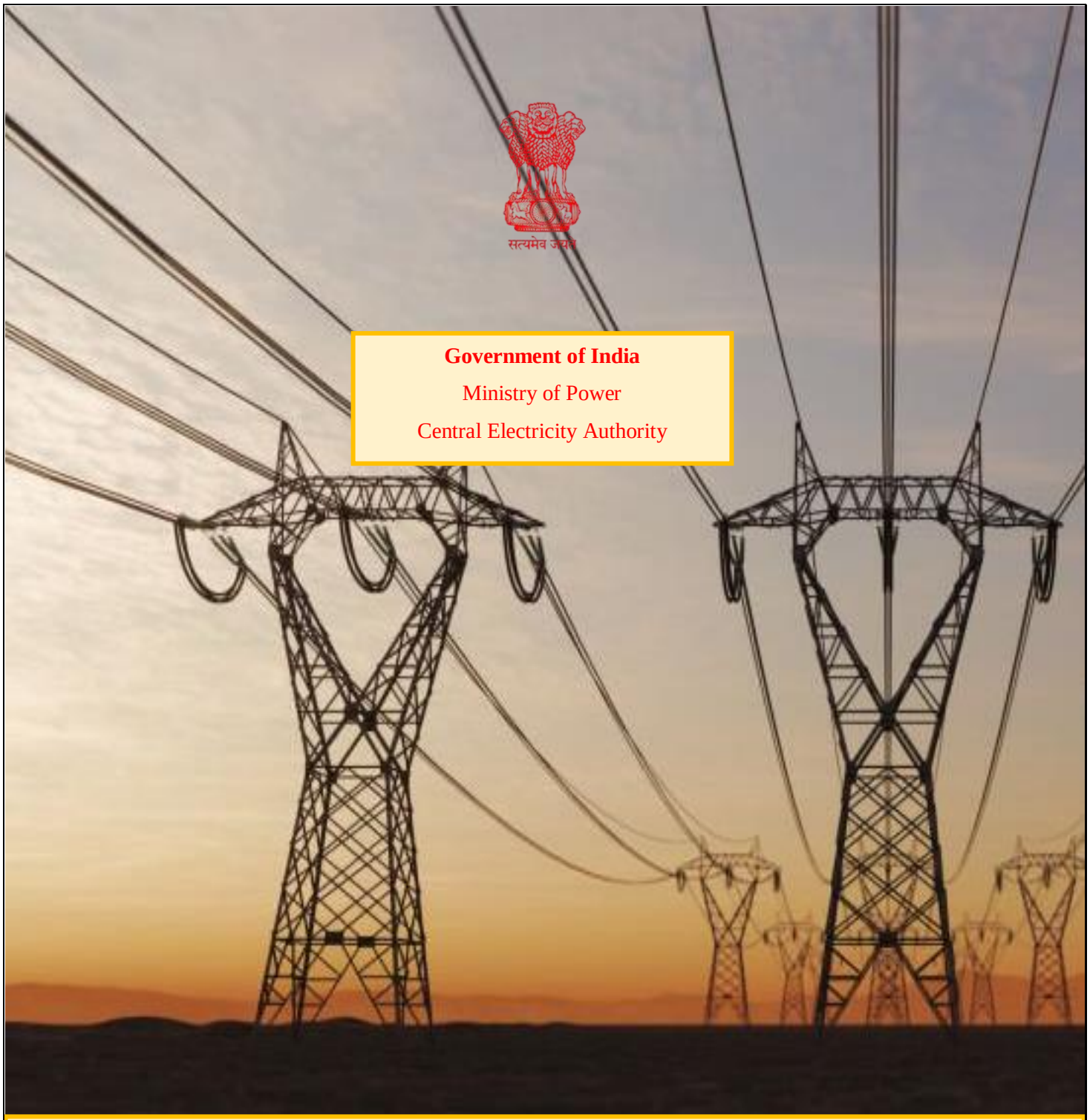


Government of India

Ministry of Power

Central Electricity Authority

Resource Adequacy Plan for Transmission System of Rajasthan up to the year 2034-35





Table of Content

Executive Summary

Rajasthan is one of India's leading states in solar and wind energy production due to its high solar radiation and vast open land. Rajasthan is home to large solar and wind farms, particularly in regions like Jodhpur, Jaisalmer, Bikaner and Barmer. Being the largest state in India with a mix of deserts, hills, and rural terrain, power needs to be transmitted over long distances. With the integration of variable renewable energy, maintaining grid stability becomes crucial. A modern transmission system helps in load balancing and preventing grid failures.

Till date, 38 GW RE (33 GW Solar, 5 GW Wind) has been commissioned in Rajasthan (ISTS and Intra-State combined) which is expected to increase to 166 GW (130 GW under ISTS and 36 GW under Intra-State) by 2035.

With respect to electricity demand, Rajasthan has witnessed an all-time high peak demand of 19,165 MW in February, 2025, which is about 5.7% higher than the peak demand of 18,128 MW in 2023-24. From the analysis of peak demand of Rajasthan for past 10 years, it has been observed that peak demand of Rajasthan has grown @6.5% per year. As per the revised 20th Electric Power Survey (EPS) Report, peak electricity demand is projected to increase to 26 GW by 2029-30 and 31 GW by 2034-35. In addition to this, RVPN has envisaged additional 6.3 GW load by 2030 in the Pali and Khushkhera-Bhiwadi- Neemrana Industrial Area (KBNIA) over and above the load projected in the EPS.

A comprehensive system study for strengthening of the transmission network, both ISTS and Intra-State, in Rajasthan has been carried out by CEA in association with CTUIL, Grid-India and RVPN, and Resource Adequacy plan has been prepared indicating the transmission capacity to be added in Rajasthan till the year 2034-35.

Summary of existing and planned transmission system under ISTS and InSTS in Rajasthan is given below:

Existing transmission system in Rajasthan as on 30.11.2025:

	765 kV	400 kV	220 kV	132 kV	Total
Inter-State Transmission System (ISTS)					
Transformation Capacity (MVA)	40500	30300	0	0	70800
Transmission Line (ckm)	8101.37	9778	1823.2	0	19702.57
Intra-State Transmission System (InSTS)					
Transformation Capacity (MVA)	9000	19755	36795	42594.5	108144.5
Transmission line (ckm)	425.49	8416.43	16428.95	20574.49	45845.38

Transmission System addition planned/ under planning by 2030:

	765 kV	400 kV	220 kV	132 kV	Total
Inter-State Transmission System (ISTS)					
Transformation Capacity (MVA)	90000	43500	0	0	133500
Transmission Line (ckm)	14018	3301	0	0	17319
Intra-State Transmission System (InSTS)					
Transformation Capacity (MVA)	34500	22500	10920	6984.5	74904.5
Transmission line (ckm)	3806	3586.4	7469.4	6574.56	21436.36

In addition to above, 2 nos. HVDC are also planned from Rajasthan under ISTS to be commissioned by 2030:

(i) ±800 kV, 6000 MW HVDC line between Bhadla-3 and Fatehpur

(ii) ±800 kV, 6000 MW HVDC line between Barmer-II & South Kalamb

Transmission System addition under planning between 2030 and 2035:

	765 kV	400 kV	220 kV	132 kV	Total
Intra-State Transmission System (InSTS)					
Transformation Capacity (MVA)	3000	4000	800	370.5	8170.5
Transmission line (ckm)	290	1426	1537	690	3943

Under ISTS, 10 nos. HVDC lines, each of 6 GW capacity are under planning from RE pockets in Rajasthan to suitable location in WR/ER/SR which would help in evacuation of 60 GW RE from Rajasthan.

In view of the various challenges with integration of RE such as low inertia, low Short Circuit support and less reactive power support, STATCOMs and Synchronous Condensers have been planned in Rajasthan. Under ISTS, 3 Nos. Statcoms with total capacity of ± 900MVAr capacity have already been commissioned and 5 Nos Statcoms with total capacity of ± 3000 MVAr are under implementation. Also, 2 nos Synchronous Condensers with total capacity of +1200/-800 MVAr have been planned. Under Intra-State, 5 Nos Statcoms with total capacity ± 1400 MVAR and 1 No. synchronous condenser of +300/-200 MVAr capacity has been planned.

Chapter-1

Power supply scenario in Rajasthan and projected electricity demand

1.1 Background

Rajasthan has emerged as a key player in India's energy landscape, especially in the renewable energy sector. With vast solar and wind potential, the state is witnessing rapid growth in power generation. Rajasthan is home to large solar and wind farms, particularly in regions like Bhadla, Jaisalmer, and Barmer. Being the largest state in India with a mix of deserts, hills, and rural terrain, power needs to be transmitted over long distances. A reliable transmission system ensures uninterrupted power delivery even to remote areas. Rajasthan often produces surplus power, especially from renewables. A strong transmission network enables the state to export electricity to other states, contributing to national energy security and generating revenue. Rajasthan's cities grow and industrial zones expand, the demand for electricity is rising. An advanced transmission infrastructure is vital to support this increasing load.

Rajasthan has a vast and robust electricity transmission network. The state's transmission system plays a crucial role in power evacuation from renewable and thermal power plants and ensuring power supply across urban and rural regions. Due to its geographical size and the growing demand for power, especially from renewable energy, Rajasthan's transmission infrastructure has seen major expansion over the past decades. It is one of India's leading states in solar and wind energy production due to its high solar radiation and vast open land.

With the integration of variable renewable energy, maintaining grid stability becomes crucial. A modern transmission system helps in load balancing and preventing grid failures.

A comprehensive system study of the Transmission System of Rajasthan has been carried out by CEA in association with RVPN, CTUIL and Grid-India and Resource Adequacy plan has been prepared indicating the transmission capacity required to be added in Rajasthan till the year 2034-35.

1.2 Present Power Scenario in Rajasthan

1.2.1 Installed Generation Capacity (Intra-State)

Table 1.1: Installed Electricity Generation Capacity

Installed capacity of generating projects connected to the RVPN grid as on 30.11.2025 (including allocation of central sector projects)				
S. No.	**Particulars**	**Installed Capacity (MW)**	**Rajasthan. Share %**	**Rajasthan. Share (MW)**
1	**RVUN Projects**			
1.1	**Hydro Projects**			
	(i) Mahi Hydel (2x25+2x45)	140.00	100.00	140.00
	(ii) Anoopgarh MH(3x1.5+3x1.5)	9.00	100.00	9.00
	(iii) Mahi-RMC MH(2x0.4+1x0.165)	0.97	100.00	0.97
	(iv) Suratgarh MH (2x2)	4.00	100.00	4.00

	(v) Mangrol MH (3x2)	6.00	100.00	6.00
	(vi) Pugal MH (1x1.5+1x0.65)	2.15	100.00	2.15
	(vii) Charanwala MH (1x1.2)	1.20	100.00	1.20
	(viii) Birsulpur MH (1x0.535)	0.54	100.00	0.54
	Sub-Total (1.1) (MW)			163.85
1.2	**Thermal/Gas Projects**			
	(i) Ramgarh GTPP stage-I,II& III (1x35.5+2x37.5)	110.50	100.00	110.50
	(ii) Ramgarh GTPP Stage-IV 1x110 MW+1x50 MW	160.00	100.00	160.00
	(iii) KTPS Stage.I,II,III, IV,V (2x110+2x210+1x210+1x195+1x195)	1240.00	100.00	1240.00
	(iv) Suratgarh TPS Stage - I,II,III &IV (2x250+2x250+1x250+1x250)	1500.00	100.00	1500.00
	(v) Suratgarh SCTPS Unit-7 & 8 (2x660)	1320.00	100.00	1320.00
	(vi) Dholpur CCPP Unit-1 to 3 (3x110)	330.00	100.00	330.00
	(vii) Giral TPS Stage-I Unit-1 & 2 (2x125)	250.00	100.00	250.00
	(viii) Chhabra TPS Stage-I, Unit-1 & 2 (2x250)	500.00	100.00	500.00
	(ix) Chhabra TPS Stage-II, Unit-3 (1x250)	250.00	100.00	250.00
	(x) Chhabra TPS Stage-II, Unit-4 (1x250)	250.00	100.00	250.00
	(xi) Chhabra TPS Stage-II, Unit-5 (1x660)	660.00	100.00	660.00
	(xii) Chhabra TPS Stage-II, Unit-6 (1x660)	660.00	100.00	660.00
	(xiii) Kalisindh TPS Stage-I, Unit-1 (1x600)	600.00	100.00	600.00
	(xiv) Kalisindh TPS Stage-I, Unit-2 (1x600)	600.00	100.00	600.00
	Sub-Total (1.2) (MW)			8430.50
	Total -1 (1.1+1.2) (MW)			8594.35
2	**Shared Projects**			
	Hydro Projects			
	B.B.M.B. Complex			
	(i) Bhakra Left Bank HEP (3x108+2X126)	576.00	15.22	87.67
	(ii) Bhakra Right Bank HEP (5x157)	785.00	15.22	119.48
	(iii) Kotla HEP (1x29.25+1x24.2+1x24.2)	77.65	15.22	11.82
	(iv) Ganguwal HEP (1x29.25+1x24.2+1x24.2)	77.65	15.22	11.82
	(v) Dehar HEP (6x165)	990.00	20.00	198.00
	(vi) Pong HEP (6x66)	396.00	58.50	231.66
	Chambal Complex			
	(i) Gandhi Sagar HEP (5x23)	115.00	50.00	57.50
	(ii) Rana Pratap Sagar HEP (4x43)	172.00	50.00	86.00

	(iii) Jawahar Sagar HEP (3x33)	99.00	50.00	49.50
	Total- 2 (MW)			853.44
3	**Central Sector Allocation**			
3.1	**Hydro Projects (NHPC/SJVNL/THDC)**			
	(i) Tanakpur HEP (3x31.4)	94.20	11.53	10.861
	(ii) Salal HEP Stage -I & II (690)	690.00	2.95	20.355
	(iii) Chamera HEP Stage -I (3x180)	540.00	19.60	105.840
	(iv) Uri HEP Stage-I (4x120)	480.00	8.96	43.008
	(v) Chamera HEP Stage -II (3x100)	300.00	9.67	29.010
	(vi) NJPS (6x250) (SJVNL)	1500.00	7.47	112.000
	(vii) Dhauli Ganga HEP (4x70)	280.00	9.65	27.000
	(viii) Tehri HEP Stage-1 (Unit-I to IV) (4x250) (THDC)	1000.00	7.50	75.000
	(ix) Dulhasti HEP (Unit-I to III) (3x130)	390.00	10.88	42.420
	(x) Sewa HEP Stage-II (Unit 1 to 3) (3x40 MW)	120.00	10.84	13.008
	(xi) Koteshwar HEP (4x100 MW) (Unit-1 to 4)	400.00	8.36	33.440
	(xii) Chamera HEP Stage -III(Unit-1 to 3)(3x77 MW)	231.00	10.914	25.211
	(xiii) Uri HEP Stage -II(Unit-1 to 4)(4x60 MW)	240.00	11.405	27.370
	(xiv) Parbati HEP Stage -III (Unit-1 to 4)(4x130 MW)	520.00	10.910	56.732
	(xv) Rampur HEP (Unit-1 to 6)(6x68.67 MW)	412.02	7.720	31.808
	(xvi) Koldam HEP (2*200 MW)	800.00	10.730	85.730
	(xvii) Singrauli SHEP(2*4 MW)	8.00		1.870
	(xviii) Parbati II HEP (4X200)	800.00	13.900	111
	Sub-Total (3.1) (MW)			851.86
3.2	**Thermal/Gas Projects**			
	NTPC			
	(i) Singrauli TPS (5x200+2x500)	2000.00	15.00	300.00
	(ii) Rihand TPS Stage-I (2x500)	1000.00	9.50	95.00
	(iii) Rihand TPS Stage-II (2x500)	1000.00	10.00	100.00
	(iv) Rihand TPS Stage-III Unit-5 (1x500)	500	11.523	57.62
	(v) Rihand TPS Stage-III, Unit-6 (1x500)	500	11.523	57.62
	(vi) Anta GTPP (3x88.71+1x153.2)	419.33	19.81	0.00
	(vii) Auria GTPP (4x111.19+2x109.3)	663.36	9.20	0.00
	(viii) Dadri GTPP (4x130.19+2x154.5)	829.76	9.28	0.00
	(ix) Unchahar TPS (2x210)	420.00	4.76	0.00
	(x) Unchahar TPS Stage - II (2x210)	420.00	9.05	38.00

	(xi) Unchahar TPS Stage - III (1x210)	210.00	10.95	23.00
	(xii) Unchahar IV	500		74.09
	(xiii) Kahalgaon TPS Stage - II (3x500)	1500.00	4.87	73.00
	(xiv) Barsingsar TPS Stage-I, Unit-1 (1x125)	125.00	100.00	125.00
	(xv) Barsingsar TPS Stage-I, Unit-2 (1x125)	125.00	100.00	125.00
	(xvi) E.R.Allocation (in lieu of Tala-6x170=1020 MW)			
	a. Farakka TPS (0.69%)	1600	0.69	0.00
	b. Kahalgaon TPS Stage-I (3.04%)	840	3.04	25.54
	c. Kahalgaon TPS Stage-II (2.24%)	1500	2.24	33.60
	(xvii) Entitlements of equivalent capacity from NTPC Stations for bundling with Solar PV Power			635.00
	(xviii) Meja TPS Unit 1	660	5	33.00
	(xix) Tanda II Unit 1& 2	1320	6.66	87.91
	(xx) Meja TPS Unit 2	660	5	33.00
	THDC			
	(i) THDC Khurja			281.10
	Sub-Total (3.2) (MW)			2197.47
3.3	**Nuclear Projects (NPCIL)**			
(i)	NAPS (2x220)	440.00	10.00	44.00
(ii)	RAPP(1x100+1x200)	200.00	100.00	200.00
(iii)	RAPS-B Extn. (1x220) Unit-3	220.00	28.41	62.50
(iv)	RAPS-B Extn. (1x220) Unit-4	220.00	28.41	62.50
(v)	RAPS-C (1x220) Unit-5	220.00	19.94	43.87
(vi)	RAPS-C (1x220) Unit-6	220.00	19.94	43.87
(vii)	RAPP7	700.00	50.00	350.00
	Sub-Total (3.3) (MW)			806.74
	Total- 3 (3.1+3.2+3.3) (MW)			3856.07
4	**Private Sector Projects**			
	(i) M/s Raj West Power TPS (Unit-1 to 8) (8x135 MW)	1080.00	100.00	1080.00
	(ii) UMPP Mundra (Unit-1 to 5) (5x800 MW)	4000.00	9.50	380.00
	(iii) M/s Adani Power Ltd. (Kawai) (2x660 MW)	1320.00	90.91	1200.00
	(iv) UMPP Sasan (Unit-1 to 6) (6x660 MW)	3960.00	10.00	372.00
	(v) Karcham Wangtoo HEP through PTC	1000.00		104.00
	(vi) Case-1(Mariti Clean Coal Ltd-195 MW+DB Power Ltd-311 MW)			506.00
	(vii) Teesta III HEP	1200.00		100.00
	Total (4) (MW)			3742.00

5	**Non-Conventional Projects (Wind, Biomass & Solar)**			
5.1	**Wind Power Projects**			
	(a) Intra-state			3570.870
	(b) ISTS Connected			750.000
	(c) REC to RPO (17 Generators)			95.250
5.2	**Biomass Power Projects**			196.45
5.3	**Solar Power Projects**			
	(a) Intra-State			6691.93
	(b) Kusum-A			468.80
	(c) Kusum-C			1989.55
	(d) REC to RPO (81 Generators)			187.650
	Total -5 (5.1+5.2+5.3) (MW)			13954.50
	Grand Total (1+2+3+4+5) (MW)			31000.36

1.2.2 Electricity Demand of Rajasthan

Till date, Rajasthan has witnessed an all-time high peak demand of 19,165 MW in February, 2025, which is about 5.7% higher than the peak demand of 18,128 MW in 2023-24. From the analysis of peak demand of Rajasthan for past 10 years, it has been observed that peak demand of Rajasthan has grown @6.5% per year.

The recorded peak demand of Rajasthan for ten years starting from FY 2015-16 to FY 2024-25 is given in the Table 1.2.

Table 1.2 Recorded Peak Demand of Rajasthan

Sr. No.	Year	Peak Demand (MW)
1	2015-16	10961
2	2016-17	10348
3	2017-18	11564
4	2018-19	13276
5	2019-20	14277
6	2020-21	14441
7	2021-22	15784
8	2022-23	17206
9	2023-24	18128
10	2024-25	19165

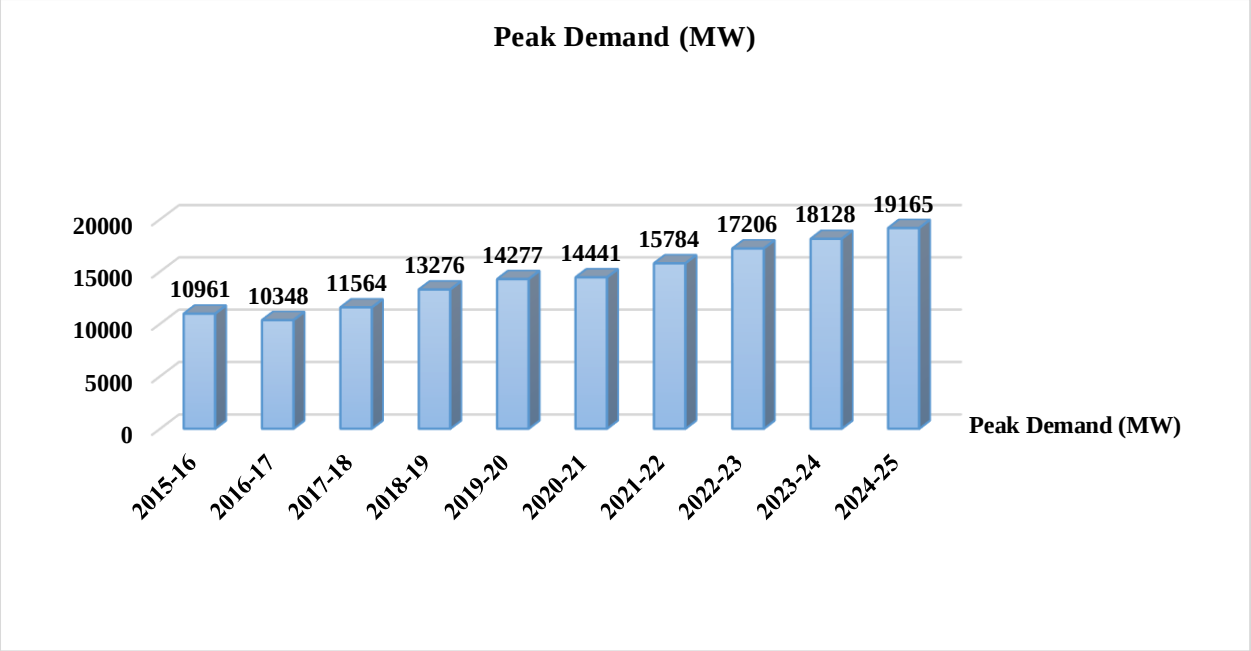


Fig 1.1: Recorded Peak demand met in Rajasthan

Peak electricity demand in Rajasthan is generally experienced in the months of January/ February. Monthly variation of Maximum Demand pattern of Rajasthan for past 5 years is shown in Fig. 1.2

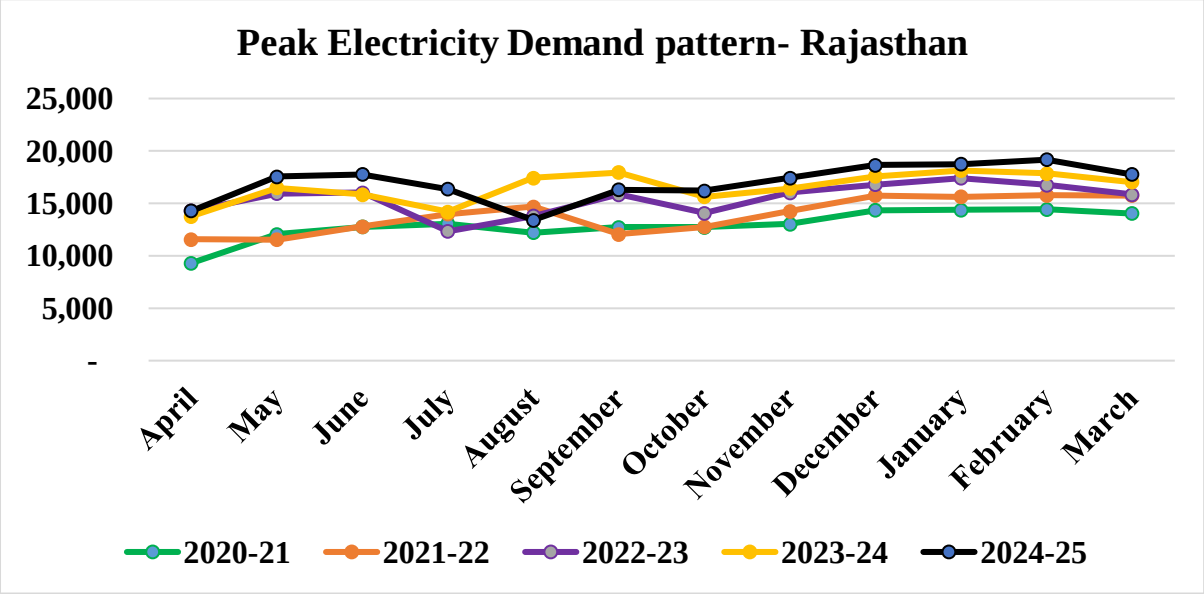


Fig 1.2: Peak electricity demand pattern in Rajasthan

1.3 Projected Electricity Demand of Rajasthan:

As per the revised 20th Electric Power Survey (EPS) Report, peak electricity demand is projected to increase to 31 GW by 2034-35. Yearwise projected electricity demand of Rajasthan is given in the Table 1.3 below:

Table 1.3: Projected electricity demand in Rajasthan

Sl. No.	Year	Peak electricity demand in Rajasthan (MW)
1.	2023-24 (Actual)	18128
2.	2024-25 (Actual)	19165
3.	2025-26 (Projection)	20796
4.	2026-27 (Projection)	22256
5.	2027-28 (Projection)	23494
6.	2028-29 (Projection)	24762
7.	2029-30 (Projection)	25971
8.	2030-31 (Projection)	27078
9.	2031-32 (Projection)	28110
10.	2032-33 (Projection)	29171
11.	2033-34 (Projection)	30154
12.	2034-35 (Projection)	31068

In addition to the above projected electricity demand in Rajasthan, RVPN has envisaged additional 6.3 GW load by 2030 in the Pali and Khushkhera-Bhiwadi- Neemrana Industrial Area (KBNIA) over and above the load projected in the 20th EPS (revised). Accordingly, the same has also been considered in the load flow studies.

1.4 Existing Transmission Network in Rajasthan (as on 30.11.2025)

1.4.1 *Intra-State Transmission System in Rajasthan*

The details of the existing transmission system which includes the number of Grid sub- station (GSS), transformation capacity (MVA), length of transmission lines (circuit kilometer) is shown in Table 1.4 and Table 1.5. Rajasthan has total 676 numbers of GSS.

Table 1.4: Existing transmission system (Substations) (RVPN +PPP) as on 30.11.2025

S.No.	Voltage level	Existing Intra- State transmission system (Substations) (RVPN +PPP)					
		RVPN		PPP		Total (RVPN+PPP)	
		No of S/s.	MVA	No of S/s.	MVA	No of S/s.	MVA
1	765/400 kV	2	9000	0	0	2	9000
2	400/220 kV	17	17495	3	2260	20	19755
3	220/132 kV	132	36375	1	420	133	36795
4	132/33 kV	506	42169.5	15	425	521	42594.5
	Total	**657**	**105040**	**19**	**3105**	**676**	**108144.5**

Table 1.5: Existing transmission system (Transmission Lines) (RVPN +PPP) as on 30.11.2025

S.No.	Voltage level	Existing Intra- State transmission system (Transmission Lines) (RVPN +PPP)		
		RVPN	PPP	Total (RVPN+PPP)
		(ckm)	(ckm)	(ckm)
1	765 kV	425.498	0	425.498
2	400 kV	7462.014	954.42	8416.434
3	220 kV	16356.955	72	16428.955
4	132 kV	20131.894	442.600	20574.494
	Total	**44376.361**	**1469.02**	**45845.381**

List of 765 kV substations:

(i) 3x1500 MVA, 765/400 kV Anta S/s

(ii) 3x1500 MVA, 765/400 kV Phagi S/s

List of 400 kV substations:

(i) 2x315 MVA, 400/220 kV Ajmer S/s

(ii) 3x500+1x315 MVA, 400/220 kV Akal S/s

(iii) 2x315 MVA, 400/220 kV Babai S/s

(iv) 2x315 MVA, 400/220 kV Barmer S/s

(v) 3x500 MVA, 400/220 kV Bhadla S/s

(vi) 1x500+1x315 MVA, 400/220 kV Bhilwara S/s

(vii) 2x315 MVA, 400/220 kV Bikaner S/s

(viii) 3x315 MVA, 400/220 kV Chittorgarh S/s

(ix) 1x315+3x250 MVA, 400/220 kV Heerapura S/s

(x) 1x500+2x315 MVA, 400/220 kV Hindaun S/s

(xi) 5x500 MVA, 400/220 kV Jaisalmer-II S/s

(xii) 2x315 MVA, 400/220 kV Jodhpur S/s

(xiii) 1x315 +1x500 MVA, 400/220 kV Jodhpur (Kankani) S/s

(xiv) 2x315 MVA, 400/220 kV Merta S/s

(xv) 2x500 MVA, 400/220 kV Pachpadra S/s

(xvi) 2x500 MVA, 400/220 kV Ramgarh S/s

(xvii) 3x315 MVA, 400/220 kV Ratangarh S/s

(xviii) 2x500 MVA, 400/220 kV Sangod S/s (PPP)

(xix) 2x315 MVA, 400/220 kV Alwar S/s (PPP)

(xx) 2x315 MVA, 400/220 kV Deedwana S/s (PPP)

Shunt Reactors

Shunt reactors are installed on the buses and transmission lines at the voltage levels of 220 kV, 400 kV and 765 kV. Details of the bus reactors in terms of numbers and MVAR capacity is included in the Table 1.5.

Table 1.5 Details of Shunt Reactors

S. No.	Voltage level (kV)	Bus Reactors (Nos.)	Bus Reactors (MVAR)	Line Reactors (Nos.)	Line Reactor Capacity (MVAR)	Total (MVAR)
1	765 kV	3 (1-Phase)	240	24 (1-Phase)	1920	2160
2	400 kV	17 (3-Phase)	1815	22 (3-Phase)	1160	2975
3	220 kV	24 (3-Phase)	450	1 (3-Phase)	25	475
Total			**2505**		**3105**	**5610**

Capacitor Banks

The capacitor banks are installed on the 33 kV voltage level. General rating of each capacitor banks is 5.43 MVAR or 5.0 MVAR at 33 kV voltage level. Total 876 nos. capacitor banks have been installed in the RVPN network with total capacity of 4688.26 MVAR. In addition, capacitor banks with capacity of 814.5 MVAR are under implementation, likely to be commissioned in 2025-26.

1.4.2 Inter-State Transmission system in Rajasthan

The details of existing Inter-State transmission network in Rajasthan is given in Table 1.6 and Table 1.7:

Table 1.6: Existing Inter-State Transmission system (Substations)

S.No.	Voltage level	Existing Inter- State transmission system (Substations) (as on 30.11.2025)		
		No of Substations	MVA	
1	765 kV	9	765/400 kV	40500
			400/220 kV	12800
2	400 kV	11	400/220 kV	17500
	Total	**20**		**70800**

Table 1.7: Existing Inter-State Transmission system (Transmission Lines)

S.No.	Voltage level	Existing Inter- State transmission system (Transmission Lines) (as on 30.11.2025)
		(ckm)
1	765 kV	8101.37
2	400 kV	9778
3	220 kV	1823.2
	Total	**19702.57**

List of 765 kV Substations:

(i) 2x1500 MVA, 765/400 kV Ajmer S/s

(ii) 3x1500 MVA, 765/400 kV + 8x500 MVA, 400/220 kV Bhadla S/s

(iii) 4x1500 MVA, 765/400 kV + 8x500 MVA, 400/220 kV Bhadla-II S/s

(iv) 4x1500 MVA, 765/400 kV + 3x500 MVA, 400/220 kV Bikaner S/s

(v) 2x1500 MVA, 765/400 kV Chittorgarh S/s

(vi) 5x1500 MVA, 765/400 kV + 10x500 MVA, 400/220 kV Fatehgarh-II S/s

(vii) 2x1500 MVA, 765/400 kV Khetri S/s

(viii) 2x1500 MVA, 765/400 kV Sikar-II S/s

(ix) 3x1500 MVA, 765/400 kV + 2x500 MVA, 400/220 kV Fatehgarh-III (Section2) S/s

List of 400 kV Substations:

(i) 2x315 MVA, 400/220 kV Babai S/s

(ii) 2x315 MVA + 1x500 MVA, 400/220 kV Bassi S/s

(iii) 3x315 MVA, 400/220 kV Bhinmal S/s

(iv) 3x315 MVA, 400/220 kV Bhiwadi S/s

(v) 2x500 MVA, 400/220 kV Jaipur South S/s

(vi) 3x315 MVA, 400/220 kV Kankroli S/s

(vii) 2x315 MVA, 400/220 kV Kota S/s

(viii) 2x315 MVA, 400/220 kV Kotputli S/s

(ix) 1x315 MVA + 1x500 MVA, 400/220 kV Neemrana S/s

(x) 2x315 MVA + 1x500 MVA, 400/220 kV Sikar S/s

(xi) 8x500 MVA, 400/220 kV Bikaner-II S/s

(xii) 4x500 MVA, 400/220 kV Fatehgarh-III S/s

Table 1.8: Reactors in Rajasthan under ISTS

S. No.	Voltage level (kV)	Bus Reactors (Nos.)	Bus Reactors (MVAR)	Line Reactors (Nos.)	Line Reactor Capacity (MVAR)	Total (MVAR)
1	765 kV	42 (1-Phase)	3630	120 (1-Phase)	10500	14130
2	400 kV	33 (3-Phase)	3435	27 (3-Phase)	1603	5038
Total			**7065**		**12103**	**19168**

Table 1.9: Facts devices under ISTS

Sl. No.	Substation	Voltage (kV)	Equipment	Capacity (MVAR)		Remark
1	Bhadla-2	400	STATCOM	2*300/-300	3-Φ Unit	1 x (-)125 MSR and 2 x (+)125 MSC
2	Fatehgarh-2	400	STATCOM	2*300/-300	3-Φ Unit	1 x (-)125 MSR and 2 x (+)125 MSC
3	Bikaner-2	400	STATCOM	2*300/-300	3-Φ Unit	1 x (-)125 MSR and 2 x (+)125 MSC

1.5 Constraints in Transmission Network in Rajasthan:

(i) Operational constraints in 400/220 kV ICTs at Intra-State substations in Rajasthan:

S. No.	Substation	Major Constraints	Remedial Solution	Status	SCoD
1	400/220 kV Bhadla	N-1 non compliance of 3*500 MVA ICTs	Augmentation with 4th 500 MVA ICT	Under Construction	December, 2025
2	400/220 kV Merta	N-1 non compliance of 2*315 MVA ICTs	Augmentation with 3rd 500 MVA ICT	Under Construction	December, 2025
3	400/220 kV Bikaner	N-1 non compliance of 2*315 MVA ICTs	Augmentation with 3rd 500 MVA ICT	Under Construction	December, 2025
4	400/220 kV Ajmer	N-1 non compliance of 2*315 MVA ICTs	Augmentation with 3rd 500 MVA ICT	Under Construction	March, 2026
5	400/220 kV Bhilwara (RS)	N-1 non compliance of 315+500 MVA ICTs	Augmentation with 3rd 500 MVA ICT	Planned	2027-28
6	400/220 kV Deedwana	N-1 non compliance of 2*315 MVA ICTs	Augmentation with 3rd 500 MVA ICT	Planned	2027-28
7	400/220 kV Heerapura	N-1 non compliance of 3*250+315 MVA ICTs	Augmentation with 5th 500 MVA ICT	Under Construction	2025-26
8	400/220 kV Chittorgarh	N-1 non compliance of 3*315 MVA ICTs	Replacement of 315 MVA ICT with 500 MVA ICT	Planned	2027-28
9	400/220 kV Ratangarh	N-1 non compliance of 3*315 MVA ICTs	Augmentation with 4th 500 MVA ICT	Planned	2027-28
10	400/220 kV Suratgarh	N-1 non compliance of 2*315 MVA ICTs	400 kV Hanumangarh S/s	Under Construction	2027-28
11	400kV Rajwest		• Replacement of 315 MVA,	Commissioned	

12	400kV Chhabra	Single 400/220 kV ICT at each substation	400/220 kV ICT at Kalisindh TPS by 500 MVA. • Creation of 400/220 kV GSS Sangod.		
13	400 kV Kalisindh				

(ii) Other operational constraints in Intra-State Transmission System (220 kV and below transmission network):

S. No.	Load Shedding on 33kV Feeders of Following GSS	Major Constraints	Remedial Solution	Status	SCoD
1	• 132 kV GSS Kumher • 132 kV GSS Deeg • 132 kV GSS Kaman • 132 kV GSS Nagar • 132 kV GSS Sikri • 132 kV GSS Pahari	• Overloading of 220 kV S/C Bharatpur-Agra line	Creation of 400 kV GSS Kumher and associated lines	Planned	March , 2028
		• Overloading of 132 kV S/C Bharatpur-Deeg-Kaman- Pahari line	Creation of 220 kV GSS Sikri	Under Construction	March , 2026
2	• 132 kV GSS Bhusawar • 132 kV GSS Weir	• Overloading of 220 kV Hindaun (400 kV GSS)-Hindaun line	Creation of 400 kV GSS Dholpur	Planned	December, 2028
3	• 132 kV GSS Roopwas • 220 kV GSS Dholpur • 132 kV GSS RIICO Dholpur • 132 kV GSS Maraina • 132 kV GSS Maniya	• Low voltage at Dholpur & Overloading at DCCP			

4	•132 kV GSS Maniya	• Overloading of 132 kV S/C Dholpur- RIICO Line	•Creation of 220 kV GSS Maniya	Under Construction	March , 2026
5	•132 kV GSS Rajgarh •132 kV GSS Malakhera	• Overloading of 132 kV S/C Kukas- Rajgarh-Malakhera-Alwar Line	Creation of 220 kV GSS Maujpur	Under Construction	Septe mber, 2026
			Creation of 220 kV GSS Andhi	Under Construction	Dece mber, 2026
6	•132 kV GSS Thanagazi •132 kV GSS Narainpur	• Overloading of 132 kV S/C Bansur-Narainpur Line	•Creation of 220 kV GSS Pathredi	Under Construction	March , 2026
7	•132 kV GSS Khairthal	• Overloading of 220 kV S/C K.G. Bas – Alwar Line	•Creation of 220 kV GSS Chiruni/ Mundawar	Planned	Dece mber, 2027
8	•220 kV GSS Alwar •132 kV GSS Tizara •132 kV GSS Govindgarh •132 kV GSS Ramgarh •132 kV GSS Bahadurpur	• Overloading of 220 kV S/C Kukas– Alwar Line	•Creation of 220 kV GSS Jawali	Under Construction	July, 2026
		• Overloading of 220 kV S/C GMR–MIA Alwar Line	Creation of 220 kV GSS Maujpur	Under Construction	Septe mber, 2026
9	•132 kV GSS Ramgarh •132 kV GSS Govindgarh	Overlaoding of 132 kV S/C Alwar-Ramgarh Line	•Creation of 220 kV GSS Jawali	Under Construction	July, 2026
10	•132 kV GSS Laxmangarh •132 kV GSS Kherli	Overlaoding of 132 kV S/C MIA-Laxmangarh Line	Creation of 220 kV GSS Maujpur	Under Construction	Septe mber, 2026
11	• 220 kV GSS Bansur • 220 kV GSS Kotputli	Overloading of 220 kV Neemrana-Kotputli Line	• Creation of 765 kV GSS Ajarka (Alwar)	Planned	Dece mber, 2030

12	• 132 kV GSS Khandar • 132 kV GSS Baler • 132 kV GSS Niwai • 132 kV GSS Ajnoti • 220 kV GSS Sawai Madhopur	• Overloading of 132 kV S/C Sawai Madhopur-Khandar Line & Overloading of 132 kV S/C Sawai Madhopur Niwai – Chaksu Line	• Creation of 220 kV GSS Bhadoti	Under Construction	December, 2027
13	• 132 kV GSS Todaraisingh • 132 kV GSS Silora • 132 kV GSS Arain • 132 kV GSS Malpura	• Overloading at 220 kV GSS Dooni & Overloading of 132 kV S/C Arain-Silora line	•132 kV S/C Malpura-Todaraisingh Line	Under Construction	June, 2026
14	• 132 kV GSS Mangrol • 220 kV GSS Baran • 132 kV GSS Mamoni • 132 kV GSS Itawa	• Overloading of 220 kV GSS Baran & Overloading at 220 kV GSS sawai Madhopur	• Creation of 400 kV GSS Sangod	Commissioned	
			• Creation of 132 kV S/c Itawa-Mangrol line	Planned	December, 2027
15	• 132 kV GSS Kelwara	• Overloading of 220 kV GSS Baran	• Creation of 220 kV GSS Kelwara	Under Construction	August, 2026
16	•132 kV GSS Govindgarh •132kV GSS Markhi •132 kV GSS Ajeetgarh	• Overloading of 220 kV S/C Niwana – Babai Line	• Creation of 220 kV GSS Manda	Planned	December, 2027
17	•132 kV GSS Chambal	• Overloading of 132 kV S/C Chambal-Heerpura Line	• Uprating of 132 kV S/C Mansarovar-Chambal line	Under Construction	June, 2026
18	• 132 kV GSS Rampura Dabri • 220 kV GSS Chomu	• Overloading of 500 MVA ICT at 400 kV GSS Heerapura	• Work of 500 MVA, 400/220 kV ICT under progress	Under Construction	December, 2025

19	• 220 kV GSS Behrunda • 132 kV GSS Pushkar • 132 kV GSS Sanjoo • 132 kV GSS Masuda • 132 kV GSS Saradhana	• ICT overloading at 400 kV GSS Ajmer	• Work of 500 MVA, 400/220 kV ICT under progress	Under Construction	March , 2026
20	• 220 kV GSS Makrana • 132 kV GSS Merta City	• ICT overloading at 400 kV GSS Merta	• Work of 500 MVA, 400/220 kV ICT under progress	Under Construction	Dece mber, 2025
21	•132 kV GSS Rupangarh	• Overloading of 220 kV S/C Ajmer- Kishangarh line	•Uprating of 220 kV S/C Ajmer-Kishangarh line	Planned	Dece mber, 2027
22	•132 kV GSS Karerda	• Overloading of line	•Creation of 220 kV GSS Raipur	Under Construction	Januar y, 2027
23	• 220 kV GSS Aspur • 132 kV GSS Pratapur • 132 kV GSS Paloda • 132 kV GSS Ghatol • 220 kV GSS Banswara • 132 kV GSS Bagidora • 132 kv GSS Salumber • 132 kV GSS Seemalwara • 132 kV GSS Kushalgarh • 132 kV GSS Amet • 132 kV GSS Dungarpur • 132 kV GSS Chordi	• Overloading of 220 kV Kankroli (PGCIL)- Amberi Line	• Creation of 220 kV GSS Nathdwara	Under Construction	June, 2026
			• Creation of 400 kV GSS Udaipur	Under Construction	Dece mber, 2027
			• Creation of 220 kV GSS Dalot	Under Construction	Septe mber, 2026
			Creation of 220 kV GSS Dariba	Under Construction	Dece mber, 2025

	• 132 kV GSS Sagwara				
24	•132 kV GSS Amet	• Overloading of Transformer at 220 kV GSS Bamantukda	• Creation of 220 kV GSS Raipur	Under Construction	January, 2027
25	•132 kV GSS Kumawas •132 kV GSS Bherunda Kalan •132 kV GSS Bissau •132 kV GSS Malsisar •132 kV GSS Mandawa •132 kV GSS Jhunjhunu	• Overloading of 220 kV Jhunjhunu-Khetri Line	• LILO of one circuit of 220 kV Ratangarh- Khetri Line at 220 kV GSS Jhunjhunu	Under Construction	December, 2026
26	• 132 kV GSS Momasar	• Overloading of Ratangarh (400 kV GSS) -Ratangarh Interconnection Line	• Uprating of Ratangarh (400 kV GSS) -Ratangarh Interconnection Line	Planned	December, 2027
27	• 132 kV GSS Swaroopganj • 132 kV GSS Sumerpur • 132 kV GSS Desuri • 132 kV GSS Gogunda • 132 kV GSS Jhadol	• 132 kV GSS Swaroopganj • 132 kV GSS Sumerpur • 132 kV GSS Desuri • 132 kV GSS Gogunda • 132 kV GSS Jhadol	• Creation of 220 kV GSS Sumerpur	Under Construction	July, 2026
28	• 132 kV GSS Sawa • 132 kV GSS Sedwa	• Overloading of 132 kV S/C Dhorimanna-Ranasar-Sawa line	• Creation of 220 kV GSS Sawa	Under Construction	July, 2026
29	• 132 kV GSS Bhamatsar • 132 kV GSS Deshnok	• Overlaoding of 132 kV S/C Bhamatsar- Nokha Line	• Creation of 220 kV GSS Panchu	Under Construction	September, 2026

30	• 132 kV GSS Gharsana • 132 kV GSS Khajuwala • 132 kV GSS Bhinasar • 132 kV GSS Lunkaransar • 220 kV GSS Chhatrgarh • 132 kV GSS Sherera • 132 kV GSS Bhinasar • 132 kV GSS RD 710	• ICT overloaded at 400 kV GSS Bikaner	• Augmentation of 500 MVA ICT work under progress	Under Construction	Dece mber, 2025
31	• 132 kV GSS Dulchasar	• Low voltage issue	• Creation of 220 kV GSS Seruna	Under Construction	Dece mber, 2027
32	• 132 kV GSS Napasar • 132 kV GSS Bhinasar • 132 kV GSS Sherera	• Overloading of 220 kV Bikaner-Bikaner Line	• Bikaner-Bikaner 3rd Inter-connection line approved.	Under Construction	March , 2026
33	• 132 kV GSS Sangaria • 132 kV GSS Raisingh Nagar • 220 kV GSS Padampur • 132 kV GSS Fatehgarh • 132 kV GSS Sri Karanpur • 132 kV GSS Tatarsar • 132 kV GSS Rajiasar	• STPS ICT Overload	• Creation of 400 kV GSS Kenchiya (Hanumangarh)	Under Construction	Dece mber, 2027
34	• 132 kV GSS Hanumangarh • 132 kV GSS Sri Vijay Nagar • 132 kV GSS Sangaria • 220 kV GSS Suratgarh • 220 kV GSS Padampur	• Overloading of 220 kV D/C STPS – Suratgarh Line			

	• 132 kV GSS Pilibanga • 132 kV GSS Anoopgarh • 132 kV GSS Ghamoorwali • 132 kV GSS Kaminpur • 132 kV GSS Sri Karanpur • 132 kV GSS Fatehgarh • 132 kV GS Goluwala				

(iii) Issues of higher MVAR drawl by RVPN from ISTS and low voltages observed at Intra-State substations in Rajasthan

(a) Very low voltage observed at substation in Hindaun/Alwar/Dholpur region

Low voltages have been observed at various Intra-State substations in Rajasthan, especially Hindaun (400 kV), Alwar (400 kV) and Dholpur (220 kV) substations. Voltage profile is given below:

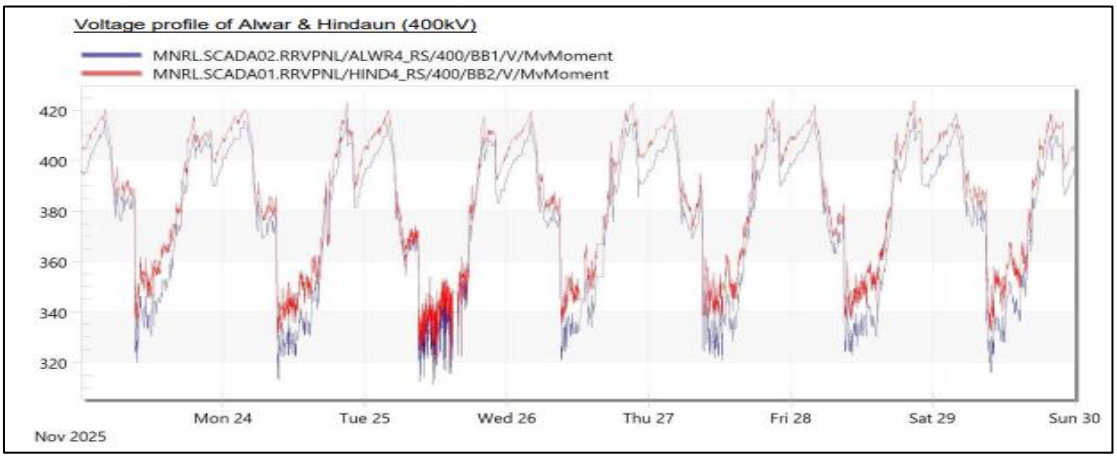


Fig 1.3: Votlage profile of Alwar & Hindaun (400 kV)

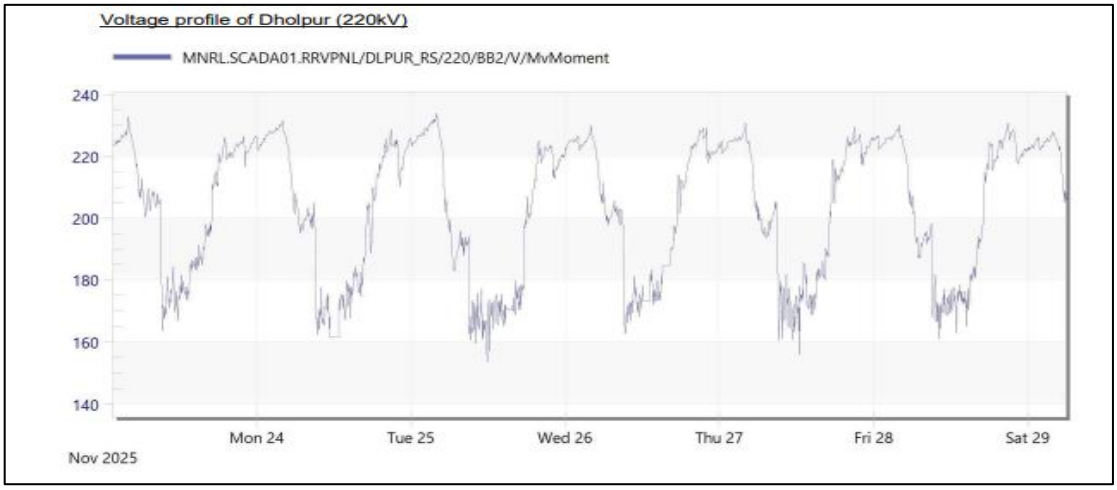


Fig 1.4: Votlage profile of Dholpur (220 kV)

Remedial measures planned:

In order to improve the voltage profile in the area, 400 kV Dholpur substation was planned in the year 2023. However, the substation has not been commissioned till date and is expected to be commissioned by 2028-29. RVPN may expedite the commissioning of the planned Dholpur substation.

In addition, 400 kV Kumher (SCoD: 2027-28) and 765 kV Alwar (Rundh) (SCoD: 2029-30) are also planned which would further improve the voltage profile in the Hindaun/ Alwar/ Dholpur regions.

(b) Low voltage at various other substations of RVPN and Huge MVAR drawl by RVPN from ISTS:

Grid India has highlighted that low voltage has been observed at various Intra-State substation in Rajasthan and MVAR drawl by RVPN from ISTS has been oberserved to be very high as shown below:

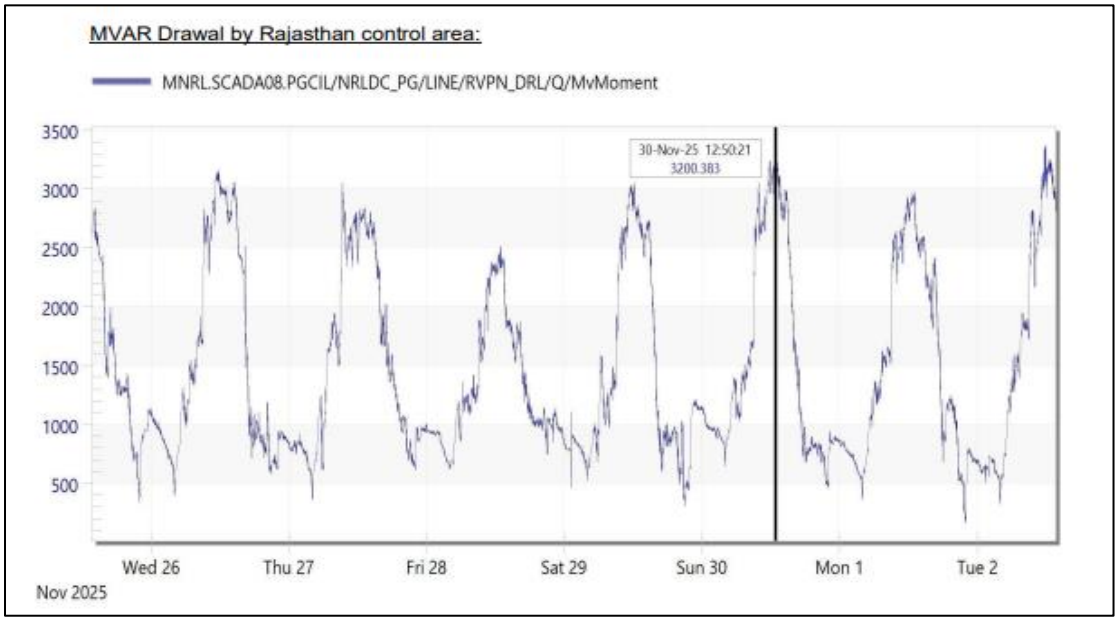


Fig 1.5: MVAR Drawal by Rajasthan control area

Remedial measures planned:

As per inputs furnished by RVPN, total 876 nos. capacitor banks have been installed in the RVPN network with total capacity of 4688.26 MVAR. In addition, capacitor banks with capacity of 814.5 MVAR are under implementation, likely to be commissioned in 2025-26. In addition to this, following actions are required by RVPN by 2030 for improvement of the voltage profile as well as to reduce the dependency on ISTS for MVAR drawl.

- Implementation of additional capacitor banks of total 5000 MVAR capacity
- Ensuring healthiness of available capacitors and expediting commissioning of new capacitors

(iv) Operational constraints in ISTS:

a) Operational constraints in 400/220 kV ICTs at Inter-State substations in Rajasthan:

S. No.	ICT	Major Constraints	Remedial Solution	Status	SCoD
1	400/220 kV Bhiwadi (PG)	N-1 non compliance of 3*315 MVA ICTs	Augmentation with 4th 500 MVA ICT	Under Construction.	2026-27
2	400/220 kV Bassi(PG)	N-1 non compliance of 2*315+500 MVA ICTs	Augmentation with 4th 500 MVA ICT	Under Construction.	2026-27

3	400/220 kV Neemrana(PG)	N-1 non compliance of 315+500 MVA ICTs	Augmentation with 3rd 500 MVA ICT	Under Construction	2026-27
4	400/220kV Jaipur South(PG)	N-1 non compliance of 2*500 MVA ICTs	Augmentation with 3rd 500 MVA ICT	Under Construction	2026-27
5	400/220kV Sikar(PG)	N-1 non compliance of 2*315+500 MVA ICTs	Augmentation with 4th 500 MVA ICT	Under Constructiomn	2026-27
6	400/220kV Kankroli (PG)	N-1 non compliance of 3*315 MVA ICTs	Augmentation with 4th 500 MVA ICT	Under Construction.	2026-27
7	400/220kV Kotputli (PG)	N-1 non compliance of 2*315 MVA ICTs	Augmentation with 3rd 500 MVA ICT	Under Construction.	2025-26

b) Transmission line constraints

S. No.	Transmission line	Major Constraints	Remedial Solution	Status	SCoD
1	400kV Bhadla (PG) – Bhadla (RS) D/C line	• High loading during peak solar hours.	• Charging of 765kV Bhadla-II-Sikar-II D/C (2nd) • Line loading may be kept below 900 MW as an interim measure.	Under Construction	December, 2025
2	400kV Bhadla (RS) –Bikaner (RS) D/C line	• Terminal equipment. • Poor condition of conductor	• Charging of 765 kV Khetri - Narela and associated system. • Terminal equipment needs to be kept as per the rating of line.	Under Construction	December, 2025
3	765kV Bhadla II (PG) – Ajmer PG) D/C line	• Highly loaded during high solar hours.	Commissioning of - • 765kV Bhadla-II(PG)-Sikar-II D/C (2nd) (i.e. Ckt-3 & Ckt-4) • 765kV Khetri-Narela D/C line	Under Construction	December, 2025

			• LILO of 765kV Meerut-Bhiwani at 765kV Narela • 2 nos. of 400kV Narela-Maharanibangh D/C lines		
4	765kV Bhadla (PG) – Bikaner (PG) D/C line	• Highly loaded during high solar generation hours	Commissioning of - • 765kV Sikar-II-Khetri D/C line (Ph-III) • 765kV Sikar-II Narela D/C line (Ph-III) • Bhadla-III system	Under Construction	June, 2026
5	765kV Bikaner (PG) -Khetri D/C line				
6	220kV Sikar (PG) - Dhod(RS)	High demand in Rajasthan is causing N-1 violations at ICTs and overloading in the 220 kV network.	Augmentation of intra-state transmission network		
7	220kV Bhiwadi (PG) - Khuskhera (RS)				
8	220 kV Kankroli -(PG) Kankroli(RS)				
9	220kV Kankroli (PG) - Amberi (RS)				
10	220kV Bhinmal - Sirohi				

Chapter-2

Transmission System Requirement by 2029-30

2.1 Load flow studies for preparation of Resource Adequacy of transmission system in Rajasthan

2.1.1 Scope of Load flow studies:

System studies for the resource adequacy plan for Rajasthan's InSTS have been carried out using PSSE Software. The studies that have been carried out include the following:

(i) Steady state load flow studies

(ii) Contingency Analysis

(iii) Short Circuit Studies

Peak electricity demand in Rajasthan occurs in winter season during the months of January/ February whereas during this time, electricity demand of overall Northern Region generally remains low which goes to minimum during night time and instances of high voltage is observed in the grid. Also, during this time, solar power injection remains high in the day time. In view of this, all the 3 scenarios i.e. afternoon (solar peak), evening (solar off-peak) and night (off-peak load) have been studies for the month of February. Also, peak load of Northern Region occurs during the months of May/ June. Therefore, 2 scenarios i.e. afternoon (solar peak) and evening (solar off-peak) have been studies for the month of June.

The load flow studies have been carried out for the above mentioned 5 scenarios for the two time frames: 2029-30 and 2034-35 with following considerations:

(i) RVPN's transmission network has been represented at 132 kV and above voltage levels, where loads have been considered incidental on 132 kV buses.

(ii) Load power factor has been considered within ± 0.95 as per the Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019.

(iii) 'N-1' criterion has been considered as recommended in the Manual on Transmission Planning Criteria of CEA (2023).

(iv) Transformation capacity of the substations have been considered as per the Manual on Transmission Planning Criteria of CEA (2023) as given below:

(v) The system voltage has been considered within the following limits as per the Manual on Transmission Planning Criteria, 2023:

220 kV	Max 245 kV, Min 198 kV
400 kV	Max 420 kV, Min 380 kV

765 kV Max 800 kV, Min 728 kV

2.2 Load flow studies for the year 2029-30:

(a) Electricity Demand by 2030:

Peak electricity demand of Rajasthan in 2029-30 as per revised 20th EPS projections is 25,971 MW. However, RVPN has intimated that 6.3 GW additional load is expected in the Pali and Khushkhera-Bhiwadi- Neemrana Industrial Area (KBNIA) over and above the load projected in the 20th EPS (revised). Accordingly, the same has also been considered in the studies.

(b) Generation addition under Intra-State by 2030:

Table 2.1: Generation addition under Intra-state by 2030

S.No.	Type	Capacity (GW)	Remarks
1.	Thermal	3.1	• 2x800 MW Chhabra TPS (U7 & U8) • 1x800 MW Kalisindh (U3) • 1x550 MW Giral LTPS (U1) • 1x125 MW Gurha LTPS (U1)
2.	Wind	1.8	
3.	Solar (Grid-connected	18	
4.	Solar (Kusum scheme)	3.7	
5.	PSP	0.8	• 800 MW Rampura PSP
6.	BESS	2.5	

Table 2.2: Substation wise details of the BESS to be added under Intra-State in Rajasthan by 2030 is given below:

Sr. No.	Name of GSS	BESS (MW/MWh)	Status
1	400 kV GSS Surpura	100MW/ 200MWh	Work order issued
2	400 kV GSS Heerapura (Jaipur)	125MW/ 250MWh	Work order issued
3	220 kV GSS Sakatpura (Kota)	125MW/250MWh	Work order issued

4	SCTPS (Suratgarh Super Critical TPS)	125MW/250MWh	Work order issued
5	Giral LTPS	250MW/500MWh	Work order issued
6	Ramgarh TPS	225MW/450MWh	Under Bidding
7	220 kV GSS Chhattargarh (Bikaner)	200MW/ 400MWh	Work order issued
8	220 kV GSS Badnu (Bikaner)	200MW/ 400MWh	Work order issued
9	220 kV GSS Badisid (Phalodi)	100MW/ 200MWh	Work order issued
10	220 kV GSS Bhopalgarh (Jodhpur)	100MW/ 200MWh	Work order issued
11	220 kV GSS Bap (Phalodi)	100MW/ 200MWh	Work order issued
12	220 kV GSS Bhawad (Jodhpur)	200MW/ 400MWh	Work order issued
13	132 kV GSS Pugal (Bikaner)	50MW/ 100MWh	Work order issued
14	132 kV GSS Palli (Jodhpur)	50MW/ 100MWh	Work order issued
15	220 kV GSS Kanasar (Phalodi)	100MW/ 400MWh	Work order issued
16	220 kV GSS Bikampur (Bikaner)	100MW/ 400MWh	Work order issued
17	132 kV GSS Khetusar (Phalodi)	100MW/ 400MWh	Work order issued
18	132 kV GSS Kolayat (Bikaner)	100MW/ 400MWh	Work order issued
19	132 kV GSS Nokha - Dahiya (Bikaner)	50MW/ 200MWh	Work order issued
20	132 kV GSS PS-4 (Phalodi)	50MW/ 200MWh	Work order issued
Total		**2450 MW/5900 MWh** (1950 MW/3900 MWh + 500 MW/2000 MWh)	

(c) Intra-State LGBR in Rajasthan:

As the huge quantum of RE (solar and wind) is envisaged to be integrated under Intra-State, LGBR has been prepared to assess the requirement of BESS in order to avoid the curtailment of solar generation in the afternoon scenario.

Table 2.3: Intra-state LGBR in Rajathan

Source	Installed capacity as on 30.11.2025 (GW)#	Capacity addition during 2025-2030 (GW)	Total capacity by 2030 (GW)	% dispatch in winter	LGB in Winter (Jan-Feb) season (GW)	% dispatch in Monsoon	LGB in Monsoon (Jul-Aug) season (GW)
Thermal	15	3.075	18.075	0.45	8.1	0.45	8.1
Nuclear	0.8		0.8	0.8	0.6	0.8	0.6
Hydro	2.1		2.1	0.3	0.6	1	2.1
Wind	4.2	1.8	6	0.1	0.6	0.5	3.0
Solar	6.2	18	23.2		23.0*		23.0*
Solar Generation under Kusum scheme					**3.7**		**3.7**
Total Generation (GW)					**36.6**		**40.5**
Peak demand as per EPS (GW)					**26.0**		**25.0**
Surplus (Without BESS, PSP and additional load)					**10.6**		**15.5**
PSP					0.8		0.8
BESS					2.5		2.5
Additional load					6.3		6.3
Total of BESS +PSP+additional load					**9.6**		**9.6**
Net Surplus (With BESS, PSP, and additional load)					**1.0**		**5.9**

 # including allocated shares in Joint and Central Sector utilities

**In case of Intra state old plants of 6.2 GW capacity, dispatch has been considered at 80% and dispatch from 17 GW new solar plants has been considered at 100% as RE developers normally keep higher dc to ac ratio at generation end to inject 100% power into the grid during solar hours.*

From above table, it can be observed that surplus generation of 10 GW is expected even during the February solar peak scenario when the generation from hydro and wind remains low whereas electricity demand is high. Quantum of surplus generation in other seasons would be even higher during in solar hours (14 GW in Monsoon season).

For absorption of the excess solar generation, RVPN has planned the following:

- BESS addition of 2.5 GW
- PSP of 0.8 GW
- Additional 6.3 GW load is expected in the Pali and Khushkhera-Bhiwadi- Neemrana Industrial Area (KBNIA) over and above the load projected in the 20th EPS.

2.3 Summary of the transmission schemes to be added under Intra-State during 2025-30 is given below (Details given in Annexure A):

2.3.1 *Transformation capacity (MVA) and transmission lines (ckm) to be added under intra-state during 2025-30*

Table 2.4: Transformation capacity (MVA) to be added under Intra-state during 2025-30

Transformation Capacity (MVA)					
S.No.	**Voltage level**	**Under Construction**	**Planned**	**Under Planning**	**Total**
1	765/400 kV	0	34500	0	34500
2	400/220 kV	8815	12185	1500	22500
3	220/132 & 220/33 kV	9480	640	800	10920
4	132/33 kV	5397.5	1437	150	6984.5
	Total	**23692.5**	**48762**	**2450**	**74904.5**

Table 2.5: Transmission lines (ckm) to be added under Intra-state during 2025-30

Transmission Lines (ckm)					
S.No.	**Voltage level**	**Under Construction**	**Planned**	**Under Planning**	**Total**
1	765 kV	0	3806	0	3806
2	400 kV	437	2829.4	320	3586.4
3	220 kV	5482	1247.4	740	7469.4
4	132 kV	4868.56	1447	259	6574.56
	Total	**10787.56**	**9329.8**	**1319**	**21436.36**

Table 2.6: No of substations to be added to be added during 2025-30

Voltage level	No of substations
765 kV	9
400 kV	10
220 kV	65
132 kV	119
Total	**203**

*2.3.2 Summary of reconductoring of the existing lines planned during 2025-30 (Details given in **Annexure B**):*

Table 2.7: Details of reconductoring of existing lines planned during 2025-30

Voltage level (kV)	Under Construction		Planned		Under Planning		Total	
	No of lines	ckm	No of lines	ckm	No of lines	ckm	No of lines	ckm
400	0	0	0	0	4	542.4	**4**	**542.4**
220	6	377.5	3	24.2	2	100	**11**	**501.7**
132	14	385.6	3	27.9	41	1101.6	**58**	**1515.1**
Total	**20**	**763.1**	**6**	**52.1**	**47**	**1744**	**73**	**2559.2**

2.3.3 Reactive compensation planned under intra-state during 2025-30:

Table 2.8: Bus reactors planned under intra-state during 2025-30

Voltage level (kV)	Under Construction		Planned		Under Planning		Total	
	No of reactor	MVAR	No of reactor	MVAR	No of reactor	MVAR	No of reactor	MVAR
765	0	0	9	2520	0	0	**9**	**2520**
400	3	375	13	1625	1	125	**17**	**2125**
220	5	125	0	0	0	0	**5**	**125**
Total	**8**	**500**	**22**	**4145**	**0**	**0**	**31**	**4770**

Table 2.9: Line reactors planned under intra-state during 2025-30

Voltage level (kV)	Under Construction		Planned		Under Planning		Total	
	No of reactor	MVAR	No of reactor	MVAR	No of reactor	MVAR	No of reactor	MVAR
765	0	0	24	6480	0	0	24	6480
400	5	280	13	710	2	126	20	1116

Total	**5**	**280**	**37**	**7190**	**2**	**126**	**44**	**7596**

2.3.4 Major transmission schemes and substations planned under intra-state to be added during 2025-30 are given below:

1. **Transmission system for evacuation of 13.2 GW RE under GEC-III:**

   (i) Upgradation of 400 kV Kankani S/s to 765 kV level with 2x1500 MVA 765/400 kV ICTs, 1x330 MVAR 765 kV bus reactor.
   (ii) Jaisalmer (Teliwara) S/s with 3x1500 MVA 765/400 kV ICTs, 1x240 MVAR 765 kV bus reactor and 125 MVAR 420 kV bus reactor.
   (iii) Bhadla (Sultan Nagar) S/s with 3x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 240 MVAR 765 kV bus reactor and 125 MVAR 420 kV bus reactor.
   (iv) Nagaur (New) S/s with 2x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 330 MVAR 765 kV bus reactor & 125 MVAR 420 kV bus reactor.
   (v) Bikaner (Pugal) S/s with 3x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 330 MVAR 765 kV bus reactor, 125 MVAR 420 kV bus reactor.
   (vi) Babai (New) S/s with 2x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 330 MVAR 765 kV bus reactor, 125 MVAR 420 kV bus reactor.
   (vii) Amber (Jaipur North) S/s with 2x500 MVA, 400/220 kV ICTs.
   (viii) Dechu S/s with 2x500 MVA 400/220 ICTs and 125 MVAR 420 kV bus reactor.
   (ix) Ajarka (Alwar) S/s with 3x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 240 MVAR 765 kV bus reactor and 125 MVAR 420 kV bus reactor.
   (x) Kushkhera/Bhiwadi S/s with 2x500 MVA, 400/220 kV ICTs and 125 MVAR, 420 kV bus reactor.
   (xi) 220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS at Karnu (Dist:- Nagaur).
   (xii) 220/132 kV, 1x200 MVA & 132/33 kV, 1x50 MVA GSS at Nokhra [Distt.- Bikaner].
   (xiii) 220/132 kV, 1x160 MVA and 132/33kV, 1x50 MVA GSS at Bhopa [Distt.- Jaisalmer].
   (xiv) 220/132 kV, 1x160 MVA and 132/33kV, 1x50 MVA GSS at Betina [Distt.- Jaisalmer].
   (xv) Chiruni/ Mundawar S/s with 1x160 MVA, 220/132 kV ICT and 40/50 MVA, 132/33 kV ICT.

2. **Transmission system for evacuation of 2.5 GW RE under GEC-II:**

   (i) 2x500 MVA, 400/220 kV GSS at Udaipur alongwith 420 kV, 125 MVAR bus reactor.
   (ii) 220/132 kV, 1X160 MVA and 132/33kV, 1x31.5 MVA GSS at Dungarpur.
   (iii) 400/220 kV, 2x500MVA, GSS at Hanumangarh (Pakka Sarna) alongwith 400 kV, 125 MVAR Bus Reactor; 1x25 MVAR, 220 kV Bus Reactor.

3. **Transmission system for evacuation of power from Chhabra TPP (2x800 MW U7-8) and Kalisindh TPP (800 MW U3):**

(i) Anta-II S/s with 3x1500 MVA 765/400 kV ICTs, 240 MVAR 765 kV bus reactor and 125 MVAR 420 kV bus reactor.
(ii) Upgradation of existing 400 kV Hindaun S/s to 765 kV GIS with 2x1500 MVA, 765/400 kV ICTs and 240 MVAR, 765 kV bus reactor.

4. Major substations planned under other Transmission schemes:

(i) Kumher S/s with 2×500 MVA, 400/220 kV ICTs and 125 MVAR, 420 kV Switchable Bus Reactor
(ii) 2x500 MVA, 400/220 kV GSS at Dholpur alongwith 420 kV, 125 MVAR bus reactor
(iii) 2x500 MVA, 400/220 kV and 1x160 MVA, 220/132 kV Banswara alongwith 420 kV, 125 MVAR bus reactor
(iv) 2x500 MVA, 400/220 kV Dahara alongwith 420 kV, 125 MVAR bus reactor
(v) 2x500 MVA, 400/220 kV Sawai Madhopur alongwith 420 kV, 125 MVAR bus reactor

2.4 Summary of the transmission schemes to be added under Inter-State during 2025-30 is given below (Details given in **Annexure C):**

2.4.1 Transformation capacity (MVA) and transmission lines (ckm) to be added under inter-state during 2025-30

Table 2.10: Transformation Capacity (MVA) to be added under inter-state during 2025-30

Transformation Capacity (MVA)					
S. No.	**Voltage level**	**Under Construction**	**Planned**	**Under Planning**	**Total**
1	765/400 kV	75000	3000	12000	**90000**
2	400/220 kV	33000	6500	4000	**43500**
	Total	**108000**	**9500**	**16000**	**133500**

Table 2.11: Transmission lines (ckm) to be added under inter-state during 2025-30

Transmission Lines (ckm)					
S. No.	**Voltage level**	**Under Construction**	**Planned**	**Under Planning**	**Total**
1	765 kV	12218	0	1800	**14018**
2	400 kV	2861	100	340	**3301**
	Total	**15079**	**100**	**2140**	**17319**

2.4.2 Reactive compensation planned under inter-state during 2025-30:

Table 2.12: Bus Reactors planned under inter-state during 2025-30

Voltage level (kV)	**Under Construction**		**Planned**		**Under Planning**		**Total**	
	No of reactor	**MVAR**	**No of reactor**	**MVAR**	**No of reactor**	**MVAR**	**No of reactor**	**MVAR**
765	16	7140	0	0	2	480	**18**	**7620**
400	26	3250	0	0	2	250	**28**	**3500**
220	42	10390	0	0	4	730	**46**	**11120**
Total	**84**	**20780**	**0**	**0**	**8**	**1460**	**92**	**22240**

Table 2.13: Line Reactors planned under inter-state during 2025-30

Voltage level (kV)	**Under Construction**		**Planned**		**Under Planning**		**Total**	
	No of reactor	**MVAR**	**No of reactor**	**MVAR**	**No of reactor**	**MVAR**	**No of reactor**	**MVAR**
765	70	20040	0	0	6	1440	**76**	**21480**
400	12	660	0	0	0	0	**12**	**660**
Total	**82**	**20700**	**0**	**0**	**6**	**1440**	**88**	**22140**

2.4.3 Major transmission schemes and substations planned under inter-state to be added during 2025-30 are given below:

1. **Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III**

   (i) Establishment of 2x1500 MVA 765/400kV & 3x500 MVA 400/220 kV pooling station at Bhadla-3 along with 2x330 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor

   (ii) Establishment of 2x1500 MVA 765/400kV & 2x500 MVA 400/220 kV pooling station at Ramgarh along with 2x240 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus reactor

(iii) Establishment of 2x1500MVA 765/400 kV Substation at suitable location near Beawar along with 2x330 MVAr 765kV Bus Reactor & 2x125 MVAr 420kV Bus Reactor

(iv) Establishment of 2x1500 MVA 765/400kV substation at suitable location near Dausa along with 2x330 MVAr, 765 kV Bus Reactor & 2x125 MVAr, 420 kV bus Reactor

(v) Establishment of 6000 MW (4x1500 MW), ± 800 kV (HVDC) [LCC] near Bhadla-III S/s and at Fatehpur (UP), ±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) and Fatehpur (HVDC) (with DMR) (955 km)

2. Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) (7.7 GW):

(i) 6x1500 MVA, 765/400 kV & 5x500 MVA, 400/220 kV Bikaner-III Pooling Station along with 2x330 MVAr (765kV) Bus Reactor & 2x125 MVAr (420 kV) Bus Reactor

(ii) Establishment of 765/400 kV, 4x1500 MVA Neemrana-II S/s along with 2x330 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor

3. Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW)

(i) Establishment of 4x1500 MVA, 765/400 kV & 5x500 MVA, 400/220 kV Fatehgarh- 4 (Section-2) Pooling Station along with 2x240 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor.

(iii) Establishment of 2x1500 MVA, 765/400 kV substation along with 2x240 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor near Sirohi.

(iv) Establishment of 765 kV switching station at suitable location near Rishabdeo (Distt. Udaipur) along with 2x240 MVAr (765 kV) Bus Reactor.

(v) Establishment of 3x1500 MVA, 765/400 kV & 2x500 MVA, 400/220 kV Barmer-I Pooling Station along with2x240 MVAR (765 kV), 2x125 MVAr (420kV) Bus Reactor.

4. Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part3:6 GW)

(i) Establishment of 6x1500 MVA, 765/400 kV & 6x500 MVA, 400/220 kV Bikaner-IV Pooling Station along with 2x240 MVAr (765kV) & 2x125 MVAr (420kV) Bus Reactors.

(ii) Establishment of 765/400kV, 6x1500 MVA S/s at suitable location near Siwani (Distt. Bhiwani) along with 2x240 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor.

5. **Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW)**

(i) Establishment of 765/400/220 kV, 2x1500 MVA & 400/220 kV 2x500 MVA S/s at suitable location near Merta (Merta-II Substation) along with 2x240 MVAr (765 kV) & 2x125 MVAr (420 kV).

6. **Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-5 :6 GW) [Barmer Complex] Barmer-II: 6 GW (Solar) (LCC Configuration)**

(i) Establishment of 6000 MW, ± 800 kV Barmer-II(HVDC) [LCC] terminal station (4x1500 MW) at a suitable location near Barmer-II substation and South of Kalamb (Maharashtra), ±800 kV HVDC Bipole line (Hexa lapwing) between Barmer-II (HVDC) & South Kalamb (HVDC)

7. **Transmission scheme for Rajasthan REZ Ph-IV (Part-6: 6GW) (Bikaner Complex)**

(i) Establishment of 765/400 kV, 6x1500 MVA & 400/220 kV, 8x500 MVA Bikaner-V Pooling Station along with 2x240 MVAr (765kV) & 2x125 MVAr (420kV) Bus Reactors

(ii) Establishment of 765/400 kV, 2x1500 MVA S/s at suitable location near Pallu (Distt. Hanumangarh) along with 2x240 MVAr (765kV) & 2x125 MVAr (420kV) Bus Reactors.

2.5 Short Circuit Studies:

As per the short circuit studies, fault level at various substations in Rajasthan are either near or higher than the designed limits. List of substations with higher fault level is given below:

Table 2.14: List of Intra-State substations with higher fault level

Substation	Voltage Level (kV)	Fault Level (kA)
Jaipur	765	52.4
Rampura Tonk	400	61.7
Jaipur	400	61.7
Khushkhera	400	59.8
Ajarka	400	54.0
Bhadla (RVPN)	400	53.7
Anta	400	53.2
Heerapura	220	55.6
Bhadla-s	220	45.0
KTPS	220	44.2
Ratangar	220	43.9
Akal-2	220	43.8
Mansarovar	220	43.7
Sakatpur	220	43.0
Jaisalmer220	220	42.3
Ratangar	220	41.9
Karoli2	220	40.2
Salarpur	220	40.1
Amber	220	39.8

Table 2.15: List of ISTS substations with higher fault level

Substation	Voltage Level (kV)	Fault Level (kA)
Bikaner-3	400	81.8
Bikaner-II	400	66.0
Bikaner	400	64.9
Bikaner-IV	400	63.1
Fatehgarh-III	400	61.7
Barmer-1	400	60.1
Bassi	400	59.6
Bhiwadi	400	59.4
Neemrana (PG)	400	59.3
Bhadla (PG)	400	58.2

Considering the high fault levels, it is recommended to implement remedial measures such as bus splitting and implementation of series reactors. As a long-term solution, it is recommended to replace the existing equipment with the higher rating equipment. It is also recommended that all

new substations should be planned with higher short circuit capacity, i.e. 80 kA for 400 kV and 63 kA for 220 kV as per the CEA Manual on Transmission Planning Criteria, 2023 which is given below:

"*The maximum short-circuit level on any new substation bus should not exceed 80% of the rated short circuit capacity of the substation equipment. The 20% margin is intended to take care of the increase in short-circuit levels as the system grows. The rated breaking current capability of switchgear at different voltage levels may be taken as given below:*

Voltage Level	**Rated Breaking Capacity**
765 kV	50 kA / 63 kA
400 kV	63 kA / 80 kA
220 kV	40 kA / 50 kA / 63 kA
132 kV	25 kA / 31.5 kA / 40 kA
66 kV	31.5 kA

Chapter-3

Transmission System addition planned by 2034-35

3.1 Load flow studies for the year 2034-35

a) Electricity demand by 2035:

Peak electricity demand of Rajasthan in 2034-35 as per revised 20th EPS projections is 31 GW. Considering the additional 6.3 GW load envisaged by RVPN by 2030 in the Pali and Khushkhera-Bhiwadi- Neemrana Industrial Area (KBNIA), total electricity demand in Rajasthan is expected to be 37.3 GW. Accordingly, the same has also been considered in the load flow studies.

b) Generation addition under Intra-State during 2030-2035:

Table 3.1: Generation addition under intra-state during 2030-2035

S.No.	Type	Capacity (GW)	Remarks
1.	Thermal	3.2	• 2x800 MW Chhabra TPS (U9 & 10) • 1x800 MW Kalisindh (U4) • 1x550 MW Giral LTPS (U2) • 2x125 MW Gurha LTPS (U2 & U3)
2.	Wind	0	
3.	Solar (Grid-connected	7	
4.	Solar (Kusum scheme)	3.7	
5.	PSP	3.6	• 1000 MW Pahad Kalan (Sirohi) • 1000 MW Singli (Banswara) • 580 MW Ghaghri (Pratapgarh) • 1050 MW Changla (Udaipur)
6.	BESS	4.5	

Table 3.2: Substation wise details of the BESS planned to be added under Intra-State in Rajasthan during 2030-35 is given below:

Sr. No.	Name of GSS	BESS (MW)	Status
1	765 kV GSS Bikaner-New	1500	Planned
2	765 kV GSS Bhadla-New	1000	Planned
3	400 kV GSS Dechu	500	Planned
4	765 kV GSS Jaisalmer	1000	Planned
5	220 kV GSS Nokhra	100	Planned
6	220 kV GSS Bhikampur	200	Planned
7	220 kV GSS Kolayat	100	Planned
8	220 kV GSS Bhopa	200	Planned
9	220 kV GSS Betina	100	Planned
10	400 kV GSS Ramgarh	300	Planned

Table 3.3: Intra-state LGBR in Rajasthan by 2034-35

Source	**Installed capacity as on 31.10.2025 (GW)#**	**Capacity addition during 2025-2030 (GW)**	**Capacity addition during 2030-35**	**Total capacity by 2035(GW)**	**% dispatch in winter**	**LGB in Winter (Jan-Feb) season**	**% dispatch in Monsoon**	**LGB in Monsoon (Jul-Aug) season**
Thermal	15	3.075	3.2	21.275	0.45	9.6	0.45	9.6
Nuclear	0.8			0.8	0.8	0.6	0.8	0.6
Hydro	2.1			2.1	0.3	0.6	1	2.1
Wind	4.2	1.8		6	0.1	0.6	0.5	3.0
Solar	6.2	18	6	30.2		29.0		29.0
Solar Generation under Kusum scheme						**7.4**		**7.4**
Total Generation (GW)						**47.8**		**51.7**
Peak demand as per EPS (GW)						**31.0**		**31.0**
Surplus (Without BESS, PSP and additional load)						**16.8**		**20.7**
PSP						4.4		4.4
BESS						7.5		7.5
Additional load						6.3		6.3
Total BESS +PSP+additional load						**18.2**		**18.2**

Net Surplus (With BESS, PSP, and additional load)	**-1.4**		**2.5**

3.2 Summary of the transmission system planned to be added under Intra-State during 2030-35 are given below (Details given in Annexure D):

3.2.1 Transformation capacity (MVA) and transmission lines (ckm) to be added under intra-state during 2030-35

Table 3.4: Transformation capacity (MVA) to be added under intra-state during 2030-35

Transformation Capacity (MVA)		
S.No.	**Voltage level**	**Total**
1	765/400 kV	3000
2	400/220 kV	4000
3	220/132 & 220/33 kV	800
4	132/33 kV	370.5
	Total	**8170.5**

Table 3.5: Transmission lines (ckm) to be added under intra-state during 2030-35

Transmission Lines (ckm)		
S.No.	**Voltage level**	**ckm**
1	765 kV	290
2	400 kV	1426
3	220 kV	1537
4	132 kV	690
	Total	**3943**

Table 3.6: No of substations to be added to be added during 2030-35

Voltage level	**No of substations**
765 kV	1
400 kV	4
220 kV	5
132 kV	7
Total	**17**

3.2.2 Reactive compensation planned under intra-state during 2030-35:

Table 3.7: Bus Reactors planned under intra-state during 2030-35

Voltage level (kV)	Bus Reactors		Line Reactor	
	No of reactor	MVAR	No of reactor	MVAR
765	1	330	2	480
400	5	625	2	80

3.2.3 Major transmission schemes and substations planned to be added during 2030-35 are given below:

1. **Transmission system for evacuation of power from Chhabra TPP (2x800 MW U9-10) and Kalisindh TPP (800 MW U4):**
   (i) 2x1500 MVA, 765/400/220 kV Bhilwara with 330 MVAR, 765 kV bus reactor and 125 MVAR, 420 kV bus reactor.
2. **Transmission system for evacuation of power from Giral TPS (U2: 550 MW):**
   (i) Giral- Jalore 400 kV D/c line.
3. **Transmission system for evacuation of power from Gurha LTPS (U2 &U3:2x125 MW):**
   (i) Gurha- Kolayat 220 kV D/c line (2^{nd} line).
4. **Transmission system for evacuation of power from Pahad Kalan (Sirohi) PSP (1000 MW):**
   (i) Pahad Kalan (Sirohi) to Jalore 400 kV D/c line.
5. **Transmission system for evacuation of power from Singli (Banswara) PSP (1000 MW):**
   (i) Singli (Banswara) to Banswara 400 kV D/c line.
6. **Transmission system for evacuation of power from Ghaghri (Pratapgarh) PSP (580 MW):**
   (i) Ghaghri- Salumber 220 kV 2xD/c line
7. **Transmission system for evacuation of power from Changla (Udaipur) PSP (1050 MW):**
   (i) Changla to Udaipur 400 kV D/c line.

8. Major substations planned under other Transmission schemes:

(i) 400/220 kV, 2x500 MVA GSS at Jalore with 125 MVAR, 420 kV bus reactor.

(ii) 2x500 MVA, 400/220 kV Sanganer with 125 MVAR, 420 kV bus reactor.

(iii) 2x500 MVA, 400/220 kV Reengus with 125 MVAR, 420 kV bus reactor.

(iv) 2x500 MVA, 400/220 kV Ajmer II with 125 MVAR, 420 kV bus reactor.

Chapter-4

Status of Transmission System planning for evacuation of Renewable Energy in Rajasthan

Till date, transmission system for integration of 166 GW RE (ISTS: 130 GW ISTS, InSTS: 36 GW) of RE has already been planned/ under planning which are under various stages of implementation. Summary of same (RE zone wise) is given below:

4.1 Status of transmission system under Inter-state for REZ in Rajasthan

Table 4.1: Transmission system under inter-state for REZ in Rajasthan

RE Zones	Bhadla (GW)	Fatehgarh (GW)	Barmer (GW)	Bikaner (GW)	Ramgarh (GW)	Jalore/ Sirohi/ Sanchore (GW)	Pali/ Ajmer/ Nagaur (GW)	Total (GW)
Commissioned (GW)	8.27	6.03	0	6.45	0	0	0	20.75
Under implementation (GW)	3.18 3.75	16.67	4	12.05	0.65 2.25	2	2	40.55 6
Under Bidding (GW)	0	0	6	0	0	0	0	6
Under Planning / To be planned (GW)	16	0	9.8	6 4.5	12	7.3	1	6 51
Total (GW)	31.2	22.7	19.8	29	14.9	9.3	3	130.3

Total RE: 130.3 GW (EHVAC: 67.3 GW, HVDC: 63 GW)

Connectivity proposed with HVDC

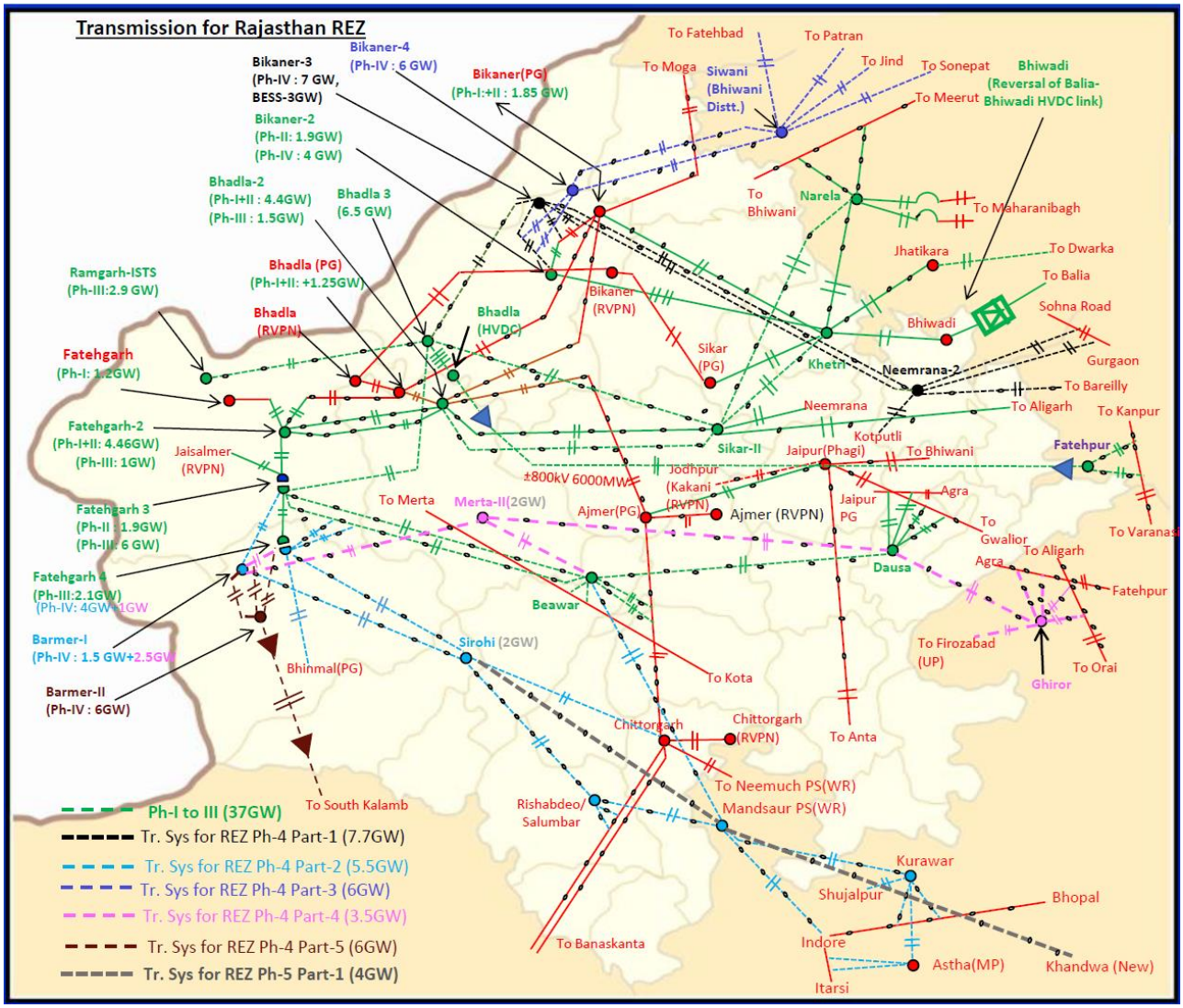


Fig 4.1: Transmission system planned under ISTS for Rajasthan REZ

4.2 Status of transmission system under Intra-State for REZ in Rajasthan

Table 4.2: Transmission system under intra-state for REZ (including schemes under GEC) in Rajasthan

	Jodhpur district			Bikaner district		Jaisalmer district			Other Districts	Total
	Bhadla	Dechu	Other	Bikaner	Other	Fatehgarh	Ramgarh	Other		
Solar										
Commissioned	1.5	0	1.1	0	0.7	2.3	0	0.1	0.5	**6.2**

Under implementation	0.5	0	1.7	0	3.4	0.5	1.2	0.3	1.2	**8.8**
Planned	4	2	0	5.7	0.3	2.8	0	0.4	0	**15.2**
Total (Solar)	**6**	**2**	**2.8**	**5.7**	**4.4**	**5.6**	**1.2**	**0.8**	**1.7**	**30.2**
Wind										
Commissioned	0	0	0.4	0	0	1.8	0.41	1.1	0.5	**4.21**
Under implementation	0	0	0	0	0	0.8	0.06	0	0	**0.86**
Planned	0	0	0	0	0	1	0	0	0	**1**
Total (Wind)	**0**	**0**	**0.4**	**0**	**0**	**3.6**	**0.47**	**1.1**	**0.5**	**6.07**
Grand Total (Solar +Wind)	**6**	**2**	**3.2**	**5.7**	**4.3**	**9.2**	**1.67**	**1.9**	**2.3**	**36.27**

4.3 Status of Intra-State transmissions schemes planned under Green Energy Corridor (GEC) scheme:

Table 4.3: Intra-state transmission system planned under GEC

Scheme	RE (GW)	ckm	MVA	Status
GEC-I	2.41	984	1915	Commissioned
GEC-II	2.5	659	2191	Under implementation
GEC-III	13.2	5819	36090	Planned

4.4 Challenges in RE integration and planning of Statcoms and Synchronous Condensers:

India has set an ambitious target of 500 GW of non-fossil fuel-based Installed capacity by the year 2030. Going forward the RE share in All India Installed Capacity will increase significantly in comparison to that of conventional generators. This transition is expected to significantly reduce the system inertia as the RE generators are connected to the grid using inverter-based power electronic devices and are unable to provide inertial response and have limitations of providing Short Circuit

Power and Dynamic Reactive Power and may also introduce harmonics in the power system. Power System Inertia, Short Circuit Power and Dynamic Reactive Power, which are the key elements of grid stability have inherently been provided by the conventional generators. Therefore, the increase in renewable energy sources coupled with the withdrawal of conventional energy-based plants will pose considerable challenges for grid stability in future.

Rajasthan has a huge potential of Renewable energy. As mentioned above, transmission system for integration of 166 GW RE (ISTS: 130 GW ISTS, InSTS: 36 GW) of RE has already been planned which are under various stages of implementation. In view of the various challenges with integration of RE, STATCOMs and Synchronous Condensers have been planned in Rajasthan for dynamic reactive compensation, details of which are given below:

4.4.1 Static synchronous compensator (STATCOMs)

Table 4.4: STATCOMs planned under ISTS

S.No.	Substation	Statcom	MSC/MSR	Status
1	Bhadla-2	± 2x300MVAr, 400 kV	4x125 MVAr MSC, 2x125 MVAr MSR	Commissioned
2	Fatehgarh-2	± 2x300MVAr, 400 kV	4x125 MVAr MSC, 2x125 MVAr MSR	Commissioned
3	Bikaner-2	± 1x300MVAr, 400 kV	2x125 MVAr MSC, 1x125 MVAr MSR	Commissioned
4	Ramgarh	± 2x300MVAr, 400 kV	4x125 MVAr MSC, 2x125 MVAr MSR	Under Implementation
5	Fatehgarh – III	± 2x300MVAr, 400 kV	4x125 MVAr MSC, 2x125 MVAr MSR	Under Implementation
6	Bikaner-IV	± 2x300MVAr, 400 kV	4x125 MVAr MSC, 2x125 MVAr MSR	Under Implementation

7	Siwani	± 2x300MVAr, 400 kV	4x125 MVAr MSC, 2x125 MVAr MSR	Under Implementation
8	Barmer-I	± 2x300MVAr, 400 kV	4x125 MVAr MSC, 2x125 MVAr MSR	Under Implementation

Table 4.5: STATCOMs planned under InSTS

S.No.	Substation	Statcom	Status
1	Jaisalmer (Teliwara)	+/- 2x150 MVAR, 400 kV	Planned under GEC-III
2	Bhadla(Sultan Nagar)	+/- 2x150 MVAR, 400 kV	Planned under GEC-III
3	Dechu	+/-2x150 MVAR, 400 kV	Planned under GEC-III
4	Bhadla	+/- 2x150 MVAR, 400 kV	Under Planning
5	Phalodi	± 1x100MVAr, 220 kV	Planned
6	Tinwari	± 1x100MVAr, 220 kV	Planned

4.4.2 Synchronous Condensers:

In the 71st NRPC meeting held on 29th January 2024, it was deliberated that RE power is being integrated at fast pace country-wide and to ensure grid stability and provide inertial support in RE complex, requirement of dynamic compensation like Synchronous Condensers needs to be identified at different locations based on the detailed studies.

Accordingly, a committee was formed under Chairmanship of Member Secretary, NRPC along with members from CEA, NLDC, NRLDC, NTPC, BHEL, CTU and STUs to do futuristic analysis for requirement of Synchronous Condensers based on the inertia considerations for Northern Region.

Table 4.6: Tentative locations (RE pooling stations) recommended by the committee for installation of synchronous condensers in Northern Region (Rajasthan) are as under:

S.No.	Pooling Station	Voltage level	Synchronous condenser units *	SCR (by 2029) w/o Syncon	Reason for requirement of Syncon
	Ph-I				
1	Fatehgarh-I	400kV	• 400kV – 2 nos.	10.1	• Sustained Oscillations on real time basis as observed by Grid-India

S.No.	Pooling Station	Voltage level	Synchronous condenser units *	SCR (by 2029) w/o Syncon	Reason for requirement of Syncon
					and radialized connection • No Dynamic compensation device • Proposed Timeframe: 2026-27
2	Fatehgarh-II	220KV (Sec-1 & 1A) or 400kV	• 220kv - 1 No. unit each (Section 1 & 1A) or • 400kV – 2 nos.	220kV – (5.7 & 7.2) 400kV - 5.4	• Sustained Oscillations on real time basis as observed by Grid-India • Recommended at 400kV level due to relative low SCR and more impact on Grid Faults (at Bhadla, Bikaner) • STATCOM at 400kv level - extensive evaluation is required due to control interaction between STATCOM and SynCon • Proposed Timeframe: 2026-27 ***Based on recommendation of committee either Fatehgarh-II PS (Priority-1) or Fatehgarh-I PS (Priority-2) may be selected for installation of SynCon***
	Ph-II				
3	Fatehgarh-IV PS (Sec-2)	220kV or 400kV	• 220kV - 2 Nos.	3.5(220kV) 6(400kV)	• Recommended at 220 kV level due to low SCR • No Dynamic compensation device • Proposed Timeframe: 2027-28
4	Ramgarh PS	400kV	• 400kV - 2 Nos.	7.5(220kV) 4.5 (400kV)	• Recommended at 400kV level due to Low SCR at 400kV level (2027-3.4 & 2029-4.5)

S.No.	Pooling Station	Voltage level	Synchronous condenser units *	SCR (by 2029) w/o Syncon	Reason for requirement of Syncon
					• STATCOM at 400kV level - extensive evaluation is required due to control interaction between STATCOM and Syncon • Proposed Timeframe: 2027-28
5	Bhadla-III	220kV	•220kV - 2 Nos.	4.3(220kV) 4.7 (400kV)	• Recommended at 220kV level due to relative low SCR at 220kV level (2027-3.5 & 2029-4.3) • No Dynamic compensation device • Nearby HVDC at 400kV level (through 400kV Bhadla-III- Bhadla (HVDC) 2xD/c line) - extensive evaluation is required due to control interaction between HVDC and Syncon • Proposed Timeframe: 2027-28
	Ph-III				
6	Bikaner-II PS	220kV	•220kv - 1 No.	4.5(220kV) 7.3 (400kV)	• Recommended at 220kV level due to relative low SCR at 220kV level • Only 1 no. unit is suggested due to higher Short circuit MVA • STATCOM at 400kv level - extensive evaluation is required due to control interaction between STATCOM and Syncon • Proposed Timeframe: 2029-30
7	Merta-II PS	220kV	•220kv - 1 No.	4.8 (220kV) 9.7 (400kV)	• Recommended at 220kV level due to relative low SCR at 220kV level

S.No.	Pooling Station	Voltage level	Synchronous condenser units *	SCR (by 2029) w/o Syncon	Reason for requirement of Syncon
					• No Dynamic compensation device • Proposed Timeframe: 2029-30

1 no. of SynCon unit comprises dynamic support of +300MVAr/-150MVAr (Minimum) & Short circuit contribution at PCC of 1200MVA (Minimum) with Minimum H (natural) =4 s

Additional requirement of flywheel (with natural inertia of 1000-3000MWs) may be identified at time of finalization of proposal

Table 4.7: Details of synchronous condensors which have already been planned

S.No.	Substation	Syncon	Status
ISTS			
1	Fatehgarh-II	2x +300/-200 MVAR, 400 kV (with minimum SC MVA of 1200 MVA)	Under Bidding
2	Barmer-II	2x +300/-200 MVAR, 400 kV (with minimum SC MVA of 1200 MVA)	Under Bidding
InSTS			
3	Bikaner (Pugal)	1x +300/-200 MVAR, 400 kV (with minimum SC MVA of 1200 MVA)	Planned under GEC-III

Chapter-5
Recommendations

1. Intra-State Transmission system to be added by 2029-30 in Rajasthan (132 kV and above) comprises of 21436 ckm of transmission lines and 74904 MVA of transformation capacity as detailed below:

	Ckm and MVA to be added during 2025-30			
	765 kV	**400 kV**	**220 kV**	**132 kV**
Transmission lines (ckm)	3806	3586.4	7469.4	6574.56
Transformation Capacity (MVA)	34500	22500	10920	6984.5

In addition, reconductoring of some of the transmission lines (about 2559.2 ckm) with HTLS conductors is also required in the same timeframe.

2. Loading on some of the Intra-State transmission lines and ICTs (220 kV and above) has been observed to be approaching the thermal limit under contingencies in the 2029-30 time frame as per load flow studies **(List attached as Annexure E)**. Real time loading on the same may be monitored by RVPN and adequate transmission system strengthening may be planned as per the requirement alongwith adequate downstream network. Also, RVPN has implemented/ planned various 220 kV substations with single ICTs. Therefore, transmission system may not be 'N-1' compliant. RVPN may review and accordingly plan ICT augmentations.

3. Intra-State Transmission system planned to be added during 2030 to 2035 comprises of 3943 ckm of transmission lines and 8170 MVA of transformation capacity as detailed below:

	Ckm and MVA to be added during 2030-35			
	765 kV	**400 kV**	**220 kV**	**132 kV**
Transmission lines (ckm)	290	1426	1537	690
Transformation Capacity (MVA)	3000	4000	800	370.5

The schemes planned by RVPN during 2030-2035 may not suffice to meet the electricity demand in Rajasthan in 2034-35 and additional transmission system may be required to be planned. Therefore, the transmission schemes planned by RVPN during 2030-2035 timeframe may be reviewed in future based on growth of electricity demand.

4. In view of the huge integration of RE under Intra-State, RVPN needs to implement adequate quantum of BESS so as to avoid curtailment of the solar power. RVPN has also envisaged additional 6.3 GW industrial load over and above the EPS projected demand. In case of delay of materialization of this load, commensurate BESS would be needed to be planned for integration of RE.

5. The additional 6.3 GW industrial load envisaged by RVPN in the Pali and Khushkhera-Bhiwadi- Neemrana Industrial Area (KBNIA) has been simulated as lumped load at 400 kV substations in the load flow studies. Adequate transmission system is required to be planned for the same.

6. RVPN needs to ensure timely implementation of the planned dynamic reactive compensation i.e. Statcoms and Synchronous Condensers.

7. All the planned transmission network should be timely implemented. In the past, it has been observed that many of the planned intra-state transmission schemes in Rajasthan have been delayed, causing the constraints in the transmission system. Tendering and award of the transmission elements should also be expedited.

8. In view of the low voltages experienced at various Intra-state substations and to reduce higher MVAR drawl from ISTS, RVPN needs to implement capacitors as highlighted in the report and also ensure the healthiness of available capacitors.

9. As per the short circuit studies, it has been observed that the fault level at various substations is either near or higher than the designed limits. Therefore, bus splitting arrangement/ implementation of series reactors have been proposed at these substations. It is also suggested to replace the equipment with the higher rating equipment so as to restore the bus split arrangement and enhance the reliability of power supply. Considering the high fault levels in Rajasthan, it is recommended that all new substations should be planned with higher short circuit capacity as per the manual on Transmission Planning Criteria.

10. RVPN should keep adequate space provision in the new substatins for extension/augmentation to meet future load growth. Also, RVPN should provide appropriate space provisions for 66 kV

and 33 kV bays in their 220/66 kV and 220/33 kV grid substations for supply of power to DISCOMs.

11. Transmission schemes which are planned/under planning for implementation till 2029-30 and 2034-35, may be taken up earlier or later as per requirement of Discom, actual load growth, integration of RE etc. Accordingly, the Resource Adequacy study for transmission system in the state may be reviewed in the coming years.

Annexure A

Transmission schemes to be added in Rajasthan under Intra-State during 2025-30

S.No.	Scheme/Details	Voltage (kV)	Line Length (in ckm)	Total MVA	Status (Under Construction/ Planned/ Under planning)	Anticipated Schedule of Commissioning
Transmission system for evacuation of 13.2 GW RE under GEC-III						
1	**Upgradation of 400 kV Kankani S/s to 765 kV level with 2x1500 MVA 765/400 kV ICTs, 1x330 MVAR 765 kV bus reactor**	765/400		3000	Planned	2028-29
2	Phagi- Kankani 765 kV D/c line (Hex Zebra equivalent AL-59 conductor) (300 km) with 330 MVAR switchable line reactors on each circuit at Kankani end and 240 MVAR switchable line reactors on each circuit at Phagi end	765	600		Planned	2028-29
3	**Jaisalmer (Teliwara) S/s with 3x1500 MVA 765/400 kV ICTs, 1x240 MVAR 765 kV bus reactor and 125 MVAR 420 kV bus reactor**	765/400		4500	Planned	2028-29
4	Jaisalmer 2- Jaisalmer (Teliwara) 400 kV D/c line	400	140		Planned	2028-29
5	LILO of both circuits of Ramgarh-Akal 400 kV D/c line at Jaisalmer (Teliwara)	400	100		Planned	2028-29
6	Kankani- Jaisalmer (Teliwara) 765 kV D/c line (225 km) (Hex Zebra equivalent Al 59 conductor) with 240 MVAR switchable line reactors in each circuit at both Kankani end and Jaisalmer (Teliwara) end.	765	450		Planned	2028-29
7	**Bhadla (Sultan Nagar) S/s with 3x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 240 MVAR 765 kV bus reactor and 125 MVAR 420 kV bus reactor**	765/400/ 220		5500	Planned	2028-29
8	Bhadla (Sultan Nagar) – Bikaner (Pugal) 765 kV D/c line (180 km) (Hex Zebra equivalent AL 59 conductor) with 240 MVAR switchable line reactors in each circuit at both Bhadla (Sultan Nagar) end and Bikaner (Pugal) end	765	360		Planned	2028-29
9	LILO of Bhadla - Merta 400 kV S/c line at Bhadla (Sultan Nagar)	400	12		Planned	2028-29
10	LILO of Bhadla - Surpura (Jodhpur) 400 kV S/c line at Bhadla (Sultan Nagar)	400	12		Planned	2028-29
11	LILO of Bap-BLTPS line 220 kV S/c line (HTLS) at Bhadla (Sultan Nagar)	220	40		Planned	2028-29
12	**Nagaur (New) S/s with 2x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 330 MVAR 765 kV bus reactor & 125 MVAR 420 kV bus reactor**	765/400/ 220		4000	Planned	2029-30

13	Nagaur (New) - Bhadla (Sultan Nagar) 765 kV D/c line (175 km) (Hex Zebra) along with 330 MVAR, 765 kV switchable line reactor on each circuit at Nagaur end.	765	350		Planned	2029-30
14	Nagaur (New) -Merta (RVPN) 400 kV S/c line (Quad Moose) (115 km) along with 50 MVAR switchable line reactor at Nagaur (New) end	400	115		Planned	2029-30
15	Nagaur (New) - Deedwana (PPP) 400 kV D/c line (Twin Moose) (130 km) along with 50 MVAR, 420 kV switchable line reactor on each circuit at Nagaur (New) end	400	260		Planned	2029-30
16	Birloka - Nagaur (New) 220 kV D/c line with HTLS conductor (25 km)	220	50		Planned	2029-30
17	LILO of Nokha- Nagaur (220 kV GSS) 220 kV S/c line at Nagaur (New) (LILO length: 50 km)	220	100		Planned	2029-30
18	**Bikaner (Pugal) S/s with 3x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 330 MVAR 765 kV bus reactor, 125 MVAR 420 kV bus reactor**	765/400/ 220		5500	Planned	2028-29
19	Babai (New) -Bikaner (Pugal) 765 kV D/c line (Hex Zebra AL-59) with 330 MVAR, 765 kV switchable line reactor on each circuit at each end (320 km)	765	640		Planned	2028-29
20	Bikaner (Pugal) - Hanumangarh 400 kV D/c line (Twin Moose) along with 50 MVAR, 420 kV switchable line reactor on each circuit at Bikaner (Pugal) end (165 km)	400	330		Planned	2028-29
21	LILO of both circuits of Suratgarh SCTPS-Bikaner 400 kV D/c line (Twin Moose) at Bikaner (Pugal) (LILO length: 48 km)	400	192		Planned	2028-29
22	**Babai (New) S/s with 2x1500 MVA 765/400 kV ICTs, 2x500 MVA 400/220 kV ICTs, 330 MVAR 765 kV bus reactor, 125 MVAR 420 kV bus reactor**	765/400/ 220		4000	Planned	2029-30
23	Babai (New) -Ajarka 765 kV D/c line (Hexa Zebra) (115 km) along with 240 MVAR, 765 kV switchable line reactor on each circuit at 765 Babai (New) end	765	230		Planned	2029-30
24	Babai (New) - Babai (RVPN) 400 kV D/c line (10 km) (Quad Moose)	400	20		Planned	2029-30
25	Babai (New) - Amber line 400 kV D/c line (Twin Moose) (120 km) along with 50 MVAR 420 kV switchable line reactor on each circuit at Amber end	400	240		Planned	2029-30
26	Babai (New) -Beri Bhajangarh 220 kV D/c line (70 km)	220	140		Planned	2029-30
27	LILO of Chirawa- Khetri 220 kV S/c line at Babai (New) (LILO length: 45 km)	220	90		Planned	2029-30
28	**Amber (Jaipur North) S/s with 2x500 MVA, 400/220 kV ICTs**	400/220		1000	Under Construction	2026-27

29	125 MVAR, 420 kV Bus Reactor at Amber	400			Under Planning	2028-29
30	LILO of circuit-I of Sikar (PG)-Bassi (PG) 400 kV D/C line at 400 kV GSS Amber	400	2		Under Construction	2026-27
31	LILO of circuit-II of 400 kV D/C Sikar (PG)-Bassi (PG) line at 400 kV GSS Amber	400	2		Under Construction	2026-27
32	LILO of Manoharpur-VKIA 220 kV S/C line at 400 kV GSS Amber	220	1		Under Construction	2026-27
33	LILO of Manoharpur-Kukas 220 kV S/C line at 400 kV GSS Amber	220	1		Under Construction	2026-27
34	**Dechu S/s with 2x500 MVA 400/220 ICTs and 125 MVAR 420 kV bus reactor**	400/220		1000	Planned	2029-30
35	LILO of Jodhpur- Akal 400 kV S/c line at Dechu (Twin Moose) (LILO length: 6 km)	400	12		Planned	2029-30
36	Dechu- Kankani 400 kV D/c line (Quad Moose) (140 km) with 80 MVAR, 420 kV switchable line reactor on each circuit at Dechu end	400	280		Planned	2029-30
37	LILO of Dechu- Amarsagar 220 kV S/c line at Dechu (LILO length: 6 km)	220	12		Planned	2029-30
38	LILO of Dechu- Chandan 220 kV S/c line at Dechu (LILO length: 6 km)	220	12		Planned	2029-30
39	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS at Karnu (Dist:- Nagaur)**	220/132/ 33		210	Planned	2027-28
40	Karnu-Nokhra 220 kV D/c line (AL-59)	220	160		Planned	2027-28
41	Karnu-Khinvsar 220 kV D/c line (AL-59)	220	80		Planned	2027-28
42	Karnu-Datina 132 kV D/c line	132	30		Planned	2027-28
43	**220/132 kV, 1x200 MVA & 132/33 kV, 1x50 MVA GSS at Nokhra [Distt.- Bikaner]**	220/132/ 33		250	Under Construction	2026-27
44	LILO of circuit-I of Bikampur - Kolayat 220 kV D/c line at Nokhra	220	50		Under Construction	2026-27
45	LILO of circuit-II of Bikampur - Kolayat 220 kV D/c line at Nokhra	220	50		Under Construction	2026-27
46	Mandal -Nokhra 132 kV D/c line	132	34		Under Construction	2026-27
47	**220/132 kV, 1x160 MVA and 132/33kV, 1x50 MVA GSS at Bhopa [Distt.- Jaisalmer]**	220/132/ 33		210	Under Construction	2027-28
48	Akal (400 kV GSS)-Bhopa 220 kV D/c line	220	60		Under Construction	2027-28
49	LILO of Jaisalmer-Sangarh 132 kV line at 220 kV GSS Bhopa	132	50		Under Construction	2027-28
50	Bhopa- Pithla Fanta 132 kV D/c Line	132	40		Under Construction	2027-28
51	**220/132 kV, 1x160 MVA and 132/33kV, 1x50 MVA GSS at Betina [Distt.- Jaisalmer]**	220/132/ 33		210	Under Construction	2026-27

52	LILO of ckt-I of Akal-Bhensara (Jaisalmer-II) 220 kV D/c line at 220 kV GSS Betina	220	30		Under Construction	2026-27
53	LILO of ckt-II of 220 kV D/c Akal-Bhensara (Jaisalmer-II) at proposed 220 kV GSS Betina	220	30		Under Construction	2026-27
54	LILO of Sankra-Dangri 132 kV S/c Line at 220 kV GSS Betina	132	18		Under Construction	2026-27
55	**Alwar (Rundh Gidawara) S/s with 03X1500 MVA, 765/400 kV ICT along with 240 MVAR, 765 kV Switchable Bus Reactor and 125 MVAR, 420 kV Switchable Bus Reactor at 765 kV GSS Alwar (Rundh Gidawara).**	765/400		4500	Planned	2029-30
56	115 kM, Alwar (Rundh Gidawara)-Hindaun 765 kV D/C line (Hexa Zebra)	765	230		Planned	2029-30
57	LILO of one circuit of Sikar-Aligarh 765 kV D/c line (Hex Zebra AL-59) at Alwar (Rundh Gidawara) (LILO length: 18 km)	765	36		Planned	2029-30
58	Alwar (Rundh Gidawara) - Alwar (PPP) 400 kV D/c line	400	140		Planned	2029-30
59	LILO of Neemrana - Kotputli 220 kV S/c line at 765 kV Ajarka (Alwar)	220	40		Planned	2029-30
60	LILO of Neemrana-Behror 220 kV S/c line at 765 kV Ajarka (Alwar)	220	40		Planned	2029-30
61	**Bhojrajka(Kushkhera) S/s with 2x500 MVA, 400/220 kV ICTs and 125 MVAR, 420 kV bus reactor**	400/220		1000	Planned	2029-30
62	Alwar (Rundh Gidawara)- Bhojrajka (Kushkhera) line (Quad Moose) 400 kV D/c line	400	52		Planned	2029-30
63	LILO of both circuits of Neemrana (PG) - Bhiwadi (PG) 400 kV D/c line at Bhojrajka (Kushkhera)	400	36		Planned	2029-30
64	LILO of Alwar-Karoli 220 kV S/c line at Bhojrajka (Kushkhera)	220	12		Planned	2029-30
65	LILO of KG Bas-Kushkhera 220 kV S/c line at Bhojrajka (Kushkhera)	220	12		Planned	2029-30
66	**Chiruni (Mundawar) S/s with 1x160 MVA, 220/132 kV ICT and 40/50 MVA, 132/33 kV ICT**	220/132/33		200	Planned	2027-28
67	Bhojrajka (Kushkhera) - Chiruni (Mundawar) 220 kV D/c line	220	60		Planned	2027-28
68	LILO of 220 kV S/C Alwar-Bansur Line at 220 kV GSS Chiruni (Mundawar)	220	20		Planned	2027-28
69	LILO of Khairthal - Mundawar 132 kV S/c line at Chiruni (Mundawar)	132	32		Planned	2027-28
Transmission system for evacuation of 2.5 GW RE under GEC-II						
1	**2x500 MVA, 400/220 kV GSS at Udaipur alongwith 420 kV, 125 MVAR bus reactor**	400/220	-	1000	Under Construction	2027-28

2	LILO of one circuit of Chittorgarh-Bhilwara 400 kV D/c line at Udaipur with 50 MVAR, 420 kV switchable line reactors on both circuits at Udaipur end.	400	180		Under Construction	2027-28
3	LILO of Debari-Amberi 220 kV S/c line at 400 kV GSS Udaipur.	220	5		Under Construction	2027-28
4	LILO of Madri-Banswara 220 kV S/c line at 400 kV GSS Udaipur.	220	22		Under Construction	2027-28
5	**220/132 kV, 1X160 MVA and 132/33kV, 1x31.5 MVA GSS at Dungarpur**	220/132/ 33		192	Under Construction	2026-27
6	Udaipur (400 kV GSS)-Dungarpur 220 kV D/c line.	220	204		Under Construction	2026-27
7	LILO of one circuit of Udaipur (400 kV GSS)-Dungarpur 220 kV D/c line at 220 kV GSS Aspur.	220	30		Under Construction	2026-27
8	LILO of Dungarpur (132 kV GSS)-Sagwara 132 kV S/c line at 220 kV GSS Dungarpur	132	28		Under Construction	2026-27
9	Dungarpur(220 kV GSS) - Diversion point (for Bicchiwara and Seemalwara) 132 kV D/c line	132	28		Under Construction	2026-27
10	132 kV S/c line from Diversion point (for Bicchiwara and Seemalwara) to 132 kV GSS Bicchiwara.	132	26		Under Construction	2026-27
11	132 kV S/c line from Diversion point (for Bicchiwara and Seemalwara) to 132 kV GSS Seemalwara	132	30		Under Construction	2026-27
12	**400/220 kV, 2x500MVA, GSS at Hanumangarh (Pakka Sarna) alongwith 400 kV, 125 MVAR Bus Reactor; 1x25 MVAR, 220 kV Bus Reactor**	400/220		1000	Under Construction	2027-28
13	LILO of one circuit of 400 kV STPS-Bikaner line at proposed 400 kV GSS Hanumangarh	400	150		Under Construction	2027-28
14	LILO of Hanumangarh - Udhyog Vihar 220 kV S/c line at proposed 400 kV GSS Hanumangarh	220	64		Under Construction	2027-28
15	LILO of Suratgarh- Padampur 220 kV S/c line at proposed 400 kV GSS Hanumangarh	220	56		Under Construction	2027-28
16	400 kV GSS Hanumangarh- Rawatsar 220 kV S/c line	220	85		Under Construction	2027-28
17	Udhyog Vihar - Sriganganagar 132 kV S/c line	132	18		Under Construction	2027-28
Transmission system for evacuation of power from Chhabra TPP(2x800 MW U7-8) and Kalisindh TPP (U3)						
1	**Anta-II S/s with 3x1500 MVA 765/400 kV ICTs, 240 MVAR 765 kV bus reactor and 125 MVAR 420 kV bus reactor.**	765/400		4500	Planned	2029-30
2	Anta-II-Hindaun 765 kV D/c line (Hex Zebra AL-59 conductor) (270 km) along with 240 MVAR, 765 kV switchable line reactor in each circuit at Anta end	765	540		Planned	2029-30
3	Anta II-Anta (Existing) 765 kV D/c line (25 km) (Hex Zebra AL-59 conductor)	765	50		Planned	2029-30

4	Supercritical Chhabra TPP (Unit#7&8) - Anta-II 400 kV D/c line using (Quad Moose) (79 km)	400	158		Planned	2029-30
5	Kalisindh TPP (Unit#3) - Anta-II 400 kV D/c line (Quad Moose) (84 km)	400	168		Planned	2029-30
6	Chhabra SCTPS-Chhabra USC TPP (Unit # 7 & 8) 400 kV D/c interconnecting line	400	4		Planned	2029-30
7	Kalisindh SCTPS-Kalisindh USC TPP (Unit # 3) 400 kV D/c interconnecting line	400	4		Planned	2029-30
8	**Upgradation of existing 400 kV Hindaun S/s to 765 kV GIS with 2x1500 MVA, 765/400 kV ICTs and 240 MVAR, 765 kV bus reactor**	765/400		3000	Planned	2029-30
9	Ajarka (Alwar) - Hindaun 765 kV D/c line (160 km) (Hex Zebra) with 2x240 MVAR 765 kV switchable line reactors at Ajarka end of line.	765	320		Planned	2029-30
Transmission system for evacuation of power from Rampura (Tonk) PSP (800 MW)						
1	Rampura (Tonk) to Phagi (Jaipur-RS) 400 kV D/c line with 63 MVAR switchable line reactors in each circuit at Rampura PSP end	400	300		Under Planning	2029-30
Transmission system for evacuation of power from Gurha LTPS (U1:125 MW)						
1	Gurha- Kolayat 220 kV D/c line (1st line)	220	260		Under Planning	2029-30
Transmission system for evacuation of power from Giral TPS (U1: 550 MW)						
1	LILO of Jaisalmer- barmer 400 kV S/c line at Giral (400)	400	20		Under Planning	2029-30
Schemes involving establishment of 400 kV substations along with associated transmission lines						
1	**Kumher S/s with 2×500 MVA, 400/220 kV ICTs and 125 MVAR, 420 kV Switchable Bus Reactor.**	400/220		1000	Under Construction	2027-28
2	LILO of one circuit of Sikar-Agra 400 kV D/c line at 400 kV GSS Kumher along with 80 MVAR, 420 kV switchable line reactor at Kumher end of Sikar – Kumher 400 kV section	400	13		Under Construction	2027-28
3	LILO of Hindaun-Alwar 400 kV S/C line at 400 kV GSS Kumher	400	90		Under Construction	2027-28
4	LILO of Nadbai-Bharatpur 220 kV S/C line at 400 kV GSS Kumher.	220	10		Under Construction	2027-28
5	LILO of Sikri-Bharatpur 220 kV S/c line at 400 kV GSS Kumher.	220	20		Under Construction	2027-28
6	**2x500 MVA, 400/220 kV GSS at Dholpur alongwith 420 kV, 125 MVAR bus reactor**	400/220	-	1000	Planned	2028-29

7	400 kV S/c line from location no. 780 of existing 400 kV S/c Hindaun-DCCP line to 400 kV GSS Dholpur	400	0.4		Planned	2028-29
8	LILO of Bassi-Agra 400 kV S/c line at 400 kV GSS Dholpur	400	130		Planned	2028-29
9	LILO of Dholpur(DCPP)-Bharatpur 220 kV S/c line at proposed 400 kV GSS Dholpur	220	60		Planned	2028-29
10	220 kV S/c line from location no. 781 of existing 400 kV S/c Hindaun-DCCP line to 400 kV GSS Dholpur to charge on 220 kV voltage level.	220	0.4		Planned	2028-29
11	**2x500 MVA, 400/220 kV and 1x160 MVA, 220/132 kV BANSWARA alongwith 420 kV, 125 MVAR bus reactor**	400/220/ 132		1160	Planned	2029-30
12	Udaipur- Banswara 400 kV D/c line (Quad Moose)	400	380		Planned	2029-30
13	LILO of Banswara (existing) - Dalot (UC) 220 kV S/c line at 220 kV Banswara	220	60		Planned	2029-30
14	LILO of Aspur/Seemalwara- Pratapgarh 220 kV S/c line at 220 kV Banswara	220	80		Planned	2029-30
15	Banswara (400) – Negadiya (existing) 132 kV D/c line	132	2		Planned	2029-30
16	Banswara (400) – Kushalgarh (existing) 132 kV D/c line	132	120		Planned	2029-30
17	**2x500 MVA, 400/220 kV Dahara alongwith 420 kV, 125 MVAR bus reactor**	400/220		1000	Planned	2028-29
18	LILO of 400 kV S/c Chhabra - Bhilwara line at 400 kV Dahara	400	2		Planned	2028-29
19	LILO of 400 kV S/c Anta - Kota line at 400 kV Dahara	400	2		Planned	2028-29
20	**2x500 MVA, 400/220 kV Sawai Madhopur alongwith 420 kV, 125 MVAR bus reactor**	400/220		1000	Planned	2028-29
21	LILO of 400 kV S/c Chhabra - Hindaun line at 400 kV Sawai Madhopur	400	40		Planned	2028-29
22	220 kV D/c Sawai Madhopur - Bhadoti line	220	28		Planned	2028-29
Schemes involving establishment of 220 kV substations along with associated transmission lines						
1	**220/132 kV, 1x160 MVA and 132/33 kV, 1x40/50 MVA GSS at Pathredi (Distt.- Jaipur)**	220/132/ 33		200	Under Construction	2026-27
2	Kotputli (Khelna) (PG) - Pathredi line 220 kV D/c line	220	40		Under Construction	2026-27
3	LILO of Kotputli- Paota 132 kV S/c line at Pathredi	132	10		Under Construction	2026-27
4	Pathredi - Thanagaji 132 kV S/c line	132	34		Under Construction	2026-27
5	**220/132 kV, 1x160 MVA and 132/33 kV, 1x31.5 MVA GSS at Kelwara**	220/132/ 33		192	Under Construction	2026-27

6	Baran- proposed 220 kV GSS Kelwara 220 kV D/c line	220	124		Under Construction	2026-27
7	Kelwara (220 kV) - 132 kV GSS Kelwara 132 kV D/c line	132	20		Under Construction	2026-27
8	Kelwara (220 kV)- 132 kV Nahargarh 132 kV D/c line	132	64		Under Construction	2026-27
9	**220/132 kV, 1x160 MVA GSS at Sikri (Upgradation of existing 132 kV GSS)**	220/132		160	Under Construction	2025-26
10	Alwar (400 kV)- Sikri 220 kV D/c line	220	106		Under Construction	2025-26
11	Sikri- Bharatpur 220 kV S/c line	220	58		Under Construction	2025-26
12	Sikri- Pahari 132 kV S/c line	132	19.5		Under Construction	2025-26
13	Sikri- Govindgarh (Alwar) 132 kV S/c line	132	22		Under Construction	2025-26
14	**220/132 kV, 1x160 MVA GSS at Maniya (Upg.)**	220/132		160	Under Construction	2025-26
15	LILO of existing Dholpur (220 kV GSS)-Bharatpur 220 kV S/c line at 220 kV GSS Maniya	220	40		Under Construction	2025-26
16	Maniya-Rajakhera 132 kV S/c line.	132	28		Under Construction	2025-26
17	**220/132 kV, 1x160 MVA and 132/33 kV, 1x40/50 MVA GSS at Jajawar (new location)**	220/132/33		200	Under Construction	2026-27
18	LILO of KTPS-Vatika 220 kV S/c line at 220 kV GSS Jajawar.	220	0.7		Under Construction	2026-27
19	Jajawar-Dablana 132 kV S/c line.	132	11		Under Construction	2026-27
20	Jajawar-Nainwa 132 kV S/c line.	132	23		Under Construction	2026-27
21	**220/132 kV, 1x160 MVA and 132/33 kV, 1x40/50 MVA GSS at Karauli (new location)**	220/132/33		200	Under Construction	2025-26
22	Hindaun (400 kV GSS)-Karauli 220 kV D/c line	220	82		Under Construction	2025-26
23	LILO of Hindaun-Karauli 132 kV S/c line at proposed 220 kV GSS Karauli.	132	1		Under Construction	2025-26
24	Karauli (220 kV GSS)-Sarmathura 132 kV S/c line	132	30		Under Construction	2025-26
25	Masalpur-Sarmathura 132 kV S/c line	132	27		Under Construction	2025-26
26	Karauli (220 kV GSS)-Kailadevi 132 kV D/c line with termination of one circuit at 132 kV GSS Kailadevi	132	60		Under Construction	2025-26
27	132 kV S/c line for termination of second circuit line from diversion point of 132 D/c Karuli- Kaildevi up to 132 kV GSS Mandrayal	132	35		Under Construction	2025-26
28	**220/132 kV, 1x160 MVA and 132/33 kV, 1x40/50 MVA GSS at Tonk**	220/132/33	.	200	Under Construction	2026-27
29	LILO of KTPS-Heerapura 220 kV S/c line at Tonk	220	76		Under Construction	2026-27
30	LILO of Chouth Ka Barwara-Tonk 132 kV S/c line at Tonk	132	10		Under Construction	2026-27

31	Todaraisingh-Malpura 132 kV S/c line.	132	29		Under Construction	2026-27
32	**220/132 kV, 2x160 MVA and 132/33 kV, 2x40/50 MVA GIS substation at Gokul Nagar (Kalwar Road) (Distt.-Jaipur]**	220/132/ 33	-	400	Under Construction	2027-28
33	LILO of Heerapura-Kotputli 220 kV S/c Line at Gokul Nagar	220	0.08		Under Construction	2027-28
34	LILO of Heerapura-Niwana 220 kV S/c Line at Kalwar	220	0.41		Under Construction	2027-28
35	LILO of Heerapura-VKIA 132 kV line at Gokul Nagar	132	0.41		Under Construction	2027-28
36	LILO of Vaishali-Jhotwata (HTLS) 132 kV line at Gokul Nagar	132	0.43		Under Construction	2027-28
37	**220/132 kV, 1x160 MVA and 132/33 kV, 1x40/50 MVA GSS at Maujpur [Distt.-Alwar]**	220/132/ 33	-	200	Under Construction	2026-27
38	LILO of Dausa-Alwar 220 kV S/c line at Maujpur	220	30		Under Construction	2026-27
39	LILO of Mandawar-Alwar 220 kV S/c line at Maujpur	220	12		Under Construction	2026-27
40	LILO of Malakhera-Rajgarh 132 kV S/c line at Maujpur	132	50		Under Construction	2026-27
41	LILO of Laxmangarh-Kherli 132 kV S/c line at Maujpur	132	16		Under Construction	2026-27
42	**220/132 kV, 1x160 MVA and 132/33 kV, 1x40/50 MVA GSS at Jawali [Distt.- Alwar]**	220/132/ 33		200	Under Construction	2026-27
43	LILO of Maujpur-Alwar 220 kV S/c line at Jawali	220	17		Under Construction	2026-27
44	Jawali-Kumher 220 kV D/c line	220	102		Under Construction	2026-27
45	LILO of Ramgarh-Govingarh 132 kV S/c line at Jawali	132	21		Under Construction	2026-27
46	**220/132 kV, 1x160 MVA and 132/33 kV, 1x50 MVA GSS at Bhanwata [Distt.-Dausa]**	220/132/ 33		210	Under Construction	2026-27
47	LILO of Dausa-Alwar 220 kV S/c line at Bhanwata	220	4		Under Construction	2026-27
48	LILO of Dausa-Bandikui 132 kV S/c line at Bhanwata	132	4		Under Construction	2026-27
49	Bhanwata-Sikandra132 kV D/c line	132	50		Under Construction	2026-27
50	**220/132 kV, 1x160 MVA and 132/33 kV, 1x31.5 MVA GSS at Bayana (Semramafi) [Distt.- Bharatpur]**	220/132/ 33		192	Under Construction	2026-27
51	LILO of Dholpur -Bharatpur 220 kV S/c line at Bayana (Semramafi)	220	60		Under Construction	2026-27
52	LILO of Rudawal-Roopwas 132 kV S/c line at Bayana (Semramafi)	132	10		Under Construction	2026-27
53	**220/132 kV, 1x160 MVA GSS at Andhi (Upgradation) [Distt.- Jaipur]**	220/132		160	Under Construction	2026-27
54	LILO of Bassi-Kukas 220 kV S/c line at Andhi	220	64		Under Construction	2026-27
55	Andhi-Chordi 132 kV D/c line	132	36		Under Construction	2026-27
56	**220/132 kV, 1x200 MVA and 132/33 kV, 1x40/50 MVA GSS at Ghiloth [Distt.-Kotputli-Behror/Alwar]**	220/132/ 33	-	240	Under Construction	2026-27

57	LILO of both Circuits of Neemrana -Behror 220 kV D/c line at Ghiloth	220	20		Under Construction	2026-27
58	LILO of Shahjahanpur-Mandan 132 kV S/c line at Ghiloth	132	2		Under Construction	2026-27
59	**220/132 kV, 1X160 MVA at Hemda (Upg.) (Distt.-Jhalawar)**	220/132		160	Under Construction	2027-28
60	Bhawanimandi- Hemda 220 kV D/c line	220	52		Under Construction	2027-28
61	Hemda -Raipur 132 kV S/c line	132	22		Under Construction	2027-28
62	Hemda (Upgradation)-Dug 132 kV S/c line	132	59		Under Construction	2027-28
63	Raipur-Bakani 132 kV S/c line	132	17		Under Construction	2027-28
64	**220/132 kV, 1x200 MVA and 132/33 kV, 1x50 MVA GSS at Bhadoti (Dist.-Sawai Madhopur)**	220/132/ 33		250	Under Construction	2027-28
65	LILO of Lalsot-Anta NTPC 220 kV line at 220 kV GSS Bhadoti	220	4		Under Construction	2027-28
66	Gangapur City-Bhadoti 220 kV D/c line	220	100		Under Construction	2027-28
67	LILO of Bagdi-Bonli 132 kV S/c line at 220 kV GSS Bhadoti	132	10		Under Construction	2027-28
68	LILO of Bhadoti-Peelwa Nadi 132 kV S/c line at proposed 220 kV GSS Bhadoti	132	10		Under Construction	2027-28
69	Bhadoti -Batoda 132 kV D/c line	132	56		Under Construction	2027-28
70	**220/132 kV, 1X160 MVA and 132/33kV, 1x80 MVA GSS at Manda (Dist.-Jaipur)**	220/132/ 33		240	Planned	2027-28
71	Manda-Amber 220 kV D/c line	220	130		Planned	2027-28
72	LILO of Reengus-Renwal 220 kV S/c line at Manda	220	8		Planned	2027-28
73	Kaladera-Manda 132 kV S/c line	132	20		Planned	2027-28
74	**220/132 kV, 1X200 MVA and 132/33kV, 1x50 MVA GSS at IA Kota (Upgradation) [Distt.- Kota]**	220/132/ 33	-	250	Under Construction	2026-27
75	Sangod-IA Kota 220 kV D/c line	220	110		Under Construction	2026-27
76	Dahra-IA Kota 220 kV S/c line	220	23		Under Construction	2026-27
77	LILO of IA Kota-SVCI 132 kV S/c line at IA Kota	132	0.2		Under Construction	2026-27
78	LILO of IA Kota-Borkhera 132 kV line at IA Kota	132	0.2		Under Construction	2026-27
79	IA Kota (220 kV GSS)-Dadabari 132 kV S/c line by making 0.5 km extension of existing 132 kV S/c IA Kota-Dadabari line (Sakatpura Ckt-II) to terminate at proposed 220 kV GSS IA Kota.	132	1.0		Under Construction	2026-27
80	LILO of IA Kota-Sakatpura 132 kV S/c line at Mahaveer Nagar	132	0.8		Under Construction	2026-27
81	**1X160 MVA, 220/132 kV GSS at Raipur (Upgradation)**	220/132		160	Under Construction	2026-27
82	LILO of Bhilwara - Baman Ka Tukda 220 kV S/c line at Raipur	220	16		Under Construction	2026-27

83	LILO of Kanera- Devgarh 132 kV S/c line at Raipur	132	32		Under Construction	2026-27
84	**220/132 kV, 1X160 MVA and 132/33kV, 1x31.5 MVA GSS at Menar (new location) [Distt.- Udaipur]**	220/132/33		192	Under Construction	2026-27
85	LILO of Debari-Chittorgarh 220 kV S/c line at Menar	220	40		Under Construction	2026-27
86	Menar to Diversion point (for Sanwad and Bhopal sagar) 132 kV D/c line	132	50		Under Construction	2026-27
87	Diversion point (for Sanwad and Bhopal sagar) to 132 kV GSS Bhopla sagar 132 kV S/c line	132	8		Under Construction	2026-27
88	Diversion point (for Sanwad and Bhopal sagar) to 132 kV GSS Sanwad 132 kV S/c line	132	10		Under Construction	2026-27
89	LILO of 132 kV S/c Mangalwad-Bhinder line at Menar.	132	16		Under Construction	2026-27
90	Joojhpura-Badisadri 132 kV S/c line	132	23		Under Construction	2026-27
91	**220/132 kV, 1X160 MVA GSS at Dalot(Upg.) [Distt.- Pratapgarh]**	220/132	-	160	Under Construction	2026-27
92	LILO of Banswara-Aspur 220 kV S/c line at Dalot.	220	144		Under Construction	2026-27
93	LILO of Dalot-Aspur 220 kV S/c line at Pratapgarh.	220	45		Under Construction	2026-27
94	**220/132 kV, 1X160 MVA and 132/33kV, 2x31.5 MVA GSS at Birloka [Distt.- Nagaur]**	220/132/33		223	Under Construction	2026-27
95	LILO of one circuit of Aau-Baithwasia 220 kV D/c Line at Birloka	220	52		Under Construction	2026-27
96	Birloka-Hesaba 132 kV S/c line.	132	18		Under Construction	2026-27
97	Birloka-Soyla 132 kV S/c line.	132	30		Under Construction	2026-27
98	Birloka-Hatundi 132 kV S/c line	132	15		Under Construction	2026-27
99	**220/132 kV, 1X160 MVA GSS at Nathdwara (Upg.)[Distt.- Rajsamand]**	220/132		160	Under Construction	2026-27
100	Kankroli -Nathdwara 220 kV D/c line	220	80		Under Construction	2026-27
101	LILO of Debari-Madri 220 kV S/c line at Nathdwara	220	100		Under Construction	2026-27
102	132 kV S/c line from 220 kV GSS Nathwdara to Mavli T-point to make 132 kV S/c Nathdwara (220 kV GSS)-Mavli line and 132 kV S/c Nathdwara(132 kV GSS)-Bilota line.	132	16		Under Construction	2026-27
103	Kankroli -Dariba 220 kV S/c line (Initially charged at 132 kV voltage level)	220	20		Under Construction	2026-27
104	**220/132 kV, 1x160 MVA & 132/33 kV, 1x31.5 MVA GSS at 220 kV GSS Beri-Bhajangarh(Distt.-Sikar)**	220/132/33		192	Under Construction	2026-27
105	LILO of one circuit of Ratangarh -Khetri 220 kV D/c line at Beri-Bhajangarh	220	66		Under Construction	2026-27
106	Termination of already constructed Nawalgarh-Beri 132 kV D/c line at proposed 220 kV GSS Beri-Bhajangarh	132	2		Under Construction	2026-27

107	Termination of already constructed Udaipurwati-Beri 132 kV S/C line at proposed 220 kV GSS Beri-Bhajangarh	132	2		Under Construction	2026-27
108	Termination of already constructed Gura Gorji-Beri 132 kV S/C line at proposed 220 kV GSS Beri-Bhajangarh	132	2		Under Construction	2026-27
109	Termination of already constructed Kumawas-Beri 132 kV S/C line at proposed 220 kV GSS Beri-Bhajangarh	132	2		Under Construction	2026-27
110	**220/132 kV, 1x160 MVA & 132/33 kV, 1x40/50 MVA GSS at 220 kV GSS Karsana(Distt.-Chittorgarh)**	220/132/ 33		200	Under Construction	2026-27
111	Chittorgarh-Karsana 220 kV D/c line	220	120		Under Construction	2026-27
112	Karsana-Menar 220 kV D/c line	220	60		Under Construction	2026-27
113	LILO of Jhoojhpura-Badisadari 132 kV S/c line at Karsana.	132	16		Under Construction	2026-27
114	**220/132 kV, 1x160 MVA & 132/33 kV, 1x40/50 MVA GSS at220 kV GSS Kanwat (Distt.-Sikar)**	220/132/ 33		200	Under Construction	2026-27
115	Babai -Kanwat 220 kV D/c line	220	90		Under Construction	2026-27
116	LILO of Kotputli-Heerapura 220 kV S/c line at Kanwat.	220	20		Under Construction	2026-27
117	Kanwat-Thoi 132 kV S/c line	132	4		Under Construction	2026-27
118	Kanwat-Khandela Mod 132 kV S/c line	132	18		Under Construction	2026-27
119	Kanwat-Sanwalpura 132 kV S/c line	132	22		Under Construction	2026-27
120	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS at Begun [Distt.-Chittorgarh]**	220/132/ 33		210	Under Construction	2026-27
121	LILO of both circuits of Chittorgarh-RAPP-B 220 kV D/c line at Begun	220	20		Under Construction	2026-27
122	Begun (220 kV) - Bassi 132 kV D/c line	132	70		Under Construction	2026-27
123	Begun (220 kV) - Begun (132 kV) 132 kV D/c line	132	20		Under Construction	2026-27
124	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS at Bambori [Distt.-Pratapgarh]**	220/132/ 33		210	Under Construction	2026-27
125	LILO of Nimbahera-Pratapgarh 220 kV S/c line at Bambori	220	30		Under Construction	2026-27
126	LILO of Chhotisadri-Badisadri 132 kV S/c line at Bambori	132	12		Under Construction	2026-27
127	**220/132 kV, 1X160 MVA and 132/33kV, 1x31.5 MVA GSS at Jaitaran [Distt.-Beawar]**	220/132/ 33		192	Under Construction	2026-27
128	LILO of Beawar-Bilara 220 kV S/c line at Jaitaran	220	24		Under Construction	2026-27
129	Jaitaran (220 kV GSS)-AnandpurKaloo 132 kV D/c line	132	34		Under Construction	2026-27
130	Jaitaran (220 kV GSS)-PipaliyaKalan 132 kV D/c line	132	60		Under Construction	2026-27
131	Jaitaran (220 kV GSS)-Jaitaran (132 kV GSS) 132 kV S/c line	132	10		Under Construction	2026-27

132	**220/132 kV, 1X160 MVA GSS at Sagwara (Upgradation) [Distt.- Dungarpur**	220/132	-	160	Under Construction	2026-27
133	LILO of Udaipur (Madri)-Banswara 220 kV line at Sagwara	220	70		Under Construction	2026-27
134	**220/132 kV, 1X160 MVA and 132/33kV, 1x31.5 MVA GSS at Deogarh [Distt.- Rajsamand]**	220/132/ 33		192	Under Construction	2026-27
135	LILO of Bhilwara-Pali 220 kV line at Deogarh	220	20		Under Construction	2026-27
136	LILO of Deogarh(132 kV GSS)- Jojawar 132 kV line at Deogarh	132	10		Under Construction	2026-27
137	Deogarh (220 kV GSS)- Bheem 132 kV D/c line.	132	60		Under Construction	2026-27
138	**220/132 kV, 1X160 MVA and 132/33kV, 1x31.5 MVA GSS at Salumber [Distt.- Salumber]**	220/132/ 33		192	Under Construction	2026-27
139	LILO of Debari-Aspur 220 kV S/cline at Salumbar	220	4		Under Construction	2026-27
140	Salumbar (220 kV GSS)-Karsana 220 kV D/c Line	220	90		Under Construction	2026-27
141	Salumbar (220 kV GSS)-Salumbar (132 kV GSS) 132 kV D/c line	132	10		Under Construction	2026-27
142	Salumbar (proposed 220 kV GSS)-Bambora 132 kV S/c line	132	5		Under Construction	2026-27
143	**220/132 kV , 1X160MVA GSS at Dariba (Upgradation) (Distt :- Udaipur)**	220/132		160	Under Construction	2025-26
144	Extension of existing Kankroli- HZL Line to make Kankroli-Dariba 220 kV D/c Line	220	3		Under Construction	2025-26
145	**220/132 kV, 1X200 MVA GSS at Lamba Jatan (Upgradation) [Distt.- Nagaur]**	220/132		200	Under Construction	2026-27
146	LILO of Merta (400 kV GSS)-Bhopalgarh 220 kV S/c line at Lamba Jatan	220	12		Under Construction	2026-27
147	Lambajatan-Merta Road 132 kV S/c line	132	16		Under Construction	2026-27
148	Gotan-Nokha Chandawata 132 kV S/c line	132	18		Under Construction	2026-27
149	Indawad-Borunda 132 kV S/c line	132	25		Under Construction	2026-27
150	**220 kV GSS Sawa with 1x160 MVA 220/132 kV, 1 x 31.5 MVA 132/33 kV Transformer, 25 MVAR Bus Reactor**	220/132/ 33		192	Under Construction	2026-27
151	Barmer (400 kV GSS) - Sawa (220 kV GSS) 220 kV D/c Line	220	200		Under Construction	2026-27
152	LILO of Dhorimanna-Sanchore 220 kV S/c Line at 220 kV GSS Sawa	220	100		Under Construction	2026-27
153	LILO of Sawa-Chohatan 132 kV S/c line at 220 kV GSS Sawa	132	10		Under Construction	2026-27
154	LILO of Sawa-Ranasar 132 kV S/c line at 220 kV GSS Sawa	132	10		Under Construction	2026-27
155	**220/132kV, 1x160MVA& 132/33kV, 1X40/50MVA GSS at Kolayat (New location) (Distt., Bikaner)**	220/132/ 33		200	Under Construction	2026-27
156	Kolayat - Bhadla 220 kV D/c line	220	154		Under Construction	2026-27

157	Strengthening of 220 kV Bhadla- Bhikampur line (Already constructed)	220	66		Under Construction	2026-27
158	Kolayat (220 kV) - Kolayat (132 kV) 132 kV D/c line	132	40		Under Construction	2026-27
159	Kolayat - Panchu 220 kV D/c line	220	104		Under Construction	2026-27
160	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS at Panchu**	220/132/ 33	-	180	Under Construction	2026-27
161	LILO of BLTPS-Khinvsar 220 kV S/c Line at 220 kV GSS Panchu	220	6		Under Construction	2026-27
162	Panchu (220 kV GSS) –Bhamatsar 132 kV D/c Line	132	56		Under Construction	2026-27
163	Panchu(220 kV GSS)-Panchu (132 kV GSS) 132 kV D/c Line	132	2.2		Under Construction	2026-27
164	**220/132 kV, 1X160 MVA and 132/33kV, 1x31.5 MVA GSS at Lakhni (new location) [Distt-Jalore)**	220/132/ 33	-	192	Under Construction	2026-27
165	LILO of Bhinmal-Dhorimanna 220 kV S/c line at 220 kV GSS Lakhni	220	24		Under Construction	2026-27
166	Lakhni-Bagora 132 kV D/c line	132	22		Under Construction	2026-27
167	Lakhni-Poonasa 132 kV S/c line	132	18.9		Under Construction	2026-27
168	**220/132 kV, 1X160 MVA GSS at Chandan(Upg.) [Distt.- Jaisalmer] alongwith 25 MVAR, 245 kV bus type Shunt Reactor**	220/132		160	Under Construction	2026-27
169	LILO of Ramgarh(400 kV GSS)-Dechu 220 kV S/c Line at 220 kV GSS Chandan	220	16		Under Construction	2026-27
170	**220/132 kV, 1x160 MVA and 132/33 kV, 1x31.5 MVA GSS at Bikampur alongwith 25 MVAR, 245 kV bus type Shunt Reactor[Distt.- Bikaner]**	220/132/ 33		192	Under Construction	2026-27
171	LILO of both circuits of Bhadla-Kolayat 220 kV D/c line at 220 kV GSS Bikampur	220	16		Under Construction	2026-27
172	LILO of Bajju-PS-2 132 kV S/c line (HTLS) at 220 kV GSS Bikampur	132	2		Under Construction	2026-27
173	**220/132 kV, 1x160 MVA & 132/33 kV, 1x40/50 MVA GSS at 220 kV GSS Chainpura Chhota (Tehsil-Rajgarh) (Distt.- Churu)**	220/132/ 33		200	Under Construction	2026-27
174	LILO of Bhadra-Chirawa 220 kV S/c line at 220 kV GSS Chainpura Chhota (Tehsil-Rajgarh)	220	16		Under Construction	2026-27
175	Ratangarh (400 kV GSS)- Chainpura Chhota 220 kV D/c line.	220	250		Under Construction	2026-27
176	LILO of Bhadra-Sadulpur 132 kV S/c line at 220 kV GSS Chainpura Chhota	132	5		Under Construction	2026-27
177	LILO of Churu-Sadulpur 132 kV S/c line at 220 kV GSS Chainpura Chhota	132	50		Under Construction	2026-27
178	Taranagar-Chainpura Chhota 132 kV D/c line.	132	80		Under Construction	2026-27

179	**220/132 kV, 1x160 MVA GSS Patlisar Fanta (Upg.) (Distt.-Churu)**	220/132		160	Under Construction	2026-27
180	LILO of Ratangarh-Halasar 220 kV S/c line at 220 kV GSS Patlisar Fanta	220	50		Under Construction	2026-27
181	Ratangarh (400 kV GSS)-Patlisar Fanta 220 kV S/c line	220	40		Under Construction	2026-27
182	**132/33 kV, 1x31.5 MVA GSS at Parewar [Distt.-Jaisalmer] (Phase-I)**	132/33		32	Under Construction	2026-27
183	LILO of one circuit of Jaisalmer-RTGPS 132 kV S/c line at 220 kV GSS Parewar	132	26		Under Construction	2026-27
184	**220/132 kV, 1X160 MVA at Parewar (upgradation of 132 kV GSS) [Distt.-Jaisalmer]**	220/132		160	Under Construction	2027-28
185	LILO of Amarsagar-RGTPS 220 kV S/c line at 220 kV GSS Parewar	220	20		Under Construction	2027-28
186	LILO of Ramgarh-Chandan 220 kV S/c line at 220 kV GSS Parewar	220	5.5		Under Construction	2027-28
187	**220/132 kV, 1x160 MVA & 132/33 kV, 1x40/50 MVA GSS at 220 kV GSS Hindore(Rajiasar) (Distt.-Sriganganagar)**	220/132/ 33		200	Under Construction	2026-27
188	LILO of Bikaner-Suratgrah 220 kV S/c line at 220 kV GSS Hindore(Rajiasar)	220	30		Under Construction	2026-27
189	LILO of Rajiasar (132 kV GSS)-Pallu 132 kV S/c line at 220 kV GSS Hindore(Rajiasar)	132	14		Under Construction	2026-27
190	LILO of Srivijaynagar-Anoopgarh 132 kV S/c line at 220 kV GSS Hindore(Rajiasar)	132	80		Under Construction	2026-27
191	**220/132 kV, 1x160 MVA & 132/33 kV, 1x40/50 MVA GSS at Seruna (Distt.-Bikaner)**	220/132/ 33		200	Under Construction	2027-28
192	LILO of Bikaner-Badnu 220 kV S/c line at 220 kV GSS Seruna.	220	20		Under Construction	2027-28
193	Bikaner (400 kV GSS)-Seruna 220 kV D/c line.	220	70		Under Construction	2027-28
194	LILO of Sherera-Dulchasar 132 kV S/c line at 220 kV GSS Seruna	132	12		Under Construction	2027-28
195	**220 kV GSS Lohawat with 1 x160 MVA 220/132 kV, 1 x 40/50 MVA 132/33 kV Transformer, 25 MVAR Bus Reactor**	220/132/ 33		200	Under Construction	2027-28
196	220 kV GSS Badi Sid-220 kV GSS Lohawat (HTLS) 220 kV D/c Line	220	140		Under Construction	2027-28
197	LILO of Tinwari-Phalodi 220 kV S/c Line at 220 kV GSS Lohawat	220	20		Under Construction	2027-28
198	Lohawat (220 kV GSS)-Lohawat (132 kV GSS) 132 kV D/c Line	132	20		Under Construction	2027-28
199	Lohawat (220 kV GSS)-132 kV GSS Matora 132 kV D/c Line	132	70		Under Construction	2027-28
200	**220/132 kV, 1X160 MVA GSS at Sumerpur (Upgradation) [Distt.- Pali]**	220/132		160	Under Construction	2026-27

201	LILO of Sirohi-Bali 220 kV S/c line-I at 220 kV GSS Sumerpur (Upg.)	220	30		Under Construction	2026-27
202	Refurbishment of existing 220 kV S/c Sirohi-Bali-I line	220	58.2		Under Construction	2026-27
203	**220/132 kV, 1x160 MVA and 132/33 kV, 1x31.5 MVA GSS at Karda [Distt.- Sanchore]**	220/132/ 33		192	Under Construction	2026-27
204	LILO of Bhinmal (PGCIL)-Sanchore 220 kV S/c line at 220 kV GSS Karda	220	40		Under Construction	2026-27
205	Karda-Sankad 132 kV D/c line	132	16		Under Construction	2026-27
206	**220/132 kV, 1x160 MVA and 132/33 kV, 1x31.5 MVA GSS at Bambloo Distt.- [Bikaner]**	220/132/ 33		192	Under Construction	2027-28
207	LILO of circuit-I of Gajner-Chhattargarh 220 kV D/c line at 220 kV GSS Bambloo	220	90		Under Construction	2027-28
208	LILO of circuit-II of Gajner-Chhattargarh 220 kV D/c line at 220 kV GSS Bambloo	220	90		Under Construction	2027-28
209	Bambloo-Seruna 220 kV D/c line	220	50		Under Construction	2027-28
210	**220/132 kV, 1X160 MVA GSS at Bachhadau (Upgradation) [Distt.- Barmer]**	220/132		160	Under Construction	2027-28
211	LILO of Dhorimanna-Rajwest 220 kV S/c line at 220 kV GSS Bachhadau	220	2		Under Construction	2027-28
212	LILO of 220 kV S/c Dhorimanna-Barmer line at 220 kV GSS Bachhadau	220	3		Under Construction	2027-28
213	Bachhadau-Chohtan 132 kV D/c Line	132	70		Under Construction	2027-28
214	**220/132 kV, 1X160 MVA and 132/33kV, 1x31.5 MVA GSS at Palana (Dist.-Bikaner)**	220/132/ 33		192	Under Construction	2027-28
215	LILO of Bikaner (400 kV GSS)-Bikaner (220 kV GSS) 220 kV S/c Interconnection-II at 220 kV GSS Palana	220	35		Under Construction	2027-28
216	Shisha-Palana 132 kV S/c line	132	17		Under Construction	2027-28
217	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS at Balesar (Upgradation) (Dist:- Jodhpur)**	220/132/ 33		210	Under Construction	2027-28
218	Balesar-Barli 220 kV D/c Line	220	136		Under Construction	2027-28
219	Balesar-Lohawat 220 kV D/c line	220	130		Under Construction	2027-28
220	Balesar-Shekhala 132 kV D/c Line	132	36		Under Construction	2027-28
221	**220/132 kV ,1x160 MVA and 132/33 kV, 2X50 MVA GSS at Salarpur (Distt:- Khairtal Tizara)**	220/132/ 33		260	Under Construction	2027-28
222	LILO of Neemrana(400 kV GSS PGCIL)-Khushkhera (220 kV GSS) 220 kV S/c line	220	5		Under Construction	2027-28
223	LILO of Bhiwadi (400 kV GSS PGCIL)-Karoli (220 kV GSS) 220 kV S/c line	220	3		Under Construction	2027-28

224	**220/132 kV, 1x160 MVA and 132/33kV, 1x50 MVA GSS at Fatehgarh**	220/132/ 33		210	Under Construction	2027-28
225	LILO of both circuits of Akal-Sheo 220 kV D/C lines at Fatehgarh	220	18		Under Construction	2027-28
226	LILO of Sangarh-Jhinjhinyali 132 kV line at Fatehgarh	132	7		Under Construction	2027-28
227	**220/132 kV,1x160 MVA GSS Keharli (Upgradation)**	220/132		160	Under Planning	2028-29
228	Keharli-Bikaner (765 kV GSS) 220 kV D/C line	220	140		Under Planning	2028-29
229	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS Churu**	220/132/ 33		210	Under Planning	2028-29
230	LILO of both Ratangarh-Chainpura Chota 220 kV D/c line	220	80		Under Planning	2028-29
231	Churu (220 kV GSS)-Satda 132 kV D/C line	132	40		Under Planning	2028-29
232	LILO of Churu (132 kV GSS)-Bissau 132 kV S/C line	132	54		Under Planning	2028-29
233	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS Kalibanga**	220/132/ 33		210	Under Planning	2028-29
234	40 km 220 kV D/C Hanumangarh (400 kV GSS)-Kalibanga line	220	40		Under Planning	2028-29
235	15 km LILO of 220 kV Suratgarh-Hanumangarh (220 kV GSS) line at Kalibanga	220	15		Under Planning	2028-29
236	LILO of Fatehgarh-Pilibanga 132 kV S/C Line	132	14		Under Planning	2028-29
237	Kalibanga-Goluwala 132 kV S/C line	132	32		Under Planning	2028-29
238	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS Malpura**	220/132/ 33		210	Under Planning	2028-29
239	80 km, 220 kV D/C Jaipur South (PGCIL)-Malpura Line	220	160		Under Planning	2028-29
240	Malpura-Malpura 132 kV D/C line	132	10		Under Planning	2028-29
241	Malpura-Nasirda 132 kV D/C line	132	84		Under Planning	2028-29
242	**1x160 MVA, 220/132 kV Transformers at 220 kV GSS Budhadeeth (Upgradation)**	220/132		160	Under Planning	2028-29
243	45 km 220 kV D/C Dahra- Budhadeeth line	220	45		Under Planning	2028-29
244	25 km LILO of 132 kV Mangrol- Itawa Line	132	25		Under Planning	2028-29
Schemes involving establishment of 132 kV substations along with associated transmission lines:						
1	**132/33 kV, 1x31.5 MVA Substation at Masalpur in Karauli Distt.**	132/33	0	32	Under Construction	2026-27

2	220 kV GSS Karauli to 132 kV GSS Sarmathura 132 kV S/C line via proposed 132 kV GSS Masalpur	132	54		Under Construction	2026-27
3	**132/33 kV, 1x31.5 GSS at Jarkhoda [Distt.-Bundi]**	132/33	0	32	Under Construction	2025-26
4	LILO of Uniara-Nainwa 132 kV S/C line at proposed 132 kV GSS Jarkhoda	132	22		Under Construction	2025-26
5	**132/33 kV, 1x31.5 GSS at Peelwa Nadi [Distt.-Swaimadhopur]**	132/33	0	32	Under Construction	2025-26
6	LILO of Ajnoti-Bhadoti 132 kV S/C line at proposed 132 kV GSS Peelwa Nadi	132	32		Under Construction	2025-26
7	**132/33 kV, 1x31.5 GSS at Rudawal [Distt.-Bharatpur]**	132/33	0	32	Under Construction	2025-26
8	LILO of already approved Bayana-Roopwas 132 kV S/C line at proposed 132 kV GSS Rudawal	132	20		Under Construction	2025-26
9	**132/33 kV, 1x31.5 GSS at Seeswali [Distt.-Baran]**	132/33	0	32	Under Construction	2026-27
10	Mangrol-Seeswali 132 kV S/C line	132	18		Under Construction	2026-27
11	**132/33 kV, 1x31.5 GSS at Ambika [Distt.-Dholpur]**	132/33	0	32	Under Construction	2026-27
12	LILO of Marena-Maniya 132 kV S/C line at proposed 132 kV GSS Ambika	132	20		Under Construction	2026-27
13	**132/33 kV, 1x31.5 GSS at Devri [Distt.-Baran]**	132/33	0	32	Under Construction	2026-27
14	Mamoni-Devri 132 kV S/C line.	132	25		Under Construction	2026-27
15	**132/33 kV, 1x31.5 GSS at Ucchain [Distt.-Bharatpur]**	132/33	0	32	Under Construction	2026-27
16	LILO of one circuit of Bharatpur-Nadbai 132 kV D/C line at proposed 132kV GSS Ucchain.	132	56		Under Construction	2026-27
17	**132/33 kV, 1x40/50GSS at Indian Zone, Neemrana[Distt.-Alwar]**	132/33	0	40	Under Construction	2026-27
18	LILO of Neemrana-Behror 132 kV S/C line at proposed 132 kV GSS Indian Zone, Neemrana.	132	4		Under Construction	2026-27
19	**132/33kV, 2x80 MVA GIS substation at Pratap Nagar [Distt.-Jaipur] along with associated line**	132/33	0	160	Under Construction	2027-28
20	LILO Of Composite Sitapura- IG Nagar 132 kV & 220 kV D/C Overhead Line Through Underground Cable From Location No.-18 To Proposed 132 kV GIS Pratap Nagar	132	4.25		Under Construction	2027-28
21	**132/33 kV, 1x40/50 MVA GSS at Dhaula, [Distt.- Jaipur]]**	132/33	0	40	Under Construction	2027-28
22	220 kV GSS, Manoharpur to 132 kV GSS, Dhaula D/C line	132	30		Under Construction	2027-28
23	**132/33 kV, 1x40/50 MVA GSS at Raipur [Distt.- Jhalawar]**	132/33	0	40	Under Construction	2027-28
24	132 kV GSS Hemda to 132 kV GSS Raipur S/C line.	132	22		Under Construction	2027-28
25	**132/33 kV, 1x31.5 MVA GSS at Relwan [Distt.- Baran]**	132/33	0	32	Under Construction	2027-28

26	132 kV GSS Kishanganj to 132 kV GSS Relwan S/C line	132	17		Under Construction	2027-28
27	**132/33 kV, 1x50 MVA GSS at Kudgaon [Distt.- Karauli]**	132/33	0	50	Under Construction	2027-28
28	LILO of Karauli-Sapotra 132 kV S/C line at 132 kV GSS Kudgaon	132	1.2		Under Construction	2027-28
29	**132/33 kV, 1x31.5 MVA GSS at Anjari Dangika [Distt.- Deeg]**	132/33	0	32	Under Construction	2027-28
30	LILO of Deeg-Kaman 132 kV S/C line	132	28		Under Construction	2027-28
31	**132/33 kV, 1x31.5 MVA GSS at Harnawda Shah Ji [Distt.- Baran]**	132/33	0	32	Under Construction	2027-28
32	220 kV GSS Aklera to 132 kV GSS Harnawda Shahji S/C line	132	22		Under Construction	2027-28
33	**132/33 kV, 1x31.5 MVA GSS at Sunel [Distt.- Jhalawar]**	132/33	0	32	Under Construction	2027-28
34	LILO of Bhawanimandi-hemda 132 kV S/C Line	132	0.8		Under Construction	2027-28
35	**132/33 kV, 1x50 MVA GSS at Semli [Distt.- Deeg]**	132/33	0	50	Under Construction	2027-28
36	LILO of Nagar-Govindgarh (Alwar) 132 kV S/C line at 132 kV GSS Semli	132	10		Under Construction	2027-28
37	**132/33 kV, 1x50 MVA GSS at Choma Kot [Distt.- Kota]**	132/33	0.00	50	Under Construction	2027-28
38	Dahra (220 kV GSS)-Choma Kot 132 kV D/C line	132	29		Under Construction	2027-28
39	**132/33 kV, 1x50 MVA GSS at Japanese Zone [Distt.- Kotputli-Behror]**	132/33	0	50	Under Construction	2027-28
40	Neemrana (220 kV GSS)-Japanese Zone line 132 kV D/C.	132	4		Under Construction	2027-28
41	**132/33 kV, 1x50 MVA GSS at Baharawanda Khurd [Distt.- Sawai Madhopur**	132/33	0	50	Under Construction	2027-28
42	LILO of Sawai Madhopur-Khandar 132 kV S/C Line	132	3		Under Construction	2027-28
43	**132/33 kV, 1x50 MVA GSS at Shiwad [Distt.- Sawai Madhopur]**	132/33	0	50	Under Construction	2027-28
44	LILO of Sawai Madhopur-Newai 132 kV S/C Line	132	2		Under Construction	2027-28
45	**132/33 kV, 1x50 MVA GSS at Semli Phatak [Distt.- Baran]**	132/33	0	50	Under Construction	2027-28
46	Kelwara (220 kV GSS)-Semli Phatak 132 kV S/C line	132	17		Under Construction	2027-28
47	**132/33 kV, 1x31.5 MVA GSS at Khatoli (Distt- Kota)**	132/33	0	32	Under Construction	2027-28
48	Itawa-Khatoli 132 kV S/C line on D/C tower	132	28		Under Construction	2027-28
49	**132/33 kV, 1x50 MVA GSS at Kanota [Distt.- Jaipur]**	132/33	0	50	Under Construction	2027-28
50	LILO of Goner (220 kV GSS)-Bassi line 132 kV S/C	132	3		Under Construction	2027-28
51	**132/33 kV, 1x50 MVA GSS at Chechat (Ramganjmandi) [Distt.- Kota]**	132/33	0	50	Under Construction	2027-28
52	LILO of Mandana Town-Modak 132 kV S/C Line.	132	22		Under Construction	2027-28

53	**132/33 kV, 1x31.5 MVA GSS at Guradiya Kalan (Dug) [Distt.- Jhalawar]**	132/33	0	32	Under Construction	2027-28
54	LILO of Bhawanimandi-Dug 132 kV S/C Line	132	4.0		Under Construction	2027-28
55	**132/33 kV, 2X50 MVA GSS at Subhash Nagar [Distt.- Kota]**	132/33	0	100	Under Construction	2027-28
56	Rearranging the 132 kV IA Kota -RPS line and 132 Sakatpura-Ranpur (PPP) line to make the 132 kV IA Kota- Ranpur (PPP) line and 132 RPS -Sakatpura line	132	2		Under Construction	2027-28
57	LILO of IA Kota-Ranpur (PPP) 132 kV line	132	1		Under Construction	2027-28
58	**132/33 kV, 1X50 MVA GSS at Bhojpura (Kathumar)[Distt.- Alwar]**	132/33	0	50	Under Construction	2027-28
59	Jawali-Bhojpura (Kathumar) 132 kV D/C Line	132	34		Under Construction	2027-28
60	Kherli-Bhojpura (Kathumar) 132 kV S/C line	132	30		Under Construction	2027-28
61	**132/33 kV, 1x31.5 MVA GSS at Gidani (Dudu) [Distt.- Jaipur]**	132/33	0	32	Under Construction	2027-28
62	LILO of Phulera (220 kV GSS)-Dudu 132 kV S/C Line	132	20		Under Construction	2027-28
63	**132/33 kV, 2x50 MVA GSS at Bagru Rawan [Distt.- Jaipur]**	132/33	0	100	Under Construction	2027-28
64	Jobner-Bagru Rawan 132 kV S/C line (25 kms overhead + 1.5 kms underground)	132	26.5		Under Construction	2027-28
65	**132/33 kV, 1x31.5 MVA GSS at Chakeri (Distt- Sawai Madhopur)**	132/33	0	32	Under Construction	2027-28
66	Chakeri-Bhadoti (220 kV GSS) 132 kV D/C (Approved GSS) line	132	30		Under Construction	2027-28
67	**Ajmer Zone**				Under Construction	
68	**132/33 kV, 20/25 MVA capacity Grid Substation at Kotra in Udaipur district**	132/33	0	20	Under Construction	2027-28
69	LILO of 132 kV Pindwara-Sayra at 132 kV GSS Kotra	132	50		Under Construction	2027-28
70	**132/33 kV, 1x31.5 GSS at Shankhwas [Distt.-Nagaur]**	132/33	0	32	Under Construction	2027-28
71	Roon-Shankhwas 132 kV S/C line	132	16		Under Construction	2027-28
72	**132/33 kV, 1x31.5 GSS at Arnod [Distt.-Pratapgarh]**	132/33	0	32	Under Construction	2027-28
73	LILO of Dalot-Mokhampura 132 kV S/C line at proposed 132 kV GSS Arnod	132	36		Under Construction	2027-28
74	**132/33 kV, 1x31.5 GSS at Chitamba [Distt.-Bhilwara]**	132/33	0	32	Under Construction	2027-28
75	Karera-Chitamba 132 kV S/C line	132	10.5		Under Construction	2027-28
76	**132/33 kV, 1x31.5 GSS at Ralawata [Distt.-Ajmer]**	132/33	0	32	Under Construction	2027-28
77	Kishangarh(220 kV GSS)-Ralawata 132 kV S/C line	132	12		Under Construction	2027-28
78	Patan-Ralawata 132 kV S/C line	132	20		Under Construction	2027-28

79	**132/33 kV, 1x31.5 GSS at Tarnau [Distt.-Nagaur]**	132/33	0	32	Under Construction	2027-28
80	Sanjoo-Tarnau 132 kV S/C line	132	14.5		Under Construction	2027-28
81	**132/33 kV, 1x31.5 GSS Katrathal (Distt.-Sikar)**	132/33	0	32	Under Construction	2027-28
82	LILO of Sikar(220kV) –Piprali(132kV) 132 kV S/C line	132	3		Under Construction	2027-28
83	**132/33 kV, 1x31.5 GSS at Lothiyana[Distt.-Chittorgarh]**	132/33	0	32	Under Construction	2027-28
84	LILO of RPS-Bijoliya 132 kV S/C line at proposed 132 kV GSS Lothiyana	132	16		Under Construction	2027-28
85	**132/33 kV, 1x40/50 GSS at Palra [Distt.-Ajmer]along with associated line**	132/33	0	40	Under Construction	2027-28
86	LILO of Saradhana- Nasirabad 132kV S/C line at 132kV GSS Palra	132	35		Under Construction	2027-28
87	**132/33 kV, 1x40/50 MVA GSS at Bandanwara [Distt.- Kekri]**	132/33	0	40	Under Construction	2027-28
88	LILO of Gulabpura-Masuda 132 kV S/C line at 132 kV GSS Bandanwara	132	42		Under Construction	2027-28
89	**132/33 kV, 1x40/50 MVA GSS at Nokha Chandawata [Distt.- Nagaur]**	132/33	0	40	Under Construction	2027-28
90	132 kV GSS Lambajatan to 132 kV GSS Nokha Chandawata S/C line with 20% line on double circuit towers (10% each on the approach section of both ends)	132	26		Under Construction	2027-28
91	**132/33 kV, 1x31.5 MVA GSS at Dewata [Distt.- Beawar]**	132/33	0	32	Under Construction	2027-28
92	22 kM 220 kV GSS Beawar to 132 kV GSS Dewata S/C line	132	22		Under Construction	2027-28
93	**132/33 kV, 1x50 MVA GSS at Tilak Nagar [Distt.- Bhilwara](Earlier Scheme name of Taj singh circle)**	132/33	0	50	Under Construction	2027-28
94	LILO of Bhilwara- Kotri 132 kV S/C line at 132 kV GSS Tilak Nagar	132	3		Under Construction	2027-28
95	**132/33 kV, 1x31.5 MVA GSS at Sayra [Distt.- Udaipur]**	132/33	0	32	Under Construction	2027-28
96	LILO of Pindwara-Gogunda 132 kV S/C line	132	30		Under Construction	2027-28
97	**132/33 kV, 1x50 MVA GSS at Kharnal Tejaji (Distt.-Nagaur) with provision of Main Bus-1, Main Bus-2 and Auxiliary Bus**	132/33	0	50	Under Construction	2027-28
98	LILO of Khinvsar-Gogelaw 132 kV S/C line at 132 kV GSS Kharnal Tejaji	132	8		Under Construction	2027-28
99	S/C Sankhwas-Kharnal Tejaji 132 kV line	132	18.5		Under Construction	2027-28
100	**132/33 kV, 1x50 MVA GSS at Suhagpura [Distt.- Pratapgarh]**	132/33	0	50	Under Construction	2027-28
101	LILO of Arnod-Dalot 132 kV S/C Line	132	5		Under Construction	2027-28
102	Suhagpura-Pratapgarh 132 kV S/C Line	132	20		Under Construction	2027-28
103	**132/33 kV, 1x31.5 MVA GSS at Indawad [Distt.- Nagaur]**	132/33	0	32	Under Construction	2027-28

104	132 kV GSS Lamba Jatan to proposed 132 kV GSS Indawad 132 kV S/C line	132	15		Under Construction	2027-28
105	**132/33 kV, 1x31.5 MVA GSS at Kelwara [Distt.- Rajsamand]**	132/33	0	32	Under Construction	2027-28
106	LILO point (of 132 kV S/C Kankroli-Sapol line at 220 kV GSS Bamantukda) to 132 kV GSS Kelwara 132 kV D/C line.	132	70		Under Construction	2027-28
107	LILO of one circuit of proposed 132 kV D/C Bamnatukda-Kelwara line at 132 kV GSS Sapol	132	1		Under Construction	2027-28
108	**132/33 kV, 1x31.5 MVA GSS at Idwa [Distt.- Nagaur]**	132/33	0	32	Under Construction	2027-28
109	Bherunda (220 kV GSS)-Idwa 132 kV S/C line	132	21		Under Construction	2027-28
110	**132/33 kV, 1x50 MVA GSS at Bhadsoda [Distt.- Chittorgarh]**	132/33	0	50	Planned	2028-29
111	220 kV GSS Sawa to 132 kV GSS Bhadsoda 132 kV S/C line	132	25		Planned	2028-29
112	**132/33 kV, 1x50 MVA GSS at Bhanwata [Distt.- Deedwana-Kuchaman]**	132/33	0	50	Planned	2028-29
113	LILO of Kuchaman (220 kV GSS)-Chitawa 132 kV S/C line	132	22		Planned	2028-29
114	**132/33 kV GSS 1x50 MVA at Besroli (Upgradable to 220 kV GSS) (Distt-Nagaur)**	132/33	0.00	50	Planned	2028-29
115	LILO of Makrana-Kuchaman City 132 kV S/C line	132	50		Planned	2028-29
116	**132/33 kV, 1x50 MVA GSS at Chhawsri [Distt- Jhunjhunu]**	132/33	0	50	Planned	2028-29
117	LILO of Gudagorji-Nangli 132 kV S/C line	132	30		Planned	2028-29
118	**132/33 kV, 1x50 MVA GSS at RPL Nagar [Distt.- Bhilwara]**	132/33	0	50	Planned	2028-29
119	LILO of Bhilwara (220 kV GSS)-Karoi 132 kV S/C line	132	10		Planned	2028-29
120	**132/33 kV, 1x50 MVA GSS at Jakhal (Nawalgarh) [Distt.- Jhunjhunu]**	132/33	0	50	Planned	2028-29
121	LILO of Beri-Bhajangarh (220 kV GSS)-Kumawas 132 kV line	132	24		Planned	2028-29
122	**132/33 kV, 1x50 MVA GSS at Thanwala [Distt.- Nagaur]**	132/33	0	50	Planned	2028-29
123	Bherunda (220 kV GSS)-Thanwala 132 kV D/C line	132	30		Planned	2028-29
124	**132/33 kV, 1x31.5 MVA GSS at Baneda (Shahpura) [Distt.- Bhilwara]**	132/33	0	32	Planned	2028-29
125	Rayla-Baneda 132 kV S/C line	132	20		Planned	2028-29
126	**132/33 kV, 2x50 MVA GIS at Hathibhata [Distt.- Ajmer]**	132/33	0	100	Planned	2028-29
127	LILO of Ajmer (220 kV GSS) - MDSU 132 kV S/C line via XLPE Cable (1200 Sq.mm Copper cable) at 132 kV GSS Hathi Bhata	132	13.98		Planned	2028-29
128	**Jodhpur zone**					
129	**132/33 kV, 20/25 MVA capacity Grid Substation at Moolana (Distt. Jaisalmer) (GIB)**	132/33	0	20	Under Construction	2027-28

130	LILO of Jaisalmer- Chandan line 132kV S/C at Moolana	132	40		Under Construction	2027-28
131	**132/33 kV, 20/25 MVA capacity Grid Substation at Shisha (Distt. Bikaner) (All revised) (GIB)**	132/33	0	20	Under Construction	2027-28
132	Kolayat (132kV)- Shisha 132 kV S/C line	132	22		Under Construction	2027-28
133	Gajner (220kV)- Shisha 132 kV S/C line	132	22		Under Construction	2027-28
134	**132/33 kV, 1x31.5 GSS at Hadda [Distt.-Bikaner] with associated transmission line (GIB)**	132/33	0	32	Under Construction	2027-28
135	Proposed 220 kV GSS Kolayat to proposed 132kV GSS Hadda 132 kV S/C line	132	24.07		Under Construction	2027-28
136	**132/33kV, 2x50 MVA Hybrid GIS substation (132 kV switchyard with GIS Technology & 33 kV switchyard with AIS Technology] at Lalsagar (Distt.-Jodhpur)**	132/33	0	100	Under Construction	2027-28
137	LILO of existing 132 kV S/C Jodhpur (Mandore)-Banar line at proposed 132 kV GIS substation at Lalsagar (Route length-Overhead on panther conductor: 2 kM & 630 sq.mm. S/C XLPE Copper underground cable: 5Km)	132	14		Under Construction	2027-28
138	**132/33 kV, 1x31.5 GSS at Shivnagar [Distt.-Jodhpur]**	132/33	0	32	Under Construction	2027-28
139	132 kV S/C Tinwari-Chamu line at proposed 132 kV GSS Shivnagar	132	6		Under Construction	2027-28
140	132 kV S/C Tinwari-Balesar line at proposed 132 kV GSS Shivnagar	132	14		Under Construction	2027-28
141	**132/33 kV, 1x31.5 GSS at Dallusar [Distt.-Churu]**	132/33	0	32	Under Construction	2027-28
142	LILO of 132 kV S/C Bhanipura-Pallu line	132	10		Under Construction	2027-28
143	**132/33 kV, 1x31.5 GSS at Loonwa Jageer [Distt.-Barmer]**	132/33	0	32	Under Construction	2027-28
144	LILO of 132 kV S/C Gudamalani-Bagora line at proposed 132 kV GSS Loonwa Jageer	132	40		Under Construction	2027-28
145	**132/33 kV, 1x31.5 GSS Peethla Fanta (Distt.-Jaisalmer)**	132/33	0	32	Under Construction	2027-28
146	Chhatrail-Peethla Fanta 132 kV S/C line	132	35		Under Construction	2027-28
147	**132/33 kV, 1x31.5 GSS at Harsani Fanta[Distt.-Barmer]**	132/33	0	32	Under Construction	2027-28
148	LILO of 132 kV S/C Barmer(400 kV GSS)-Sheo line at proposed 132 kV GSS Harsani Fanta	132	10		Under Construction	2027-28
149	**132/33 kV, 1x31.5 GSS at Bandheva [Distt.-Jaisalmer]**	132/33	0	32	Under Construction	2027-28
150	LILO of 132 kV S/C Sheo-Undoo line at proposed 132 kV GSS Bandheva	132	30		Under Construction	2027-28
151	**132/33 kV, 1x31.5 GSS at Chandrakh [Distt.-Jodhpur]**	132/33	0	32	Under Construction	2027-28

152	Stringing of second circuit of existing 132 kV D/C Baithwasia-Hatundi line along with its LILO at proposed 132 kV GSS Chandrakh	132	14		Under Construction	2027-28
153	**132/33 kV, 1x31.5 GSS at Kosariya[Distt.-Barmer]**	132/33	0	32	Under Construction	2027-28
154	LILO of 132 kV S/C Barmer(400 kV GSS)-Sheo line at proposed 132 kV GSS Kosariya	132	27		Under Construction	2027-28
155	**132/33 kV, 1x31.5 GSS at Daizer[Distt.-Jodhpur]**	132/33	0	32	Under Construction	2027-28
156	132 kV D/C line from 132 kV GSS Daizer to loc. No. 32 of the 132 kV LILO of Tinwari-Soorsagar line at 400 kV GSS Jodhpur	132	3		Under Construction	2027-28
157	132 kV D/C 500 SQ. MM Underground cable from 132 kV GSS Daizer to loc. No. 41 of the 132 kV LILO of Tinwari-Soorsagar line at 400 kV GSS Jodhpur	132	3		Under Construction	2027-28
158	**132/33 kV, 1x31.5 GSS at Bhelu [Distt.-Bikaner]**	132/33	0	32	Under Construction	2027-28
159	Haddan(App. 132 kV GSS)-Bhelu 132 kV S/C line	132	23		Under Construction	2027-28
160	Panchu-Bhelu 132 kV S/C line	132	25		Under Construction	2027-28
161	**132/33 kV, 1x31.5 GSS at Mandal [Distt.-Bikaner]**	132/33	0	32	Under Construction	2027-28
162	Kolayatn(App. 132 kV GSS)-Mandal 132 kV S/C line	132	23		Under Construction	2027-28
163	**132/33 kV, 1x40/50 MVA GSS at Dangari [Distt.- Jaisalmer]**	132/33	0	40	Under Construction	2027-28
164	132 kV GSS Sangarh to 132 kV GSS Dangari S/C line	132	30		Under Construction	2027-28
165	**132/33 kV, 1x31.5 MVA GSS at Sanderao [Distt.- Pali]**	132/33	0	32	Under Construction	2027-28
166	132 kV GSS Sumerpur to 132 kV GSS Sanderao S/C line	132	20		Under Construction	2027-28
167	**132/33 kV, 1x40/50 MVA GSS at Sankda [Distt.- Jaisalmer]**	132/33	0	40	Under Construction	2027-28
168	Proposed 132 kV GSS Dangari to proposed 132 kV GSS Sankda S/C line on D/C towers	132	35		Under Construction	2027-28
169	**132/33 kV, 1x31.5 MVA GSS at Bachhadau [Distt.- Barmer]**	132/33	0	32	Under Construction	2027-28
170	132 kV GSS Mahloo to 132 kV GSS Bachhadau S/C line	132	17		Under Construction	2027-28
171	132 kV GSS Bachhadau TO 220 kV GSS Dhorimanna D/C line	132	48		Under Construction	2027-28
172	**132/33 kV, 1x31.5 MVA GSS at Dantor Distt.-Bikaner) with provision of Main Bus-1, Main Bus-2 and Auxiliary Bus**	132/33	0	32	Under Construction	2027-28
173	LILO of 132 kV S/C Pugal-RD 710 line at 132 kV GSS Dantor	132	68		Under Construction	2027-28
174	**132/33 kV, 1x50 MVA GSS at Keharali [Distt.- Bikaner] [Upgradable to 220 kV GSS]**	132/33	0	50	Under Construction	2027-28

175	Proposed 132 kV GSS Dantor to proposed 132 kV GSS Keharali 132 kV D/C line	132	68		Under Construction	2027-28
176	**132/33 kV, 1x31.5 MVA GSS at Khat Labana [Distt.- Sriganganagar]**	132/33	0	32	Under Construction	2027-28
177	132 kV GSS, Tatarsar to 132 kV GSS, Khat Labana S/C line	132	27		Under Construction	2027-28
178	**132/33 kV, 1x50 MVA GSS at Pachpadra [Distt.- Balotra]**	132/33	0	50	Under Construction	2027-28
179	LILO of Balotra-Samdari line at 132 kV GSS Pachpadra 132 kV S/C	132	60		Under Construction	2027-28
180	**132/33 kV, 1x31.5 MVA GSS at Gusaisar Bada [Distt.- Bikaner]**	132/33	0	32	Under Construction	2027-28
181	220 kV GSS Seruna to 132 kV GSS Gusaisar Bada D/C line.	220	60		Under Construction	2027-28
182	**132/33 kV, 1x31.5 MVA GSS at Thukriyasar [Distt.- Bikaner]**	132/33	0	32	Under Construction	2027-28
183	Momasar-Thukriyasar 132 kV S/C line	132	23.5		Under Construction	2027-28
184	Gusaisar Bada- Thukriyasar 132 kV S/C line	132	20.5		Under Construction	2027-28
185	**132/33 kV, 1x31.5 MVA GSS at Mahajan [Distt.- Bikaner]**	132/33	0	32	Under Construction	2027-28
186	220 kV GSS Hindore (Rajiasar) to 132 kV GSS Mahajan S/C line on D/C towers	132	38		Under Construction	2027-28
187	**132/33 kV, 1x50 MVA GSS at Khudiyala (Upgradable to 220 kV GSS) [Distt.- Jodhpur]**	132/33	0	50	Under Construction	2027-28
188	LILO of Shivnagar-Balesar 132 kV S/C line	132	20		Under Construction	2027-28
189	**132/33 kV, 1x50 MVA GSS at Borawas [Distt.- Balotra]**	132/33	0	50	Under Construction	2027-28
190	LILO of Balotra-Barmer (132 kV GSS) 132 kV S/C line	132	20		Under Construction	2027-28
191	**132/33 kV, 1x50 MVA GSS at Falsund [Distt.- Jaisalmer]**	132/33	0	50	Under Construction	2027-28
192	132 kV GSS Bandhewa to 132 kV GSS Falsund S/c line	132	25		Under Construction	2027-28
193	**132/33 kV, 1x50 MVA GSS at Saila [Distt.- Balotra]**	132/33	0	50	Under Construction	2027-28
194	LILO of Siwana-Mandawala 132 kV S/C line	132	15		Under Construction	2027-28
195	**132/33 kV, 1x50 MVA GSS at Mandiyayi Khurd [Distt.- Jodhpur Rural]**	132/33	0	50	Under Construction	2027-28
196	LILO of Tinwari-Kirmarsariya 132 kV S/C line	132	14		Under Construction	2027-28
197	**132/33 kV, 1x31.5 MVA GSS at Feench [Distt.- Jodhpur]**	132/33	0	32	Under Construction	2027-28
198	LILO of Boranada-Ghumti (PPP) 132 kV S/C line	132	40		Under Construction	2027-28
199	**132/33 kV, 1x50 MVA GSS at Sahwa [Distt.- Churu]**	132/33	0	50	Under Construction	2027-28

200	Bhadra (220 kV GSS)-Sahwa 132 kV S/C line	132	40		Under Construction	2027-28
201	**132/33 kV, 1x50 MVA GSS at Satyaya Fanta [Distt.- Jaisalmer]**	132/33	0	50	Under Construction	2027-28
202	220 kV GSS Bhadla to 132 kV GSS Satyaya fanta S/C line	132	35		Under Construction	2027-28
203	**132/33 kV, 1x50 MVA GSS at Satda (Binasar) [Distt.- Churu]**	132/33	0	50	Under Construction	2027-28
204	LILO of Ratangarh (132 kV GSS)- Churu 132 kV S/C Line	132	4		Under Construction	2027-28
205	**132/33 kV, 2x50 MVA GIS at Pal [Distt.- Jodhpur]**	132/33		100	Under Construction	2027-28
206	LILO of CHB-Jodhpur (220 kV GSS) 132 kV S/C line via XLPE cable (630 Sq.mm. Copper Cable) at 132 kV GIS Pal	132	7		Under Construction	2027-28
207	**132 /33 kV GSS 1X31.5 MVA at Kaparda Sez (Distt- Jodhpur)**	132/33	0	32	Planned	2028-29
208	**132 /33 kV 1X31.5 MVA GSS at 113 RD SBS (Distt- Jaisalmer)**	132/33	0	32	Planned	2028-29
209	Parewar-113 RD SBS 132 kV D/C line	132	80		Planned	2028-29
210	**132 /33 kV GSS 1x50 MVA at Agasadi (Sheo) (Distt- Barmer)**	132/33	0	50	Planned	2028-29
211	Jhijhanyali – Agasadi 132kV D/C line	132	52		Planned	2028-29
212	**132/33 kV , 1x31.5 MVA GSS Rawla (Anoopgarh), (Distt-Sri Ganganagar)**	132/33	0	32	Planned	2028-29
213	Chhatargarh- Rawla (Anoopgarh) 132 kV S/C line	132	42		Planned	2028-29
214	LILO of Kahjuwala-Gharsana 132 kV S/C line	132	16		Planned	2028-29
215	**132 /33 kV 1X50 MVA GSS at Bhiyad (Distt- Barmer)**	132/33	0	50	Planned	2028-29
216	LILO of approved 132 kV S/C Sheo (220 kV GSS) – Bandheva line at Bhiyad.	132	1		Planned	2028-29
217	**132/33 kV, 1x50 MVA GSS at Bawadi Kalla (Chohtan) [Distt.- Barmer]**	132/33	0	50	Planned	2028-29
218	Chohtan-Bawadi Kalla 132 kV S/C line	132	28		Planned	2028-29
219	**132/33 kV, 1x50 MVA GSS at Ghantiyali (Bhiyasar) [Distt.- Phalodi]**	132/33	0	50	Planned	2028-29
220	Aau (220 kV GSS)-Ghantiyali (Bhiyasar) 132 kV D/C line	132	32		Planned	2028-29
221	**132/33 kV, 1x31.5 MVA GSS at RD 837 (Kolayat) [Distt.- Bikaner]**	132/33	0	32	Planned	2028-29
222	RD 837-Nokha Dahiya 132 kV S/C line	132	25		Planned	2028-29
223	**132/33 kV, 1x31.5 MVA GSS at Kalyanpur (Pachpadra) [Distt.- Balotra]**	132/33	0	32	Planned	2028-29
224	Kalyanpur-Balesar (upgradable to 220 kV GSS) 132 kV D/C line	132	110		Planned	2028-29
225	**132/33 kV, 1x50 MVA at Gemnapeer Road (Distt-Bikaner)**	132/33	0	50	Planned	2028-29
226	Gemnapeer Road-Palana (Proposed 220 kV GSS) 132 kV D/C line	132	38		Planned	2028-29

227	**132/33 kV, 1x31.5 MVA GSS at Bichoon [Distt.- Jaipur]**	132/33		32	Planned	2028-29
228	Gidani - Bichoon 132 kV D/C Line	132	30		Planned	2028-29
229	**132/33 kV, 1x31.5 MVA GSS at Katikhandi [Distt.- Kota]**	132/33		32	Planned	2028-29
230	LILO of Kawai- Atru 132 kV S/C Line	132	50		Planned	2028-29
231	**132/33 kV, 1x31.5 MVA GSS at Adel [Distt.- Barmer]**	132/33		32	Planned	2028-29
232	LILO of Bachhedau (220 kV GSS) - Dhorimanna(220 kV GSS) 132 kV D/C Line	132	50		Planned	2028-29
233	**132/33 kV, 1x31.5 MVA GSS at Badliywas [Distt.- Bhilwara]**	132/33		32	Planned	2028-29
234	Begun (220 kV GSS)- Badliyawas 132 kV D/C Line	132	62		Planned	2028-29
235	LILO of Bigod- Kotri 132 kV S/C Line	132	24		Planned	2028-29
236	**132/33 kV, 1x31.5 MVA GSS at Budhadeeth [Distt.- Kota]**	132/33		32	Planned	2028-29
237	Sultanpur- Budhadeeth 132 kV S/C Line	132	15		Planned	2028-29
238	**132/33 kV, 1x31.5 MVA GSS at Mukundgarh [Distt.- Jhunjhunu]**	132/33		32	Planned	2028-29
239	Beri Bhajangarh- Mukundgarh 132 kV D/C Line	132	50		Planned	2028-29
240	**132/33 kV, 1x31.5 MVA GSS at Bikaner City [Distt.- Bikaner]**	132/33		32	Planned	2028-29
241	LILO of Bikaner (220 kV GSS)- Deshnok 132 kV S/C Line at Bikaner City	132	4		Planned	2028-29
242	**132/33 kV, 1x31.5 MVA GSS at Lalgarh [Distt.- Sri Ganganagar]**	132/33		32	Planned	2028-29
243	LILO of Udyog Vihar (220 kV GSS)- Sadulsahar 132 kV S/C Line at Lalgarh	132	20		Planned	2028-29
244	**1x31.5 MVA, 132/33 kV Manaksar GSS Hanumangarh**	132/33		32	Planned	2028-29
245	LILO of Hanumangarh (220 kV GSS)- Rawatsar 132 kV S/C Line at Manaksar	132	15		Planned	2028-29
246	**1x31.5 MVA, 132/33 kV Theroli GSS Kota**	132/33		32	Planned	2028-29
247	LILO of Anta (132 kV GSS)- Sangod (132 kV GSS) 132 kV S/C Line at Theroli	132	15		Planned	2028-29
248	**1x31.5 MVA, 132/33 kV Nasirda GSS Tonk**	132/33		32	Planned	2028-29
249	LILO of Kekri (220 kV GSS Proposed)- Sawar 132 kV D/C Line	132	12		Planned	2028-29
250	**1x31.5 MVA, 132/33 kV Sop GSS Tonk**	132/33		32	Planned	2028-29
251	LILO of Sawai Madhopur - Uniyara 132 kV S/C Line	132	18		Planned	2028-29
Schemes involving construction of transmission lines						

1	Sangod- Baran 220 kV D/c line	220	70		Under Construction	2026-27
2	LILO of 220 kV S/C Aklera- Jhalawar line at 400kV GSS Sangod	220	80		Under Construction	2026-27
3	LILO of 132 kV S/C Sangod- Khanpur line at 400kV GSS Sangod	132	10		Under Construction	2026-27
4	LILO of 132 kV S/C Sangod- Bapawar line at 400kV GSS Sangod	132	14		Under Construction	2026-27
5	LILO of Dausa - Sawaimadhopur 220 KV S/C Line at 400 KV PGCIL Jaipur (South) for Utilization of 2x 220 KV feeder bays at 400 KV GSS PGCIL Jaipur (South)	220	38		Under Construction	2026-27
6	Khetri-Chirawa-Hissar 220kV S/C line	220	120		Under Construction	2026-27
7	Dechu-Tinwari 220 kV S/C Line	220	72		Under Construction	2026-27
8	Stringing second Circuit on existing Bhadala-Khetusar 132 kV S/C Line on D/C Towers	132	56		Under Construction	2026-27
9	LILO of one circuit of D/C Rantangarh (400 kV GSS)-Khetri 220 kV line at 220 kV GSS Jhunjhunu	220	3		Under Construction	2026-27
10	220 kV GSS Sitapura -132 kV GSS Sitapura 132 kV S/c line through 630 Sq. mm. XLPE underground copper cable (route length approx. 1.10 km)	132	1		Under Construction	2026-27
11	construction of LILO of Bhilwara (220 KV GSS)-Bewar 220 KV S/C line at 400 KV GSS Bhilwara	220	22		Under Construction	2026-27
12	NPH-VKIA (220 kV GSS) 220 kV S/C line using 1200 sq. mm. XLPE underground cable	220	13		Planned	2027-28
13	Removal of T-point by laying of 5 kms., from T-point of Sarnadoongar-VKIA 132 kV S/C 630 sq. mm. XLPE underground cable line to 220 kV GSS Gokul Nagar to form 132 kV S/C Gokul Nagar-Sarnadoongar line and 132 kV S/C Gokul Nagar-VKIA line	132	5		Planned	2027-28
14	Roopwas-Bayana 132 kV S/C line.	132	45		Under Construction	2026-27
15	Conversion of SMS Stadium-Mansarovar-Sanganer 132 kV D/C Over Head Line through 1200Sq mm XLPE Copper Underground Cable from Loc. No. 4 To 132 kV GSS SMSStadium (approx- 7.5 km) along with conversion of 132 kV SMS-Mansarovar-Sanganer Ckt-II from T-Off to LILO by 1200 Sq.mm. XLPE cable at Mansarovar end(approx. 1.0 km)	132	8.5		Under Construction	2026-27
16	Mangrol-Itawa 132 kV S/C line	132	30		Planned	2027-28
17	Mandrella-Chandgothi 132 kV S/C line	132	21		Under Construction	2026-27
18	Kachola- Jahajpur 132kV S/C line	132	35		Under Construction	2026-27
19	Shahpura- Jahajpur 132kV S/C line	132	35		Under Construction	2026-27
20	Raipur- Amet 132kV S/C line	132	33		Under Construction	2026-27

21	LILO of 132kV S/C Dechu (132 KV GSS)-Balesar line at 132kV GSS Chamu	132	10		Under Construction	2026-27
22	LILO of existing Dechu(132 KV GSS)-Kalau 132 KV S/C Line at 220 KV GSS Dechu	132	18		Under Construction	2026-27
23	LILO of Falna-Tagore Nagar 132 kV S/C line at 132 kV GSS Rani	132	24		Under Construction	2026-27
24	LILO of KTPS-Beawar 220 kV S/C line (Second circuit of original 220 kV D/C KTPS-Beawar line at 220 kV GSS Bundi	220	10		Under Construction	2026-27
25	Kolukheri-Manoharthana 132 kV S/C line	132	55		Planned	2027-28
26	Bagot-Parbatsar 132 kV S/C line	132	23		Planned	2027-28
27	Badnu-Upani 132 kV S/C Line	132	20		Planned	2027-28
28	Bhawad -Kirmarsariya 132 KV S/C line	132	16		Planned	2027-28
29	08 km LILO of 132 kV Tizara- Kajaria Line at 220 kV GSS Karoli	132	8		Planned	2027-28
30	22 km LILO of 132 kV S/C Jhalawar-Dhanudi line at 132 kV GSS Sarola Kalan.	132	22		Planned	2027-28
31	25 km LILO of 132 kV S/C Sheopur- Khandar line at 132 kV GSS Khatoli	132	50		Planned	2027-28
ICT augmentations						
1	Ramgarh	400/220		500	Under Construction	2025-26
2	Surpura	400/220		500	Under Construction	2025-26
3	Bhadla	400/220		500	Under Construction	2025-26
4	Ajmer	400/220		500	Under Construction	2025-26
5	Bikaner	400/220		500	Under Construction	2025-26
6	Merta	400/220		500	Under Construction	2025-26
7	Babai	400/220		315	Under Construction	2025-26
8	Heerapura	400/220		500	Under Construction	2025-26
9	Deedwana	400/220		500	Planned	2027-28
10	Kankani (Jodhpur)	400/220		500	Under Construction	2027-28
11	Bhilwara (RS)	400/220		500	Planned	2027-28
12	Chittorgarh	400/220		185	Planned	2027-28
13	Ratangarh	400/220		500	Planned	2027-28
14	Barmer	400/220		500	Planned	2027-28
15	Hanumangarh	400/220		500	Under Planning	2028-29
16	Bikaner (400 kV GSS)	400/220		500	Under Planning	2028-29
17	Alwar (400 kV GSS)	400/220		500	Under Planning	2028-29

Annexure B

Reconductoring of the existing Intra-State lines of RVPN planned during 2025-30

Sr. No.	Name of transmission line	Voltage (kV)	ckm (km)	Status (Commissioned/ Under Construction/ Planned/ Under planning)	Actual / Anticipated Date of Commissioning
1	Bhadlla- Bhadla(Sultanpur) 400 kV 2xS/c line (to be created after LILO of Bhadla-Jodhpur Surpura and Bhadla - Merta lines at Bhadla(Sultanpur)	400	100	Under planning	2028-29
2	Bikaner - Sikar 400 kV D/c line	400	342	Under planning	2028-29
3	220 kV S/c Bhopalgarh - Merta (400 kV) line	220	56.89	Under Construction	30.06.2026
4	220 kV S/c Tinwari - Jodhpur Ckt I (400 kV) line	220	38.21	Under Construction	30.06.2026
5	220 kV S/c Tinwari - Jodhpur Ckt II (400 kV) line	220	28.94	Under Construction	30.06.2026
6	220 kV S/c Bap - Barsingsar LTPS line	220	142.2	Under Construction	30.06.2026
7	220 kV S/c Barsingsar - Bikaner line	220	33	Under Construction	30.06.2026
8	132 kV S/c Phalodi (220 kV) - PS5 line	132	7.5	Under Construction	30.06.2026
9	132 kV S/c PS5 - PS4 line	132	22	Under Construction	30.06.2026
10	132 kV S/c PS4 - PS3 line	132	12.1	Under Construction	30.06.2026
11	132 kV S/c Kolayat - Gajner line	132	21.8	Under Construction	30.06.2026
12	132 kV S/c Gajner - Bhinasar line	132	43.43	Under Construction	30.06.2026
13	132 kV S/c Gajner - Pugal Road line	132	47.17	Under Construction	30.06.2026
14	132 kV S/c PS2 - PS1 line	132	9.83	Under Construction	30.06.2026
15	132 kV S/c PS1 - Bajju line	132	58.33	Under Construction	30.06.2026
16	132 KC S/c Bajju - Kolayat line	132	47.43	Under Construction	30.06.2026
17	132 kV S/c Pugal Road - Bikaner (220 kV) line	132	22.47	Under Construction	30.06.2026
18	132 kV S/c Pokran - Dechu (220 kV) line	132	41.8	Under Construction	30.06.2026
19	132 kV HPR-VKIA with LILO at Vaisali Nagar line	132	38.55	Under Construction	30.06.2026

20	132 kV VKIA - 220 kV VKIA line	132	5.72	Under Construction	30.06.2026
21	132 kV Mansarovar- Chambal line	132	7.55	Under Construction	30.06.2026
22	220 kV S/c Ajmer Kishangarh line	220	14.2	Planned	31.12.2027
23	Ratangarh (400)- Ratangarh 220 kV D/c line	220	2	Planned	31.12.2027
24	132 kV Amberi (220 kV GSS)-Sisarma line	132	20.30	Planned	31.12.2027
25	Ajmer (220 kV GSS)-MDSU 132 kV S/c line upto tower Loc. 13 TT (A+6)	132	4.97	Planned	31.12.2027
26	220 kV D/c Jodhpur (Surpura)-Bhawad line	220	78.28	Under Construction	30.06.2026
27	132kV S/c Sridungargarh (220kV GSS)-Sridungargarh (132kV GSS) line	132	2.6	Planned	31.12.2027
28	132 kV S/c Sridungargarh (132kV GSS)-Kitasar line	132	26	Under planning	31.12.2028
29	132 kV S/c Churu -Ratangarh line	132	40.8	Under planning	31.12.2028
30	132 kV S/c Churu- Sadulpur line	132	58	Under planning	31.12.2028
31	132 kV S/c Sadulpur- Hisar line	132	78	Under planning	31.12.2028
32	132 kV S/c Churu- Bissau line	132	15	Under planning	31.12.2028
33	132 kV S/c Ratangarh- Sardarshahar line	132	42	Under planning	31.12.2028
34	132 kV S/c Sardarshahar -Halasar line	132	26	Under planning	31.12.2028
35	132 kV S/c Halasar -Bhanipura line	132	8	Under planning	31.12.2028
36	132 kV S/c Dechu-Dechu (220 kV GSS) Ckt-I line	132	15.5	Under planning	31.12.2028
37	132 kV S/c Dechu-Dechu (220 kV GSS) Ckt-II line	132	10.36	Under planning	31.12.2028
38	132 kV S/c Baithwasia-Matora line	132	18.81	Under planning	31.12.2028
39	132 kV S/c Soorsagar-Tinwari-Chamu-Dechu line	132	31	Under planning	31.12.2028
40	220 kV D/c (400 kV PGCIL Bhiwadi)- 220 kV GSS Bhiwadi line	220	16	Under planning	31.12.2028
41	132 kV S/c line from 220 kV GSS Alwar- 132 kV GSS Pinan- 132 kV GSS Mandawar	132	40	Under planning	31.12.2028
42	132 kV S/c line from 220 kV GSS Alwar – 132 kV GSS Ramgarh	132	35	Under planning	31.12.2028
43	132 kV S/c line from 220 kV GSS MIA- 132 kV GSS Laxmangarh	132	24	Under planning	31.12.2028
44	132 kV S/c Mandawar – Mahuwa line	132	12.5	Under planning	31.12.2028

45	132 kV S/c D.Kunwa – Hindaun line	132	22	Under planning	31.12.2028
46	220 kV D/c from 400 kV GSS Hindaun to 220 kV GSS Hindaun line	220	16	Under planning	31.12.2028
47	(From dropper at 400kV GSS Hindaun to existing Dead-End point & Dholpur Dead –End point to Gantry of DCCPP Dholpur) of 400 kV S/c line from 400 kV GSS Hindaun to DCCPP Dholpur line	400	100.4	Under planning	31.12.2028
48	132 kV S/c NPH – Chambal line	132	7	Under planning	31.12.2028
49	132 kV S/c Heerapura – Chambal line	132	6.8	Under planning	31.12.2028
50	132 kV S/c I.G.Nagar – Pratap Nagar line	132	6.46	Under planning	31.12.2028
51	132 kV S/c Sitapura – Pratap Nagar line	132	6.25	Under planning	31.12.2028
52	132 kV S/c Heerapura – Bhankrota line	132	8	Under planning	31.12.2028
53	132 kV S/c Chaksu-Niwai line	132	24	Under planning	31.12.2028
54	220 kV S/c Babai-Niwana line	220	68	Under planning	31.12.2028
55	132kV D/c SWM – Lakheri - K.Patan - Kota line	132	15	Under planning	31.12.2028
56	132kV S/c SWM – Niwai line	132	23	Under planning	31.12.2028
57	132 kV line from 220 kV GSS Jethana to 132 kV GSS Nasirabad to 132 kV GSS Sarwar	132	67.86	Under planning	31.12.2028
58	132 kV S/c RGC - Hamirgarh line	132	8	Under planning	31.12.2028
59	132 kV S/c Sikar-Katrathal-Piprali-Udaipurwati line	132	45.68	Under planning	31.12.2028
60	132 kV S/c Debari-Amberi line	132	17	Under planning	31.12.2028
61	132 kV S/c Madri-Balicha line	132	22	Under planning	31.12.2028
62	132 kV S/c Madri-Dakankotra line	132	9.3	Under planning	31.12.2028
63	LILO of 132 kV S/c Madri-Balicha line at 132 kV GSS Dakankotra.-Interconnection	132	10	Under planning	31.12.2028
64	132 kV S/c Jhadol-Rishabhdeo line	132	50	Under planning	31.12.2028
65	132 kV S/c Chittor-Senthi line	132	11	Under planning	31.12.2028
66	132 kV S/c Chittor-Ajoliya ka khera line	132	13.4	Under planning	31.12.2028
67	132 kV S/c Nimbahera -Rasoolpura line	132	7.35	Under planning	31.12.2028
68	132 kV S/c Dalot-Pipalwa-Banswara line	132	88.5	Under planning	31.12.2028
69	132 kV S/c Merta-Beawar line	132	50	Under planning	31.12.2028

70	132 kV S/c Merta-Bhopalgarh line	132	50	Under planning	31.12.2028
71	132 kV S/c Makrana-Kuchaman line	132	18	Under planning	31.12.2028
72	132 kV S/c Deedwana-Sujangarh line	132	34	Under planning	31.12.2028
73	220 kV S/C Jaipur South (400 kV GSS PGCIL)-Chaksu Line	220	8	Planned	31.12.2027

Annexure C

Transmission schemes to be added in Rajasthan under Inter-State during 2025-30

S.No.	Scheme /details	Voltage level	Total ckm	Total MVA	Status	Anticipated SCoD
1	**Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase-II- Part E**					
	Bhadla-II PS – Sikar-II 765kV D/c line(2nd)	765 kV	620		Under Construction.	2025-26
	1x330 MVAr switchable line reactor for each circuit at Sikar-II end of Bhadla-II PS – Sikar-II 765kV D/c line	765 kV			Under Construction.	2025-26
	1x240MVAr switchable line reactor for each circuit at Bhadla-II end of Bhadla-II PS – Sikar-II 765kV D/c line	765 kV			Under Construction.	2025-26
2	**Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase-II- Part G**					
	Khetri – Narela 765 kV D/c line with 1x330MVAr Switchable line reactor for each circuit at Narela end of Khetri – Narela 765kV D/c line	765 kV	360		Under Construction.	2025-26
3	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part A1**					
	Establishment of 5x500 MVA 400/220 kV pooling station at Fatehgarh-4 along with 2x125 MVAr Bus Reactor	400/220 kV		2500	Under Construction.	2025-26
	Fatehgarh-4- Fatehgarh-3 400 kV D/c twin HLTS line	400 kV	42		Under Construction.	2025-26
4	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part A3**					
	Fatehgarh 3- Bhadla-3 400kV D/c line(Quad) along with 50 MVAr Switchable line reactor for each circuit at both ends	400 kV	450		Under Construction.	2025-26
5	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part B1**					
	Establishment of 2x1500 MVA 765/400kV & 3x500 MVA 400/220 kV pooling station at Bhadla-3 along with 2x330 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor	765/400/220 kV		4500	Under Construction.	2025-26
	Bhadla-3 – Sikar-II 765 kV D/c line along with 330 MVAr Switchable line reactor for each circuit at each end	765 kV	650		Under Construction.	2025-26

6	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part C1**					
	Establishment of 2x1500 MVA 765/400kV & 2x500 MVA 400/220 kV pooling station at Ramgarh along with 2x240 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus reactor	765/400/220 kV		4000	Under Construction.	2025-26
	Ramgarh – Bhadla-3 765 kV D/c line (180 km) along with 240 MVAr switchable line reactor at each circuit at Ramgarh end of Ramgarh – Bhadla-3 765kV D/c line	765 kV	360		Under Construction.	2025-26
	Ramgarh S/s : STATCOM : ± 2x300MVAr, 4x125 MVAr MSC, 2x125 MVAr MSR				Under Construction.	2025-26
7	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part C2**					
	Augmentation of 1x1500 MVA 765/400kV ICT (3rd) at Ramgarh	765/400 kV		1500	Planned	2027-28
8	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part D Phase I**					
	Sikar-II – Khetri 765 kV D/c line	765 kV	152		Under Construction.	2026-27
	Sikar-II – Narela 765 kV D/c line along with 240 MVAr Switchable line reactor for each circuit at each end of Sikar-II – Narela 765 kV D/c line	765 kV	520		Under Construction.	2026-27
9	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part E1**					
	Establishment of 1x500 MVA 400/220 kV ICT at Fatehgarh-3 (new section*) (ICT-3)	765/400/220 kV		500	Under Construction.	2025-26
10	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part E2**					
	Augmentation of 3x1500 MVA 765/400kV & 2x500 MVA 400/220 kV pooling station at Fatehgarh-3 (new section)	765/400/220 kV		5500	Under Construction.	2025-26
11	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part F**					
	Establishment of 2x1500MVA 765/400 kV Substation at suitable location near Beawar along with 2x330 MVAr 765kV Bus Reactor & 2x125 MVAr 420kV Bus Reactor	765/400 kV		3000	Under Construction.	2025-26
	LILO of both circuit of Ajmer-Chittorgarh 765 kV D/c at Beawar	765 kV	136		Under Construction.	2025-26
	LILO of Kota –Merta 400kV D/c line at Beawar	400 kV	64		Under Construction.	2025-26
	Fatehgarh-3– Beawar 765 kV D/c along with 330 MVAr Switchable line reactor for each	765 kV	635		Under Construction.	2025-26

	circuit at each end of Fatehgarh-3– Beawar 765 kV D/c line					
	Fatehgarh – III S/s : STATCOM : ± 2x300 MVAr, 4x125 MVAr MSC, 2x125 MVAr MSR				Under Construction.	2025-26
12	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part G**					
	Fatehgarh-3– Beawar 765 kV D/c(2nd) along with 330 MVAr Switchable line reactor for each circuit at each end of Fatehgarh-3– Beawar 765 kV D/c line	765 kV	700		Under Construction.	2025-26
13	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part H**					
	Establishment of 2x1500 MVA 765/400kV substation at suitable location near Dausa along with 2x330 MVAr, 765 kV Bus Reactor & 2x125 MVAr, 420 kV bus Reactor	765/400 kV		3000	Under Construction.	2025-26
	LILO of both circuits of Jaipur(Phagi)-Gwalior 765 kV D/c at Dausa along with 240 MVAr Switchable line reactor for each circuit at Dausa end of Dausa – Gwalior 765 kV D/c line	765 kV	65		Under Construction.	2025-26
	LILO of both circuits of Agra – Jaipur(south) 400kV D/c at Dausa along with 50 MVAr Switchable line reactor for each circuit at Dausa end of Dausa – Agra 400kV D/c line	400 kV	120		Under Construction.	2025-26
	Beawar – Dausa 765 kV D/c line (240 km) along with 240 MVAr Switchable line reactor for each circuit at each end	765 kV	480		Under Construction.	2025-26
14	**Transmission system for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part I**					
	Establishment of 6000 MW (4x1500 MW), ± 800 kV (HVDC) [LCC] near Bhadla-III S/s and at Fatehpur(UP)				Under Construction	2029-30
	±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) and Fatehpur (HVDC) (with DMR)				Under Construction	2029-30
15	**Transformer augmentation at various substations for evacuation of power from REZ in Rajasthan (20GW) under Phase-III Part J**					
	Augmentation with 400/220kV, 1x500MVA Transformer (11th) at Fatehgarh-2 PS	400/220 kV		500	Under Constructiomn	2026-27
	Augmentation with 765/400kV, 1x1500MVA Transformer (5th) at Bhadla-2 PS	765/400 kV		1500	Under Constructiomn	2026-27
	Augmentation of 1x500 MVA ICT (5 th), 400/220kV ICT at Fatehgarh-3 Substation (section-1*)	400/220 kV		500	Planned	2027-28

16	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) Part A**					
	6x1500 MVA, 765/400 kV & 5x500 MVA, 400/220 kV Bikaner-III Pooling Station along with 2x330 MVAr (765kV) Bus Reactor & 2x125 MVAr (420 kV) Bus Reactor at a suitable location near Bikaner (2 GW injection at 220 kV level and 2 GW injection at 400 kV level)	765/400/220 kV		11500	Under Construction.	2025-26
	LILO of both ckts of Bikaner (PG)-Bikaner-II D/c line at Bikaner-III PS	400 kV	40		Under Construction.	2025-26
	Bikaner-II PS – Bikaner-III PS 400 kV D/c line (QM equivalent)	400 kV	60		Under Construction.	2025-26
	Bikaner-III - Neemrana-II 765 kV D/c line (~350 km) along with 330 MVAr switchable line reactor for each circuit at each end	765 kV	700		Under Construction.	2026-27
17	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) Part B**					
	Establishment of 765/400 kV, 4x1500 MVA Neemrana-II S/s along with 2x330 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor at a suitable location near Neemrana.	765/400 kV		6000	Under Construction.	2026-27
	Neemrana-II -Kotputli 400 kV D/c line (QM equivalent)	400 kV	88		Under Construction.	2026-27
	LILO of both ckts of 400 kV Sohna Road(GPTL)-Gurgaon(PG) D/c line at Neemrana-II S/s	400 kV	397		Under Construction.	2026-27
18	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) Part C**					
	Bikaner-III - Neemrana-II 765 kV D/c line (2nd) (~350 km) along with 330 MVAr switchable line reactor for each circuit at each end	765 kV	700		Under Construction.	2026-27
19	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) Part D**					
	Neemrana-II- Bareilly(PG) 765 kV D/c line (~350 km) along with 330 MVAr switchable line reactor for each circuit at each end	765 kV	700		Under Construction.	2026-27
20	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) Part E**					
	Augmentation by 400/220 kV, 1x500 MVA (3rd) ICT at Kotputli (PG)	400/220 kV		500	Under Construction.	2025-26

21	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) Part A**					
	Establishment of 4x1500 MVA, 765/400 kV & 5x500 MVA, 400/220 kV Fatehgarh- 4 (Section-2) Pooling Station along with 2x240 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor (1 GW injection at 220 kV level and 1 GW injection at 400 kV level)	765/400/220 kV		8500	Under Construction.	2026-27
	Fatehgarh-4(Section-2) – Bhinmal(PG) 400 kV D/c line(Twin HTLS) (~200 km) along with 50 MVAR switchable line reactor on each ckt at each end	400 kV	400		Under Construction.	2026-27
	LILO of both ckts of 2nd D/c 765 kV Fatehgarh-3-Beawar 2xD/c line at Fatehgarh-4 (Section-2) PS along with 330 MVAR switchable line reactors at Fatehgarh -IV PS	765 kV	60		Under Construction.	2026-27
22	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) Part B**					
	Establishment of 2x1500 MVA, 765/400 kV substation along with 2x240 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor near Sirohi	765/400 kV		3000	Under Construction.	2026-27
	Fatehgarh-IV (Section-2) PS – Sirohi PS 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end (~240 km)	765 kV	480		Under Construction.	2026-27
	Sirohi PS-Chittorgarh (PG) 400 kV D/c line along with 80 MVAr switchable line reactor for each circuit at Sirohi PS end (Quad) (~160 km)	400 kV	320		Under Construction.	2026-27
23	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) Part D**					
	Beawar- Mandsaur 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end (~260 km)	765 kV	520		Under Construction.	2026-27
24	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) Part E**					
	Establishment of 765 kV switching station at suitable location near Rishabdeo (Distt. Udaipur) along with 2x240 MVAr (765 kV) Bus Reactor	765 kV			Under Construction.	2026-27
	Sirohi PS- Rishabdeo 765 kV D/c line along with 330 MVAr switchable line reactor for each circuit at Sirohi end (~170 km)	765 kV	340		Under Construction.	2026-27
	Rishabdeo - Mandsaur PS 765 kV D/c line along with 330 MVAr switchable line reactor for each circuit at Rishabdeo end (~160 km)	765 kV	320		Under Construction.	2026-27
	LILO of one circuit of 765 kV Chittorgarh-Banaskanta D/c line at Rishabdeo S/s (20 km)	765 kV	40		Under Construction.	2026-27

25	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) Part F**					
	Establishment of 3x1500 MVA, 765/400 kV & 2x500 MVA, 400/220 kV Barmer-I Pooling Station along with2x240 MVAR (765 kV), 2x125 MVAr (420kV) Bus Reactor	765/400/220 kV		5500	Under Construction.	2027-28
	Fatehgarh-III (Section-2) PS – Barmer-I PS 400 kV D/c line (Quad)(~50 km)	400 kV	100		Under Construction.	2027-28
	Barmer-I PS– Sirohi PS 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end (~200 km)	765 kV	400		Under Construction.	2027-28
26	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part3:6 GW) Part A**					
	Establishment of 6x1500 MVA, 765/400 kV & 6x500 MVA, 400/220 kV Bikaner-IV Pooling Station along with 2x240 MVAr (765kV) & 2x125 MVAr (420kV) Bus Reactors at a suitable location near Bikaner	765/400/220 kV		12000	Under Construction.	2026-27
	STATCOM (2x±300MVAr) along with MSC (4x125 MVAr) & MSR (2x125 MVAr) at Bikaner-IV PS	400 kV			Under Construction.	2026-27
	LILO of both ckts of Bikaner II PS- Bikaner III PS (Quad) 400 kV D/c line at Bikaner-IV PS	400 kV	80		Under Construction.	2026-27
	Bikaner-IV PS – Siwani 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end	765 kV	520		Under Construction.	2026-27
27	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part3:6 GW) Part B**					
	Establishment of 765/400kV, 6x1500 MVA S/s at suitable location near Siwani (Distt. Bhiwani) along with 2x240 MVAr (765kV) Bus Reactor & 2x125 MVAr (420kV) Bus Reactor	765/400 kV		9000	Under Construction.	2026-27
	Bikaner-IV PS – Siwani 765 kV D/c (2nd) line along with 240 MVAr switchable line reactor for each circuit at each end	765 kV	520		Under Construction.	2026-27
	STATCOM (2x±300MVAr) along with MSC (4x125 MVAr) & MSR (2x125 MVAr) at Siwani S/s	400 kV			Under Construction.	2026-27
28	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW) Part A**					

	Augmentation with 765/400 kV, 2x1500 MVA Transformer (4th & 5th) at Barmer-I PS	765/400 kV		3000	Under Construction.	2026-27
	Augmentation of 5x500 MVA (5th to 9th), 400/220 kV ICTs at Barmer-I PS	400/220 kV		2500	Under Construction.	2026-27
	STATCOM (2x±300MVAr) along with MSC (4x125 MVAr) & MSR (2x125 MVAr) along with 2 Nos. 400 kV bays at Barmer-I PS	400 kV			Under Construction.	2026-27
	Fatehgarh-IV PS (Sec-2) – Barmer-I PS 400kV D/c line (Quad)	400 kV	90		Under Construction.	2026-27
	Dausa - Ghiror 765 kV D/c line along with 330MVAr switchable line reactor at Ghiror end and 240 MVAr switchable line reactor at Dausa end for each circuit of Dausa - Ghiror 765 kV D/c line	765 kV	610		Under Construction.	2026-27
29	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B**					
	Establishment of 765/400/220 kV, 2x1500 MVA & 400/220 kV 2x500 MVA S/s at suitable location near Merta (Merta-II Substation) along with 2x240 MVAr (765 kV) & 2x125 MVAr (420 kV) bus reactor at Merta-II S/s	765/400/220 kV		4000	Under Construction.	2026-27
	Barmer-I PS – Merta-II 765 kV D/c line along with 330 MVAr switchable line reactor for each circuit at each end of Barmer-I PS – Merta-II 765 kV D/c line	765 kV	690		Under Construction.	2026-27
	Merta-II – Beawar 400 kV D/c line (Quad)	400 kV	110		Under Construction.	2026-27
	Merta-II – Dausa 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end of Merta-II – Dausa 765kV D/c line line	400 kV	500		Under Construction.	2026-27
30	**"Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-5 :6 GW) [Barmer Complex] Barmer-II: 6 GW (Solar) (LCC Configuration)"**					
	Establishment of 400/220kV, 6x500MVA S/s at suitable location near Barmer (Barmer-II Substation) along with 2x125 MVAr bus reactor	400/220 kV		3000	Under Bidding	2030-31
	LILO of both ckts of 400 kV Fatehgarh-IV PS -Barmer-I PS at Barmer-II PS (LILO length ~ 10 km)	400 kV	40		Under Bidding	2030-31
	400 kV Barmer-II PS - Barmer-I PS D/c line (Quad) Line Length – (~30 km)	400 kV	60		Under Bidding	2030-31
	Establishment of 6000 MW, ± 800 kV Barmer-II(HVDC) [LCC] terminal station				Under Bidding	2030-31

	(4x1500 MW) at a suitable location near Barmer-II substation					
	Establishment of 6000 MW, ± 800kV South Kalamb S/s (HVDC) [LCC] terminal station (4x1500 MW) at a suitable location near South of Kalamb				Under Bidding	2030-31
	±800 kV HVDC Bipole line (Hexa lapwing) between Barmer-II (HVDC) & South Kalamb (HVDC) (with parallel Dedicated Metallic Return) (capable to evacuate 6000MW) [with 100% reverse power capability]				Under Bidding	2030-31
	2 Nos. of Syncon units at 400kV level of Barmer-II PS				Under Bidding	2030-31
31	**Transmission scheme for Rajasthan REZ Ph-V (Part-1: 4GW) (Sirohi/Nagaur Complex) [Sirohi:2GW, Nagaur:2GW)**					
	Augmentation by 5x500MVA, 400/220kV ICTs at Sirohi S/s	400/220 kV		2500	Under Construction	2026-27
	Sirohi – Mandsaur PS 765KV D/c line (~ 320kms) along with 330 MVAr switchable line reactor for each circuit at each end of Sirohi – Mandsaur PS 765KV D/c line	765 kV	640		Under Construction.	2026-27
32	**Transmission scheme for Rajasthan REZ Ph-IV (Part-6 : 6GW) (Bikaner Complex)**					
	Establishment of 765/400 kV, 6x1500 MVA & 400/220 kV, 8x500 MVA Bikaner-V Pooling Station along with 2x240 MVAr (765kV) & 2x125 MVAr (420kV) Bus Reactors at a suitable location near Bikaner	765/400/220		13000	Under Planning	2028-29
	STATCOM (2x+300MVAr) along with MSC (4x125 MVAr) & MSR (2x125 MVAr) at Bikaner-V PS				Under Planning	2028-29
	LILO of one double ckt of 400kV Bikaner II PS- Khetri (Twin HTLS) 2xD/c line at BikanerV PS along with 50 MVAr switchable line reactor for each circuit at Bikaner-V PS end	400 kV	180		Under Planning	2028-29
	Establishment of 765/400 kV, 2x1500 MVA S/s at suitable location near Pallu (Distt. Hanumangarh) along with 2x240 MVAr (765kV) & 2x125 MVAr (420kV) Bus Reactors	765/400 kV		3000	Under Planning	2028-29
	765 kV Bikaner-V PS – Pallu 2xD/c line	765	480		Under Planning	2028-29
	LILO of both ckts of 765kV Bikaner – Moga D/c line at Pallu S/s along with 240MVAr switchable line reactor for each circuit at Pallu S/s end of 765kV Pallu-Moga D/c line	765	200		Under Planning	2028-29
	400 kV Pallu – Hanumangarh (RVPN) D/c (Quad) line	400	160		Under Planning	2028-29
	765 kV Pallu-Panipat 2xD/c line along with 240 MVAr switchable line reactor for each circuit at each end.	765	1120		Under Planning	2028-29

33	**Transmission system strengthening for interconnections of Bhadla-III & BikanerIII complex**					
	Bhadla-III – Bikaner-III 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at Bhadla-III end (line length~150 km)	765 kV	300		Under Construction.	2026-27
34	**Additional Transmission system for evacuation of power from Bhadla-III PS as part of Rajasthan REZ Phase-III scheme (20GW)**					
	Augmentation of 2x500 MVA (4th & 5th) 400/220 kV ICTs at Bhadla-III PS	400/220 kV		1000	Under Construction.	2025-26
	Augmentation of 2x1500 MVA 765/400kV (3rd & 4th) ICTs at Bhadla-III PS	765/400 kV		3000	Under Construction.	2025-26
35	**Augmentation with 400/220 kV 1x500 MVA(9th) ICT at Bikaner-II to meet N-1 compliance**					
	Augmentation with 400/220 kV, 1x500 MVA (9th) ICTs at Bikaner-II PS	400/220 kV		500	Under Constructiomn	2026-27
36	**Augmentation at Fatehgarh-II PS, Fatehgarh-IV PS(Section-II) and Barmer-I PS**					
	Augmentation with 400/220 kV, 3x500 MVA (6th ,7th & 8th) ICTs at Fatehgarh-IV PS(Sec-II)	400/220 kV		1500	Under Construction.	2026-27
	Augmentation with 400/220 kV, 2x500 MVA (3rd & 4th) ICTs at Barmer-I PS	400/220 kV		1000	Under Construction.	2026-27
	Augmentation with 765/400 kV, 1x1500 MVA Transformer (7th) at Fatehgarh-II PS	765/400 kV		1500	Under Construction.	2026-27
37	**Augmentation of 5th ICT at Fatehgarh-III PS(Section-1)**					
	Augmentation of 400/220 kV ,1x500 MVA (5th) ICT at Fatehgarh-III PS(Section-1)	400/220 kV		500	Under Construction.	2025-26
38	**Augmentation with 500 MVA (4th) ICT at 400/220 kV Bhiwadi (Hybrid) substation**					
	Augmentation with 400/220 kV, 500 MVA (4th) ICT at Bhiwadi (PG) S/s	400/220 kV		500	Under Construction.	2026-27
39	**Augmentation of 500 MVA (4th) ICT at 400/220 kV Bassi substation**					
	Augmentation of 400/220 kV, 500 MVA (4th) ICT at Bassi (PG) S/s	400/220 kV		500	Under Construction.	2026-27

40	**Augmentation of 400/220 kV, 1x500 MVA (4 th) ICT at 400/220kV Kankroli substation**					
	1x500 MVA.400/220kV ICT (4th) at Kankroli S/s	400/220 kV		500	Under Construction.	2026-27
41	**Augmentation of Transformation Capacity at 765/400/220kV Bikaner PS in Rajasthan by 400/220kV, 1x500MVA ICT (4th)**					
	Augmentation of Transformation Capacity at 400/220kV Bikaner PS in Rajasthan by 400/220kV, 1x500MVA ICT (4th)	400/220		500	Under Constructiomn	2026-27
42	**Augmentation of transformation capacity at 400/220 kV Bhadla-II PS (section-1) in Rajasthan by 1x500 MVA, 400/220kV ICT (6th) to cater to the N-1 contingency requirements**					
	Augmentation of transformation capacity at Bhadla-II PS (Section-1) by 1x500 MVA, 400/220KV ICT (6th) along with associated bays.	400/220		500	Under Constructiomn	2026-27
43	**Augmentation of 1x500 MVA, 400/220 kV ICT at Bhadla-II PS (4th ICT at Section-1A)**					
	Augmentation of 1x500 MVA, 400/220 kV ICT at Bhadla-II PS (4th ICT at Section-1A)	400/220		500	Under Construction.	2026-27
44	**Augmentation of 1x500 MVA(6th) , 400/220 kV ICT at Bikaner-III PS**					
	Augmentation of 400/220 kV, 1x500 MVA (6th) ICT at Bikaner-III PS	400/220		500	Under Construction	2026-27
45	**Augmentation of 1x500 MVA (10th) , 400/220 kV ICT at Bikaner-II PS to meet N-1 compliance**					
	Augmentation of 1x500 MVA (10th) , 400/220 kV ICT at Bikaner-II PS to meet N-1 compliance	400/220		500	Under Construction	2026-27
46	**Augmentation of 2x500 MVA (7 th & 8th), 400/220 kV ICTs at Bikaner-IV PS**					
	Augmentation of 2x500 MVA (7 th & 8th), 400/220 kV ICTs at Bikaner-IV PS	400/220		500	Under Construction	2026-27
47	**Augmentation with 400/220 kV 1x500 MVA (3rd) ICT at Neemrana (PG) S/s to meet N-1 compliance**					
	Augmentation with 400/220 kV 1x500 MVA (3rd) ICT at Neemrana (PG) S/s to meet N-1 compliance	400/220		500	Under Construction	2026-27

48	**Augmentation of 400/220 kV ,1x500 MVA (3rd) ICT at 400/220kV Jaipur South (PG) S/s**					
	Augmentation of 400/220 kV ,1x500 MVA (3rd) ICT at 400/220kV Jaipur South (PG) S/s	400/220		500	Under Construction	2026-27
49	**Augmentation with 400/220 kV 1x500 MVA (4th) ICT at Sikar (PG) S/s to meet N-1 compliance**					
	Augmentation with 400/220 kV 1x500 MVA (4th) ICT at Sikar (PG) S/s to meet N-1 compliance	400/220		500	Under Constructiomn	2026-27
50	**Augmentation of 765/400 kV, 1x1500 MVA (4th) ICT at 765/400kV Ramgarh PS**					
	Augmentation of 765/400 kV, 1x1500 MVA (4th) ICT at 765/400kV Ramgarh PS	765/400		1500	Planned	2027-28
51	**Augmentation of 400/220 kV, 2x500 MVA (3rd & 4th) ICTs at 765/400kV Ramgarh PS**					
	Augmentation of 400/220 kV, 2x500 MVA (3rd & 4th) ICTs at 765/400kV Ramgarh PS	400/220		1000	Planned	2027-28
52	**Augmentation of 400/220 kV, 4x500 MVA (6th to 9th) ICTs at 765/400/220kV Bhadla-III PS**					
	Augmentation of 400/220 kV, 4x500 MVA (6th to 9th) ICTs at 765/400/220kV Bhadla-III PS	400/220		2000	Planned	2027-28

Annexure D

Transmission system planned to be added under Intra-State during 2030-35

S.No.	Scheme/Details	Voltage (kV)	Tentative Line Length (in ckm)	Total MVA
1	**2x1500MVA, 765/400/220 kV Bhilwara with 330 MVAR, 765 kV bus reactor and 125 MVAR, 420 kV bus reactor**	765/400/220		4000
	LILO of both circuits of Beawer- Mandsaur 765 kV D/c line at 765 kV Bhilwara	765	60	
	765 kV D/C Bhilwara-Anta-II Line with 240 MVAR, 765 kV switchable line reactor at Bhilwara end	765	230	
2	**400/220 kV, 2x500 MVA GSS at Jalore with 125 MVAR, 420 kV bus reactor**	400/220		1000
	Pachpadra – Jalore 400 kV D/c line	400	146	
	LILO of one circuit of Barmer- Bhinmal 400 kV D/c line at Jalore	400	80	
	Udaipur- Jalore 400 kV D/c line with 80 MVAR switchable line reactors in each circuit at Jalore end	400	280	
	LILO of Balotra- Jalore 220 kV S/c line (existing) at Jalore	220	30	
	LILO of Saila – Jalore 220 kV S/c line (existing) at Jalore	220	30	
	Jalore- Sumerpur 220 kV D/c line	220	100	
3	**2x500 MVA, 400/220 kV SANGANER with 125 MVAR, 420 kV bus reactor**	400/220		1000
	LILO of one circuit of Bassi- Phagi 400 kV D/c line at Sanganer (New location)	400	20	
	Jaipur South- Sanganer 400 kV D/c line	400	20	
	Sanganer- Vatika (existing) 220 kV D/c line	220	26	
	Sanganer- Goner (existing) 220 kV D/c line	220	32	
	Sanganer- Indira Gandhi (existing) Nagar 220 kV D/c line	220	22	
	Sanganer- Chakshu (existing) Nagar 220 kV D/c line	220	60	
4	**2x500 MVA, 400/220 kV REENGUS with 125 MVAR, 420 kV bus reactor**	400/220		1000
	Babai (765 kV) - Reengus 400 kV D/c line	400	120	
	Kanwat – Reengus 220 kV D/c line	220	56	
	Danta Ramgarh- Reengus 220 kV D/c line	220	80	
	Dhod –Reengus 220 kV D/c line	220	116	
5	**2x500 MVA, 400/220 kV AJMER II with 125 MVAR, 420 kV bus reactor**	400/220		1000
	Ajmer PG- Ajmer II 400 kV D/c line	400	40	
	Duni – Ajmer-II 220kV D/c line	220	230	
	Gulabpura- Ajmer II 220 kV S/c line	220		
	Malpura/ Kekri- Ajmer II 220 kV D/c	220		

6	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA Nohar**	220/132		210
	LILO of STPS-Bhadra 220 kV S/c line	220	30	
	Nohar-Rawatsar 220 kV D/C line	220	90	
	LILO of Nohar-Bhadra 132 kV S/c line	132	10	
	Nohar (220 kV GSS)-Khuiya 132 kV D/C line	132	30	
7	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS Pallu**	220/132		210
	LILO of the Ratangarh-Rawatsar 220 kV S/c line	220	20	
	LILO of the Pallu-Dallusar 132 kV S/c line	132	20	
	LILO of the Khuiya-Jokhasar 132 kV S/c line	132	80	
8	**220/132 kV, 1X160 MVA and 132/33kV, 1x50 MVA GSS Anoopgarh**	220/132		210
	LILO of Circuit-I of Chhatargarh-Gajner/BAMBLOO 220 kV D/C line	220	120	
	Kenchiya-Anoopgarh 220 kV S/C line	220	160	
	LILO of Anoopgarh-Gharsana 132KV S/C line	132	20	
	Raisinghnagar-Anoopgarh 132 kV S/C Line	132	50	
	Raisinghnagar-Rawla 132 kV S/C Line	132	55	
9	**1x160 MVA, 220/132 kV GSS Nawa (Upgradation)**	220/132		160
	LILO of Phulera-Makrana 220 kV S/C line at 220 kV GSS Nawa	220	50	
	Nawa-Bhanwata 132 kV D/C line	132	30	
10	**1x160 MVA, 220/132 kV GSS Keshoraipatan (Upgradation)**	220/132		160
	LILO of Anta-Bhilwara 220 kV S/C line	220	7	
	LILO of Anta-Lalsot/BHADOTI 220 kV S/C line	220	8	
	LILO of Lakheri-Sakatpura 132 kV S/C line	220	10	
11	**1x31.5 MVA, 132/33 kV Mahuwa Khurd GSS Alwar**	132/33		32
	LILO of Alwar (220 kV GSS) - Malakhera 132 kV S/C Line at Mahuwa Khurd	132	20	
12	**1x31.5 MVA, 132/33 kV Vijay Mandir GSS Alwar**	132/33		32
	Chiruni/Mundawar - Vijay Mandir 132 kV D/C Line	132	84	
	LILO of Teloc Circle - Bansur 132 kV S/C Line at Vijay Mandir	132	10	
13	**1x31.5 MVA, 132/33 kV Jagsa GSS Balotra**	132/33		32
	LILO of Balotra (220 kV GSS) - Sindhri 132 kV S/C Line at Jagsa	132	24	
14	**1x31.5 MVA, 132/33 kV Paldi GSS Dausa**	132/33		32
	LILO of one circuit of Sikandra- Bhanwata 132 kV D/C Line at Paldi	132	100	
15	**1x31.5 MVA, 132/33 kV Tandoorwali GSS Hanumnagarh**	132/33		32
	Sangria - Tandoorwali 132 kV S/C Line	132	31	
	Tandoorwali- Rawatsar (220 kV GSS)132 kV D/C Line	132	96	
16	**1x31.5 MVA, 132/33 kV Sumer Nagar GSS Jaipur**	132/33		32
	LILO ofSanagner- Aravali Marg 132 kV S/C Line (on XLPE Cable) at Sumer Nagar	132	10	

17	**1x31.5 MVA, 132/33 kV Khera Rasoolpura GSS Kota**	132/33		32
	LILO of Dahara (220 kV GSS)- Chhoma Kot 132 kV S/C Line at Khera Rasoolpura	132	20	
Transmission scheme for evacuation of power from PSPs and thermal generations under Intra- State:				
1	**Transmission system for evacuation of power from Giral TPS (U2: 550 MW)**	400		
	Giral- Jalore 400 kV D/c line	400	400	
2	**Transmission system for evacuation of power from Gurha LTPS (U2 &U3:2x125 MW):**			
	Gurha- Kolayat 220 kV D/c line (2nd line)	220	260	
3	**Transmission system for evacuation of power from Pahad Kalan (Sirohi) PSP**	400		
	Pahad Kalan (Sirohi) to Jalore 400 kV D/c line	400	180	
4	**Transmission system for evacuation of power from Singli (Banswara) PSP**	400		
	Singli (Banswara) to Banswara 400 kV D/c line	400	60	
5	**Transmission system for evacuation of power from Ghaghri (Pratapgarh) PSP**	400		
	Ghaghri- Salumber 220 kV 2xD/c line	400	30	
6	**Transmission system for evacuation of power from Changla (Udaipur) PSP**	400		
	Changla to Udaipur 400 kV D/c line	400	50	

Annexure E

Intra-State transmission lines and ICTs (220 kV and above) on which loading has been observed to be approaching the thermal limit under contingencies in the 2029-30 time frame as per load flow studies:

(i) Transmission Lines:

S.No.	Transmission line
1	Hindaun- Kumher 400 kV S/c line
2	Charkhidadri - Khetri 220 kV D/c line
3	Aau-Sw - Baithwara-W 220 kV S/c line
4	Aau-Sw - Birloka2 220 kV S/c line
5	Dausa - Bassi 220 kV D/c line
6	Bhikampur - Nokhra 220 kV D/c line
7	Deedwana-42 - Dhod 220 kV S/c line
8	Dholpur New - Dholpu Gas 220 kV S/c line
9	Merta-42 - Makrana 220 kV S/c line
10	Merta-42 - Jethana 220 kV S/c line
11	Merta-42 - Lambajatan 220 kV S/c line
12	Ratangar - Jhunjhun 220 kV S/c line
13	Ratangar - Sridunga 220 kV S/c line
14	Ratangar - Badnu 220 kV S/c line
15	Dholpu Gas - Dholpu-2 220 kV S/c line
16	Sakatpur - Ranpur 220 kV S/c line
17	Jhunjhun - Ratangar 220 kV S/c line
18	Chittor-42 - Chittor-2 220 kV S/c line
19	Sirohi - Jalore 220 kV S/c line
20	Sirohi - Reodar2 220 kV S/c line
21	Bhopalga - Khinvsar 220 kV S/c line
22	Bhopalga - Lambajatan 220 kV S/c line
23	Bikane-4 - Sridunga 220 kV S/c line
24	Sikar-Rs - Sikar-Pg 220 kV D/c line
25	Hanumang - Hanuman 220 kV S/c line
26	Badisid-S - Bhadla-S 220 kV S/c line
27	Bap_2 - Bhadla-S 220 kV S/c line
28	Badnu - Seruna 220 kV S/c line
29	Reodar2 - Bhinm-Pg 220 kV S/c line
30	Bikaner72 Pu - Keharli 220 kV S/c line
31	Kolayat-S - Panchu 220 kV D/c line

(ii) ICTs:

Loadings on 220/132 kV ICTs at following substations has been observed to be on higher end:

1	Babai
2	Bhikampur
3	Bhadla-s
4	Bundi
5	Bhiwadi-rs
6	Nagaur-s
7	Jhunjhun
8	Balotra
9	Pali
10	Bhopalga
11	Khinvsar
12	Hindaun
13	Sikar-rs
14	Hanumang
15	Kishanga
16	Makrana
17	Baran
18	Hemda
19	Badisid-s
20	Panchu
21	Karauli
22	Jawali
23	Begun
24	Deedwana
25	Seruna
26	Ranpur
27	Goner
28	Kelwara
29	Sangod
30	Kolayat-s
31	Banswara_n
32	Kalibanga_n
33	Keharli
34	Kuchera
35	Kushkher
36	Madri
37	Sakatpur
38	Tehandesar

39	Reodar
40	Nokhra
41	Betina
42	Bhadoti2
43	Karoli2
44	Pathredi2
45	Ramgarh
46	Barmer
47	Jalore
48	Bikaner
49	Suratgarh
50	Duni
51	Ramgarh_re
52	Hindore
53	Birloka

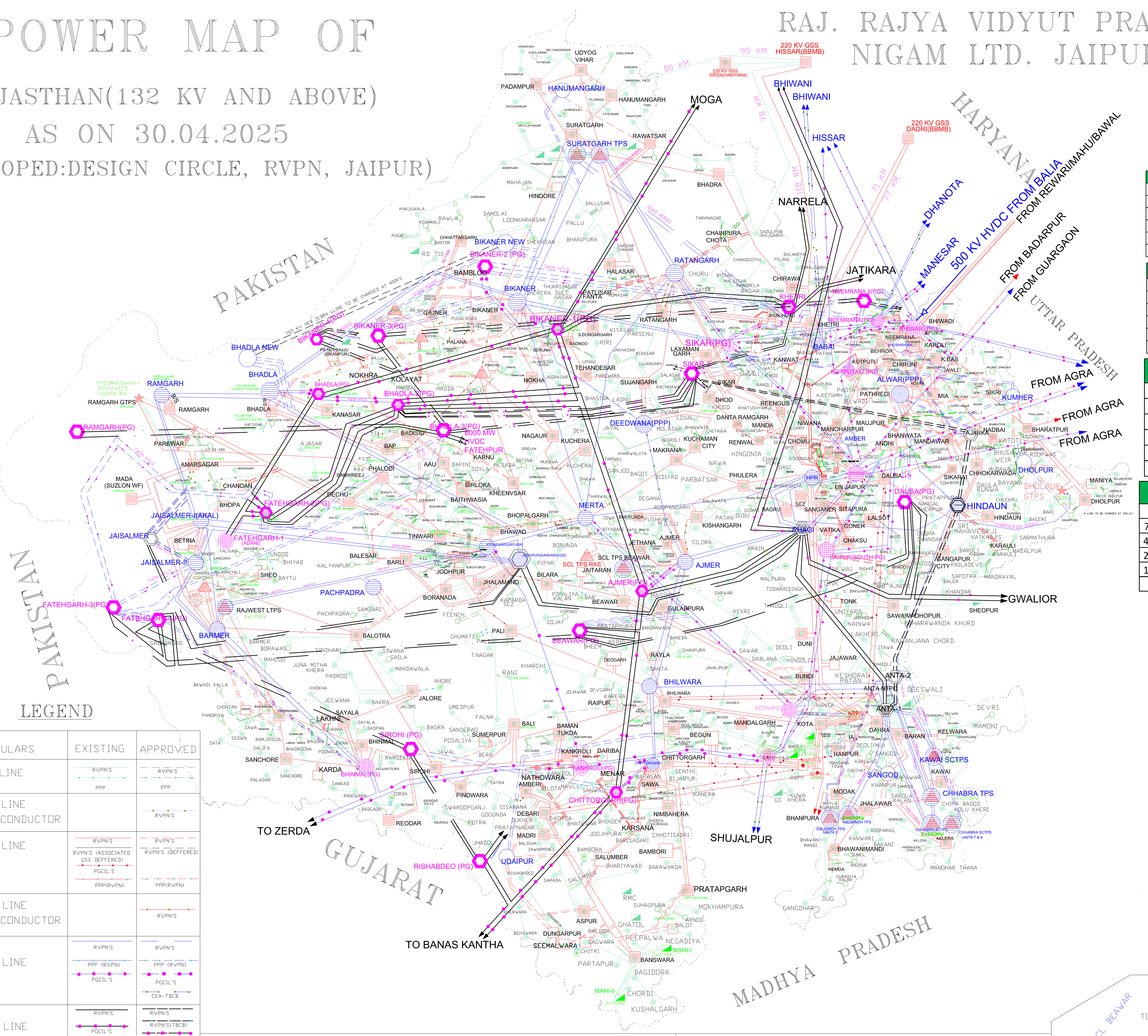
POWER MAP OF

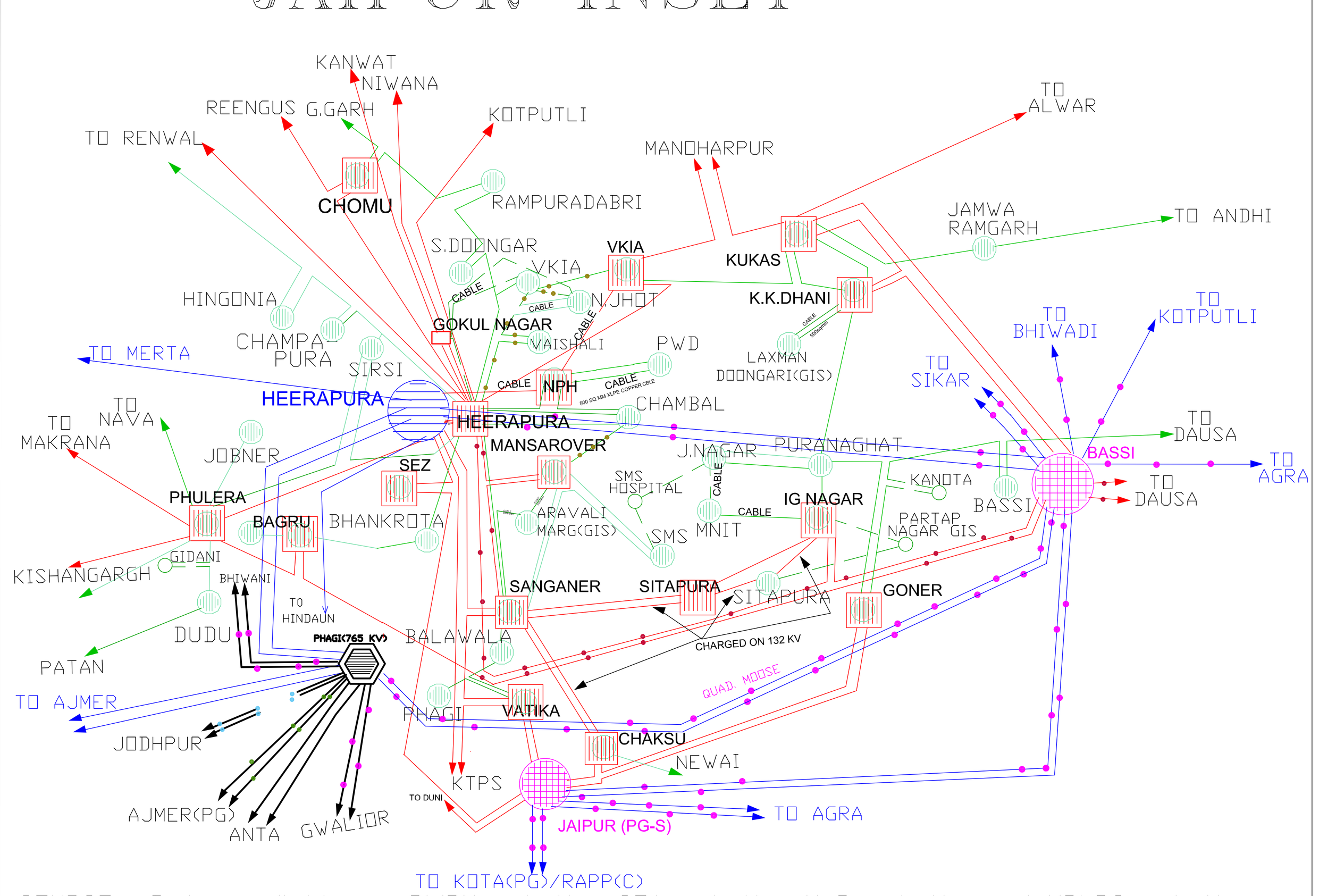
RAJASTHAN(132 KV AND ABOVE)

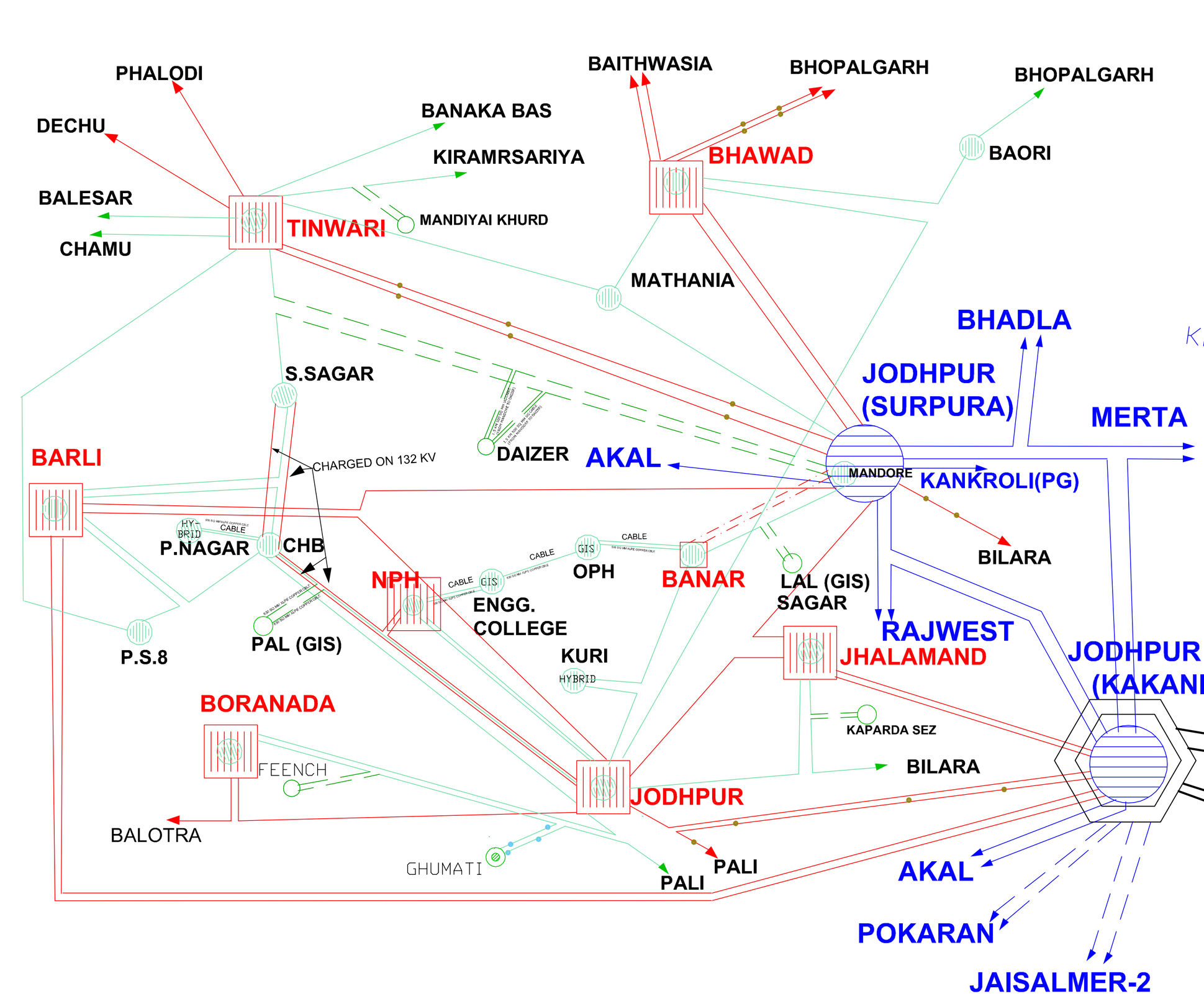
AS ON 30.04.2025

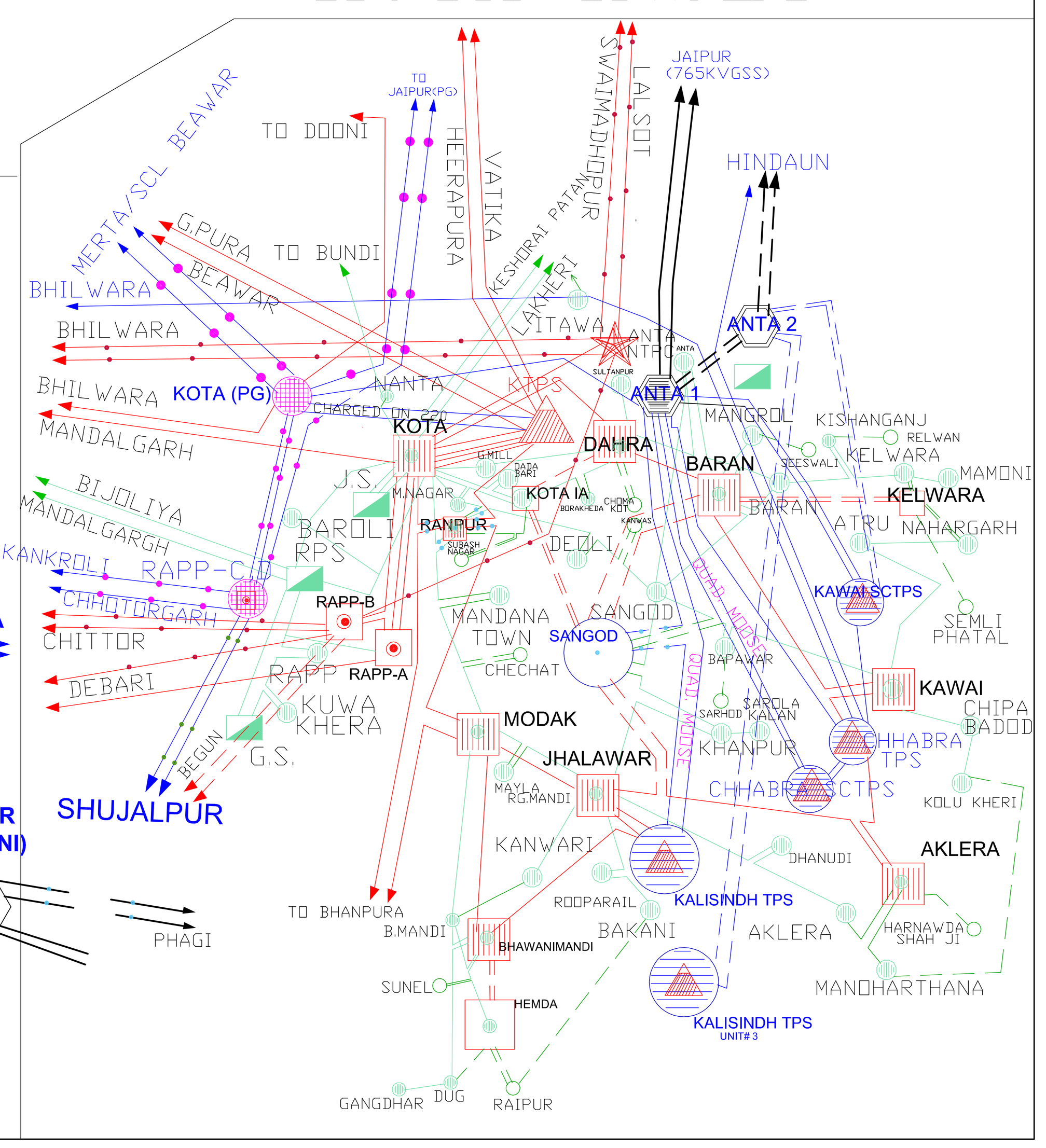
(DEVELOPED:DESIGN CIRCLE, RVPN, JAIPUR)

RAJ. RAJYA VIDYUT PRASARAN NIGAM LTD. JAIPUR









SOURCE : Data available on RVPN website, CEA website, MoP website and NRLDC website

LEGEND

S.NO.	PARTICULARS	EXISTING	APPROVED
1	132 KV LINE	RVPN'S; PPP	RVPN'S; PPP
2	132 KV LINE ON HTLS CONDUCTOR		RVPN'S
3	220 KV LINE	RVPN'S; RVPN'S (ASSOCIATED GSS DEFFERED); PGCIL'S; PPP(RVPN)	RVPN'S; RVPN'S (DEFFERED); PPP(RVPN)
4	220 KV LINE ON HTLS CONDUCTOR		RVPN'S
5	400 KV LINE	RVPN'S; PPP (RVPN); PGCIL'S	RVPN'S; PPP (RVPN); PGCIL'S; CEA-TBCB
6	765 KV LINE	RVPN'S; PGCIL'S	RVPN'S; RVPN'S(TBCB); PGCIL'S; CEA-TBCB
7	132 KV G.S.S.	RVPN'S; PPP'S	RVPN'S
8	220 KV G.S.S.	RVPN'S; PPP'S	RVPN'S; PPP'S; RVPN'S (DEFFERED)
9	400 KV G.S.S.	RVPN'S; RVPN'S PPP'S; PGCIL'S; CEA-TBCB	RVPN'S; RVPN'S TBCB; PGCIL'S
10	765 KV G.S.S.	RVPN'S; PGCIL'S	RVPN'S; PGCIL'S
11	HYD.POWER HOUSE		
12	TH. POWER HOUSE		
13	GAS TH.POWER HOUSE		
14	ATOMIC POWER STN.		

Under Construction Grid Sub-Stations in Rajasthan as on 31.03.2025

Voltage Level	RVPN	PPP (RVPN)	Total
765 kV	5	0	5
400 kV	7	1	8
220 kV	56	0	56
132 kV	109	0	74
Total	177	1	178

Existing Grid Sub-Stations in Rajasthan as on 31.03.2025

Voltage Level	RVPN	PPP (RVPN)	TOTAL
765 kV	2	0	2
400 kV	17	2	19
220 kV	129	1	130
132 kV	491	15	506
Total	639	18	657

UNDER CONSTRUCTION EHV LINES as on 31.03.2025

Voltage Level	RVPN	PPP (RVPN)	Total
765 kV Lines (Ckt.Kms.)	2356	0	2356
400 kV Lines (Ckt.Kms.)	2063	40	2103
220 kV Lines (Ckt.Kms.)	6114.554	0	6114.55
132 kV Lines (Ckt.Kms.)	5853	0	5853.000
Total	16386.554	40	16426.554

EXISTING EHV LINES as on 31.03.2025

Voltage Level	RVPN	PPP (RVPN)	Total
765 kV Lines (Ckt.Kms.)	425.498	0	425.498
400 kV Lines (Ckt.Kms.)	6971.408	943	7914.408
220 kV Lines (Ckt.Kms.)	16295.478	72	16367.478
132 kV Lines (Ckt.Kms.)	19696.131	442.6	20138.731
Total	43388.515	1457.6	44846.115

SECTOR WISE INSTALLED GENERATION CAPACITY OF RAJASTHAN (As on 31.03.2025)

PARTICULARS	Installed capacity / Allocation to Rajasthan (MW)	%
RVUN	8594.35	31.50%
Shared	853.44	3.13%
Central Sector	3254.35	11.92%
Private sector	3742.00	13.72%
NES	10839.69	39.73%
TOTAL	27283.83	100%

Source-wise Installed Generation Capacity of Rajasthan (As on 31.03.2025)

Particulars	Capacity (MW)	%
A	Conventional	
Coal	13424.950	49.20%
Gas	600.500	2.20%
Nuclear	456.740	1.67%
Hydro	1961.954	7.19%
Total (A)	16444.144	60.26%
B	NES	
Wind	4416.120	16.19%
Biomass	166.650	0.61%
Solar	6256.920	22.93%
KUSUM PPA	187.65	0.68%
Total (B)	11027.34	40.14%