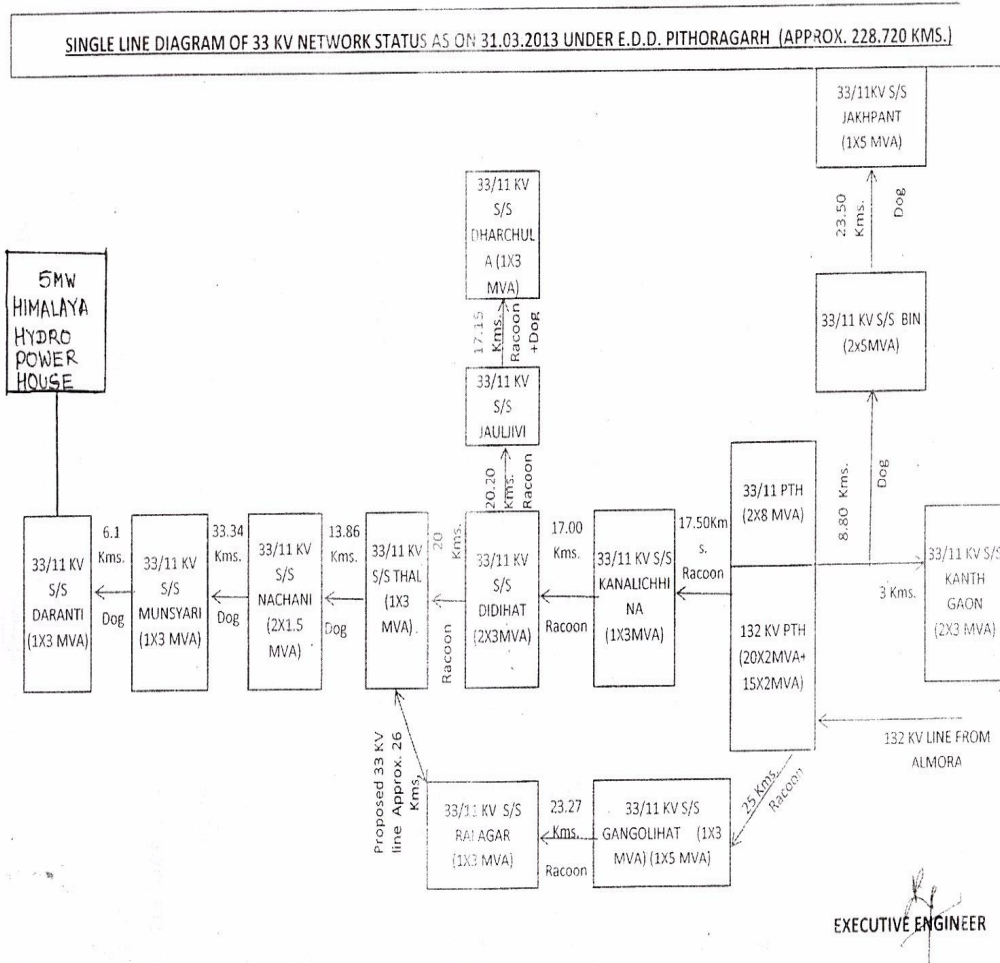
existing 400 kV Rishikesh Substation to 765/400kV would improve reliability and improve the power supply to Uttarakhand & will also remove the power transfer constraint on 400kV Roorkee -Muzaffarnagar line during low hydro generation condition.

Load flow studies had been carried for the proposal and it is seen that there are unbalanced loading in the lines from Rishikesh with 765kV Rishikesh - Meerut line section would be underutilized. The proposal would not be a cost effective one as it would include creation of 765kV substation. Considering the power requirement of the area, as a alternative it is proposed to provide **Koteshwar Pooling Station- Rishikesh 400kV D/c (Quad) line.** It would provide additional outlet from Tehri/ Kotewshwar complex and independent feed for providing reliable and quality power supply to Rishikesh area.

**Members may please deliberate and concur.**

**4. LILO of 220kV Dhauliganga- Pithoragarh(PG) for construction of Proposed 220kV GIS S/s at Jauljibi, Pithoragarh & Proposed 2x100 MVA, 220/132kV GIS s/s at Almora in Kumaon region:**

The issue was discussed in the 34<sup>th</sup> SCM of NR. The issue was deferred as POWERGRID had requested the need for further study. PTCUL had proposed to construct 220kV GIS Substation at Jauljibi for meeting the future load demand & reliability of power supply in Pithoragarh and nearby region. The 220KV GIS Substation at Jauljibi was proposed by LILO of 220kV Dhauliganga- Pithoragarh(PG) line. PTCUL proposed that whenever the 220kV Dhauliganga - Bareilly would be upgraded to 400kV level, PTCUL would connect the substation at 220kV S/S of Pithoragarh (PG). The proposal has been further studied and PTCUL has intimated that as per field report of EE(O&M), the present total connected load in Jauljivi and nearby area (approx. 30MVA) is being catered from 132KV S/s Pithoragarh (PTCUL) through long 33KV feeders.



Due to remote area and long 33KV line length from Pithoragarh to Jauljivi and non availability of 132KV substation and line in Jauljivi and nearby area, 220/33KV S/s Jauljivi is now proposed to be created by LILO of one circuit of 220KV Dhauliganga-Pithoragarh (PGCIL) line at 220KV S/s Jauljivi (PTCUL) under **Phase I**.

Here, it is to mention that 220 kV Pithoragarh S/s which is presently energized by LILO of one ckt. of Dhauliganga-Bareilly 400 kV D/C line charged at 220 kV, has only 2X100MVA 220/132kV ICTs for feeding load at Pithoragarh. Later when the Dhauliganga-Bareilly line would be upgraded to 400kV level, supplying the load Jauljibi, Almora from Pithoragarh would overload the 220kV ICTs at Pithoragarh. It is therefore proposed that under **Phase II** 400/220kV, 2X315MVA GIS Substation at Jauljibi in Pithoragarh area may be considered under ISTS. by LILO of one line of 400 kV Dhauliganga-Bareilly (PGCIL) at Jauljibi(ISTS). Dhauliganga HEP and Bareilly (PG) would feed Jauljibi 400/220kV substation. Under Phase II, the existing link of Dhauliganga-Pithoragarh (PGCIL) line at 220KV S/s Jauljibi (PTCUL)

under Phase I would be disconnected and the S/S would now be connected to Jauljibi 400/220kV substation through 220 kV D/C line. Jauljibi 400/220kV substation would be the feeding point for supply of power to 220kV Jauljibi, Almora and other loads of the Kumaon region. The substation would improve the voltage, reliability and quality of power supply in Kumaon hills while catering to future load growth. PTCUL may draw requisite no. of 220kV lines from the substation. Accordingly following proposal is put for consideration of the Committee.

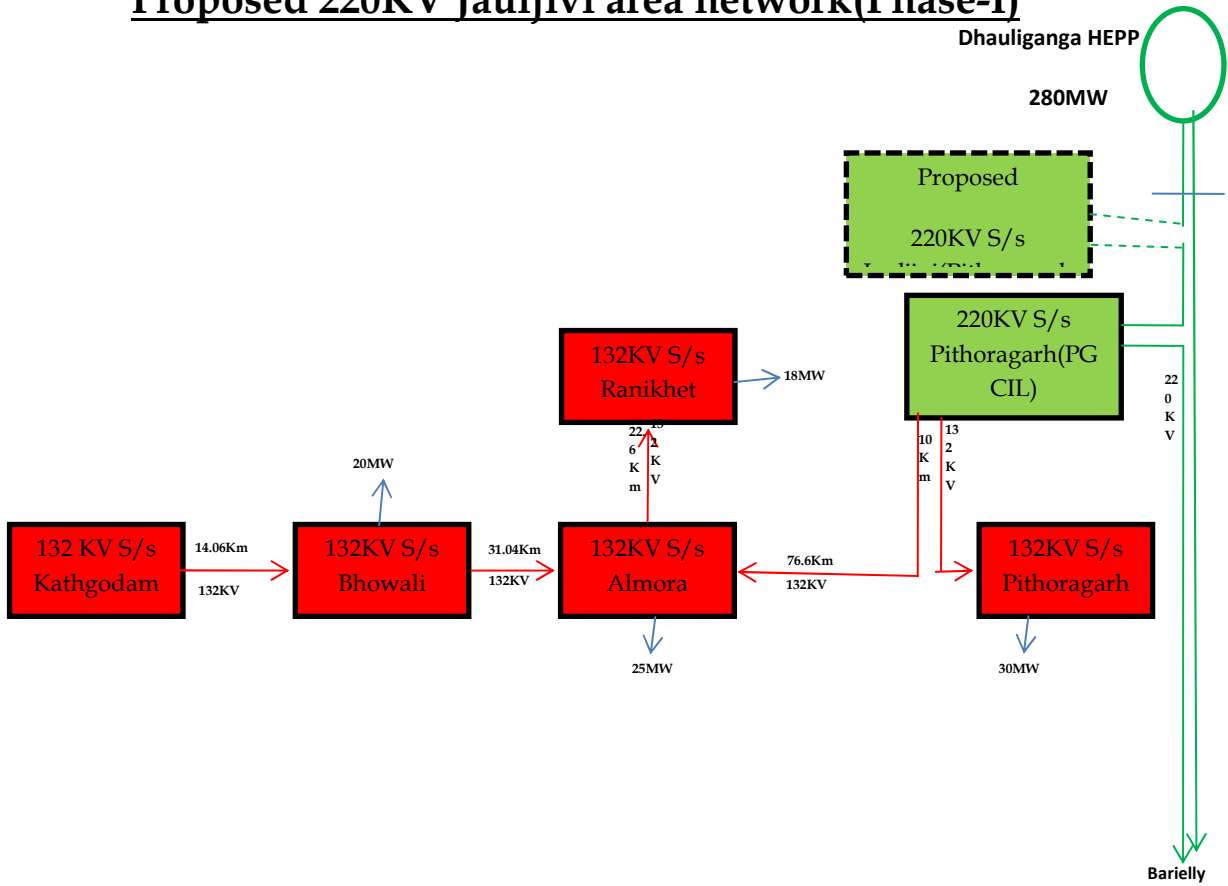
**Phase I.**

- i) Creation of 220/33KV S/s Jauljivi by PTCUL by LILO of one circuit of 220KV Dhauliganga-Pithoragarh (PGCIL) line at 220KV S/s Jauljivi (PTCUL).

**Phase II.**

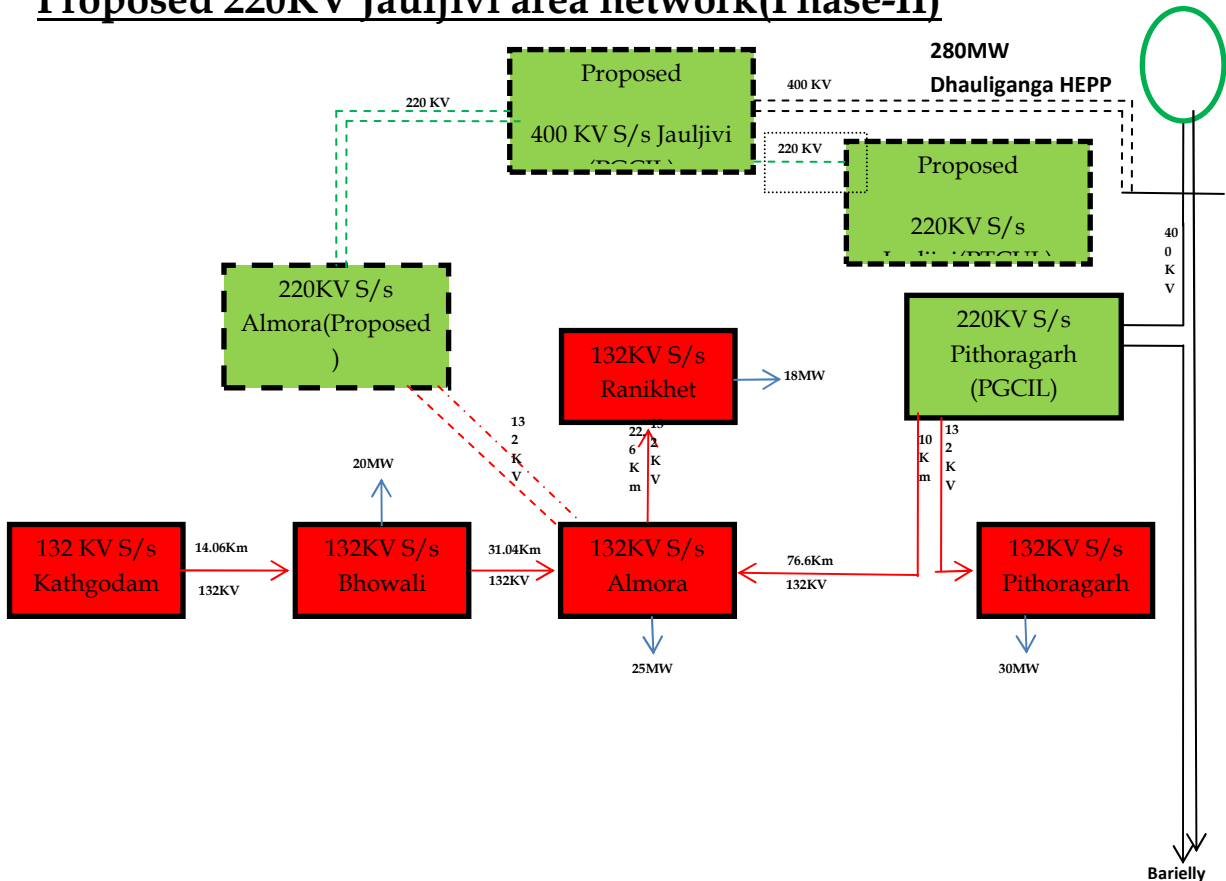
- ii) Creation of 400/220kV, 2X315MVA GIS Substation at Jauljibi in Pithoragarh area under ISTS by LILO of one line of 400 kV Dhauliganga-Bareilly (PGCIL) at Jauljibi(ISTS).
- iii) 220 kV Jauljibi (PTCUL) under Phase I would be connected to Jauljibi (ISTS)400/220kV substation through 220 kV D/C line. (line and the S/S under PTCUL scope)
- iv) The existing link of Dhauliganga-Pithoragarh (PGCIL) line at 220KV Jauljibi S/s would be disconnected

# Proposed 220KV Jauljivi area network(Phase-I)





## Proposed 220KV Jauljivi area network(Phase-II)



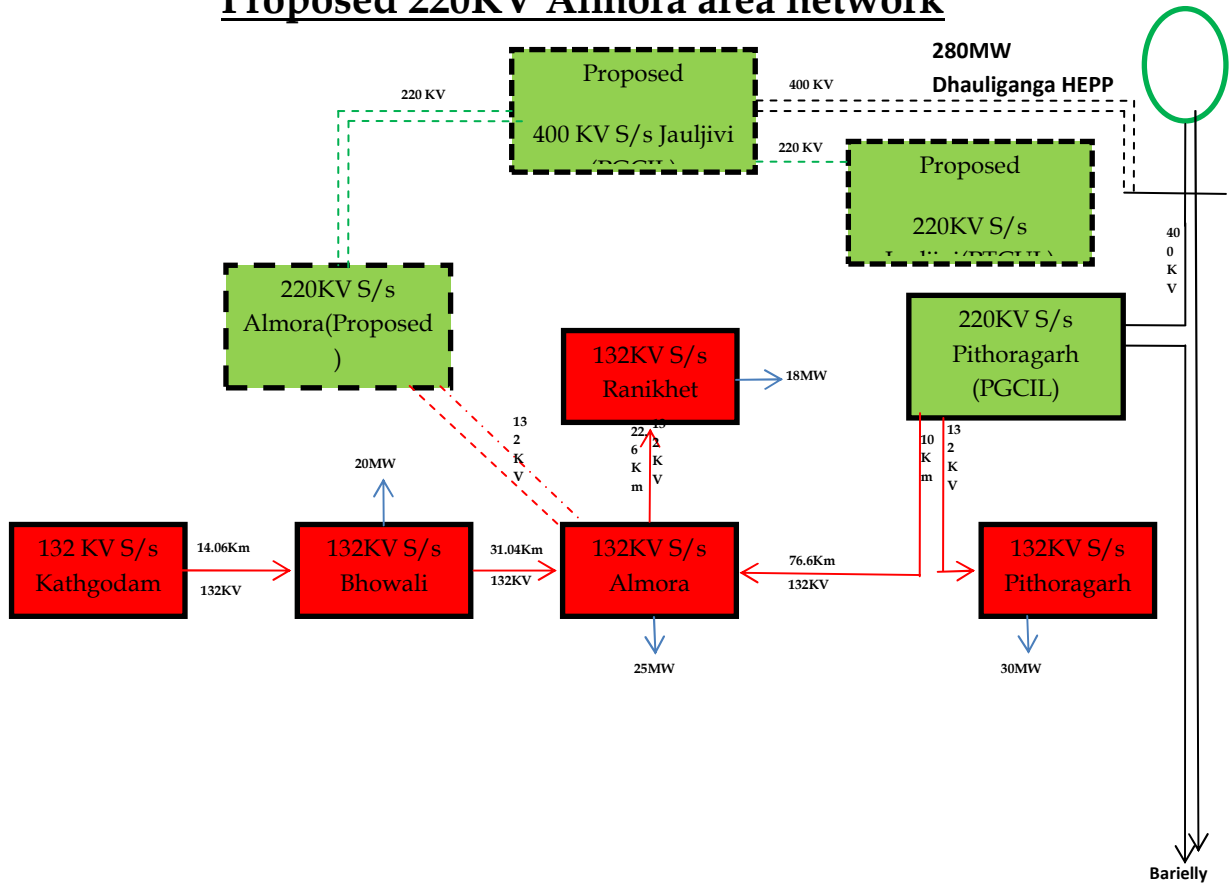
Members may please deliberate and concur.

#### 4. Construction of Proposed 220KV S/s Almora(GIS) and its associated 220KV lines

PTCUL has proposed to construct 220KV GIS substation at Almora and its associated 220KV D/C Almorán -Pithoragarh(PGCIL) line which has already been approved by CEA vide their office letter no. 12A/G/2006 SP& PA dated 09.01.2007. The 400 KV Substation at Jauljivi is being proposed in central sector, The proposed 220/132 KV Substation Almora will be energized through 220 KV D/C Almora – Jauljivi (ISTS) line which will improve the voltage, reliability and quality of power supply in Kumaon hills & also strengthen the Kumaon Hills Transmission System while catering to future load growth

Presently there is no 220/132KV link between Garhwal & Kumaon zone of Uttarakhand Hills, which adversely affects reliability of power supply in the region. In second phase, construction of 220KV D/C line is proposed from 400KV S/s Karanprayag (Proposed) to 220KV S/s Almora (GIS) through which the interconnection for power transfer between Garhwal & Kumaon zone will be undertaken.

## Proposed 220KV Almora area network

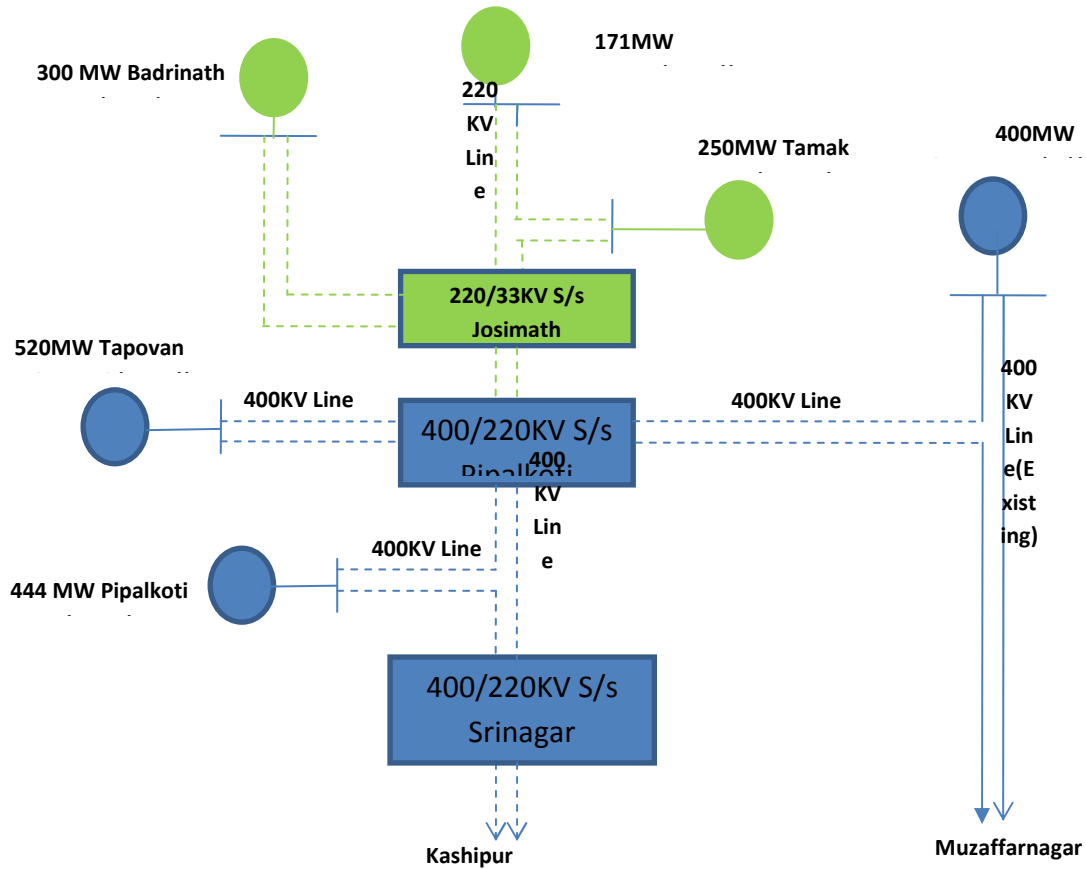


**Members may please deliberate and concur.**

### **5. Re-planning of UITP Network for Alaknanda Basin**

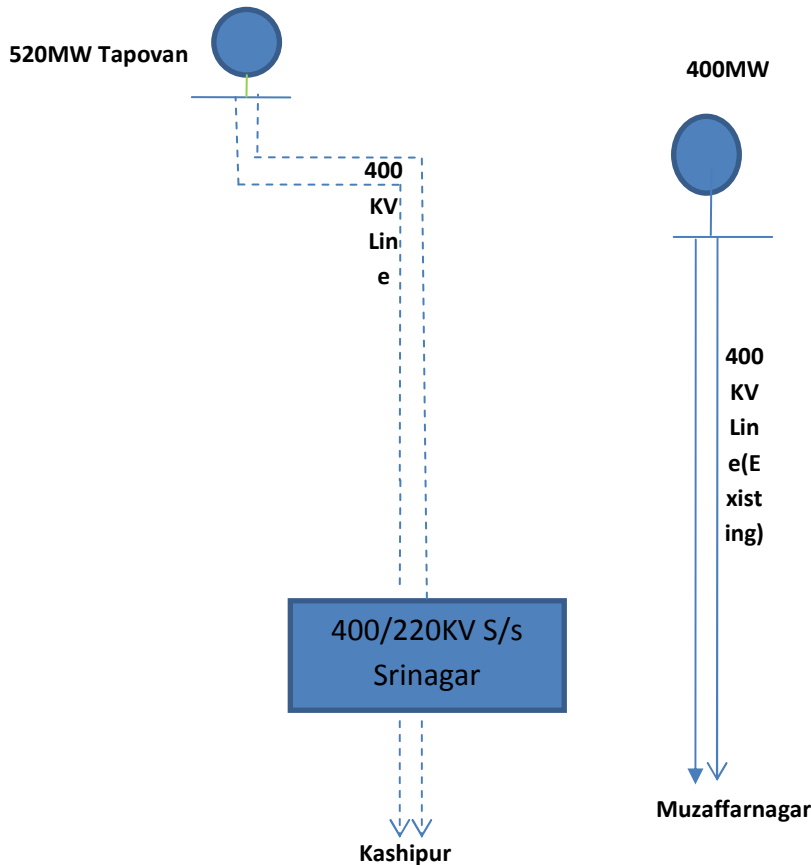
CERC vide its Order dated 31-01-2013 has declared the UTIP Scheme as Deemed interstate Transmission Scheme. CTU is Nodal Agency for vetting of the comprehensive transmission scheme in accordance of the Connectivity Regulation.

## Proposed UITP Network in Alaknanda Basin (Approved by CEA)



PTCUL have informed that due to extra ordinary circumstances & local resistance at the site, construction of 400kV S/s at Pipalkoti could not materialize. Accordingly, PTCUL has proposed to construct 220/33kV Joshimath S/s as 400/220/33 kV in place of 400 kV Substation at Pipalkoti. For the time being, PTCUL would construct line from Tapovan Vishnugad HEP(520 MW) directly to 400/220kV Srinagar(PTCUL) S/s(Quad) bypassing the proposed 400 KV Pipalkoti Substation (**Phase I**).

## Re-Planned UITP Network in Alaknanda Basin(Phase-I)



When 400kV Joshimath would be constructed, one circuit of Tapovan Vishnugad HEP to 400/220 kV Srinagar (PTCUL) S/s would be LILLOed at Joshimath.

**Members may please deliberate and concur.**

### 6. Evacuation of Ghatampur TPS (3x660 MW), Uttar Pradesh

Ghatampur Thermal Power Station is an intra-state project being constructed as a Joint Venture of Neyveli Lignite Corporation and Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd.(UPRUVNL). The 3x660MW Ghatampur TPS is located at Kanpur in Uttar Pradesh. UPPTCL has proposed following transmission system for its evacuation:

- 21/765KV Generator Transformers, 2x 1500MVA, 765/400kV & 3x200MVA, 400/132kV ICTs at Ghatampur TPS along with 6-8 Nos. of 132 kV outlets
- Ghatampur TPS -Agra(UP) 765kV S/c Line-240 km
- Line reactors of 189 MVAR at either end
- Agra(UP) -Greater Noida(UP) 765kV S/c Line- 200 km

- Line reactor of 189 MVAR at Agra end
- Ghatampur TPS - Hapur 765kV S/c Line -400 km
- line reactors of 330 MVAR at either end
- Ghatampur TPS- Kanpur(PG) (400 or 765kV) 400kV D/c line

The evacuation Plan was discussed with CEA & CTU in a meeting recently held in CEA. The evacuation system was found to be generally in order. The Detailed load flow plot with the above system is at **Annexure – I**.

**Members may please note**

**7. 220 kV Underlying system from the Central Sector 400 kV S/S proposed in UP**

In the 34<sup>th</sup> meeting of the Standing Committee of the Northern Region, the issue of readiness 220 kV underlying transmission lines from the proposed central Sector 400 kV S/S in UP, which are likely to be commissioned in the 2015-17 timeframe was discussed. In that meeting, UPPTCL was not ready with the details of the 220kV line for evacuation of power from the central Sector 400 kV S/S in UP, which are likely to be commissioned in the 2015-17 timeframe. Accordingly, the Standing Committee advised UPPCL to firm up the details of the 220 kV line to be commissioned for evacuation of power from the Central sector 400 kV S/S which are likely to be commissioned in the 2015-17 timeframe. UPPTCL has now intimated the details which are as under:

**i) Bagpath PG 400/220 kV S/S U/C**

- Bagpath (PG) 400 KV – Bagpath 220 kV D/C -18 km
- Bagpath (PG) 400 KV – Baraut 220 kV D/C - 25 KM

**ii) Saharanpur PG 400/220 kV S/S U/C**

- Saharanpur (PG) 400 KV – Behat 220 kV D/C -50 km
- LILO of Saharanpur (220 kV)– Nanauta 220 kV S/C at Saharanpur (PG)

**iii) Sohawal PG (Faizabad)400/220 kV S/S (Existing)**

- Sohawal (PG) 400 KV – Tanda 220 kV D/C -80 km
- Sohawal (PG) 400 KV – Barabanki 220 kV D/C -70 km

**iv) Shahjahanpur PG 400/220 kV S/S U/C**

- Shahjahanpur (PG) 400 KV – Hardoi 220 kV D/C -60 km

**v) Gorakhpur PG 400/220 kV S/S (Existing)**

- Gorakhpur (PG) 400 KV – Gola 220 kV D/C -60 km

**vi) Bhaunti PG 400/220 kV S/S (Existing)**

- LILO of one Ckt. of Panki –Bhauti 220 kV D/C line at Rania

UPPCL has indicated that more 220 kV feeders are being planned from the above 400kV S/S after examining the load growth and ROW feasibility.

**Members may please note**

**8. Transmission works at 400,220kV undertaken by UPPTCL**

UPPCL Plans to construct transmission system at 400,220kV level with the connectivity. The works are proposed to be commissioned by 2017. These works are in addition to the ongoing transmission projects. The details of the works as proposed by UPPCL are as under.

**Additional Proposed New 765,400 kV Substations & Lines in XII Plan 2014- 2017**

S.N.	Name of Substations & Lines	ckt (km)	Remarks
1	2	3	4
	<b><u>765kV Substations &amp; Lines</u></b>		
1	<b>Agra UP-765/400kV S/S 2x1500 MVA</b>		Under Construction
	i.Agra UP(765) -Lalitpur 765kV,2xSC line - 378km	756	
	ii. Agra UP(765) - Meerut PG or Gnoida (765) 765kV SC line -200km	200	<b>New Proposed</b>
2	<b>Ghatampur TPS Evacuating 765kV Lines (Ghatampur TPS 765/400/</b>		
	<b>132 kV 2x1500,3x200 MVA)</b>		
	i. Ghatampur TPS -Agra UP (765) 765kV SC line-238km	238	<b>New Proposed</b>
	ii. Ghatampur-Hapur 765 Kv SC line-400km	400	<b>New Proposed</b>
	<b><u>400kV Substations &amp; Lines</u></b>		
1	<b>Agra (South) 400/132 kV S/S ,3x200 MVA</b>		
	Agra UP (765) -Agra (South) DC line - 71 kV	142	Under Construction
2	<b>Math 400/220 kV S/S , 2x315 MVA</b>		
	i. LILO of Agra - Moradnagar 400 kV SC line at Math - 27 km	54	Under Construction
	ii. Agra UP (765) - Math SC line -141 km	141	Under Construction
3	<b>Karelibagh 400/132 kV S/S, 3x200 MVA</b>		<b>New Proposed</b>
	LILO of one ckt of Meja - Rewa Road 400 kV DC line (Q) at Karelibagh - 20 km (Q)	40	

4	<b>Hardoi Road 400/220/132 kV S/S , 2x500+2x160 MVA</b>		<b>New Proposed</b>
	LILO of Unnao - Sarojininagar 400 kV SC line at Hardoi Road - 25 km	50	
5	<b>Shamli 400/220/132 kV 2x500+2x160 MVA</b>		<b>New Proposed</b>
	i. Shamli - Aligarh (400) 400kV DC line - 180 km	360	
	<b><u>Other 400 kV Lines</u></b>		
i	LILO of one ckt of Agra - Agra (PG) 400 kV DC line at Agra UP (765) -35km	70	Under Construction
ii	LILO of Agra - Moradnagar 400 kV SC line at Agra UP (765)-79km	158	Under Construction
iii	Ghatampur - Kanpur(PG) 400 kV DC line -30km	60	<b>New Proposed</b>

### **Additional Proposed 220 kV New Substations & Lines in XII Plan ( 2014- 2017)**

<b>S.No.</b>	<b>Name of Substations &amp; Lines</b>	<b>Ckt. Kms.</b>	<b>Remarks</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>I</b>	<b>Etah-II or Sikandrarao 220/132 kV 2x160 MVA</b>		<b>New Proposed</b>
1	Etah-II -Aligarh(400) DC	140	
2	Etah-II-Etah (Existing) DC	80	
<b>II</b>	<b>Raja Ka Talab 220/132/33 kV,2x160+2x40 MVA</b>		<b>New Proposed</b>
1	Raja Ka Talab (220)-Aurai (400) DC	60	
2	Raja Ka Talab(220)-Sahupuri(220)	80	
<b>III</b>	<b>Azamgarh II 220/132/33 kV,2x160+2x40 MVA</b>		<b>New Proposed</b>
1	LILO of Sarnath(400)-Azamgarh(II) 220 kV SC	50	
2	Azamgarh II - Aurai (400) 220 kV SC	60	
<b>IV</b>	<b>Gola 220/132/33 kV, 2x160+2x40 MVA</b>		<b>New Proposed</b>
1	Gorakhpur PGCIL-Gola (220) DC	120	
<b>V</b>	<b>Partapur(Meerut) 220/132/33 kV,2x160+2x40 MVA</b>		<b>New Proposed</b>

1	Partapur-220(Meerut)-Hapur(765) DC	100	
<b>VI</b>	<b>Shamli-II 220/132/33 kV, 2x160+2x40 MVA</b>		<b>New Proposed</b>
1	Shamli-II(220)-Shamli(400) DC	60	
2	Baikala(Muzaffarpur-II)-Shamli-II(220) DC	80	
<b>VII</b>	<b>Modipuram-II 220/132/33 kV, 2x160+2x40 MVA</b>		<b>New Proposed</b>
1	Modipuram-II(220)-Shamli(400) -DC	100	
<b>VIII</b>	<b>Hapur 220/132,220/33 kV, 2x160+3x60 MVA</b>		<b>New Proposed</b>
1	Hapur(220)-Hapur(765)- DC	30	
2	LILO of Simbholi-Shatabdinagar 220 kV SC at Hapur 220	50	
<b>IX</b>	<b>New Bus Adda Ghaziabad 220/33 kV, 2x60 MVA</b>		<b>New Proposed</b>
1	LILO of Moradnagar(220)-Partab Vihar(220) at New Bus Adda (Ghaziabad)-220	10	
<b>X</b>	<b>Moradabad-II 220/132/33 kV, 2x160+2x40 MVA</b>		<b>New Proposed</b>
1	LILO of Moradabad(220)-Nehtaur(220) at Moradabad-II (220)	30	
<b>XI</b>	<b>Baikala(Muzaffarnagar-II) 220/132/33 kV,2x160+2x40 MVA</b>		<b>New Proposed</b>
1	Baikala -220 (Muzaffarnagar)-Shamli (400) DC	80	
2	LILO of Muzaffarnagar(New)-Nanauta(220) at Baikala (220)	40	
<b>XII</b>	<b>Chandausi 220/132/33 kV, 2x160+2x40 MVA</b>		<b>New Proposed</b>
1	Badaun-Sambhal LILO 220 kV SC at Chandausi	40	
<b>XIII</b>	<b>Noida-45 - 220/33, 220/132 kV,1x160,2x60 MVA</b>		<b>New Proposed</b>
1	Noida(148)-Noida-45 - DC	40	
<b>XIV</b>	<b>Inderprasth 220/33 kV - (Deposit) 3x60 MVA</b>		<b>New Proposed</b>
1	Ataur(400)Ghaziabad -Inderprasth(Ghaziabad)-220 kV DC	30	
2	Loni(220)-Inderprasth-220 kV -DC	30	
<b>XV</b>	<b>Barabanki 220/132/33 kV, 2x160+2x40 MVA</b>		<b>New Proposed</b>



1	Sohawal(400)-Barabanki(220) - DC	150	
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<b>XVI</b>	<b>Chakgajaria (Lucknow)220/132/33,220/33 kV - (Deposit) 2x100+2x40+1x60 MVA</b>		<b>New Proposed</b>
1	Sultanpur Road(400)-Chakgajaria (Lucknow) 220 kV- DC	20	
<b>XVII</b>	<b>Awas Vikas 220/33 kV - (Deposit) 5x60 MVA</b>		<b>New Proposed</b>
1	Sultanpur Road(400)-Awas Vikas (Lucknow) 220 kV -DC	4	
<b>XVIII</b>	<b>Faridpur 220/132/33 kV 2x160+2x40 MVA</b>		<b>New Proposed</b>
1	LILo of Roza-Dohna(220)- SC line at Faridpur(220)	20	
<b>XIX</b>	<b>Jagrti Vihar 220/132/33 kV (Deposit) 2x160+2x40 MVA</b>		<b>New Proposed</b>
1	Hapur (765)-Jagrti Vihar - DC	60	
2	Partapur(220)-Jagrti Vihar - DC	40	
<b>XX</b>	<b>Phoolbagh 220/33 kV, 3x60 MVA</b>		<b>New Proposed</b>
1	Unnao-RPH(Kanpur) LILo SC line	20	
<b>XXI</b>	<b>Lalitpur 220/132 kV</b>		Under Construction
1	Lalitpur TPS-Lalitpur(220) DC	30	
<b>XXII</b>	<b>Hardoi Road 400/220/132 kV</b>		
1	Hardoi Road(400)-Hardoi Road(220)- DC	30	<b>New Proposed</b>
<b>Others 220 kV Lines</b>			
1	Shahjahanpur(400) PGCIL-Hardoi(220) SC Line	60	<b>New Proposed</b>
2	LILo of Gokul-Hathrus 220 kV SC at Math(400)	30	Under Construction
3	Math(400)-Chatta DC	60	Under Construction
4	LILo of Firozabad-Shamsabad 220 kV SC Agra PG	4	Under Construction

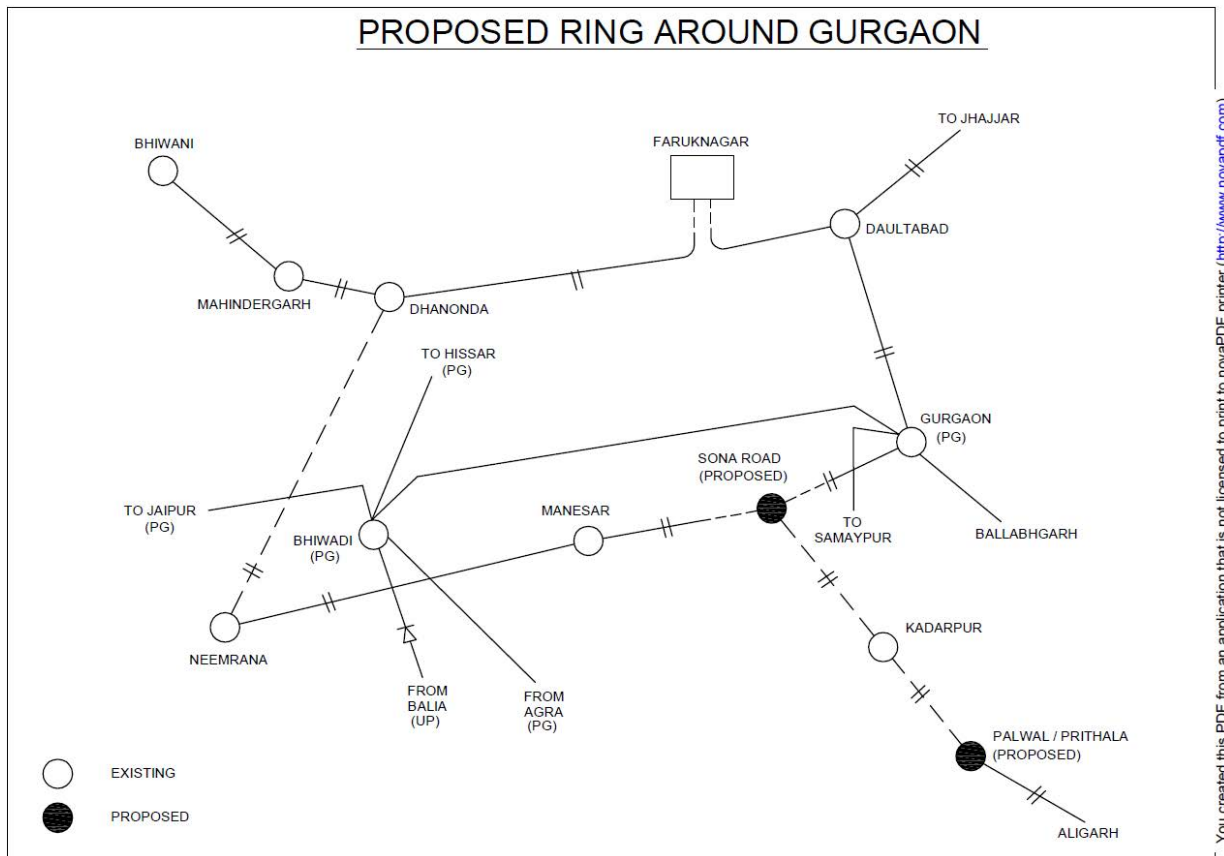
Members may please note.

## 9. Creation of new 400kV substations in Gurgaon area and Palwal area as a part of ISTS-Agenda by HVPN

HVPNL has requested for creation of new three 400 kV substation one at Kadarpur & other at Sohna Road in Gurgaon area and one 400kV substation at Prithla in Palwal area as a part of Inter State Transmission System (ISTS). The first two S/S has been proposed to cater the load demand of sector 58 to sector 67 and sector 68 to sector 80 sectors of Gurgoan respectively.

The creation of Prithala S/S would meet the power demand of the area to be developed under Prithala Development Plan. Beside this it will also act as a main feeding source to Palwal, Rangla Rajpur and Meerpur Kurli. A meeting was held in CEA on 3<sup>rd</sup> September 2014 to discuss the same. During the meeting it was decided that joint studies would be carried out by HVPNL & CTU in POWERGRID office. HVPNL has furnished the district wise load projections of Haryana for 13<sup>th</sup> Plan (2021-22). Looking at the load growth in and around Gurgoan, it is proposed that a bigger ring connecting the existing 400 kV S/S of **Dhonanda – Faruk Nagar (to be created by LILO of Dhonda- Daulatabad D/C line)- Daulatabad - Gurgoan(PG) –Sona- Manasher –Neemrana- Dhonanda** may be created around Gurgoan area with 400 kV Quad conductor. The load flow result for the same is at **Annex-II**

The 400kV Sona as well as Kadarpur S/S would be constructed as 400/220 kV, 2x500 MVA. Prithla Substation in Palwal area is proposed to be constructed as 2\*500MVA, 400/220kV by Agra-Prithala 400kV D/c Quad lines. The Prithla S/S would be connected to Kadarpur by 400 kV Quad D/C line and Kadarpur to connected to Sona Road by 400 KV D/C line. The details of the proposed ring would be as under:



The proposed S/S at Kadarpur S/S would feed load to sector 58 to 67 of Gurgaon and 220 kV Badshapur and pali. HVPN has envisaged the following network to evacuate power from 400 kV Kadarpur S/S

- a) LILO of 220kV Badshapur – Pali D/C line at Qudarpur on M/C tower
- b) One 220 kV M/C line (four ckt.) with twin moose conductor to feed the 220 kV S/S envisaged at sector 59,61, 63 & 65 of Gurgaon.
- c) One 220 kV D/C line with twin moose conductorto feed the 220 kV S/S envisaged ain sector 64, 65 &67

Similarly the proposed S/S at Sona Road S/S would feed load to sector 68 to 80 of Gurgoan and 220 kV Kankerkerhi(Sona) – Rangala Rajpur. HVPN has envisaged the following network to evacuate power from 400 kV Sonar S/S

- a) One 220 kV M/C line (four ckt.) with twin moose conductor to feed the 220 kV S/S envisaged at sector 69,70,75,75A,76 Gurgaon.
- b) Provision for 220 KV D/C line with twin conductor for future.

As such the Standing Committee may consider the following :

- i) Agra – Prithala, 400 kV D/C Quad line
- ii) 400 kV D/C Quad line from Prithala – Kadarapur(400 kV) S/S
- iii) 400 kV D/C Quad line from Kadarapur – Sona Road (400 kV ) S/S
- iv) LILO of Gurgoan – Manesar D/C line at Sona Road S/S
- v) Neemrana – Dhonanda(HVPSNL) 400 kV D/C Quad line
- vi) Creation of 400/220kV , 2\*500MVA substations at Kadarapur in Gurgaon area
- vii) Creation of 400/220kV, 2\*500MVA substations at Sona Road in Gurgaon area
- viii) Creation of 400/220kV , 2\*500MVA substations at Prithala in Palwal area
  
- ix) To cater to the future load growth of the area, provision of 2\*500MVA transformation capacity augmentation at these substations may be kept.

Members may discuss & concur.

#### **10. LILO of Sikar-Neemrana 400kV D/c line at Babai(RRVPNL) :**

Sikar is an existing 400/220kV substation of POWERGRID. Presently it is connected to the grid through Bhiwadi- Neemrana- Sikar 400kV D/c & Agra –Sikar 400kV D/c (Quad) lines. Further, following lines have already been approved for connectivity of Sikar:

- Sikar-Jaipur (PG) 400kV D/c
- Sikar-Ratangarh 400kV D/c

During the last Standing Committee meeting, RRVPNL had submitted the studies for the proposal of LILO of one/two ckts of Sikar- Neemrana 400kV line at Babai”. Babai is an under construction 400/220kV substation of RRVPNL under associated transmission system for Suratgarh Super Critical TPS (2x660MW) and is to be connected to Suratgarh through 400kV D/c line. The study submitted by RVPNL was considered. Simulation has also been carried out by POWERGRID to study the effect of proposed LILO. Both Babai and Sikar are connected to Suratgarh TPS and Jaipur. It is observed that LILO of one circuit causes unbalanced loadings on Sikar- Neemrana lines. Further, LILO of both circuits of Sikar-Neemrana at Babai results in off-loading of Sikar-Babai section of this line. In view of this, proposed LILO of Sikar- Neemrana line at Babai does not appear to be appropriate.

The issue was discussed in details in the 34<sup>th</sup> SCM, wherein there was a proposal for construction of one line from Babai to Mohindergarh in addition to the LILO of one circuit at Babai. The proposal was also not agreed by the committee as the committee was of the opinion that the connection between Babai to Mohindergarh would not serve any fruitful

purpose and the proposal was dropped. However, POSOCO was of the view that LILO of Sikar- Neemrana line at Babai would add up to the stability of the power supply to the North Eastern part of Rajasthan. Accordingly the committee may consider the following

- i) LILO of one ckt. of Sikar- Neemrana line at Babai
- ii) Babai – Bhiwani D/C line

The Babai – Bhiwani D/C line would give strong connection to Babai with the Hydro Generation.

**Members may deliberate and concur**

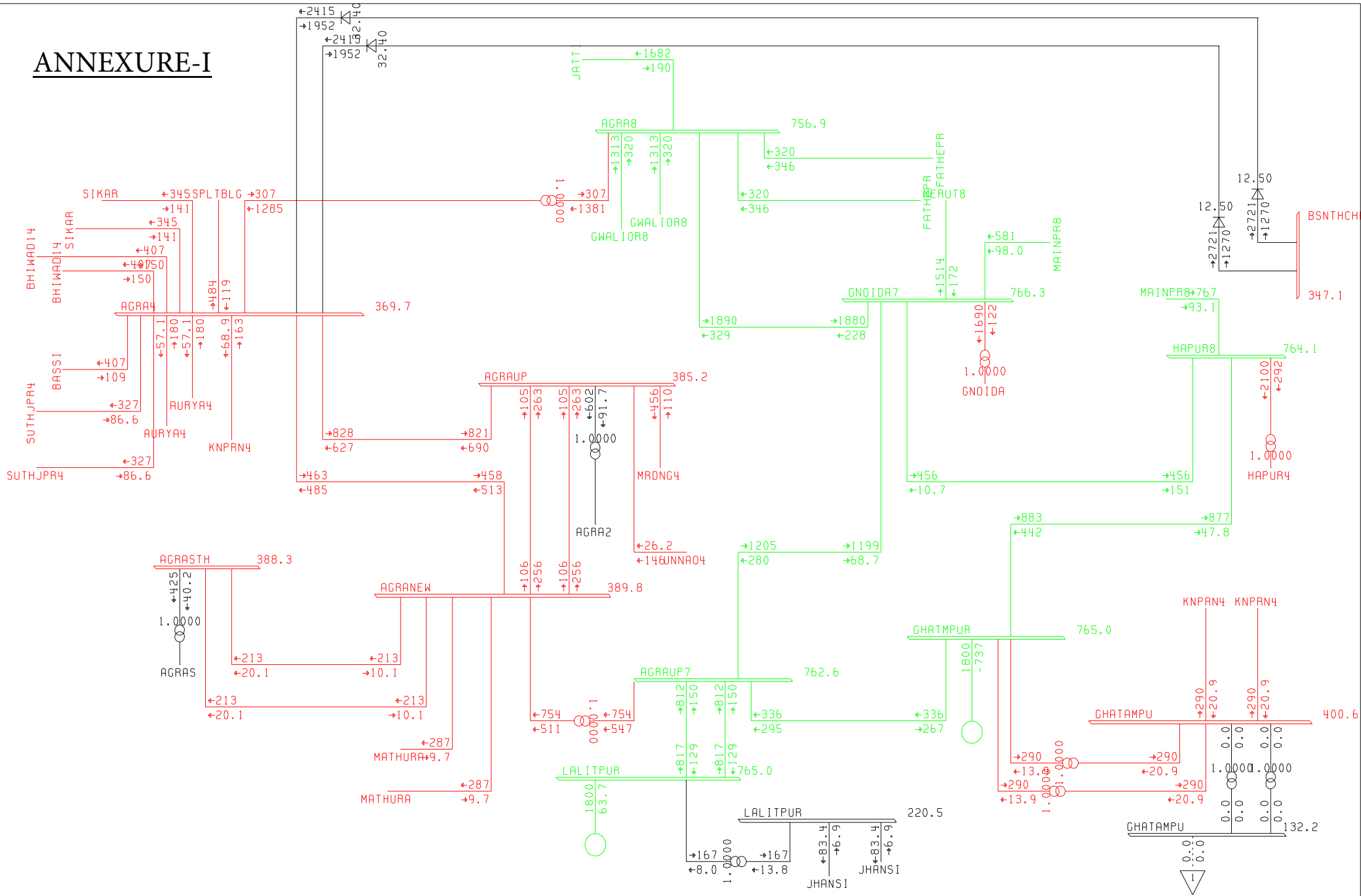
**11. Requirement of 2 nos. 220 kV bays at PGCIL's 400/220kV GSS Sikar-Agenda by RRVPNL**

During the 34<sup>th</sup> Standing Committee Meeting held on 8-8-2014, augmentation of transformation capacity at 400/220kV Sikar(PG) substation by 1x500 MVA along with 2 nos. of 220 kV line bays has been agreed and a confirmation of RVPN was required regarding requirement of 2 nos. 220 kV line bays.

In this regard RRVPNL has intimated that additional 2 nos. of 220 kV line bays are required alongwith 1x500 MVA (3" transformer) at Sikar for termination of a 220 kV D/c line to nearby 220 kV GSS or nearby 220kV line(s) after getting the technical feasibility examined as per the field conditions.

**Members may note.**

# ANNEXURE-I



# ANNEXURE-II

