



**Government of India
Ministry of Power
Central Electricity Authority**

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



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EXECUTIVE SUMMARY

Gujarat has been one of India's fastest-growing states, with significant progress in various sectors, including industry, agriculture, infrastructure, and services. Gujarat, a key economic hub in India, has made significant strides in its energy sector to fuel its rapid economic growth. The state's growing economy, urbanization, and industrial development have led to a steady rise in electricity consumption over the years. The state boasts a mix of thermal, hydro, solar and wind power plants. Gujarat is a leader in renewable energy, particularly solar and wind, and has set ambitious targets to increase its share of renewable energy in the electricity mix. The state's renewable energy capacity has been growing rapidly, with large-scale solar parks and wind farms contributing significantly to the overall power supply.

In June 2024, Gujarat witnessed an all-time peak demand of 25,588 MW, which is about 3% higher than the peak demand of 24,829 MW in 2023-24. Normally, the state experiences peak electricity demand during the month of April-June and during day time. Also, day peak is higher than night peak almost throughout the year. Gujarat has taken various initiatives such as feeder segregation and shifting of agricultural load during day time.

As per the revised 20th Electric Power Survey (EPS) Report, peak electricity demand in Gujarat is projected to increase to 29.9 GW by 2027-28 and to 56 GW by 2034-35. Gujarat's peak power demand has surged, primarily due to rising electricity consumption from the domestic, commercial, industrial and agricultural sectors. Further, as per the information furnished by Ministry of New and Renewable Energy (MNRE), additional electricity demand on account of green hydrogen/green ammonia production in the State would be about 32 GW tentatively by the year 2034, mainly at Mundra and Kandla ports, connected to the ISTS network.

The installed generation capacity in the state of Gujarat is around 58 GW (in March 2025) including renewable energy generation capacity of around 31 GW, which is planned to be increased to 97 GW by 2026-27 and 183 GW by 2034-35.

A comprehensive system study of the transmission network of Gujarat, both ISTS and Intra-State transmission system, has been carried out by CEA and Resource Adequacy (RA) plan of transmission network has been prepared in consultation with Gujarat Energy Transmission

Corporation Limited (GETCO), CTUIL and Grid-India. Summary of transmission system planned under ISTS and InSTS to be commissioned by 2026-27 is given below:

	765 kV	400 kV	220 kV
Inter-State Transmission System (ISTS)			
Transformation Capacity (MVA)	72,000	14,000	0
Transmission Line (ckm)	6,351	928	0
Intra-State Transmission System (InSTS)			
Transformation Capacity (MVA)	0	10,685	16,670
Transmission line (ckm)	0	2,278	3,337

Summary of transmission system planned under ISTS and InSTS to be commissioned between 2027-28 and 2034-35 is given below:

	HVDC	765 kV	400 kV	220 kV
Inter-State Transmission System (ISTS)				
Transformation Capacity (MVA)/HVDC (MW)	14,500	87,000	16,500	2,520
Transmission Line (ckm)	5,900	5,518	594	547
Intra-State Transmission System (InSTS)				
Transformation Capacity (MVA)	0	55,000	38,500	14,860
Transmission line (ckm)	0	6,120	6,850	6,021

Chapter-1

Power Scenario and Existing Transmission Network in Gujarat

1.1 Background

Gujarat, a key economic hub in India, has made significant strides in its energy sector to fuel its rapid economic growth. A robust power sector is essential to sustain the state's increasing demand for electricity. Strengthening the transmission system in Gujarat is crucial to ensure that power generated can be efficiently transmitted to meet this growing electricity demand.

The state is home to several large industries like textile, chemical, petrochemicals, engineering, and cement, all of which have high electricity requirements. Production of green Hydrogen/Green Ammonia is also planned in the State on a large scale. The transmission network in Gujarat is a critical infrastructure that supports the state's power distribution, especially as it continues to expand its renewable energy capacity to be integrated to grid. GETCO (Gujarat Energy Transmission Corporation Limited) is the primary state-owned company responsible for establishment and managing the transmission infrastructure in Gujarat.

Gujarat has a well-established transmission system for evacuation of power from power generation centers to consumption points across the state.

RE integration has been planned in the State on a very large scale. Adequate transmission system needs to be planned for evacuation of power generated from the RE sources, particularly from remote areas like Kachchh, Saurashtra, and Northern Gujarat, where large renewable parks are being developed. Investing in transmission infrastructure today will enable the state to meet the growing demand for electricity, promote industrial development and improve the quality of life of the people.

1.2 Present Power Scenario in Gujarat

1.2.1 Installed Capacity

Installed electricity generation capacity physically located in the state of Gujarat is about 58,221 MW as on 31st March 2025, as given in Table 1.1 and depicted in Fig. 1.1.

Table 1.1: Installed Generation Capacity in Gujarat (as on 31.03.2025)

Installed Capacity (MW)					
Coal / Lignite	Gas	Hydro	Nuclear	RES	Total
16092.00	6896.41	1990.00	1840.00	31403.03	58221.44

(Source: National Power Portal, CEA)

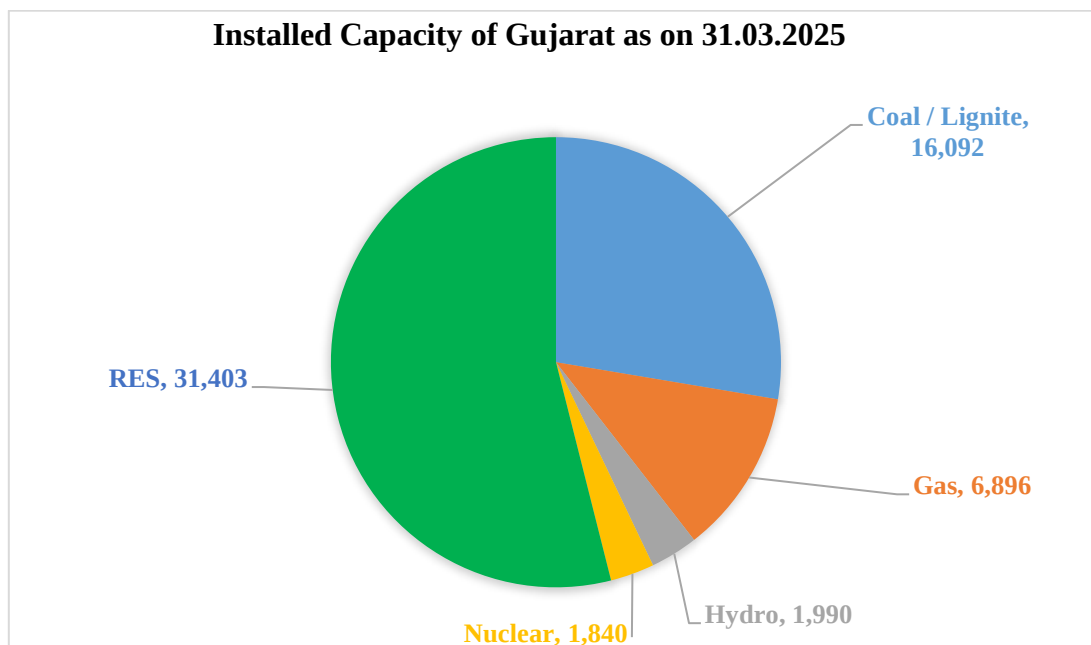


Fig. 1.1: Installed Capacity in Gujarat as on 31.03.2025

1.2.2 Electricity Demand of Gujarat

There are five Discoms in Gujarat, DGVCL, MGVCL, PGVCL, UGVCL and Torrent Power Limited. In June, 2024, Gujarat recorded a peak demand of 25,588 MW. The Peak demand observed in each month during the last three years is given in Table 1.2 and depicted in Fig.1.2.

Table 1.2: Month wise peak electricity demand

Month	Peak electricity demand 2024 (MW)	Peak electricity demand 2023 (MW)	Peak electricity demand 2022 (MW)	Peak electricity demand 2021 (MW)
January	21861.00	19699.28	17680.00	17323.17
February	21248.00	19185.00	17492.66	17304.10
March	21843.00	19464.00	19348.29	18528.28
April	23932.74	21627.00	21464.32	19360.00
May	24922.00	21339.83	20769.00	17924.27

Month	Peak electricity demand 2024 (MW)	Peak electricity demand 2023 (MW)	Peak electricity demand 2022 (MW)	Peak electricity demand 2021 (MW)
June	25588.00	22225.00	21236.00	18112.00
July	19991.00	17715.30	17428.00	19007.00
August	21918.00	23012.20	17632.00	19451.40
September	24205.00	24829.49	20341.00	15499.40
October	22092.00	21689.00	20275.27	17420.00
November	21493.00	21701.59	19704.00	17076.00
December	22461.00	21430.48	20146.19	18021.70

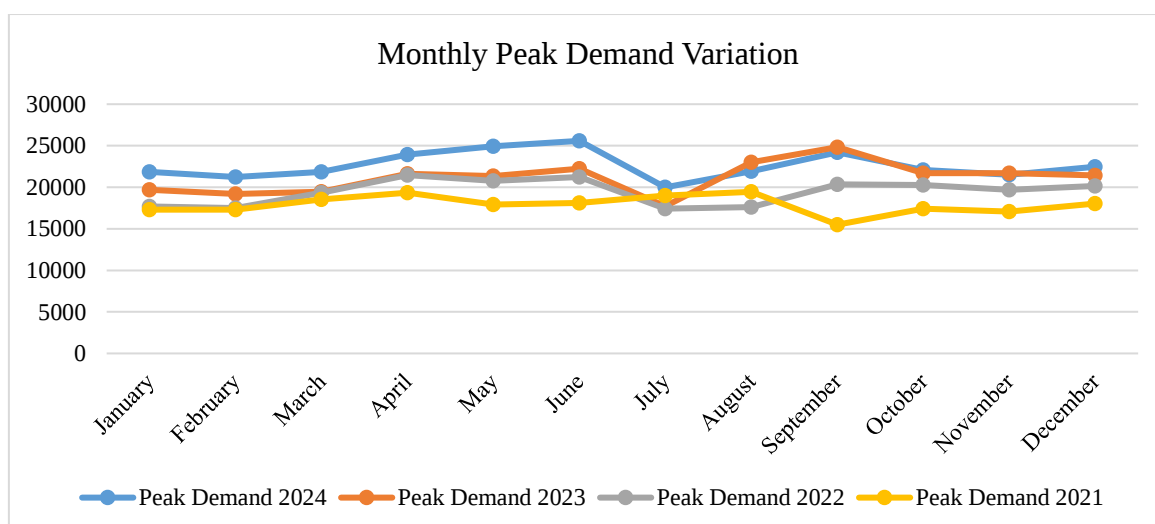


Fig. 1.2: Peak Electricity Demand

The peak electricity demand during 2023-24 was around 24,829 MW. The peak electricity demand during 2024-25 was around 25,588 MW. The daily peak demand of Gujarat in 2024-25 is shown in Fig. 1.3.

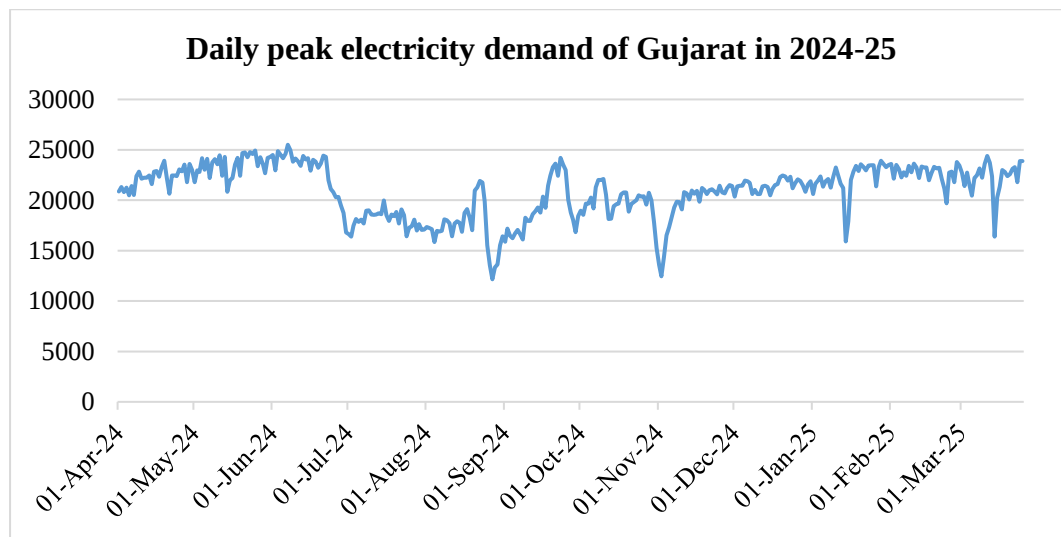


Fig 1.3: Daily peak electricity demand of Gujarat in 2024-25

It is observed that electricity demand is high in the months of April-June during day time. In June 2024, Gujarat witnessed an all-time peak demand of 25,588 MW, which is about 3.05% higher than the peak demand in 2023-24. Comparison of daily peak demand for day time and night time for the state is given in Fig. 1.4.

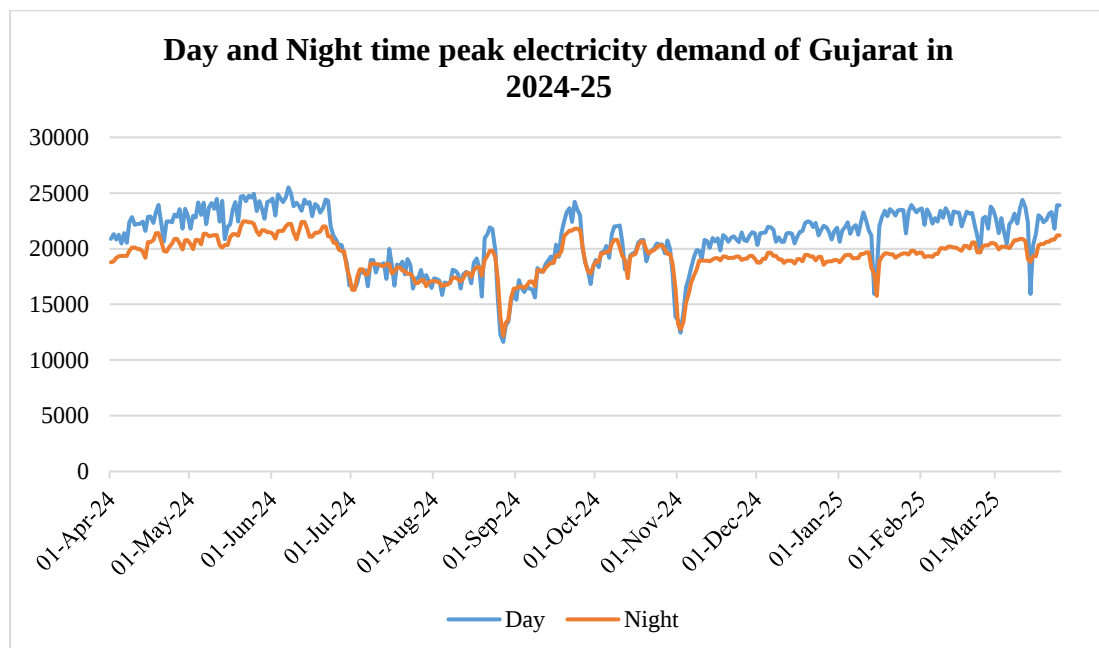


Fig. 1.4: Day and night time peak electricity demand of Gujarat

It can be observed that day peak is higher than night peak for almost all months in the year. Gujarat has taken various initiatives such as feeder segregation and shifting of agricultural load during day time to match with the peak RE generation.

1.2.3 Existing Transmission Network in Gujarat

Gujarat has a vast transmission network that includes extensive 400 kV and some 765 kV systems. Under Intra-state transmission network, the highest voltage is 400 kV. The number of sub-stations, transformation capacity and length of transmission lines at different voltage levels in intra-state and inter-state transmission network is given in Table 1.3 and 1.4 respectively.

Table 1.3: Details of Intra-State Transmission Network in Gujarat (as on 28.02.2025)

Intra-State Transmission System (InSTS)	400 kV	220 kV	132 kV	66 kV
Number of Substations	25	122	59	2180
Transformation Capacity (MVA)	31,100	55,635	12,220	78,622
Transmission Line (ckm) (incl. Cable)	7,150	22,338	5,971	41,194

Table 1.4: Details of Inter-State Transmission Network in Gujarat (as on 28.02.2025)

Inter-State Transmission System (ISTS)	765 kV	400 kV	220 kV
No. of Substations	6	12	0
Transformation Capacity (MVA)	25,500	18,725	0
Transmission Line (ckm)	5,461	13,774	2,259

List of existing Intra-state substations at 400 kV voltage level is given in Table 1.5.

Table 1.5: Existing intra-state sub-stations as on 28.02.2025

Sl. No.	Name of Substation	Voltage Ratio (kV)	Transformation Capacity (MVA)
1.	400 kV Amreli	400/220	1445
2.	400 kV Asoj	400/220	1815
3.	400 kV Bhachunda	400/220	1500
4.	400 kV Bhogat	400/220	1500
5.	400 kV Charal (Sanand)	400/220	1500
6.	400 kV Charanka	400/220	630
7.	400 kV Chorania	400/220	1500
8.	400 kV GPEC	400/220	500
9.	400 kV Hadala	400/220	1445
10.	400 kV Jetpur	400/220	1630
11.	400 kV Kasor	400/220	1445
12.	400 kV Kosamba	400/220	1445
13.	400 kV Mansar	400/220	630
14.	400 kV Nicol-II	400/220	945

Sl. No.	Name of Substation	Voltage Ratio (kV)	Transformation Capacity (MVA)
15.	400 kV Pachcham	400/220	1000
16.	400 kV Pirana-T	400/220	1260
17.	400 kV Ranchodpura (Vadavi)	400/220	1260
18.	400 kV Shapar	400/220	1500
19.	400 kV Soja	400/220	1500
20.	400 kV Sugan	400/220	945
21.	400 kV Varsana	400/220	1260
22.	400 kV Vav	400/220	1500
23.	400 kV Zerda	400/220	1445
24.	400 kV Veloda	400/220	1000
25.	400 kV Wanakbori	400/220	500
Total			31100

List of existing ISTS substations at 765 kV and 400 kV voltage level is given in Table 1.6.

Table 1.6: Existing ISTS sub-stations as on 28.02.2025

Sl. No.	Name of Substation	Voltage Ratio (kV)	Transformation Capacity (MVA)
1.	765 kV Vadodara	765/400	4500
		400/220	1000
2.	765 kV Bhuj Pool	765/400	6000
		400/220	4000
3.	765 kV Banaskantha	765/400	4500
4.	400 kV Navsari	400/220	1130
5.	400 kV Vapi	400/220	945
6.	400 kV Pirana PG	400/220	630
7.	400 kV Bhachau	400/220	630
8.	400 kV Dehgam	400/220	1130
9.	400 kV Radhanesda Banaskantha	400/220	1000
10.	765 kV Bhuj-II	765/400	3000
		400/220	2000
11.	400 kV Jam khabhaliya	400/220	2000
12.	765 kV Lakadia	765/400	3000
13.	400 kV Vapi-II	400/220	1000
14.	400 kV SSP	400/220	630
15.	400 kV Hazira	400/220	1000
16.	400 kV Gandhar	400/220	1000
17.	400 kV APL Mundra	400/220	630
18.	765 kV Khavda PS 1 (KPS1)	765/400	4500
Total			44225

The power map of Gujarat depicting all existing inter-state and intra-state substations and associated transmission lines (400 kV and above voltage level) is given at **Annex-I**.

1.3 Constraints in Transmission System of Gujarat

There are many transmission lines in Gujarat which are ‘N-1’ non-compliant in certain scenarios. There is a need to plan adequate transmission system to mitigate the existing transmission constraints. Also, several planned intra-state transmission elements are delayed, leading to the elements being ‘N-1’ non-compliant.

The major ‘N-1’ non-compliant transmission elements at present as per the information provided by Grid-India are given below:

1.3.1 The list of ‘N-1’ non-compliant InSTS elements are given in Table 1.7.

Table 1.7: List of ‘N-1’ non-compliant InSTS elements

Sl. No.	List of ‘N-1’ non-compliant transmission elements	Remedial Measures	Status
(i)	400 kV SSP-Asoj S/c line	Bypassing of 400 kV SSP-Asoj S/c line and 400 kV Asoj –Chorania line is proposed	Under Construction
(ii)	400 kV GPEC-Kasor S/c line	Collapsed tower of 400 kV Pachcham - Kosamba S/c line needs to be restored	Restoration work is going on
(iii)	400 kV Asoj-Kosamba S/c line	Collapsed tower of 400 kV Pachcham - Kosamba S/c line needs to be restored	Restoration work is going on
(iv)	220 kV Amerli-Sawarkundla D/c line	With the commissioning of proposed RE generations at Sawarkundla, it would be resolved	Reconductoring of the line is proposed
(v)	220 kV Ukai-Mota D/c line	765/400/220 kV Navsari New S/s has been planned	Under Construction
(vi)	220 kV Navsari (PG)-Navsari (Gujarat) D/c line	765/400/220 kV Navsari New S/s has been planned	Under Construction
(vii)	400 kV Navsari (PG) -Vav S/c line	765/400/220 kV Navsari New S/s has been planned	Under Construction
(viii)	2x315 MVA Mansar (Halvad) ICTs	1x500 MVA, 400/220 kV ICT (3 rd) is planned	To be awarded

1.3.2 The list of ‘N-1’ non-compliant ISTS elements are given in Table 1.8.

Table 1.8: List of ‘N-1’ non-compliant ISTS elements

Sl. No.	List of 'N-1' non-compliant transmission elements	Remedial Measures	Status
(i)	400 kV Pirana (PG)-Pirana D/c line	LILO of Pirana (PG) – Pirana (T) 400 kV D/c line at 765/400 kV Ahmedabad S/s along with reconductoring of Pirana (PG) – Pirana (T) 400 kV D/c line	Under Construction. SCoD: June, 2025
(ii)	400 kV Banaskantha-Kansari (Zerda) S/c line	Commissioning of Banaskantha - Veloda (2 nd) D/c line (ISTS) and commissioning of 400/220 kV Prantij S/s (Intra-State) along with associated transmission system	(i) Banaskantha-Veloda (2 nd) D/c line (ISTS)- Commissioned; (ii) 400/220 kV Prantij S/s (InSTS) along with associated transmission system (InSTS)- Under Construction: SCoD: March, 2027
(iii)	400 kV Bachau-Varsana D/c line	400 kV Bachau-Varsana D/c line to be kept open	To be opened
(iv)	2x500 MVA EPTCL Hazira ICTs	1x500 MVA (3 rd) ICT is under implementation	Under Construction. SCoD: June, 25

In addition to the above, several 220/66 kV ICTs at different intra-state substations, along with various 220 kV intra-state transmission lines, currently do not comply with 'N-1' criteria. The necessary transmission system strengthening required for 'N-1' compliance are outlined in the subsequent chapters in this report.

Chapter-2

Transmission System Requirement by 2026-27

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

2.1.1 Scope of Load flow studies:

System studies for the resource adequacy plan for Gujarat's InSTS have been carried out using the 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

The load flow studies have been carried out for the year 2026-27 for peak load scenario that occurs during summer season in the month of June/ July. Since solar generation peaks during the day and goes to zero in the evening, both the scenarios i.e. afternoon (solar peak generation scenario) and evening (no solar generation scenario) have been studied for summer season for preparation of the RA plan. Also, February afternoon scenario (high solar generation) has been studied due to highest export from NR (Rajasthan) in this scenario.

2.1.2 Assumptions in the studies

- (i) The availability factor of the generators located in Gujarat state has been considered as given in Table 2.1:

Table 2.1: Availability factor considered for the generators located in Gujarat

	Gas	Nuclear	Hydro	PSP	Solar	Wind	Small Hydro
June Afternoon	0 %	80 %	20 %	-110 %	90 %	50 %	20 %
June Evening	30 %	80 %	60 %	90 %	0 %	70 %	60 %
February Solar	0 %	80 %	30 %	-110 %	90 %	10 %	30 %

- (ii) The dispatch from coal/lignite based thermal power plants has been considered as 80% in evening scenario and 40 % in afternoon scenario (peak solar generation). The dispatch from the coal based thermal power plants have been adjusted between 40 – 80 % based on the requirement of load generation balance.

- (iii) Electricity demand has been considered as per the revised 20th EPS projections.
- (iv) The total demand of state has been taken by adding the projected peak demand of each sub-station and then normalizing it to the total peak demand of state as per the revised 20th EPS.

2.1.3 Transmission Planning Guidelines

- (i) 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.
- (ii) 'N-1' criterion has been considered for providing reliable power supply to the consumers.
- (iii) Transformation capacity of any single load serving sub-station at 220 kV and 400 kV levels has been considered to be limited to 1000 MVA and 2500 MVA respectively as per the Manual on Transmission Planning Criteria of CEA (2023). Also, Transformation capacity of any single generation pooling sub-station at 220 kV and 400 kV levels has been considered to be limited to 1000 MVA and 5000 MVA respectively as per the Manual on Transmission Planning Criteria of CEA (2023).
- (iv) Due to RoW constraints, re-conductoring of the existing 220 kV transmission lines with higher capacity conductors like HTLS (High Temperature Low Sag), having an ampacity more than double that of Zebra conductor has been considered to increase capacity of the lines to meet the system requirement.
- (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 Likely Installed Capacity and projected peak electricity demand by 2026-27:

Gujarat is blessed with abundant renewable energy (RE) sources due to its geographical location, climate, and other factors. State receives abundant sunlight throughout the year, which makes it an ideal location for solar power generation. The state has a long coastline of 1,600 km which makes it a favorable location for wind power generation. Overall,

Gujarat's favorable climate and natural resources have enabled it to become one of the leading states in India in terms of renewable energy.

Likely Installed Generation Capacity considered in Gujarat by 2026-27 for planning of transmission system is given in Table 2.2 and depicted in Fig. 2.1.

Table 2.2: Likely Installed Generation Capacity considered in Gujarat by 2026-27

(All figures in MW)

Coal	Gas	Hydro	PSP	Nuclear	Wind	Solar	Biomass	Small Hydro	Total (MW)
16092	7551	550	1440	1840	31647	37357	131	95	96703

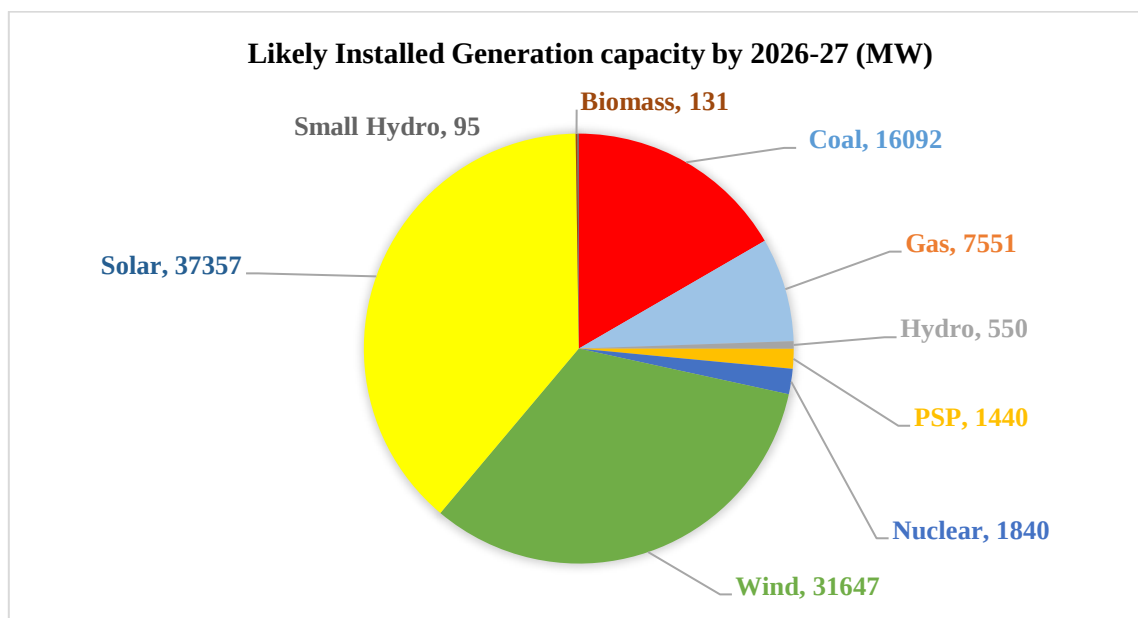


Fig. 2.1: Likely Installed Generation capacity by 2026-27 (MW)

Peak electricity demand of Gujarat in 2026-27 as per revised 20th EPS projections is 29,865 MW. The peak electricity demand of Gujarat from 2022-23 to 2026-27 as per revised 20th EPS projections / actual observed is given in Table 2.3 and depicted in Fig. 2.2.

Table 2.3: Peak electricity demand of Gujarat

Sl. No.	Year	Peak electricity demand (MW)
1	2022-23 (Actual)	21,464
2	2023-24 (Actual)	24,829
3	2024-25 (Actual)	25,588
4	2025-26 (Projection)	27,672
5	2026-27 (Projection)	29,865

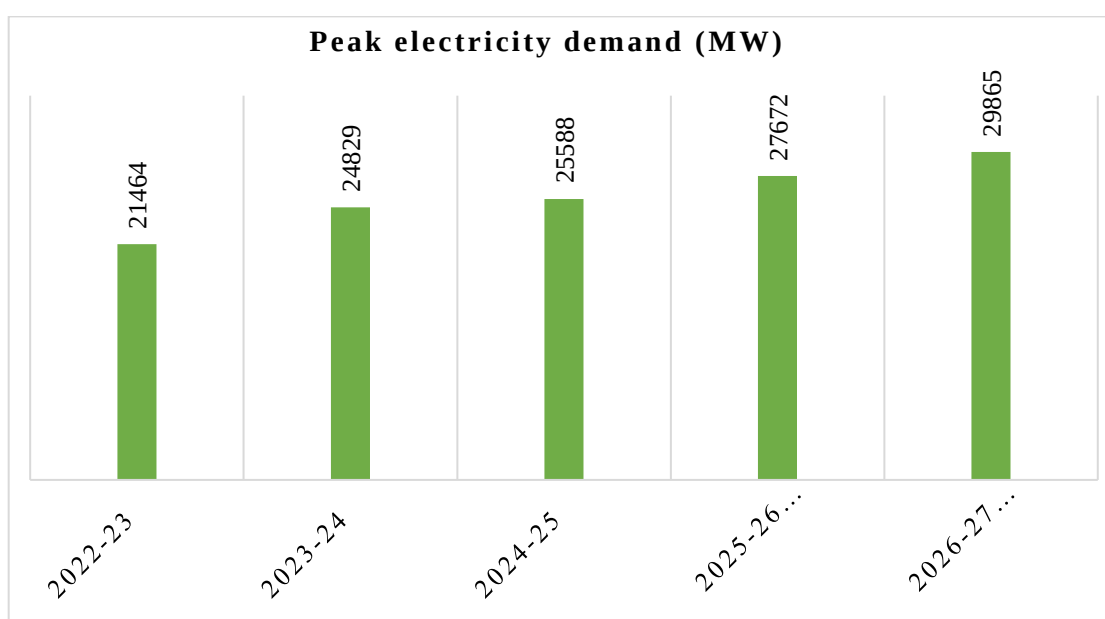


Fig. 2.2: Peak electricity demand

2.3 Load flow studies for the year 2026-27:

- (i) Load flow studies have been carried out for the peak electricity demand scenario (in Gujarat) which occurs during summer season in the month of June/ July. Also, February afternoon scenario (high solar generation) has been studied due to highest export from NR to WR in this scenario.
- (ii) For the load flow studies, the transmission elements (new lines/ reconductoring of the existing lines and new substations/ ICT augmentations) already planned by GETCO to be added by 2026-27 have been considered. Similarly, the ISTS network planned to be added by 2026-27 have also been considered.

(iii) The list of 400 kV S/s (new / augmentation proposed at existing substations) planned to be implemented by 2026-27 under Intra -State Transmission system (In-STs) are given in Table 2.4.

Table 2.4: List of 400 kV S/s planned to be implemented by 2026-27 under Intra -State Transmission system (In-STs)

Sl. No.	Name of sub-station	Voltage (kV)	Transformation Capacity addition (MVA)	Status
1.	Ukai TPS 400 kV S/s	400/220	1000	Under Construction
2.	Kalavad 400 kV S/s	400/220	1000	Under Construction
3.	Prantij 400 kV S/s	400/220	1000	Under Construction
4.	Shivlakha 400 kV S/s	400/220	1000	Under Construction
5.	Dholera 400 kV S/s	400/220	1500	Under Construction
6.	Saykha 400 kV S/s	400/220	1500	Planned
7.	Upgradation of Babarzar substation to 400 kV level (GIS)	400/220	1000	Under Construction
8.	400/220 kV ICT augmentation at Veloda 400 kV S/s	400/220	500	Planned
9.	400/220 kV ICT augmentation at Zerda (Kansari) 400 kV S/s	400/220	500	Under Construction
10.	Replacement of 315 MVA ICT by 500 MVA ICT at Jetpur 400 kV S/s	400/220	185	Planned
11.	400/220 kV ICT augmentation at Asoj 400 kV S/s	400/220	500	Planned
12.	400/220 kV Nana Pondha (Chikhli) S/s	400/220	1000	Planned
Total			10685	

(iv) The list of 765 kV and 400 kV S/s (new/augmentation proposed at existing substations) planned to be implemented upto 2026-27 under ISTS have been considered and are given in Table 2.5.

Table 2.5: List of 765 kV and 400 kV S/s planned to be implemented upto 2026-27 under ISTS

Sl. No.	Name of sub-station	Voltage (kV)	Transformation Capacity augmentation (MVA)	Status
1.	ICT Augmentation at Bhuj-II S/s	765/400	5,500	3000 MVA (existing) 5500 MVA (Under Construction) SCoD: Dec, 2026
2.	ICT Augmentation at KPS1	765/400	9,000	4500 MVA (existing) 9000 MVA (Under Construction) SCoD: Feb, 2027
3.	KPS2	765/400	13,500	Under Construction SCoD: Feb, 2027
4.	KPS3	765/400	12,000	Under Construction SCoD: Nov, 2026
5.	765 kV Switching station at Halvad	765	0	Under Construction SCoD: Dec, 2025
6.	765 kV Switching station at Halvad	765	0	Under Construction SCoD: Dec, 2025
7.	Jamnagar S/s	765/400	3,000	Under Construction SCoD: Oct, 2026
8.	Raghanesda S/s	765/400	4,500	Under Construction SCoD: March, 2027
9.	Ahmedabad S/s	765/400	4,500	Under Construction SCoD: March, 2025
10.	South Olpad (Near Surat) S/s	765/400	4,000	Under Construction SCoD: Oct, 2026
11.	Navsari (New) S/s	765/400	6,000	Under Construction SCoD: Dec, 2025
12.	Navinal S/s	765/400	9,000	Under Construction SCoD: March, 2027
13.	Kandla S/s	765/400	4,500	Under Construction SCoD: March, 2027
14.	ICT augmentation at Lakadia	765/400	5,500	3000 MVA (existing) 5500 MVA (Under Construction) SCoD: Dec, 2026
15.	ICT augmentation at Jam Khambhalia S/s	400/220	2,500	2000 MVA (existing) 2500 MVA (Under Construction) SCoD: July, 2026
16.	ICT augmentation at Banaskantha (Raghanesda) S/s	400/220	1,000	1000 MVA (Existing) 1000 MVA (Under Construction)

Sl. No.	Name of sub-station	Voltage (kV)	Transformation Capacity augmentation (MVA)	Status
				SCoD: March, 2027
17.	ICT augmentation at Bachau S/s	400/220	500	1000 MVA (Existing) 500 MVA (Under Construction) SCoD: April, 2025
18.	ICT augmentation at Vadodara S/s	400/220	500	5500 MVA (Existing) 500 MVA (Under Construction) SCoD: March, 2026
19.	ICT augmentation at Bhuj PS	400/220	500	4500 MVA (Existing) 500 MVA (Under Construction) SCoD: Nov, 2026
Total			86000	

Based on the load flow studies, the transmission schemes under ISTS which needs to be added in Gujarat in the timeframe of 2026-27 including under implementation/already planned ISTS Schemes are given in Table 2.6. All the ISTS Schemes are under construction. Details are attached at **Annex-II**.

Table 2.6: Summary of transmission system planned to be added under ISTS by 2026-27

Inter-State Transmission System	765 kV	400 kV	Total
Transformation Capacity (MVA)	72,000	14,000	86,000
Transmission Line (ckm)	6,351	928	7,279

The transmission schemes under intra-state which need to be added in Gujarat in the timeframe of 2026-27 including under implementation/ already planned InSTS Schemes are given in Table 2.7. Details are attached as **Annex-III**.

Table 2.7: Summary of transmission system planned to be added under InSTS by 2026-27

Intra-State Transmission System	400 kV	220 kV	Total
Transformation Capacity (MVA)	10685	16670	27,355
Transmission Line (ckm)	2278	3337	5,615

Out of the 27,355 MVA transformation capacity planned to be added by 2026-27, 14,370 MVA (7,000 MVA transformation capacity at 400 kV level and 7,370 MVA transformation capacity at 220 kV level) is under construction and 12,985 MVA (3,685 MVA transformation capacity at 400 kV level and 9,300 MVA transformation capacity at 220 kV level) is planned, which needs to be taken up expeditiously for construction.

Similarly, out of 5,615 ckm of transmission lines planned to be added by 2026-27 under InSTS, 5,127 ckm (2,227 ckm at 400 kV level and 2,900 ckm at 220 kV level) of transmission lines are under construction and 488 ckm (51 ckm at 400 kV level and 437 ckm at 220 kV level) of transmission lines are planned, which needs to be taken up expeditiously for construction.

Several transmission elements had been planned to be commissioned by 2024-25 and 2026-27, however, the same are yet to be awarded or delayed. List of such elements are given in Table 2.8.

Table 2.8: Planned transmission elements to be expedited

Sl. No.	Transmission element	Actual schedule	Current schedule
1.	Establishment of 400/220 kV Prantij S/s alongwith Sankhari-Prantij portion of 400 kV Banaskantha – Prantij D/c line (Banaskantha- Sankhari 400 kV portion has been completed)	March, 2025	March, 2027
2.	Establishment of 2x1500 MVA, 765/400 kV Saurashtra substation (near Rajkot)	March, 2027	2027-28 (To be awarded)
3.	765 kV D/C Vataman (ISTS) – Saurashtra line		
4.	400 kV D/C Amreli – Saurashtra line (Utilising the LILO portion of Chorania – Jetpur line)		
5.	400 kV D/C Jetpur – Saurashtra line (Utilising portion of Jetpur – Chorania (one ckt via Hadala) 400kV D/c line)		
6.	220 kV D/C Jam Khambhalia (ISTS) – Kuvadiya line	June, 2026	March, 2027 (To be awarded)
7.	Establishment of 2x500 MVA, 400/220 kV Balethi S/s	2026-27	2027-28 (To be awarded)

2.4 Short Circuit Studies:

Short circuit studies have been done for Gujarat Transmission network for the timeframe of 2026-27. As per the studies, the list of substations in which high fault level has been

observed in the timeframe of 2026-27 is given in **Annex-IV**. To bring the fault level within the design limit, various steps like bus splitting, fault limiting reactor, bypassing of transmission line etc. needs to be implemented by GETCO.

2.5 Summary

The summary of transmission system planned under ISTS to be commissioned by 2026-27 are given in Table 2.9. All the transmission schemes are under construction.

Table 2.9: Summary of transmission system planned under ISTS to be commissioned by 2026-27

Inter-State Transmission System	765 kV	400 kV	Total
Transformation Capacity (MVA)	72,000	14,000	86,000
Transmission Line (ckm)	6,351	928	7,279

The summary of transmission system planned under InSTS to be commissioned by 2026-27 are given in Table 2.8.

Table 2.8: Summary of transmission system planned under InSTS to be commissioned by 2026-27

Intra-State Transmission System	400 kV	220 kV	Total
Transformation Capacity (MVA)	10685	16670	27,355
Transmission Line (ckm)	2278	3337	5,615

Out of the transmission schemes required by 2026-27, 12,985 MVA transformation capacity (3,685 MVA transformation capacity at 400 kV level and 9,300 MVA transformation capacity at 220 kV level) and 488 ckm of transmission lines (51 ckm at 400 kV level and 437 ckm at 220 kV level) are yet to be taken up for implementation. GETCO must expedite the implementation of the planned intra-state transmission schemes.

Chapter-3

Transmission System Requirement by 2034-35

3.1 Load flow studies for preparation of Resource Adequacy of transmission system in Gujarat

3.1.1 Load flow studies:

System studies for the resource adequacy plan for Gujarat'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

The load flow studies have been carried out for 2034-35 for peak load scenario that occurs during summer season in the month of June/ July. Since solar generation peaks during the day and goes to zero in the evening, both the scenarios i.e. afternoon (solar peak generation scenario) and evening (solar off-peak scenario) have been studied for summer season for preparation of the RA plan. Also, February Solar case has been studied due to highest NR export in this scenario.

3.1.2 Assumptions in the studies

- (i) The studies have been carried out 2034-35 timeframe.
- (ii) The availability factor of the generators located in Gujarat state has been considered as given in Table 3.1:

Table 3.1: Availability factor considered for the generators located in Gujarat

	Gas	Nuclear	Hydro	PSP	Solar	Wind	Small Hydro	BESS
June Afternoon	0 %	80 %	20 %	-110 %	90 %	50 %	20 %	-110%
June Evening	30 %	80 %	60 %	90 %	0 %	70 %	60 %	50%
February Solar	0 %	80 %	30 %	-110 %	90 %	10 %	30 %	-110%

The dispatch from coal/lignite based thermal power plants has been taken as 80% in evening scenario and 40% in afternoon scenario. The dispatch from the coal based thermal power plants have been adjusted between 40 – 80 % based on the requirement of load generation balance.

- (iii) Electricity demand has been considered as per the revised 20th EPS projections. Some electricity demand on account of Green Hydrogen/Green Ammonia production has been considered in the revised 20th EPS Report. MNRE has projected peak electricity demand of about 32 GW in Gujarat on account of Green Hydrogen / Green Ammonia production. Assuming that the projected electricity demand will materialize by 2034-35, the projected electricity demand has been modified. Electricity demand on account of Green Hydrogen / Green Ammonia production will be maximum during afternoon (maximum solar generation) scenario. Hence, additional demand on account of Green Hydrogen / Green Ammonia (GH/GA) production has been added to the peak demand of state as both the state demand and GH/GA demand would have to be met in the maximum solar generation scenario.
- (iv) The total demand of state has been considered as the summation of the projected peak demand of each sub-station and then normalizing it to the total peak demand of state as per the revised 20th EPS.

3.2 Likely Installed Capacity and projected electricity demand by 2034-35:

- (i) Thermal capacity of 3,200 MW is planned to be added in Gujarat during the period 2028-35 as given in Table 3.2.

Table 3.2
Additional thermal generation considered in Gujarat during the period 2027-28 to 2034-35

Sl. No.	Thermal Power Station	Likely Capacity addition (MW)	Implementing Agency	Pithead/ non-pithead
1.	Ukai TPS	2x800	GSECL	Non- Pithead
2.	Gandhinagar TPS	1x800	GSECL	Non- Pithead
3.	Sikka TPS	1x800	GSECL	Non- Pithead

Further, around 30 GW of wind generation capacity and 53 GW of solar generation capacity have also been planned to be added in Gujarat along with 10 GW of Battery Energy Storage system (BESS).

Likely Installed Generation Capacity considered in Gujarat by the year 2034-35 for planning of transmission system is given in Table 3.3 and depicted in Fig. 3.1:

Table 3.3: Likely Installed Generation Capacity by 2034-35 in Gujarat

(figures in MW)

Coal	Gas	Hydro	PSP	Nuclear	Wind	Solar	Biomass	Small Hydro	Total	BESS
19292	7551	550	1440	1840	61581	90383	131	95	182863	10000

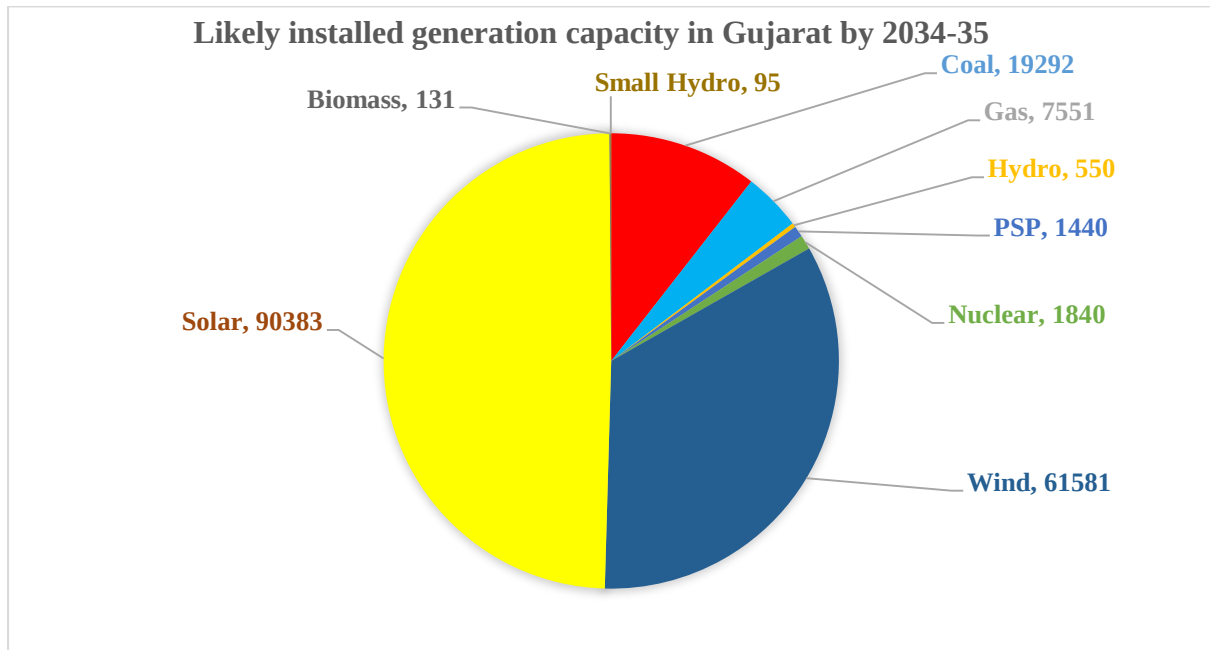


Fig. 3.1 Likely installed capacity in Gujarat by 2034-35

Out of total Wind and Solar generation capacity of about 152 GW, about 89 GW would be connected to ISTS and the remaining 63 GW would be connected to InSTS network.

- (ii) Peak electricity demand of Gujarat in 2034-35 as per revised 20th EPS projections is 56,345 MW. The year-wise projected demand of Gujarat is given in Table 3.4.

Table 3.4

Peak electricity demand of Gujarat as per revised 20th EPS projections

Sl. No.	Year	Projected peak electricity demand (MW)
1.	2027-28	31,904
2.	2028-29	34,706
3.	2029-30	37,786
4.	2030-31	40,873
5.	2031-32	45,801
6.	2032-33	49,242
7.	2033-34	52,831
8.	2034-35	56,345

Some electricity demand on account of Green Hydrogen/Green Ammonia production has already been considered in revised 20th EPS Projections. MNRE had projected peak electricity demand of about 32 GW in Gujarat by 2034-35. As per discussions with Green Hydrogen/Green Ammonia manufacturers, electricity demand on account of Green Hydrogen/Green Ammonia production would be maximum during solar generation hours. Considering that the projected electricity demand on account of Green Hydrogen/Green Ammonia production would materialize by 2034-35, peak electricity demand of the state would be about 70,378 MW in 2034-35 (during maximum solar generation hours).

3.3 Load flow studies for the year 2034-35:

- (i) The load flow studies have been carried out for the peak electricity demand scenario which occurs during summer season in the month of June/ July. Also, February afternoon scenario (high solar generation) has also been studied due to highest export from NR (Rajasthan) in this scenario.
- (ii) For the studies of peak demand scenario of 2034-35, the transmission elements (new lines/ reconductoring of the existing lines and new substations/ ICT augmentations) already planned by GETCO to be added by 2034-35 have been considered.
- (iii) Based on the load flow studies, the list of 765 kV and 400 kV S/s required by 2034-35 under ISTS in Gujarat is given in Table 3.5.

Table 3.5: List of 765 kV and 400 kV S/s planned to be commissioned by 2034-35 under ISTS

Sl. No.	Name of sub-station	Voltage (kV)	Transformation Capacity (MVA)	Status
1.	Creation of 400 kV level at Vataman S/s	765/400	6000	3000 MVA (UC, likely commissioning by 2027-28) 3000 MVA (Planned)
2.	Kalyanpur	765/400	9500	Planned
3.	Lakadia-II	765/400/220	14000	Planned
4.	KPS4	765/400	12000	Planned
5.	KPS5	765/400	6000	Planned
6.	Kandla	765/400	3000	4500 MVA (UC, likely commissioning by 2026-27) 3000 MVA (Planned)
7.	Navinal-II	765/400	9000	Planned
8.	Navinal-III	765/400	9000	Planned
9.	Navinal-IV	765/400	4500	Planned
10.	Kandla-II	765/400	9000	Planned
11.	Raghanesda-I	765/400	1500	4500 MVA (UC, likely commissioning by 2026-27) 1500 MVA (Planned)
12.	Raghanesda-II	765/400	7500	Planned
13.	Augmentation of 400/220 kV ICTs at Jamnagar	400/220	1500	Planned
14.	Augmentation of 765/400 kV ICT at Bhuj-II	765/400	1500	Planned
15.	Augmentation of 765/400 kV ICT at South Olpad	765/400	1500	Planned
16.	Augmentation of 765/400 kV ICT at Lakadia	765/400	1500	Planned
17.	Mahuva PS	400/220	4500	1000 MVA (UC, likely commissioning by 2029-30) 3500 MVA (Planned)
18.	Ubhrat PS	400/220	2000	Planned

Sl. No.	Name of sub-station	Voltage (kV)	Transformation Capacity (MVA)	Status
Total			103500	

Details of transmission schemes under ISTS which needs to be added in Gujarat in the timeframe of 2034-35 including under implementation/ already planned ISTS Schemes are given in **Annex-V**.

- (iv) GETCO has introduced 765 kV as a new voltage level in their intra-state transmission system. The list of 765 kV and 400 kV S/s planned to be commissioned by 2034-35 under In-STS is given in Table 3.6.

Table 3.6

List of 765 kV and 400 kV S/s planned to be commissioned by 2034-35 under Intra State

Sl. No.	Name of sub-station	Voltage (kV)	Capacity (MVA)	Status
1.	Gela Somnath	765/400	3000	Under Tendering
2.	Kutch PS-1	765/400	8000	Planned
3.	Kutch PS-2	765/400	4500	Planned
4.	Bagodara PS	765/400	4000	Planned
5.	Near Palanpur	765/400	3000	Planned
6.	Near Morbi	765/400	3000	Planned
7.	Radhanesda-II PS (GJ)	765/400	6000	Planned
8.	Near Vadodara (Sevasi)	765/400	3000	Planned
9.	Jamnagar PS-1	765/400	5000	Planned
10.	Jamnagar PS-2	765/400	6500	Planned
11.	Near Surat PS	765/400	6000	Planned
12.	Amreli (PS)	765/400	4500	Planned
13.	765 kV Saykha	765/400	3000	Planned
14.	765 kV Fedra	765/400	3000	Planned
15.	Kutch PS-3	400/220	2000	Planned
16.	Nagalpar	400/220	1000	Planned
17.	Near Vadodara (Sevasi)	400/220	1000	Planned
18.	Amreli PS	400/220	1000	Planned
19.	Gadhsisa	400/220	1000	Planned
20.	South Gujarat PS, Surat	400/220	1000	Planned
21.	Radhanesda-II PS (GJ)	400/220	2000	Planned
22.	Keshod	400/220	1000	Planned

Sl. No.	Name of sub-station	Voltage (kV)	Capacity (MVA)	Status
23.	Balethi	400/220	1000	Planned
24.	Mansar	400/220	500	Planned
25.	Pipavav	400/220	1000	Planned
26.	Bharuch (PS)	400/220	1500	Planned
27.	Deodar	400/220	1000	Planned
28.	Botad (PS)	400/220	2000	Planned
29.	Dahod (PS)	400/220	1500	Planned
30.	Surendranagar (PS)	400/220	1500	Planned
31.	Paneli	400/220	1000	Planned
32.	Dwarka PS	400/220	2000	Planned
33.	Hajipir PS	400/220	2000	Planned
34.	Sami PS	400/220	1500	Planned
35.	Mujpur	400/220	1000	Planned
36.	Banaskantha PS	400/220	1500	Planned
37.	Bhavnagar PS	400/220	2000	Planned
Total			93500	

The transmission schemes under intra-state which need to be added in Gujarat in the timeframe of 2034-35 including under implementation/ already planned InSTS Schemes are attached as **Annex-VI**.

Adequate reactive compensation including dynamic reactive compensation has been planned in ISTS network. While planning of intra-state network, 1x330 MVA_r, 765 kV Bus reactor and 1x125 MVA_r, 420 kV Bus reactor have been considered at every new intra-state Sub-station. Line reactors have also been considered in the transmission lines, as per requirement. To provide dynamic reactive power compensation, STATCOMs have been planned by GETCO in the intra-state substations like Kutch PS-1, Bagodara, Saykha, Jamnagar PS-1, Raghanesda PS.

3.4 Short Circuit Studies:

Short circuit studies have been done for Gujarat Transmission network for the timeframe of 2034-35. As per the studies, the list of substations in which high fault level has been observed in the timeframe of 2034-35 is given in **Annex-VII**. To bring the fault level within design limit, various steps like bus splitting, fault limiting reactor, bypassing of transmission line etc. needs to be implemented by GETCO.

3.5 Summary

The summary of transmission system planned under ISTS to be commissioned during 2027-28 to 2029-30 are given in Table 3.7.

Table 3.7: Summary of transmission system planned under ISTS to be commissioned during 2027-28 to 2029-30

Inter-State Transmission System	HVDC	765 kV	400 kV	220 kV
Transformation Capacity (MVA) / HVDC (MW)	8,500	54,000	11,000	630
Transmission Line (ckm)	4,300	3,338	384	70

The summary of transmission system planned under InSTS to be commissioned during 2027-28 to 2029-30 are given in Table 3.8.

Table 3.8: Summary of transmission system planned under InSTS to be commissioned during 2027-28 to 2029-30

Intra-State Transmission System	765 kV	400 kV	220 kV
Transformation Capacity (MVA)	36,000	24,500	10,380
Transmission Line (ckm)	4,240	5,510	4,173

The Summary of transmission system planned under ISTS to be commissioned during 2030-31 to 2034-35 are given in Table 3.9.

Table 3.9: Details of transmission system planned under ISTS to be commissioned during 2030-31 to 2034-35

Inter-State Transmission System	HVDC	765 kV	400 kV	220 kV
Transformation Capacity (MVA)/ HVDC (MW)	6,000	33,000	5,500	1890
Transmission Line (ckm)	1,600	2,180	210	477

The details of transmission system planned under InSTS to be commissioned during 2030-31 to 2034-35 are given in Table 3.10.

Table 3.10 Details of transmission system planned under InSTS to be commissioned during 2030-31 to 2034-35

Intra-State Transmission System	765 kV	400 kV	220 kV
Transformation Capacity (MVA)	19,000	14,000	4,480
Transmission Line (ckm)	1,880	1,340	1,848

The power map of Gujarat depicting all existing, under construction and planned inter-state and intra-state substations and associated transmission lines (400 kV and above voltage level) is given at **Annex-VIII**

Chapter-4

Transmission Plan for Major Cities in Gujarat and Green Hydrogen Hubs

4.1 Transmission Planning for major cities in Gujarat:

Gujarat, a vibrant state in western India, has several major cities. The state is home to several large industries, including textile, chemical, petrochemical, engineering, and cement, all of which have high electricity requirements. Therefore, it is essential to plan the transmission network for the Cities which are growing at a rapid rate as state's commercial and industrial hub.

4.1.1 Ahmedabad and Gandhinagar

Ahmedabad the largest city in Gujarat, is also the state's commercial and industrial hub. Currently, Ahmedabad and Gandhinagar are getting feed from following 400 kV sub-stations:

- 400 kV Pirana (PG) (ISTS)
- 400 kV Pirana (TP) (InSTS)
- 400 kV Nicol (InSTS)
- 400 kV Sanand (InSTS)
- 400 kV Dehgam (ISTS)
- 400 kV Vadavi (InSTS)

In addition, 765/400 kV Ahmedabad S/s (SCoD: June, 2025) is under implementation (ISTS) to further strengthen the supply in Ahmedabad and Gandhinagar.

4.1.2 Vadodara

Vadodara is an important center for education, culture, and industry. It has a significant growing electricity demand due to chemical and petroleum industries. Currently, Vadodara is getting feed from following 765 kV and 400 kV sub-stations:

- 765 kV Vadodara (ISTS)
- 400 kV Asoj (InSTS)
- 400 kV Kasor (InSTS)

In addition, 765/400 kV Near Vadodara S/s (SCoD: 2028-29) and 400/220 kV Sevasi S/s (SCoD: 2027-28) have been considered under intra-state to further strengthen the electricity supply in Vadodara.

4.1.3 Surat

Surat is one of the fastest-growing cities in India. Surat is known for its diamond cutting industry and textile industry. Currently, Surat area is getting feed from following 400 kV sub-stations:

- 400 kV Navsari (ISTS)
- 400 kV Vav (InSTS)
- 400 kV Kosamba (InSTS)

In addition, 765/400/220 kV Navsari New S/s (SCoD: June, 2025) and 765/400/220 kV South Olpad S/s (SCoD: Oct, 2026) have been planned under ISTS and 765 kV S/s near Surat has been planned under InSTS to further strengthen the supply in Surat area.

4.2 Transmission Plan to meet the electricity demand of Green Hydrogen / Green Ammonia (GH/GA) Manufacturing Hubs in Gujarat

4.2.1 Background:

Gujarat has the advantage of big coastline and availability of water along with several ports to facilitate the export of Green Hydrogen. In the initial stage, two potential sites have been identified for the development of Green Hydrogen/Green Ammonia manufacturing hubs viz Mundra area and Kandla area in Gujarat.

4.2.2 Demand Projection for Green Hydrogen/Green Ammonia manufacturing hubs In Gujarat:

As per MNRE, the peak electricity demand on account of Green Hydrogen / Green Ammonia production would be 32,290 MW in Gujarat. The transmission system to meet the demand of Green Hydrogen / Green Ammonia production has been planned and is being implemented in phases based on the actual progress of green hydrogen/green ammonia production hubs. The details of the phase wise transmission system planned is given in Table 4.1.

Table 4.1: Details of the phase wise transmission plan to meet the demand of Green Hydrogen / Green Ammonia production

Sl. No.	Location	Projected demand (GW)	Cumulative Transmission system planned under various phases to meet the GH/GA demand of (GW)
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			Phase-I	Phase-II	Phase-III	Phase-IV
1.	Mundra Port	22	4.5	12	19.5	22
2.	Kandla Port	10.29	3	6	10.29	10.29

4.2.3 Transmission plan to meet the electricity demand of Green Hydrogen / Green Ammonia Hubs in Mundra, Gujarat

As per the MNRE's projections, the total electricity demand due to Green Hydrogen/Green Ammonia is 22 GW at Mundra. The implementation of the transmission schemes to meet this demand is being done in phase wise manner. Transmission schemes to meet the 4.5 GW GH/GA demand at Mundra is currently under implementation. Transmission schemes to meet the subsequent demand upto 22 GW has also been planned and would be implemented in phases based on the actual progress of GH/GA manufacturing projects. The detailed transmission plan to meet the demand of GH/GA production in Mundra, Gujarat, is given in Table 4.2 and is depicted in Fig. 4.1.

Table 4.2: Transmission system for supply of power to GH/GA production hub at Mundra

Transmission Scheme /details	Present Status	Anticipated Commissioning
Network Expansion Scheme in Navinal (Mundra) area of Gujarat for drawal of power in the area (including 1.5 GW of Green Hydrogen load in Navinal (Mundra) under Phase-I: Part A		
Establishment of 4x1500 MVA, 765/400 kV Navinal (Mundra) (GIS) S/s with 2x330 MVA, 765 kV & 1x125 MVA, 420 kV bus reactors	UC	2026-27
LILO of Bhuj-II – Lakadia 765 kV D/c line at Navinal (Mundra) (GIS) S/s	UC	2026-27
Installation of 1x330 MVA switchable line reactor on each ckt at Navinal end of Lakadia – Navinal 765 kV D/c line (formed after above LILO)	UC	2026-27
Transmission System for supply of power to Green Hydrogen/Green Ammonia manufacturing hub potential in Mundra area of Gujarat under Phase-I: Part B scheme (3 GW at Navinal S/s)		
Augmentation of ICTs by 2x1500 MVA at Navinal (Mundra) 765/400 kV GIS S/s	UC	2026-27
Navinal (Mundra) – Bhuj 765 kV D/c line	UC	2026-27
Transmission System for supply of power to Green Hydrogen/Green Ammonia manufacturing hub in Mundra, Gujarat, Phase-II (7.5 GW)		

Transmission Scheme /details	Present Status	Anticipated Commissioning
Establishment of 6x1500 MVA, 765/400 kV Navinal-II S/s (GIS) along with 2x330 MVar (765 kV) & 1x125 MVar (400 kV) Bus reactors	Planned	2028-29
Navinal-II (Mundra)– Bhuj-II 765 kV D/c line	Planned	2028-29
LILO of KPS2 – Lakadia 765 kV D/c line at Navinal-II S/s	Planned	2028-29
Transmission System for supply of power to Green Hydrogen/ Green Ammonia manufacturing hub in Mundra, Gujarat, under Phase-III (7.5 GW)		
Establishment of 6x1500 MVA, 765/400 kV Navinal-III S/s (GIS) along with 2x330 MVar (765 kV) & 1x125 MVar (400 kV) Bus reactors	Planned	2030-31
LILO of KPS3 – Lakadia 765 kV D/c line at Navinal-III S/s	Planned	2030-31
Lakadia -II –Navinal III 765 kV D/c line	Planned	2030-31
Transmission System for supply of power to Green Hydrogen/ Green Ammonia manufacturing hub in Mundra, Gujarat, under Phase-IV (2.5 GW)		
Establishment of 3x1500 MVA, 765/400 kV Navinal-IV S/s (GIS) along with 2x330 MVar (765 kV) & 1x125 MVar (400 kV) Bus reactors	Planned	2031-32
LILO of Bhuj – Bhuj-II 765 kV D/c line at Navinal-IV	Planned	2031-32

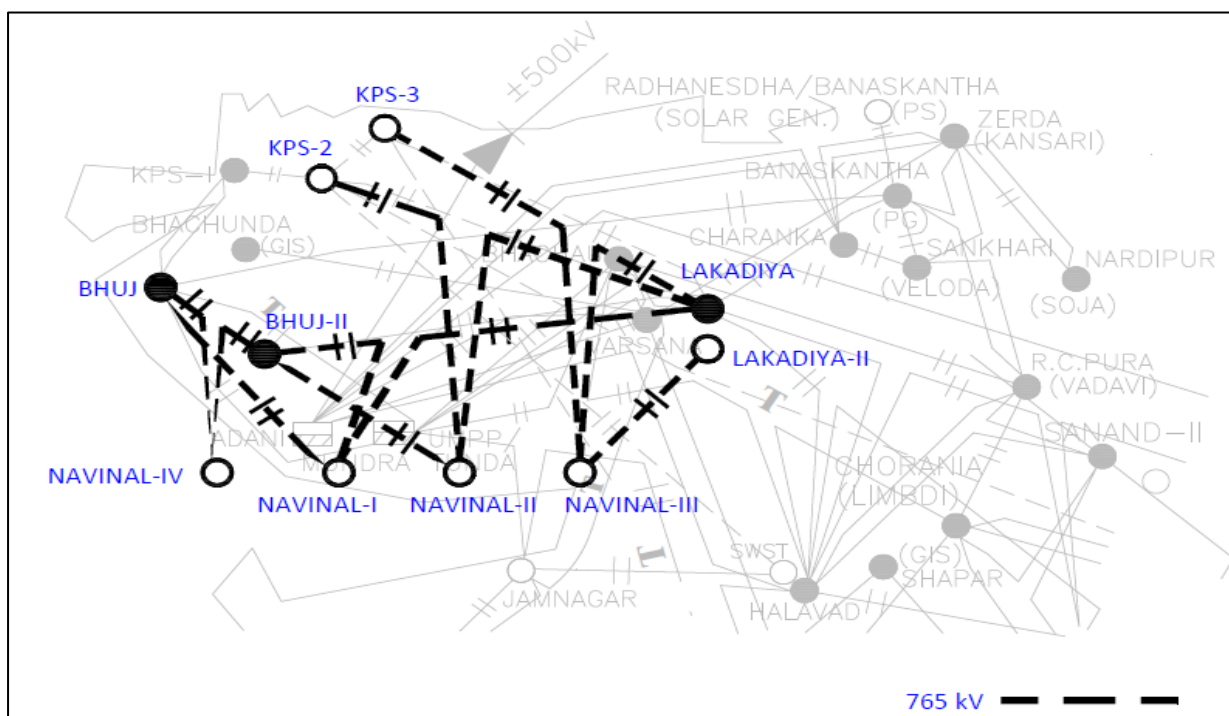


Fig. 4.1: Transmission system to meet the GH/GA demand at Mundra (Navinal)

4.2.4 Transmission plan to meet the electricity demand of Green Hydrogen / Green Ammonia Hubs at Kandla

As per the MNRE's projections, the total electricity demand due to Green Hydrogen / Green Ammonia production at Kandla is 10.29 GW. Transmission schemes to meet 3 GW electricity demand on account of GH/GA production is currently under implementation. The transmission schemes to meet the subsequent demand upto 10.29 GW has also been planned and would be implemented in phased manner based on the actual progress of GH/GA manufacturing. The detailed plan to meet the demand of GH/GA in Kandla, Gujarat is given in Table 4.3 and is depicted in Fig. 4.2.

Table 4.3

Transmission plan to meet the electricity demand of GH/GA production at Kandla

Transmission Scheme /details	Voltage (kV)	Present Status	Anticipated Commissioning
Transmission System for supply of power to Green Hydrogen/Green Ammonia manufacturing hub in Kandla area of Gujarat (Phase-I: 3 GW)			
Establishment of 3x1500 MVA, 765/400 kV Kandla S/s along with 1x330 MVar (765 kV) & 1x125 MVar (420 kV) Bus reactor	765/400	UC	2026-27
Halvad – Kandla 765 kV D/c line alongwith 330 MVar line reactor on both circuits at Kandla end	765	UC	2026-27
Transmission System for evacuation of Green Hydrogen/Ammonia potential in Kandla area of Gujarat (Phase-II: 3 GW) and 1.5 GW RE power evacuation from Raghnesda Phase-II			
Augmentation of transformation capacity by 2x1500 MVA, 765/400 kV ICTs at Kandla S/s along with 1x330 MVar (765 kV) & 1x125 MVar (400 kV) Bus reactor	765/400	Planned	2028-29
Augmentation of Transformation capacity by 1x1500MVA, 765/400 kV ICT at Raghnesda PS (Raghnesda-I)	765/400	Planned	2028-29
Radhanesda-I - Kandla-I 765 kV D/c line	765	Planned	2028-29
Transmission System for evacuation of Green Hydrogen/Ammonia potential in Kandla area of Gujarat (Phase-III: 4.5 GW) and 6 GW RE power evacuation from Raghnesda Phase-III			
Establishment of 4x1500 MVA, 765/400 kV Kandla-II S/s along with 2x330 MVar (765 kV) & 2x125 MVar (420 kV) Bus reactor	765/400	Planned	2030-31
Establishment of 5x1500MVA, 765/400 kV Raghnesda-II S/s along with 2x330 MVar (765 kV) & 2x125 MVar (400 kV) Bus reactor	765/400	Planned	2030-31

Transmission Scheme /details	Voltage (kV)	Present Status	Anticipated Commissioning
LILO of KPS5 – Lakadia-II 765 kV D/c line at Kandla-II	765	Planned	2030-31
Radhanesda-II - Kandla-II 765 kV D/c line	765	Planned	2030-31
Radhanesda-I - Radhanesda-II 765 kV D/c line	765	Planned	2030-31
Kandla-I - Kandla-II 765 kV D/c line	765	Planned	2030-31
Ahmedabad – Indore 765 kV D/c line	765	Planned	2030-31

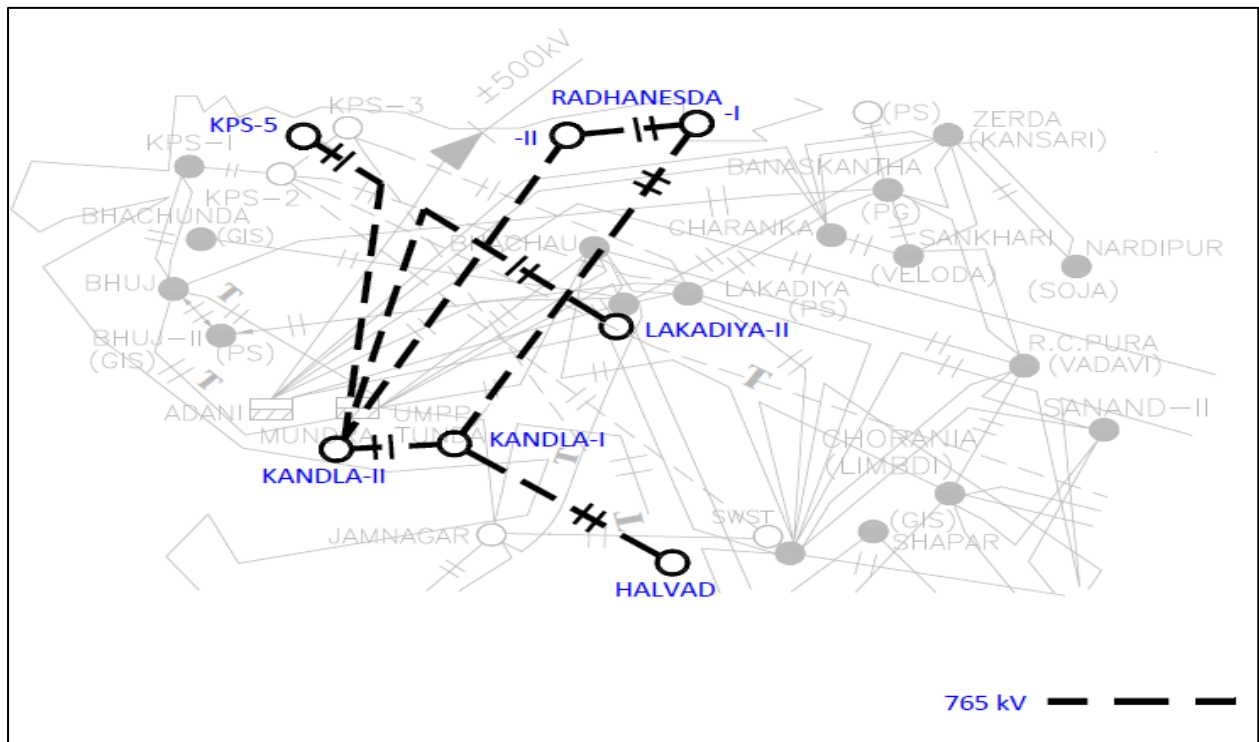


Fig. 4.2: Transmission system to meet the GH/GA demand at Kandla Port

Chapter-5

Transmission Plan for Renewable Energy Generation Plants in Gujarat

5.1 Introduction:

Gujarat is blessed with a number of renewable energy (RE) sources due to its geographical location, climate, and other natural factors. State receives abundant sunlight throughout the year, which makes it an ideal location for solar power generation. The state has a long coastline of 1,600 km which makes it a favorable location for wind power generation. Overall, Gujarat's favorable climate and natural resources have enabled it to become one of the leading states in India in terms of renewable energy.

5.2 Transmission plan for RE Capacity to be integrated to ISTS network

5.2.1. In December, 2020 Hon'ble Prime Minister laid the foundation stone for world's largest renewable energy park in Gujarat's Kutch. Initially, the capacity of hybrid renewable energy park was planned to be 30 GW. The park is being built along Indo-Pak border at Khavda. The transmission system for evacuation of power from 28 GW RE capacity in Khavda is already under implementation. Transmission system for evacuation of power from 2.5 GW RE capacity is under bidding. The transmission system is being implemented in phases. Some transmission schemes have also been commissioned. Subsequently, land for additional RE potential of 11.5 GW has been identified in Khavda, for which transmission system is being finalized.

The phase wise capacity and status of transmission system is summarized in table given in Table 5.1.

Table 5.1

Status of Transmission system for evacuation of power from Khavda RE Park

Transmission System Phase	Associated RE Capacity (GW)	Status
Phase-I	3	Commissioned
Phase-II	5	Under implementation
Phase-III	7	Under implementation
Phase-IV	7	Under implementation
Phase-V	8	6 GW Under Implementation 2.5 GW Under Bidding

Transmission System Phase	Associated RE Capacity (GW)	Status
Phase -VI	5.5	Planned
Phase -VII	6	Planned
Total (GW)	41.5	

5.2.2. Transmission system has also been planned for other RE potential Zones in Gujarat viz Bhuj, Lakadia, Radhaneshda, Jam Khambhaliya and for off-shore wind farm. The status of ISTS network planned for power evacuation of power from these RE potential zones is given in Table 5.2.

Table 5.2
Status of ISTS network for RE Potential Zones in Gujarat

Sl. No.	RE Potential Zone	Identified RE Potential (GW)	Status of transmission schemes
1.	Bhuj PS	4	3.5 GW - commissioned 0.5 GW - UC
2.	Bhuj-II	5.5	2 GW - Commissioned 2 GW - UC 1.5 GW - Planned
3.	Lakadia	3.5	3.5 GW - UC
4.	Lakadia-II	7.5	7.5 GW - Planned
5.	Jam Khambaliya	3	2 GW - Commissioned 1 GW - UC
6.	Jam Khmbhaliya-II	4.5	4.5 GW - Planned
7.	Radhanesda 400 kV	1.2	0.70-Commissioned 0.50-Under Construction
8.	Bachau	0.65	Commissioned
9.	Radhanesda 765 kV	10.5	3 GW - UC 7.5 - Planned
10.	Jamnagar	2	UC
11.	Offshore Wind	5	0.5 GW – UC 4.5 GW - Planned
	Total (GW)	47.35	

Transmission system for evacuation of power from the RE potential Zones in Gujarat is given in Fig. 5.1.

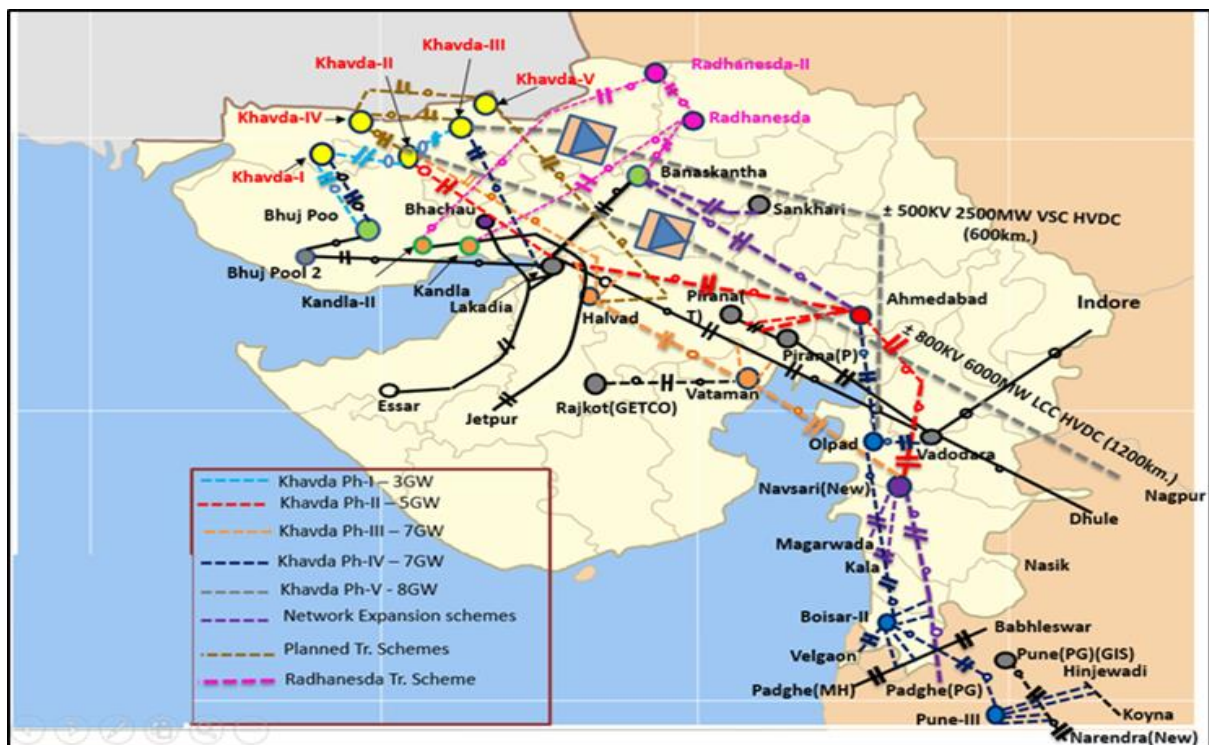


Fig. 5.1: Transmission system for evacuation of RE power in Gujarat

5.2.3. MNRE has identified about 30 GW Offshore wind potential off the coast of Gujarat, out of which 5 GW offshore wind potential has been prioritized to be developed in first phase. The transmission system for integration of offshore wind potential includes establishment of Offshore Pooling Station, submarine cables for integration of Offshore Pooling Station with Onshore Pooling Station and transmission system beyond Onshore Pooling Station. The development of Offshore wind and its associated transmission system is being under taken for the first time in India on such large scale. Transmission system for evacuation of power from off-shore wind farm in Gujarat is shown in Fig. 5.2.

Two onshore pooling stations are planned, one at Mahuva and another at Ubhrat for evacuation of 5 GW offshore wind power. Transmission scheme for 500 MW offshore wind has already been awarded for implementation to POWERGRID, matching with commissioning of offshore wind capacity.

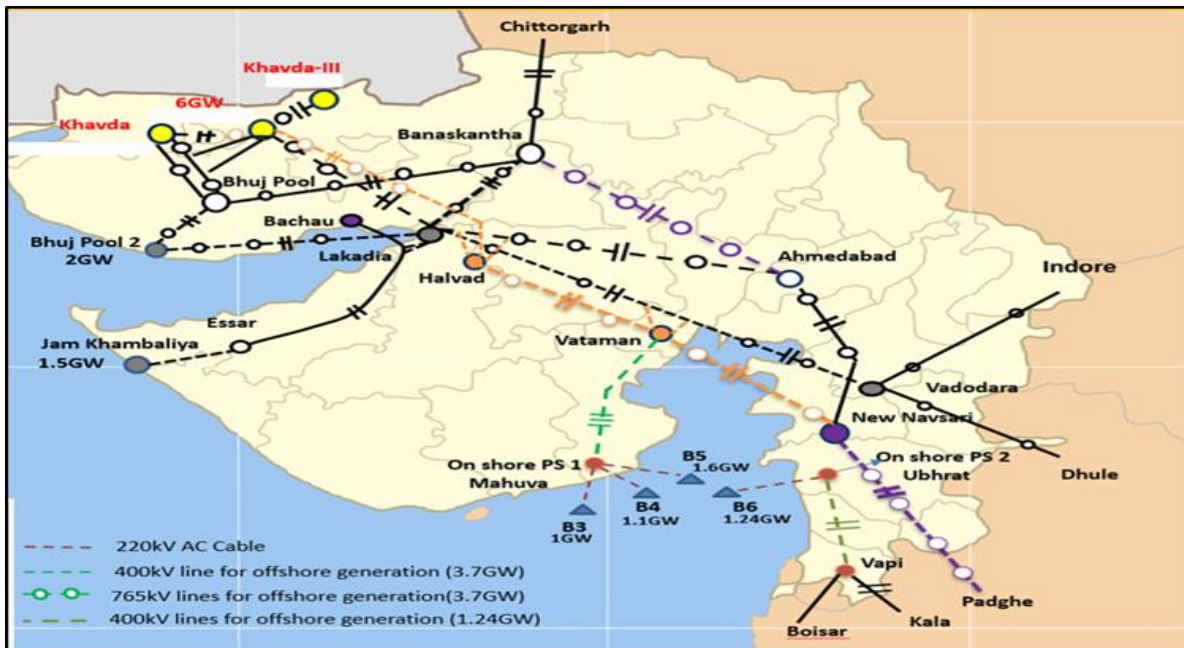


Fig. 5.2: Transmission system for off-shore wind farms in Gujarat

5.3 Transmission plan for RE capacity to be integrated to Intra-state transmission system in Gujarat

Gujarat has planned to establish additional 38 GW of RE power (28 GW Solar + 10 GW Wind) by the year 2034-35. The details of the same along with the planned transmission are given in Table 5.3.

Table 5.3

Intra-State Transmission System associated with RE potential Zones in Gujarat

Sl. No.	RE Capacity (MW)		Location of RE Pooling Project	Immediate inter-connection Point	Location of RE Pooling Project
	Solar	Wind			
1	250	100	Jamnagar	220/66 kV Babarzar, Dist. Jamnagar	Babarzar - Moti Gop 220 kV D/C line
2		300	Devbhumi Dwarka	220/66 kV Kuvadiya, Distt. Jamnagar	i) LILO of one circuit of Bhatia - Kalavad 220 kV D/C line at Kuvadiya ii) Jamkhambhaliya (JKTL-ISTS) - Kuvadiya 220 kV D/C line
3	150	150	Rajkot	220/66 kV Kamlapur, Distt. Rajkot	i) LILO of 220 kV S/C Gondal - Shapar line at Kamlapur ii) LILO of both circuits of Shapar - Babra (Charkha) 220 kV D/C line at Kamlapur

Sl. No.	RE Capacity (MW)		Location of RE Pooling Project	Immediate inter-connection Point	Location of RE Pooling Project
	Solar	Wind			
4	500	500	Jamnagar	400/220 kV Kalavad, Distt. Jamnagar	iii) LILO of both circuits of EPGL TPS - Hadala 400 kV D/C line at Kalavad
5	250		Surendranagar	220/66 kV Dhama, Distt. Surendranagar	Dhama – Bechraji 220 kV S/C line
6	750	500	Rajkot	765/400 kV Saurashtra (Ghela Somnath), Distt. Rajkot	i) Saurashtra (Ghela Somnath) - Vataman (ISTS) 765 kV D/C line ii) Saurashtra - Kalavad 400 kV D/C line iii) Saurashtra - Amreli 400 kV D/C line iv) Saurashtra - Jetpur 400 kV D/C line
7	250	250	Jamnagar	Upgradation of 220 kV Babarzar substation to 400 kV, Dist. Jamnagar	LILO of both circuit of 400 kV D/C Bhogat - Kalavad line at Babarzar
8	700		Ahmedabad	Upgradation of 220 kV Dholera substation to 400 kV, Dist. Ahmedabad	Pachchham (Fedra) – Dholera 400 kV D/C line (line already commissioned and charged at 220 kV level)
9	500	500	Kutch	400/220/66 kV Mevasa (Shivlakha), Dist. Kutch	i) LILO of 400 kV S/C Mundra - Charanka line at Mevasa (Shivlakha) ii) LILO of 400 kV S/C Varsana - Charanka line at Mevasa (Shivlakha)
10	500		Devbhumi Dwarka	220/66 kV Jambusar, Dist. Bharuch	LILO of both circuits of 220 kV D/C Amod – Gavasad (Mobha) lines at Jambusar
11	100	200	Morbi	220/66 kV Rupavati (Bangavadi), Dist. Morbi	LILO of both circuits of 220 kV D/C Hadala - Jamnagar line at Rupavati
12	250	500	Amreli	400/220 kV Balani Vav (Pipavav), Dist. Amreli	Amreli - Balani Vav 400 kV D/C line
13	750		Surendranagar	220 kV Surendranagar (PS)-1, Dist. Surendranagar	220 kV D/C Surendranagar (PS)-1 - Shapar line
14	2000		Kutch (Near Naliya)	765 kV Kutch (PS)-1, Dist Kutch	765 kV D/C Kutch (PS)-1 - Kutch (PS)-2 line

Sl. No.	RE Capacity (MW)		Location of RE Pooling Project	Immediate inter-connection Point	Location of RE Pooling Project
	Solar	Wind			
					765 kV D/C Kutch (PS)-1 - Bhuj- II (ISTS) line
15	1500		Kutch (Near Rapar)	765 kV Kutch (PS)-2, Dist Kutch	765 kV D/C Kutch (PS)-2 - Bagodara (PS) line 765 kV D/C Kutch (PS)-2 - North Gujarat (Palanpur) line
16	1500		Kutch (Near Gadhsisa)	400 kV Kutch (PS)-3, Dist Kutch	400 kV D/C Kutch (PS)-3 - Kutch(PS)-1 line
17	1000		Bagodara	765 kV Bagodara (PS), Dist. Surendranagar	765 kV D/C Bagodara (PS) - Sayakha line 765 kV D/C Sayakha - South Olpad line
18	1000	1000	Jamnagar	765 kV Jamnagar PS-1	765 kV D/C Jamnagar PS-I - Kalyanpur (ISTS) line
19	1000		Fedra	765 kV Fedra	765 kV D/C Jamnagar-I (PS) - Fedra line
20		1500	Jamnagar	765 kV Jamnagar PS-2	LILO of both circuit of 765kV D/c Kalyanpur (ISTS) - Gela Somnath (Rajkot) line at Jamnagar-II PS
21	750	750	Dwarka	400/220 kV Dwarka PS	400 kV D/C Dwarka PS - Jamnagar PS-2 line
22	500		Surat	400/220 kV South Gujarat (PS), Dist. Surat	LILO of 400 kV S/C Kosamva - Vav line at South Gujarat (PS)
23	1000		Banaskantha	400 kV Radhanesda-II (PS) substation	400 kV D/C Radhanesda-II - Zerda line
24	3500		Banaskantha	Upgradation of 400 kV Radhanesda-II (PS) substation to 765 kV level, Distt. Banaskantha	765 kV D/C Radhanesda-II - Near Palanpur line
25	1000			765/400 kV Near Vadodara (PS), Distt. Vadodara	765 kV D/C Near Palanpur - Near Vadodara line
26	1000		Sami	Sami PS	400 kV D/C Sami PS - Sankhari line
27	500		Bharuch	400/220 kV Bharuch (PS), Distt. Bharuch	400 kV D/C Bharuch (PS) - Saykha line
28	500		Botad	400/220 kV Botad (PS), Distt. Botad	400 kV D/C Botad (PS) - Pachchham (Fedra) line
29	500	250	Dahod	400/220 kV Dahod (PS), Distt. Dahod	LILO of both circuits of 400 kV D/C Kasor - Rajgarh line at Dahod (PS)

Sl. No.	RE Capacity (MW)		Location of RE Pooling Project	Immediate inter-connection Point	Location of RE Pooling Project
	Solar	Wind			
30	1500	500	Surendranagar	400/220 kV Surendranagar (PS), Distt. Surendranagar	i) 400 kV D/C Surendranagar (PS) - Bagodara PS (765 kV Ss) line ii) 765 kV D/C Bagodara PS - Near Vadodara line
31	300		Panchmahal	220 kV Panchmahal (PS), Distt. Panchmahal	220 kV D/C Panchmahal (PS) - Dahod (PS) (400 kV) line
32	500	250	Surendranagar	220 kV Surendranagar (PS)-2, Distt. Surendranagar	220 kV D/C Surendranagar (PS)-2 - Surendranagar (PS) (400 kV) line
33	1500	1000	Surat	765/400 kV Near Surat (PS), Distt. Surat	i) 765 kV D/C Near Vadodara (PS) - Near Surat PS line ii) LILO of both circuits of 400 kV D/C Ukai - Nana Pondha line at Near Surat (PS)
34	500	500	Dahod	220 kV Dahod (PS), Distt. Dahod	220 kV D/C Dahod (PS) - Dahod (PS) (400 kV) line
35	500	250	Amreli	765/400 kV Amreli (PS), Distt. Amreli	765 kV D/C Amreli (PS) - Bagodara PS line
36	250		Bhavnagar	400/220 kV Bhavnagar PS, Distt. Bhavnagar	400 kV D/C Bhavnagar PS - Amreli (PS) (765 kV SS) line
37	250	500	Bhavnagar	220 kV Bhavnagar (PS)-2, Distt. Bhavnagar	220 kV D/C Bhavnagar (PS)-2 - Bhavnagar (PS) (400 kV) line
38	500	500	Bharuch	220 kV Bharuch (PS)-2, Distt. Bharuch	220 kV D/C Bharuch (PS)-2 - Bharuch (PS) (400 kV SS) line
	28000	10000			

Note:

- 1x330 MVAR, 765 kV Bus reactor and 1x125 MVAR, 420 kV Bus reactor have been considered at every new intra-state Sub-station.
- To provide dynamic reactive power compensation, STATCOMs may be considered in the intra-state S/s at high RE injection locations as well as near major load centres like Kutch PS2, Jamnagar PS, Amreli PS, Surat S/s etc.

Chapter-6

Recommendations

1. Intra-State transmission system augmentation required till 2026-27 in Gujarat comprises of 27,355 MVA of transformation capacity and 5,615 ckm of transmission lines (220 kV and above voltage level) as detailed below:

	Augmentation required by 2026-27	
	400 kV	220 kV
Transformation Capacity (MVA)	10,685	16,670
Transmission lines (ckm)	2,278	3,337

2. GETCO should expedite the transmission elements proposed/planned for 2026-27 timeframe. Delay in the implementation may lead to network congestion and interruption in power supply.
3. It has been observed that award of some of the planned intra-state transmission schemes in Gujarat have been delayed. Therefore, it is recommended that for the planned transmission schemes, GETCO should award the transmission elements well in advance and try to complete all the works in time.
4. Intra-State Transmission system augmentation required during 2027-28 to 2029-30 in Gujarat comprises of 70,880 MVA of transformation capacity and 13,923 ckm of transmission lines as detailed below:

	Augmentation required during 2027-28 to 2029-30			
	765 kV	400 kV	220 kV	Total
Transformation Capacity (MVA)	36,000	24,500	10,380	70,880
Transmission lines (ckm)	4,240	5,510	4,173	13,923

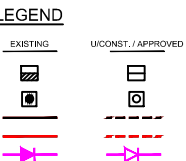
Action must be initiated by GETCO for approval of the schemes and subsequent award well in time to ensure timely commissioning of the planned transmission schemes.

5. Intra-State transmission system augmentation required during 2030-31 to 2034-35 in Gujarat comprises of 37,480 MVA of transformation capacity and 5,068 ckm of transmission lines as detailed below:

	Augmentation required during 2030-31 to 2034-35			
	765 kV	400 kV	220 kV	Total
Transformation Capacity (MVA)	19,000	14,000	4,480	37,480
Transmission lines (ckm)	1,880	1,340	1,848	5,068

Action needs to be initiated by GETCO for approval of the schemes and subsequent award well in time to ensure timely commissioning of the planned transmission schemes. Some of the planned schemes during 2030-31 to 2034-35 timeframe may be reviewed based on growth of electricity demand.

6. While carrying out the short circuit studies, it has been observed that the fault level at various substations is either near or higher than the designed limits. To bring the fault level within the design limit, various steps like bus splitting, fault limiting reactor, bypassing of transmission line etc. need to be implemented by GETCO.
7. GETCO is suggested to provide adequate static as well as dynamic reactive compensation at various intra-state substations.
8. GETCO should provide appropriate provisions for 66 kV or 33 kV bays in their 220/66 kV or 132/33 kV grid substations for supply to DISCOMs network. New substations should have adequate space provision for extension/augmentation to meet future electricity demand.
9. GETCO has broad plan to implement Battery Energy Storage System (BESS) of about 4 GW under intra-state. With the implementation of BESS, RE capacity equivalent to BESS could also be added with the existing transmission system.



Annex-II

Transmission schemes under ISTS need to be added in Gujarat in the timeframe of 2026-27 including under implementation/ already planned

Sl. No.	Transmission Scheme /details	Voltage (kV)	Type of Work	No. of Circuits	ckm	MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
WR-1	Establishment of Khavda pooling station and associated transmission lines for evacuation of 5 GW RE power									
	Establishment of 765/400 kV, 4x1500 MVA, KPS2 (GIS) with 2x330 MVAR, 765 kV bus reactor and 2x125 MVAR, 420 kV bus reactor	765/400 kV	S/s			6000	TBCB	UC	Mar, 2025	Gujarat
	Establishment of 765/400 kV, 3x1500 MVA, KPS3 (GIS) with 1x330 MVAR, 765 kV bus reactor and 1x125 MVAR 420 kV bus reactor	765/400 kV	S/s			4500	TBCB	UC	Mar, 2025	Gujarat
	KPS3- KPS2 765 kV D/C line	765 kV	Line	D/c	30		TBCB	UC	Mar, 2025	Gujarat
	KPS2 (GIS) – Lakadia 765 kV D/C line with 330 MVAR switchable line reactors at KPS2	765 kV	Line	D/c	355		TBCB	UC	Mar, 2025	Gujarat
	Augmentation of Khavda PS1 by 4x1500 MVA, 765/400 kV ICT with 1x330 MVAR, 765 kV bus reactor and 1x125 MVAR 420 kV bus reactor on 2 nd 765 kV and 400 kV bus respectively	765/400 kV	S/s			6000	TBCB	UC	Mar, 2025	Gujarat
	KPS1 - KPS2 765 kV D/C line	765 kV	Line	D/c	40		TBCB	UC	Mar, 2025	Gujarat
	Lakadia PS – Ahmedabad 765 kV D/c line with 240 MVAR switchable line reactors on each circuit at both ends	765 kV	Line	D/c	369		TBCB	UC	June, 2025	Gujarat
	Establishment of 3x1500 MVA, 765/400 kV Ahmedabad S/s with 1x330 MVAR, 765 kV bus reactor and 1x125 MVAR 420 kV bus reactor	765/400 kV	S/s			4500	TBCB	UC	June, 2025	Gujarat

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Sl. No.	Transmission Scheme /details	Voltage (kV)	Type of Work	No. of Circuits	ckm	MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Banaskantha – Ahmedabad 765 kV D/c line with 330 MVA _r , 765 kV Switchable line reactor on each ckt at Ahmedabad S/s end	765 kV	Line	D/c	269		TBCB	UC	Apr, 2025	Gujarat
WR-4	Transmission system for evacuation of additional 7 GW RE power from Khavda RE park (Phase-III)									
	Establishment of 765 kV Halvad switching station with 2x330 MVA _r , 765 kV bus reactors	765 kV	S/s				TBCB	UC	Dec, 2025	Gujarat
	KPS2- Halvad 765 kV D/c line with 240 MVA _r switchable line reactor at both ends	765 kV	Line	D/c	440		TBCB	UC	Dec, 2025	Gujarat
	LILO of Lakadia – Ahmedabad 765 kV D/c line at Halvad	765 kV	Line	D/c	200		TBCB	UC	Dec, 2025	Gujarat
	240 MVA _r , 765 kV switchable line reactor on each ckt at Halvad end of Halvad – Ahmedabad 765 kV D/c line	765 kV	S/s				TBCB	UC	Dec, 2025	Gujarat
	Halvad – Vataman 765 kV D/c line with 1x330 MVA _r switchable line reactor at Vatman end on each ckt.	765 kV	Line	D/c	258		TBCB	UC	Dec, 2025	Gujarat
	Establishment of 765 kV switching station near Vataman with 2x330 MVA _r , 765 kV bus reactor	765 kV	S/s				TBCB	UC	Dec, 2025	Gujarat
	LILO of Lakadia – Vadodara 765 kV D/c line at Vataman 765 kV switching station	765 kV	Line	D/c	40		TBCB	UC	Dec, 2025	Gujarat
	Vataman switching station – Navsari (New) 765 kV D/c line with 330 MVA _r switchable line reactors on each ckt at Kosamba end.	765 kV	Line	D/c	400		TBCB	UC	Dec, 2025	Gujarat
	Conversion of 330 MVA _r , 765 kV switchable line reactor on each ckt at Vadodara end of Lakadia – Vadodara 765 kV D/c line (being LILOed at Vataman) into bus reactors with NGR bypassing arrangement.	765 kV	S/s				RTM	UC	Dec, 2025	Gujarat

Sl. No.	Transmission Scheme /details	Voltage (kV)	Type of Work	No. of Circuits	ckm	MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Augmentation of transformation capacity at Navsari (New) by 1x1500 MVA, 765/400 kV ICT (4 th)	765/400 kV	S/s			1500	RTM	UC	Dec, 2025	Gujarat
WR-5	Provision of Dynamic Reactive Compensation at KPS1 and KPS3									
	± 300MVar STATCOM with 1x125 MVar MSC, 2x125 MVar MSR at KPS1 400 kV Bus section-1	400 kV	S/s				TBCB	UC	Nov, 2026	Gujarat
	± 300MVar STATCOM with 1x125 MVar MSC, 2x125 MVar MSR at KPS1 400 kV Bus section-2	400 kV	S/s				TBCB	UC	Nov, 2026	Gujarat
	± 300MVar STATCOM with 1x125 MVar MSC, 2x125 MVar MSR at KPS3 400 kV Bus section-1	400 kV	S/s				TBCB	UC	Nov, 2026	Gujarat
WR-6	Transmission System for evacuation of additional 7 GW of RE power from Khavda RE Park (Phase-IV)									
	Creation of 765 kV bus section-II at KPS3 (GIS) along with 765 kV Bus Sectionaliser & 1x330 MVar, 765 kV Bus Reactors on Bus Section-II (Bus section – II shall be created at 765 kV & 400 kV level both with 3x1500 MVA, 765/400 kV ICTs at Bus Section-II)	765/400 kV	S/s			4500	TBCB	UC	Aug, 2026	Gujarat
	Creation of 400 kV bus section-II at KPS3 (GIS) along with 400 kV Bus Sectionaliser & 1x125 MVar, 400 kV Bus Reactors on Bus Section-II	400 kV	S/s				TBCB	UC	Aug, 2026	Gujarat
	KPS3 (GIS) – Lakadia 765 kV D/c line along with 330 MVAR switchable line reactors at KPS3 end of KPS3 (GIS) – Lakadia 765 kV D/c line (with NGR bypass arrangement)	765 kV	Line	D/c	370		TBCB	UC	Aug, 2026	Gujarat
	±300 MVar STATCOM with 1x125 MVar MSC, 2x125 MVar MSR at KPS3 400 kV Bus section-2	400 kV	S/s				TBCB	UC	Aug, 2026	Gujarat

Sl. No.	Transmission Scheme /details	Voltage (kV)	Type of Work	No. of Circuits	ckm	MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	KPS1 – Bhuj 765 kV 2 nd D/c line	765 kV	Line	D/c	220		TBCB	UC	Aug, 2026	Gujarat
	Establishment of 2x1500 MVA, 765/400 kV & 2x500 MVA, 400/220 kV GIS S/s at a suitable location South of Olpad (between Olpad and Ichhapore) with 2x330 MVAR, 765 kV & 1x125 MVAR, 420 kV bus reactors	765/400/220 kV	S/s			4000	TBCB	UC	Oct, 2026	Gujarat
	Vadodara – South Olpad 765 kV D/c line with 240 MVAR switchable line reactors at Vadodara (GIS) end of Vadodara (GIS) – Navsari (New)(GIS) 765 kV D/c line (with NGR bypass arrangement)	765 kV	Line	D/c	240		TBCB	UC	Oct, 2026	Gujarat
	LILO of Gandhar – Hazira 400 kV D/c line at South Olpad (GIS) using twin HTLS conductor with minimum capacity of 1700 MVA per ckt at nominal voltage	400 kV	Line	D/c	40		TBCB	UC	Oct, 2026	Gujarat
	Ahmedabad – South Olpad (GIS) 765 kV D/c line along with 240 MVAR switchable line reactors on each ckt at Ahmedabad & South Olpad (GIS) end (with NGR bypass arrangement)	765 kV	Line	D/c	500		TBCB	UC	Oct, 2026	Gujarat
	South Olpad – Boisar-II 765 kV D/c line with 240 MVAR switchable line reactors on each circuit at South Olpad and Boisar-II end (with NGR bypass arrangement)	765 kV	Line	D/c	450		TBCB	UC	Oct, 2026	Gujarat, Maharashtra
	LILO of Navsari (New) – Padghe (PG) 765 kV D/c line at Boisar-II	765 kV	Line	D/c	100		TBCB	UC	Oct, 2026	Gujarat, Maharashtra
	± 300 MVAR STATCOM with 3x125 MVAR MSC, 1x125 MVAR MSR at 400 kV level of Navsari (New)(PG) S/s	400 kV	S/s				TBCB	UC	Oct, 2026	Gujarat

Sl. No.	Transmission Scheme /details	Voltage (kV)	Type of Work	No. of Circuits	ckm	MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Augmentation of transformation capacity at KPS1(GIS) by 1x1500 MVA, 765/400 kV ICT (8 th)	765/400 kV	S/s			1500	RTM	UC	Oct, 2026	Gujarat
	Augmentation of transformation capacity at KPS2 (GIS) by 4x1500 MVA, 765/400 kV ICT (5 th , 6 th , 7 th & 8 th) on Bus section-II	765/400 kV	S/s			6000	TBCB	UC	Oct, 2026	Gujarat
	Augmentation of transformation capacity at KPS3(GIS) by 1x1500 MVA, 765/400 kV ICT (7 th) on Bus section-I	765/400 kV	S/s			1500	RTM	UC	Oct, 2026	Gujarat
WR-7	Network Expansion Scheme in Navinal (Mundra) area of Gujarat for drawal of power in the area (including 1.5 GW of Green Hydrogen load in Navinal (Mundra) under Phase-I Part A)									
	Establishment of 4x1500 MVA, 765/400 kV Navinal (Mundra) (GIS) S/s with 2x330 MVAR, 765 kV & 1x125 MVAR, 420 kV bus reactors	765/400 kV	S/s			6000	TBCB	UC	Jul, 2026	Gujarat
	LILO of Bhuj-II – Lakadia 765 kV D/c line at Navinal (Mundra) (GIS) S/s	765 kV	Line	D/c	280		TBCB	UC	Jul, 2026	Gujarat
	Installation of 1x330 MVAR switchable line reactor on each ckt at Navinal end of Lakadia – Navinal 765 kV D/c line (formed after above LILO)	765 kV	S/s				TBCB	UC	Jul, 2026	Gujarat
WR-8	Network Expansion scheme in Gujarat for drawl of about 3.6 GW load under Phase-I in Jamnagar area									
	Establishment of 2x1500 MVA, 765/400 kV Jamnagar (GIS) PS with 2x330 MVAR 765 kV bus reactor and 2x125 MVAR 420 kV bus reactor	765/400 kV	S/s			3000	TBCB	UC	Oct, 2026	Gujarat
	Halvad – Jamnagar 765 kV D/c line along with 330 MVAR switchable line reactors on each ckt	765 kV	Line	D/c	340		TBCB	UC	Oct, 2026	Gujarat

Sl. No.	Transmission Scheme /details	Voltage (kV)	Type of Work	No. of Circuits	ckm	MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Augmentation of transformation capacity at Jam Khambhaliya PS (GIS) by 2x500 MVA, 400/220 kV ICT (5 th to 9 th) (terminated on New 220 kV bus section-II)	400/220 kV	S/s			2500	TBCB	UC	Jul, 2026	Gujarat
WR-11	Augmentation of transformation capacity at 765/400 kV Lakadia S/s (WRSS XXI (A) Transco Ltd) in Gujarat									
	Creation of 220 kV switchyard at Lakadia 765/400 kV S/s along with 220 kV line bays for RE Interconnection	765 kV	S/s				RTM	UC	Aug, 2026	Gujarat
	Installation of 2x500 MVA, 400/220 kV ICTs (1st & 2nd) at Lakadia PS along with associated ICT bays	400/220 kV	S/s			1000	RTM	UC	Aug, 2026	Gujarat
WR-12	Augmentation of transformation capacity at Bachau S/s									
	Augmentation of transformation capacity at 400/220 kV Bachau S/s by 1x500 MVA (3 rd) ICT	400/220 kV	S/s			500	RTM	UC	Apr, 2025	Gujarat
WR-13	Augmentation of transformation capacity at 765/400 kV Lakadia S/s (WRSS XXI(A) Transco Ltd) in Gujarat – Part B									
	Installation of 4x500 MVA, 400/220 kV ICTs (3rd to 6th) at Lakadia PS along with associated ICT bays	400/220 kV	S/s			2000	TBCB	UC	Aug, 2026	Gujarat
	Augmentation of transformation capacity at Lakadia PS by 2x500 MVA, 400/220 kV ICTs (7th & 8th) terminated on new 220 kV Bus Section-II	400/220 kV	S/s			1000	TBCB	UC	Dec, 2026	Gujarat
	Augmentation of transformation capacity at Lakadia PS by 1x1500 MVA, 765/400 kV ICTs (3 rd)	765/400 kV	S/s			1500	TBCB	UC	Aug, 2026	Gujarat
	Installation of 1x330 MVA, 765 kV Bus Reactor (2 nd) at Lakadia PS	765 kV	S/s				TBCB	UC	Aug, 2026	Gujarat

Sl. No.	Transmission Scheme /details	Voltage (kV)	Type of Work	No. of Circuits	ckm	MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Augmentation of transformation capacity at 400/220 kV Vadodara S/s by 1x500 MVA ICT (3 rd)	400/220 kV	S/s			500	RTM	UC	Mar, 2026	Gujarat
WR-18	Augmentation of transformation capacity at KPS1 (GIS) and KPS2 (GIS)									
	Augmentation of transformation capacity at KPS1(GIS) by 1x1500 MVA, 765/400 kV ICT on Bus section-II (9th)	765/400 kV	S/s			1500	TBCB	UC	Feb, 2027	Gujarat
	Augmentation of transformation capacity at KPS2(GIS) by 1x1500 MVA, 765/400 kV ICT on Bus section-I (9th)	765/400 kV	S/s			1500	TBCB	UC	Feb, 2027	Gujarat
WR-19	Augmentation of transformation capacity at 400/220kV Bhuj PS in Gujarat by 1x500 MVA, 400/220kV ICT (10th)									
	Augmentation of transformation capacity at 400/220 kV Bhuj PS by 1x500 MVA ICT (10th)	400/220 kV	S/s			500	RTM	UC	Nov, 2026	Gujarat
WR-20	Augmentation of transformation capacity at KPS3 (GIS) S/s under Khavda Phase-V Part B3 scheme									
	Augmentation of transformation capacity at KPS3(GIS) by 1x1500 MVA, 765/400 kV ICT on Bus section-II (8th) a	765/400 kV	S/s			1500	RTM	UC	Nov, 2026	Gujarat
WR-21	Augmentation of Banaskantha (Raghnesda) PS (GIS)									
	Augmentation of transformation capacity at Banaskantha (Raghnesda) PS (GIS) by 2x500 MVA, 400/220 kV ICTs (3rd and 4th)	400/220 kV	S/s			1000	TBCB	UC	Mar, 2027	Gujarat

Annex-III

Transmission schemes under intra-state which need to be added in Gujarat in the timeframe of 2026-27 including under implementation/ already planned

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
(A)	New sub-stations / ICT augmentation								
1	400/220 kV Ukai TPS S/s	Gujarat	400/220 kV	S/s			1000	Under Construction	2025-26
2	220/66 kV Avana S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
3	220/66 kV Patkhilori S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2025-26
4	220 kV Rajsitapur (Khodu/Dudhrej) S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
5	400/220 kV Kalavad S/s	Gujarat	400/220 kV	S/s			1000	Under Construction	2025-26
6	220/66 kV Khajod S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2026-27
7	220/66 kV Maglana S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2025-26
8	400/220 kV Prantij S/s	Gujarat	400/220/66 kV	S/s			1320	Under Construction	2026-27
9	220/66 kV Kudiyana (Olpad) S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2026-27
10	220/66 kV Veraval S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2026-27
11	220/66 kV Halol S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
12	220/66 kV Siddheshwar S/s	Gujarat	220/66 kV	S/s			480	Under Construction	2026-27
13	400/220 kV Shivilakha S/s	Gujarat	400/220/66 kV	S/s			1320	Under Construction	2026-27

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
14	400/220 kV Dholera S/s	Gujarat	400/220 kV	S/s			1500	Under Construction	2025-26
15	220/66 kV Samadhiyala (Bagasara) S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
16	220/66 kV Velanja S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2026-27
17	220/66 kV Dhama S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2026-27
18	220/66 kV Avaniya S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
19	220/66 kV Kanbha S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
20	220/66 kV Balethi S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
21	400/220 kV Saykha S/s	Gujarat	400/220/66 kV	S/s			1820	Planned	2026-27
22	220/66 kV Kheradi S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
23	220/66 kV Nichi Mandal (Vankda) S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2025-26
24	220/66 kV Dumas S/s	Gujarat	220/66 kV	S/s			480	Planned	2026-27
25	Upgradation of Babarzar substation to 400 kV level (GIS)	Gujarat	400/220 kV	S/s			1000	Under Construction	2025-26
26	220/66 kV Near Thavar S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
27	220/66 kV Nagor S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
28	220/66 kV Munjpur substation (Dist. Patan) S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2025-26
29	220/66 kV Mandan S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
30	Upgradation of 66 kV Mahuva S/S to 220 kV level	Gujarat	220/66 kV	S/s			320	Planned	2026-27
31	220/66 kV Mahudha S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
32	220/66 Kutiyana S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2026-27
33	220/66 Khimat S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
34	220/66 Jantral S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
35	220/66 Hathsani S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
36	220/66 Hajipir / Dhordo S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2026-27
37	220/66 Gadhsisa S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
38	220/66 Gadhadra S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
39	220/66 Dhank S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2026-27
40	220/66 Bhalgamda S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
41	220/66 Bangavadi S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
42	400/220 kV ICT augmentation at Veloda 400 kV S/s	Gujarat	400/220 kV	S/s			500	Planned	2026-27
43	400/220 kV ICT augmentation at Zerda(Kansari) 400 kV S/s	Gujarat	400/220 kV	S/s			500	Under Construction	2025-26
44	400/220 kV, 1x(500-315) MVA ICT augmentation at Jetpur S/s	Gujarat	400/220 kV	S/s			185	Planned	2026-27

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
45	400/220 kV ICT augmentation at Asoj 400 kV S/s	Gujarat	400/220 kV	S/s			500	Planned	2026-27
46	220/132 kV ICT augmentation at Gondal 220 kV S/s	Gujarat	220/132 kV	S/s			50	Planned	2026-27
47	220/66 kV ICT augmentation at Salejada 220 kV S/s	Gujarat	220/66 kV	S/s			160	Under Construction	2025-26
48	220/66 kV ICT augmentation at Asoj 400 kV S/s	Gujarat	220/66 kV	S/s			120	Planned	2026-27
49	220/66 kV ICT augmentation at Kosamba 400 kV S/s	Gujarat	220/66 kV	S/s			120	Planned	2026-27
50	220/66 kV ICT augmentation at Popada 220 kV S/s	Gujarat	220/66 kV	S/s			120	Planned	2026-27
51	220/66 kV ICT augmentation at Jetpur 400 kV S/s	Gujarat	220/66 kV	S/s			120	Planned	2026-27
52	220/66 kV ICT augmentation at Kangashiyali 220 kV S/s	Gujarat	220/66 kV	S/s			60	Planned	2026-27
53	220/66 kV ICT augmentation at Khanpur 220 kV S/s	Gujarat	220/66 kV	S/s			60	Planned	2026-27
54	220/66 kV ICT augmentation at Vallabhipur 220 kV S/s	Gujarat	220/66 kV	S/s			160	Planned	2026-27
55	220/66 kV ICT augmentation at Sartanpar(HGIS) 220 kV S/s	Gujarat	220/66 kV	S/s			160	Under Construction	2025-26

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
56	220/66 kV ICT augmentation at Talangpur 220 kV S/s	Gujarat	220/66 kV	S/s			530	Under Construction	2025-26
57	220/66 kV ICT augmentation at Vartej 220 kV S/s	Gujarat	220/66 kV	S/s			60	Planned	2026-27
58	220/66 kV ICT augmentation at Ambhetha (Chikhali) 220 kV S/s	Gujarat	220/66 kV	S/s			110	Planned	2026-27
59	220/66 kV ICT augmentation at Bhilad 220 kV S/s	Gujarat	220/66 kV	S/s			160	Planned	2026-27
60	220/66 kV ICT augmentation at Agiyol 220 kV S/s	Gujarat	220/66 kV	S/s			170	Under Construction	2025-26
61	220/66 Raghanesda S/s	Gujarat	220/66 kV	S/s			750	Under Construction	2025-26
62	220/66 Khambhalia S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2025-26
63	220/66 Kuvadiya S/s	Gujarat	220/66 kV	S/s			320	Under Construction	2025-26
64	220/66 Manjusar S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
65	220/66 Makansar S/s	Gujarat	220/66 kV	S/s			320	Planned	2026-27
66	400/220 kV Nana Pondha (Chikhli) S/s	Gujarat	400/220/66 kV	S/s			1320	Planned	2026-27
	Transmission Lines								
1	Vadavi - Halvad 400 kV D/c line	Gujarat	400 kV	Line	D/c	290		Under Construction	2025-26
2	Varsana - Halvad 400 kV D/c line	Gujarat	400 kV	Line	D/c	237		Under Construction	2025-26
3	Bhachunda - Varsana 400 kV D/c line	Gujarat	400 kV	Line	D/c	280		Under Construction	2026-27

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
4	Shapar - Fedra 400 kV D/c line	Gujarat	400 kV	Line	D/c	200		Under Construction	2025-26
5	LILO of one ckt. of Wanakbori-Soja 400 kV D/c line at Prantij S/s	Gujarat	400 kV	Line	D/c	80		Under Construction	2025-26
6	Shapar - Chharodi (Sanand) 400 kV D/c line	Gujarat	400 kV	Line	D/c	180		Under Construction	2026-27
7	Veloda (Sankhari) - Prantij 400 kV D/c line	Gujarat	400 kV	Line	D/c	300		Under Construction	2026-27
8	LILO of Soja-Zerda 400 kV D/c line at Veloda S/s	Gujarat	400 kV	Line	D/c	60		Under Construction	2025-26
9	Gavasad - Salejda 220 kV D/c line	Gujarat	220 kV	Line	D/c	194		Under Construction	2025-26
10	LILO of Kawas-Navsari 220 kV D/c line at Khajod S/s	Gujarat	220 kV	Line	2xD/c	40		Under Construction	2025-26
11	LILO of Ichhapore-Talangpore 220 kV S/c line at Khajod S/s	Gujarat	220 kV	Line	D/c	8		Under Construction	2025-26
12	BECL - Botad 220 kV D/c line	Gujarat	220 kV	Line	D/c	190		Under Construction	2025-26
13	Chorania - Botad 220 kV D/c line	Gujarat	220 kV	Line	D/c	104		Under Construction	2025-26
14	LILO of Amreli-Dhasa 220 kV D/c line at Gariyadhar S/s	Gujarat	220 kV	Line	D/c	160		Under Construction	2025-26
15	LILO of GSEG-Kim 220 kV S/c line and Mora-Kim 220 kV S/c line at Velanja	Gujarat	220 kV	Line	2xD/c	10		Under Construction	2025-26
16	Bhogat - Moti Gop 220 kV D/c line	Gujarat	220 kV	Line	D/c	139		Under Construction	2025-26
17	LILO of one circuit of Kasor - Gavasad 220 kV D/c line at 220 kV Gotri substation	Gujarat	220 kV	Line	D/c	88		Under Construction	2026-27

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
18	LILO of both circuits of GSEG – Kosamba 220 kV line at 220 kV Kudiyana S/s with pile foundation	Gujarat	220 kV	Line	2xD/c	140		Under Construction	2025-26
19	LILO of Savarkundla - Visavadar of 220 kV S/c at Bagasara s/s	Gujarat	220 kV	Line	D/c	20		Planned	2026-27
20	Bhogat - Ranavav 220 kV D/c line	Gujarat	220 kV	Line	D/c	138		Under Construction	2025-26
21	Talaja - Maglana 220 kV D/c line	Gujarat	220 kV	Line	D/c	120		Under Construction	2026-27
22	Maglana - Pachchham 220 kV D/c line	Gujarat	220 kV	Line	D/c	200		Under Construction	2026-27
23	Prantij - Agiyol 220 kV D/c line	Gujarat	220 kV	Line	D/c	60		Under Construction	2025-26
24	Prantij - Dhansura 220 kV D/c line	Gujarat	220 kV	Line	D/c	70		Under Construction	2025-26
25	LILO of one circuit of Chandrapura - Godhara 220 kV D/c line at 220 kV Halol S/s	Gujarat	220 kV	Line	D/c	10		Planned	2026-27
26	Vyankatpura – Halol 220 kV D/c line	Gujarat	220 kV	Line	D/c	50		Under Construction	2026-27
27	Dhama - Bechraji 220 kV D/c line	Gujarat	220 kV	Line	D/c	220		Under Construction	2025-26
28	LILO of both ckt of Shapar - Babra 220 kV D/c line at Kamlapur (M/c) S/s	Gujarat	220 kV	Line	2xD/c	60		Under Construction	2025-26
29	LILO of Chikhli (Ambetha) – Vapi (GETCO) 220 kV S/c line at Vapi-II (ISTS substation) (AL-59 conductor) S/s	Gujarat	220 kV	Line	D/c	40		Under Construction	2025-26
30	LILO of Bhatia - Kalavad 220 kV D/c line at Khambhalia-II S/s	Gujarat	220 kV	Line	D/c	40		Under Construction	

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
31	LILO of one circuit of Ranasan – Karamsad 220 kV D/c line at Kanbha substation	Gujarat	220 kV	Line	D/c	1		Planned	2026-27
32	Dehgam - Kanbha 220 kV D/c line	Gujarat	220 kV	Line	D/c	50		Under Construction	2025-26
33	LILO of both circuit of Kalavad - Kangashiyali 220 kV D/c line at Siddheshwar S/s	Gujarat	220 kV	Line	2xD/c	22		Under Construction	2025-26
34	Jetpur - Bhesan 220 kV S/c line	Gujarat	220 kV	Line	S/c	35		Under Construction	2025-26
35	Motigop -Babrazar 220 kV D/c line	Gujarat	220 kV	Line	D/c	60		Under Construction	2025-26
36	LILO of Sartanpar – Wankaner 220 kV S/c line at 220 kV Makansar substation	Gujarat	220 kV	Line	D/c	4		Planned	2026-27
37	Ghiyavad – Shapar 220 kV D/c line	Gujarat	220 kV	Line	D/c	100		Under Construction	2024-25
38	LILO of one circuit of Bhutiya - Agiyol 220 kV D/c line at 220 kV Kheradi S/s	Gujarat	220 kV	Line	D/c	40		Planned	2026-27
39	LILO of one circuit of Agiyol - Dhansura 220 kV D/c line at 220 kV Kheradi S/s	Gujarat	220 kV	Line	D/c	56		Planned	2026-27
40	400 kV Kalavad - Saurashtra D/c Line	Gujarat	400 kV	Line	D/c	400		Under Construction	2026-27
41	LILO of both circuit of 400 kV D/c Mundra – Zerda line at Shivilakha (400 kV) substation (M/C 25RKM Line)	Gujarat	400 kV	Line	D/c	50		Under Construction	2026-27
42	400 kV D/c Saykha - Jhanor (NTPC) line OR LILO of 400 kV S/C Jhanor - Sugan (TPGL) line at 400 kV Sayakha substation)	Gujarat	400 kV	Line	D/c	50		Planned	2026-27

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
43	LILO of both circuits of 400 kV D/c Bhogat - Kalavad line at Babarzar substation	Gujarat	400 kV	Line	M/c	0.602		Planned	2025-26
44	LILO of both circuits of 220 kV Nakhatrana-Varsana D/c line at Nagor S/s	Gujarat	220 kV	Line	D/c	30		Under Construction	2026-27
45	220 kV Munjpur - Mehsana D/c line by using existing 220 kV Sankhari - Mehsana & Veloda - Mehsana line	Gujarat	220 kV	Line	D/c	60		Under Construction	2025-26
46	220 kV Dhama - Munjpur D/c line (AL-59)	Gujarat	220 kV	Line	D/c	60		Under Construction	2025-26
47	LILO of both circuits of 220 kV GPPC-Otha D/c line at Mandan	Gujarat	220 kV	Line	D/c	25		Planned	2026-27
48	220 kV Sevalia - Mahudha D/c line & 220 kV Kheda (prop) - Mahudha D/c line	Gujarat	220 kV	Line	D/c	90		Under Construction	2026-27
49	LILO of both circuits of 220 kV Ranavav-Motipaneli D/c line at Kutiyana S/s	Gujarat	220 kV	Line	D/c	55		Planned	2026-27
50	LILO of both circuits of 220 kV Kansari-Thavar D/c line at Khimat S/s	Gujarat	220 kV	Line	D/c	20		Planned	2026-27
51	220 kV Navsari (765 kV) - Khajod (proposed s/s) D/c line	Gujarat	220 kV	Line	D/c	10		Under Construction	2025-26
52	LILO of both ckt. of 220 kV Jamla - Kheralu D/c line at new 220 kV Jantral S/s	Gujarat	220 kV	Line	M/c	25		Under Construction	2026-27
53	LILO of 220 kV Babara-Shapar D/c line at Hathsani S/s	Gujarat	220 kV	Line	D/c	25		Planned	2026-27

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
54	LILO of 220 kV Akrimota-Nakhatrana S/c line and 220 kV Akrimota-Bhachunda S/c line at 220 kV Hajipir/Dhordo Substation—220 kV M/C line	Gujarat	220 kV	Line	D/c	123.5		Under Construction	2025-26
55	LILO of both ckt. of 220 kV Nakhatrana-Nanikhakhar D/c line at Gadhsisa S/s	Gujarat	220 kV	Line	M/c	85		Planned	2026-27
56	LILO of 220 kV Amreli-Botad & Dhasa-Botad line at Gadhada S/s	Gujarat	220 kV	Line	D/c	25		Planned	2026-27
57	LILO of 220 kV D/c Motipaneli-Sardargadh line at Dhank S/s	Gujarat	220 kV	Line	D/c	8		Under Construction	2026-27
58	LILO of one circuit of 220 kV D/c Ukai (Th) - Achhalia line (which is not to be LILOed at 220 kV Virpore) at 220 kV Balethi substation	Gujarat	220 kV	Line	D/c	30		Under Construction	2026-27
59	LILO of 220 kV S/c Navsari - Atul line at Chikhli substation	Gujarat	220 kV	Line	D/c	1		Planned	2025-26
60	LILO of 220 kV Talangpore (Sachin) - Navsari and 220 kV Talangpore (Sachin) - Vav line at 765 kV Navsari (new) substation of ISTS	Gujarat	220 kV	Line	D/c	28		Under Construction	2025-26
61	220 kV D/c Navsari (765 kV) - Talangpore line	Gujarat	220 kV	Line	D/c	44		Under Construction	2025-26
62	Interconnection at LILO point of Vav-Navsari LILO at Talangpore for Vav - Popada 2nd circuit and Talangpore / 765 kV substation - Navsari 2nd circuit line	Gujarat	220 kV	Line	D/c	1		Under Construction	2025-26

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
63	LILO of both circuits of 220 kV D/c KAPP - Vapi line (ISTS line) at 400 kV Vapi - II substation of ISTS	Gujarat	220 kV	Line	M/c	10		Under Construction	2025-26
64	LILO of 220 kV S/c Chikhli - Vapi line at Atul substation	Gujarat	220 kV	Line	D/c	10		Under Construction	2025-26
65	400 kV D/c line for reconfigurations to have 400 kV D/c Chorania - Kosamba & 400 kV D/c Fedra - Sanand (Chharodi) line	Gujarat	400 kV	Line	D/c	50		Under Construction	2026-27
66	400 kV D/c Sanand (Chharodi) - Soja line (by using LILO portion of Halvad - Vadavi LILO at Sanand)	Gujarat	400 kV	Line	D/c	100		Under Construction	2026-27
67	Interconnection of 220 kV D/c Halvad-Sadla line & 220 kV D/c Hadala-Sartanpur Line	Gujarat	220 kV	Line	D/c	2		Under Construction	2025-26
68	LILO of one circuit of 220 kV D/C Bhatia - Kalavad line at Kuvadiya	Gujarat	220 kV	Line	D/c	30		Under Construction	2026-27
69	220 kV D/C Jamkhambhaliya (JKTL-ISTS) - Kuvadiya line	Gujarat	220 kV	Line	D/c	50		Planned	2026-27
70	LILO of both circuits of 220 kV D/C Asoj - Mogar line at Manjusar	Gujarat	220 kV	Line	D/c	20		Planned	2026-27

List of substations in which high fault level has been observed in the timeframe of 2026-27

Sl. No.	Bus No.	Bus Name	Voltage (kV)	Fault current (A)
1.	354001	ASOJ	400	47834.6
2.	354002	GANDHAR	400	45053.3
3.	354003	DEHGAM	400	40296.1
4.	354005	SOJA	400	42493.8
5.	354006	CHORANIA	400	43401.7
6.	354008	JETPUR	400	38147.4
7.	354014	PIRANA PG	400	39657.1
8.	354015	APL MUNDRA	400	45081.6
9.	354017	RANCHODPURA	400	43525.3
10.	354018	HADALA	400	44974.6
11.	354019	ZERDA	400	41346.4
12.	354023	CGPL MUNDRA	400	49556.6
13.	354024	BACHAU	400	46110.2
14.	354029	KOSAMBA	400	41039.5
15.	354035	VADODARA	400	54259.2
16.	354072	KALAVAD	400	43692.4
17.	354079	JAM NAGAR	400	46722.5
18.	354135	BHUJ PS	400	48052.8
19.	354136	BANASKANTHA	400	53640.0
20.	354137	SANKHARI	400	44262.4
21.	358136	BANASKANTHA	765	41487.0

Annex-V

Transmission schemes under ISTS need to be added in Gujarat in the timeframe of 2034-35 including under implementation/ already planned

S. No.	Scheme /details	Voltage level	Type of Work	No. of Circuits	Total ckm	Total MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
WR-1	Transmission System for evacuation of additional 8 GW of RE power from Khavda RE Park Phase-V									
	Establishment of 6000 MW, $\pm$ 800 kV KPS2 (HVDC) [LCC] terminal station (4x1500 MW) along with associated interconnections with 400 kV HVAC Switchyard	800 kV	S/s			6000	TBCB	UC	2028-29	Gujarat
	Establishment of 6000 MW, $\pm$ 800 kV Nagpur (HVDC) [LCC] terminal station (4x1500 MW) along with associated interconnections with 400 kV HVAC Switchyard	800 kV	S/s			6000	TBCB	UC	2028-29	Maharashtra
	$\pm$ 800 kV HVDC Bipole line (Hexa lapwing) between KPS2 (HVDC) and Nagpur (HVDC) (with Dedicated Metallic Return) (capable to evacuate 6000 MW with overload as specified)	800 kV	Line	D/c	2400		TBCB	UC	2028-29	Gujarat, Maharashtra
	Establishment of 2500 MW, $\pm$ 500 kV KPS3 (HVDC) [VSC] terminal station (2x1250 MW) at a suitable location near KPS3 substation with associated interconnections with 400 kV HVAC Switchyard	500 kV	S/s				TBCB	Under Bidding	2029-30	Gujarat
	Establishment of 2500 MW, $\pm$ 500 kV South Olpad (HVDC) [VSC] terminal station (2x1250 MW) along with associated interconnections with 400 kV HVAC Switchyard of South Olpad S/s	500 kV	S/s			2500	TBCB	Under Bidding	2029-30	Gujarat

S. No.	Scheme /details	Voltage level	Type of Work	No. of Circuits	Total ckm	Total MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Establishment of KPS3 (HVDC) S/s along with 2x125 MVAR, 420 kV bus reactors along with associated interconnections with HVDC Switchyard.	500 kV	S/s			2500	TBCB	Under Bidding	2029-30	Gujarat
	KPS3 – KPS3 (HVDC) 400 kV 2xD/c line	400 kV	Line	D/c	4		TBCB	Under Bidding	2029-30	Gujarat
	±500 kV HVDC Bipole line between KPS3 (HVDC) and South Olpad (HVDC) (with Dedicated Metallic Return)	500 kV	Line	D/c	1900		TBCB	Under Bidding	2029-30	Gujarat
WR-2	Transmission System for Offshore Wind Zone Phase-I (500 MW VGF on coast of Gujarat for Subzone B3)									
	Mahuva Onshore PS (GIS) – Vataman 400 kV D/c line (Quad Moose) with 63 MVAR & 50MVAR, 420 kV switchable line reactors on each ckt at Mahuva and Vataman ends respectively	400 kV	Line	D/c	380		RTM	UC	2029-30	Gujarat
	Establishment of 2x500 MVA, 400/220 kV Mahuva Onshore Pooling Station (GIS) (Mahuva PS) alongwith 1x125 MVAR (420 kV) bus reactor (with space provision for upgradation to 765 kV level to cater to future Offshore Wind Projects adjacent to B3, B4, B5 pockets)	400/220 kV	S/s			1000	RTM	UC	2029-30	Gujarat
	2 Nos. of 220 kV line bays at Mahuva PS (GIS) for termination of B3-OSS-1 – Mahuva Onshore PS 220 kV 2xS/c (3 core) cables	220 kV	S/s				RTM	UC	2029-30	Gujarat
	± 300 MVAR STATCOM at 220 kV level of Mahuva PS (GIS)	220 kV	S/s				RTM	UC	2029-30	Gujarat
	220 kV, 1x125 MVAR Variable Bus Shunt Reactor (with control range between 25 – 125 MVAR for each VSR) with 1 No. of 220 kV bay	220 kV	S/s				RTM	UC	2029-30	Gujarat

S. No.	Scheme /details	Voltage level	Type of Work	No. of Circuits	Total ckm	Total MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Establishment of 2x315 MVA, 220/66 kV Gujarat Offshore B3 Sub-Station Station-1 (B3-OSS-1) with 66 kV line bays – 10 Nos. for RE Interconnection (66 kV bus shall be established in two sections with 1x315 MVA ICT & 5 Nos. 66 kV bays on each 66 kV section)	220/66 kV	S/s			630	RTM	UC	2029-30	Gujarat
	B3-OSS-1 – Mahuva Onshore PS (GIS) 220 kV 2xS/c (3 core) cables (35 km-undersea cable of about 25 km and underground cable of about 10 km) alongwith associated line bays at both ends (with capacity of 300 MVA/ckt at nominal voltage) with 1x50 MVA switchable line reactors at B3-OSS-1 end on each cable	220 kV	Cable	S/c	70		RTM	UC	2029-30	Gujarat
WR-3	Creation of 400kV switchyard along with Installation of 2*1500MVA, 765/400kV ICTs at Vataman (AIS) with 2*125 MVA (420kV) Bus Reactors									
	Establishment of 2x1500 MVA, 765/400 kV ICTs at Vataman	765/400 kV	S/s			3000	RTM	UC	2027-28	Gujarat
WR-4	Transmission System for Offshore Wind Zone Phase-II (B3 Pocket: 0.5 GW, B4 Pocket: 1.11 GW & B5 Pocket: 1.59 GW)									
	Augmentation by 7x500 MVA, 400/220 kV ICTs at Mahuva Onshore Pooling Station (Mahuva PS)	400/220 kV	S/s			3500		Planned	2030-31	Gujarat
	Augmentation by 2x315 MVA, 220/66 kV ICTs at Gujarat Offshore B3 Sub-Station Station-1 (B3-OSS-1)	220/66 kV	S/s			630		Planned	2030-31	Gujarat
	Establishment of 4x315 MVA, 220/66 kV Gujarat Offshore B4 Sub-Station Station-1	220/66 kV	S/s			1260		Planned	2030-31	Gujarat

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S. No.	Scheme /details	Voltage level	Type of Work	No. of Circuits	Total ckm	Total MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Establishment of 6x1500 MVA, 765/400 kV Navinal-II S/s (GIS) along with 2x330 MVAR (765 kV) & 1x125 MVAR (400 kV) Bus reactors	765/400 kV	S/s			9000		Planned	2028-29	Gujarat
	Navinal-II (Mundra)- Bhuj-II 765 kV D/c line	765 kV	Line	D/c	140			Planned	2028-29	Gujarat
	LILO of KPS2 – Lakadia 765 kV D/c line at Navinal-II S/s	765 kV	Line	D/c	180			Planned	2028-29	Gujarat
WR-7	Transmission System for supply of power to Green Hydrogen/ Green Ammonia manufacturing hub in Mundra, Gujarat, under Phase-III (7.5 GW)									
	Establishment of 6x1500 MVA, 765/400 kV Navinal-III S/s (GIS) along with 2x330 MVAR (765 kV) & 1x125 MVAR (400 kV) Bus reactors	765/400 kV	S/s			9000		Planned	2030-31	Gujarat
	LILO of KPS3 – Lakadia 765 kV D/c line at Navinal-III S/s	765 kV	Line	D/c	140			Planned	2030-31	Gujarat
	Lakadia -II –Navinal III 765 kV D/c line	765 kV	Line	D/c	240			Planned	2030-31	Gujarat
WR-8	Transmission System for supply of power to Green Hydrogen/ Green Ammonia manufacturing hub in Mundra, Gujarat, under Phase-IV (2.5 GW)									
	Establishment of 3x1500 MVA, 765/400 kV Navinal-IV S/s (GIS) along with 2x330 MVAR (765 kV) & 1x125 MVAR (400 kV) Bus reactors	765/400 kV	S/s			4500		Planned	2031-32	Gujarat
	LILO of Bhuj – Bhuj-II 765 kV D/c line at Navinal-IV	765 kV	Line	D/c	240			Planned	2031-32	Gujarat

S. No.	Scheme /details	Voltage level	Type of Work	No. of Circuits	Total ckm	Total MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
WR-9	Transmission System for evacuation of Green Hydrogen/Ammonia potential in Kandla area of Gujarat (Phase-II: 3 GW) and 1.5 GW RE power evacuation from Raghnesda Phase-II									
	Augmentation of transformation capacity by 2x1500 MVA, 765/400 kV ICTs at Kandla S/s along with 1x330 MVar (765 kV) & 1x125 MVar (400 kV) Bus reactor	765/400 kV	S/s			3000		Planned	2028-29	Gujarat
	Augmentation of Transformation capacity by 1x1500MVA, 765/400kV ICT at Raghnesda PS (Raghnesda-I)	765/400 kV	S/s			1500		Planned	2028-29	Gujarat
	Radhanesda-I - Kandla-I 765 kV D/c line	765 kV	Line	D/c	400			Planned	2028-29	Gujarat
WR-10	Transmission System for evacuation of Green Hydrogen/Ammonia potential in Kandla area of Gujarat (Phase-III: 7.5 GW) and 6 GW RE power evacuation from Raghnesda Phase-III									
	Establishment of 6x1500 MVA, 765/400 kV Kandla-II S/s along with 2x330 MVar (765 kV) & 2x125 MVar (420 kV) Bus reactor	765/400 kV	S/s			9000		Planned	2030-31	Gujarat
	Establishment of 5x1500MVA, 765/400kV Raghnesda-II S/s along with 2x330 MVar (765 kV) & 2x125 MVar (400 kV) Bus reactor	765/400 kV	S/s			7500		Planned	2030-31	Gujarat
	Halvad – Kandla-II 765 kV D/c line	765 kV	Line	D/c	280			Planned	2030-31	Gujarat
	Radhanesda-II - Kandla-II 765 kV D/c line	765 kV	Line	D/c	400			Planned	2030-31	Gujarat
	Radhanesda-I - Radhanesda-II 765 kV D/c line	765 kV	Line	D/c	40			Planned	2030-31	Gujarat
	Kandla-I - Kandla-II 765 kV D/c line	765 kV	Line	D/c	40			Planned	2030-31	Gujarat

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S. No.	Scheme /details	Voltage level	Type of Work	No. of Circuits	Total ckm	Total MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Establishment of 765/400 kV, 8x1500MVA, KPS4 (GIS) with 2x330 MVAR 765kV bus reactor and 2x125 MVAR 400kV bus reactor	765/400 kV	S/s			12000		Planned	2027-28	Gujarat
	KPS4 – KPS2 765kV D/c line	765 kV	Line		60			Planned	2027-28	Gujarat
	±300 MVAR STATCOM on each 400kV Bus section of KPS4	400 kV	Line					Planned	2027-28	Gujarat
	Establishment of 765/400 kV, 4x1500MVA, KPS5 (GIS) with 2x330 MVAR 765kV bus reactor and 2x125 MVAR 400kV bus reactor	765/400 kV	S/s			6000		Planned	2027-28	Gujarat
	KPS4 – KPS5 765kV 2xD/c line	765 kV	Line		88			Planned	2027-28	Gujarat
	±300 MVAR STATCOM on each 400kV Bus section of KPS5	400 kV	S/s					Planned	2027-28	Gujarat
	Augmentation of transformation capacity at Bhuj-II PS by 1x1500 MVA, 765/400 kV (5th) ICT	765/400 kV	S/s			1500		Planned	2027-28	Gujarat
	Establishment of 765/400 kV, 6x1500MVA & 10x500MVA, 400/220kV Lakadia-II (GIS) (Near Chitrod)	765/400/220 kV	S/s			14000		Planned	2027-28	Gujarat
	KPS5 – Lakadia-II 765kV 2xD/c line alongwith 765kV, 330MVAR Switchable line reactors on each circuit at Lakadia-II end	765 kV	Line		160			Planned	2027-28	Gujarat
	LILO of Halvad – Kandla 765kV D/c line at Lakadia-II	765 kV	Line		40			Planned	2027-28	Gujarat
	Lakadia-II – Ahmedabad 765kV D/c line alongwith 765kV, 330MVAR Switchable line reactors on each circuit at Ahmedabad end	765 kV	Line		400			Planned	2027-28	Gujarat
	Lakadia-II – Vataman 765kV D/c line alongwith 765kV, 240MVAR Switchable line reactors on each circuit at both ends	765 kV	Line		440			Planned	2027-28	Gujarat

S. No.	Scheme /details	Voltage level	Type of Work	No. of Circuits	Total ckm	Total MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
	Vadodara(GIS) – Halvad 765kV D/c line to be terminated into Lakadia – Halvad 765kV D/c line (near Halvad S/s) so as to form Lakadia – Vadodara(GIS) 765kV D/c line alongwith 765kV, 330MVA Switchable line reactors on each circuit at Vadodara(GIS) endwith bays at Vadodara(GIS) end	765 kV	Line		700			Planned	2027-28	Gujarat
	Augmentation of transformation capacity at South Olpad S/s by 1x1500MVA, 765/400kV (3rd) ICT	765/400 kV	S/s			1500		Planned	2027-28	Gujarat
	Navsari(New) – Nasik 765kV D/c line alongwith 765kV, 330MVA Switchable line reactors on each circuit at Nasik end	765 kV	Line		180			Planned	2027-28	Gujarat, Maharashtra
	Establishment of 6000 MW, $\pm$ 800 kV Lakadia-II (HVDC) [LCC] terminal station (4x1500 MW) along with associated interconnections with 400 kV HVAC Switchyard (2x1500MW Poles would be on 400kV Sec-I & 2x1500MW Poles would be on 400kV Sec-II)	800 kV	S/s			6000		Planned	2031-32	Gujarat
	Establishment of 6000 MW, $\pm$ 800 kV Alephata (HVDC) [LCC] terminal station 6000 MW, $\pm$ 800 kV Alephata (HVDC) [LCC] terminal station (4x1500 MW) along with associated interconnections with 400 kV HVAC Switchyard	800 kV	S/s			6000		Planned	2031-32	Maharashtra
	$\pm$ 800 kV HVDC Bipole line (Hexa lapwing) between Lakadia-II (HVDC) and Alephata (HVDC) (800 km) (with Dedicated Metallic Return) (capable to evacuate 6000 MW with overload as specified)	800 kV	Line		1600			Planned	2031-32	Gujarat, Maharashtra

S. No.	Scheme /details	Voltage level	Type of Work	No. of Circuits	Total ckm	Total MVA	Mode of Implementation	Present Status	Anticipated Commissioning	State
WR-13	Augmentation of transformation capacity at Lakadia S/s by 1x1500MVA, 765/400kV (4th) ICT									
	Augmentation of transformation capacity at Lakadia S/s by 1x1500MVA, 765/400kV (4th) ICT	765/400 kV	S/s			1500		Planned	2027-28	Gujarat

Annex-VI

Transmission schemes under intra-state need to be added in Gujarat in the timeframe of 2034-35 including under implementation/ already planned

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
(A)	New sub-stations / ICT augmentation								
1	765/400 kV Gela Somnath S/s	Gujarat	765/400 kV	S/s			3000	Planned	2027-28
2	765/400 kV Saykha S/s	Gujarat	765/400 kV	S/s			3000	Planned	2027-28
3	765/400 kV Fedra S/s	Gujarat	765/400 kV	S/s			3000	Planned	2027-28
4	400/220 kV Keshod S/s	Gujarat	400/220 kV	S/s			1000	Planned	2027-28
5	400/220 kV Nagalpar, Dist. Rajkot	Gujarat	400/220 kV	S/s			1320	Planned	2027-28
6	400/220 kV Sevasi, Dist. Vadodara	Gujarat	400/220 kV	S/s			1320	Planned	2027-28
7	220/66 kV Paldi Kankaj, Dist. Ahmedabad	Gujarat	220/66 kV	S/s			320	Planned	2027-28
8	220/66 kV Kharach (Ankleshwar), Dist. Bharuch	Gujarat	220/66 kV	S/s			320	Planned	2027-28
9	220/66 kV Adalaj (Bhat), Dist. Gandhinagar	Gujarat	220/66 kV	S/s			320	Planned	2027-28

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
10	220/66 kV Randheja, Dist. Gandhinagar	Gujarat	220/66 kV	S/s			320	Planned	2027-28
11	Upgradation of 132 kV Dhrol substation to 220 kV, Dist. Jamnagar	Gujarat	220/132 kV	S/s			300	Planned	2027-28
12	220/66 kV Chikada, Dist. Narmada	Gujarat	220/66 kV	S/s			320	Planned	2027-28
13	220/66 kV Vansda (Limzar), Dist. Navsari	Gujarat	220/66 kV	S/s			320	Planned	2027-28
14	765/400 kV Kutch (PS)-1, Dist Kutch	Gujarat	765/400/220 kV	S/s			8000	Planned	2027-28
15	765/400 kV Kutch (PS)-2, Dist Kutch	Gujarat	765/400/220 kV	S/s			4500	Planned	2027-28
16	400/220 kV Kutch (PS)-3, Dist Kutch	Gujarat	400/220 kV	S/s			2000	Planned	2027-28
17	220/66 kV Umarpada S/s	Gujarat	220/66 kV	S/s			320	Planned	2027-28
18	220/66 kV Vansi / Borsi Textile Park GIS	Gujarat	220/66 kV	S/s			320	Planned	2027-28
19	Upgradation of 132kV Ankleshwar S/S to 220kV level	Gujarat	220/66 kV	S/s			320	Planned	2027-28
20	765/400 kV Bagodara (PS), Dist. Surendranagar	Gujarat	765/400/220 kV	S/s			4000	Planned	2027-28
21	400/220 kV Amreli (PS), Dist. Amreli	Gujarat	400/220 kV	S/s			1000	Planned	2027-28
22	Upgradation of 220 kV Gadhsisa substation to 400 kV level, Dist. Kutch	Gujarat	400/220 kV	S/s			1000	Planned	2027-28
23	400/220 kV South Gujarat (PS), Dist. Surat	Gujarat	400/220 kV	S/s			1000	Planned	2027-28
24	Upgradation of 220 kV Radhanesda-II (PS) substation to 400 kV level, Dist. Banaskantha	Gujarat	400/220 kV	S/s			2000	Planned	2027-28
25	220/132 kV Kutch (PS)-2, Dist. Kutch	Gujarat	220/132 kV	S/s			320	Planned	2027-28
26	220/132 kV Patan (PS), Dist. Banaskantha	Gujarat	220/132 kV	S/s			320	Planned	2027-28
28	220/66 kV Makansar S/s	Gujarat	220/66 kV	S/s			320	Planned	2027-28
29	400/220 kV Balethi	Gujarat	400/220 kV	S/s			1000	Planned	2027-28

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
30	400/220 kV Mansar S/s	Gujarat	400/220 kV	S/s			500	Planned	2027-28
31	220/66 kV Vansda (Limzer) S/s	Gujarat	220/66 kV	S/s			320	Planned	2028-29
32	Upgradation of 132 kV Manjusar to 220 kV AIS	Gujarat	220/66 kV	S/s			320	Planned	2028-29
33	220/66 kV Kakwadi Sea Food Park GIS	Gujarat	220/66 kV	S/s			320	Planned	2028-29
34	220/66 kV Jambusar Drug Park GIS	Gujarat	220/66 kV	S/s			480	Planned	2028-29
35	765/400 kV Near Palanpur, Dist. Palanpur	Gujarat	765/400 kV	S/s			3000	Planned	2028-29
36	220/66 kV Abhepar, Dist. Rajkot	Gujarat	220/66 kV	S/s			320	Planned	2028-29
37	220/66 kV Vehlal (Ahmedabad), Dist. Ahmedabad	Gujarat	220/66 kV	S/s			320	Planned	2028-29
38	400/220 kV Pipavav S/s	Gujarat	400/220 kV	S/s			1000	Planned	2028-29
39	220/66 kV Godadara, Dist. Surat	Gujarat	220/66 kV	S/s			320	Planned	2028-29
40	220/66 kV New Agiyol, Dist. Sabarkantha	Gujarat	220/66 kV	S/s			320	Planned	2028-29
41	765/400 kV Near Morbi, Dist. Morbi	Gujarat	765/400 kV	S/s			3000	Planned	2028-29
42	Upgradation of 400 kV Radhanesda-II (PS) substation to 765 kV level, Dist. Banaskantha	Gujarat	765/400 kV	S/s			6000	Planned	2028-29
43	765/400 kV Near Vadodara (PS), Dist. Vadodara	Gujarat	765/400 kV	S/s			3000	Planned	2028-29
44	400/220 kV Bharuch (PS), Dist. Bharuch	Gujarat	400/220 kV	S/s			1500	Planned	2028-29
45	220/132 kV Kutch (PS)-3, Dist. Kutch	Gujarat	220/132 kV	S/s			320	Planned	2028-29
46	220/66 kV Gomta S/s	Gujarat	220/66 kV	S/s			320	Planned	2028-29
47	220/66 kV Sarvala S/s	Gujarat	220/66 kV	S/s			320	Planned	2028-29
48	400/220 kV Deodar, Dist. Banaskantha	Gujarat	400/220 kV	S/s			1000	Planned	2029-30
49	220/66 kV Desar, Dist. Panchmahal	Gujarat	220/66 kV	S/s			320	Planned	2029-30
50	220/66 kV Khirsara, Dist. Rajkot	Gujarat	220/66 kV	S/s			320	Planned	2029-30
51	220/66 kV Near Visnagar, Dist. Mehsana	Gujarat	220/66 kV	S/s			320	Planned	2029-30
52	400/220 kV Botad (PS), Dist. Botad	Gujarat	400/220 kV	S/s			2000	Planned	2029-30
53	400/220 kV Dahod (PS), Dist. Dahod	Gujarat	400/220 kV	S/s			1500	Planned	2029-30

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
54	400/220 kV Surendranagar (PS), Dist. Surendranagar	Gujarat	400/220 kV	S/s			1500	Planned	2029-30
55	220/66 kV Botad (PS), Dist. Botad	Gujarat	220/66 kV	S/s			320	Planned	2029-30
56	220/66 kV Panchmahal (PS), Dist. Panchmahal	Gujarat	220/66 kV	S/s			320	Planned	2029-30
57	220/66 kV Surendranagar (PS)-2, Dist. Surendranagar	Gujarat	220/66 kV	S/s			320	Planned	2029-30
58	400/220 kV Paneli, Dist. Morbi	Gujarat	400/220 kV	S/s			1320	Planned	2030-31
59	220/66 kV Maliya, Dist. Morbi	Gujarat	220/66 kV	S/s			320	Planned	2030-31
60	220/66 kV Palsana, Dist. Surat	Gujarat	220/66 kV	S/s			320	Planned	2030-31
61	220/66 kV Near Mehsana, Dist. Mehsana	Gujarat	220/66 kV	S/s			320	Planned	2030-31
62	220/66 kV Near Patan, Dist. Patan	Gujarat	220/66 kV	S/s			320	Planned	2030-31
63	765/400 kV Jamnagar PS-1, Dist. Jamnagar	Gujarat	765/400/220 kV	S/s			5000	Planned	2030-31
64	765/400 kV Jamnagar PS-2, Dist. Jamnagar	Gujarat	765/400/220 kV	S/s			6500	Planned	2030-31
65	765/400 kV Near Surat (PS), Dist. Surat	Gujarat	765/400 kV	S/s			6000	Planned	2030-31
66	400/220 kV Dwarka PS, Dist. Devbhumi Dwarka	Gujarat	400/220 kV	S/s			2000	Planned	2030-31
67	Upgradation of 220 kV Hajipir substation to 400 kV level, Dist. Kutch	Gujarat	400/220 kV	S/s			2000	Planned	2030-31
68	220/66 kV Dahod (PS), Dist. Dahod	Gujarat	220/66 kV	S/s			320	Planned	2030-31
69	220/66 kV Banaskantha (PS), Dist. Banaskantha	Gujarat	220/66 kV	S/s			320	Planned	2030-31
70	400/220 kV Sami PS	Gujarat	400/220 kV	S/s			1500	Planned	2031-32
71	400/220 kV Mujpur, Dist. Patan	Gujarat	400/220 kV	S/s			1000	Planned	2031-32
72	220/66 kV Near Rajkot, Dist. Rajkot	Gujarat	220/66 kV	S/s			320	Planned	2031-32
73	220/66 kV Near Zekda, Dist. Ahmedabad	Gujarat	220/66 kV	S/s			320	Planned	2031-32
74	220/66 kV Mandali S/s	Gujarat	220/66 kV	S/s			320	Planned	2031-32

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
75	400/220 kV Banaskantha PS, Dist. Banaskantha	Gujarat	400/220 kV	S/s			1500	Planned	2031-32
76	765/400 kV Amreli (PS), Dist. Amreli	Gujarat	765/400 kV	S/s			4500	Planned	2031-32
77	400/220 kV Bhavnagar PS, Dist. Bhavnagar	Gujarat	400/220 kV	S/s			2000	Planned	2031-32
78	220/66 kV Chiloda S/s	Gujarat	220/66 kV	S/s			640	Planned	2031-32
79	220/66 kV Bhavnagar (PS)-2, Dist. Bhavnagar	Gujarat	220/66 kV	S/s			320	Planned	2031-32
80	220/66 kV Bharuch (PS)-2, Dist. Bharuch	Gujarat	220/66 kV	S/s			320	Planned	2031-32
	Transmission Lines								
1	Bhatia - Kalavad 220 kV D/c line	Gujarat	220 kV	Line	D/c	238		Under Construction	2027-28
2	LILO of both circuit of Visavadar - Timbdi 220 kV D/c line at 400 kV Keshod substation	Gujarat	220 kV	Line	2xD/c	24		Planned	2027-28
3	Keshod(400 kV) - Keshod 220 kV D/c line	Gujarat	220 kV	Line	D/c	50		Planned	2027-28
4	LILO of both circuit of 220 KV D/C Morbi – Shivlakha line at Shivlakha (400KV) (Mewasa)	Gujarat	220 kV	Line	2xD/c	100		Under Construction	2027-28
5	Gomta - Kamlapur 220 kV D/c line	Gujarat	220 kV	Line	D/c	220		Planned	2027-28
6	LILO of both circuits of Anjar – Welspun 220 kV S/c line and Shivlakha – Welspun 220 kV S/c line at Gandhidham B S/s	Gujarat	220 kV	Line	2xD/c	20		Planned	2027-28
7	LILO of both ckt of Bhimasar - Morbi 220 kV S/c line and Bhimasar - Sartanpar 220 kV S/c at Gandhidham B (Padana)	Gujarat	220 kV	Line	2xD/c	20		Planned	2027-28
8	Bhimasar - Gandhidham 220 kV D/c line	Gujarat	220 kV	Line	D/c	20		Planned	2027-28
9	Gandhidham - Sartanpar 220 kV D/c line	Gujarat	220 kV	Line	D/c	300		Planned	2027-28
10	LILO of both ckt of BECL - Botad 220 kV D/c line at Avaniya S/s	Gujarat	220 kV	Line	2xD/c	60		Planned	2027-28
11	Kosamba - Balethi 220 kV D/c line	Gujarat	220 kV	Line	D/c	70		Planned	2027-28

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
12	LILO of Haldarwa – Dahej 220 kV S/c line and Wagra-Dahej 220 kV S/c line at 400 kV Saykha (Both ckt on M/C Tower) S/s	Gujarat	220 kV	Line	2xD/c	4		Planned	2027-28
13	Saykha - Suva 220 kV D/c line	Gujarat	220 kV	Line	D/c	20		Planned	2027-28
14	LILO of Ichhapore - Talangpore 220 kV S/c line at 220 kV Dumas	Gujarat	220 kV	Line	D/c	10		Planned	2027-28
15	LILO of GSEG - Talanpore 220 kV S/c line at 220 kV Dumas S/s	Gujarat	220 kV	Line	D/c	10		Planned	2027-28
16	LILO of both circuits of EPGL - Amreli 400 kV D/C line at Keshod	Gujarat	400 kV	Line	M/C	320		Planned	2027-28
17	Kasor - Amreli 400 kV D/c line	Gujarat	400 kV	Line	D/c	460		Under Construction	2027-28
18	Adani - Zerda 400 kV D/c line	Gujarat	400 kV	Line	D/c	640		Under Construction	2027-28
19	Kalavad - Keshod 400 kV D/c line	Gujarat	400 kV	Line	D/c	240		Planned	2027-28
20	LILO of both circuits of Hadala – Chorania 400 kV D/C line at Nagalpar	Gujarat	400 kV	Line	M/C	40		Planned	2027-28
21	LILO of Kosamba – Ichchhapore 220 kV S/c line at GSEG along with other miscellaneous work (High Ampacity Conductor)	Gujarat	220 kV	Line	D/c	16		Planned	2027-28
22	Nagalpar - Ghiyavad 220 kV D/C line	Gujarat	220 kV	Line	D/C	40		Planned	2027-28
23	LILO of both circuits of Kosamba - Chorania 400 kV D/C line at Sevasi	Gujarat	400 kV	Line	M/C	60		Planned	2027-28
24	Sevasi - Mobha (Gavasad) 220 kV D/C line	Gujarat	220 kV	Line	D/C	40		Planned	2027-28
25	LILO of both circuits of Pirana – Barejadi 220 kV D/C line at Paldi Kankaj	Gujarat	220 kV	Line	M/C	60		Planned	2027-28
26	LILO of both circuits of Kawas - Haldarwa 220 kV D/C line at Kharach	Gujarat	220 kV	Line	M/C	40		Planned	2027-28
27	Vadavi – Adalaj 220 kV D/C line	Gujarat	220 kV	Line	D/C	50		Planned	2027-28

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
28	LILO of both circuits of Gandhinagar TPL – Soja 220 kV D/C line at Randheja	Gujarat	220 kV	Line	M/C	40		Planned	2027-28
29	LILO of both circuit of Ukai (Hy) - Achhalia 220 kV D/c line at 220 kV Umarpada (Chikda)	Gujarat	220 kV	Line	2xD/c	60		Planned	2027-28
30	LILO of both circuits of Rupavati - Jamnagar 220 kV D/C line at Dhrol	Gujarat	220 kV	Line	M/C	60		Planned	2027-28
31	LILO of both circuits of Ukai Hydro – Achhalia 220 kV D/C line at Chikada	Gujarat	220 kV	Line	M/C	100		Planned	2027-28
32	LILO of both ckts of Kawas - Haldarwa 220kV D/c line at Ankleshwar by using existing RoW of 132kV D/C Ankleshwar - Bharuch line (4 x 10 =40Ckm)	Gujarat	220 kV	Line	M/c	40		Planned	2027-28
33	LILO of both circuit of planned Navsari (New) (under construction POWERGRID substation) - Khajod 220 kV D/C lines at 220 kV Vansi / Borsi substation	Gujarat	220 kV	Line	M/c	60		Planned	2027-28
34	LILO of both circuits of Navsari - Nasik 220 kV D/C line at Vansda	Gujarat	220 kV	Line	M/C	100		Planned	2027-28
35	765 kV Gela Somnath - Vataman D/C line	Gujarat	765 kV	Line	D/c	400		Planned	2028-29
36	765 kV Pachchham (Fedra) - Saykha line	Gujarat	765 kV	Line	D/c	320		Planned	2028-29
37	LILO of both ckt. Of 220 kV Tharad - Thavar line at new 220 kV S/s near Thavar	Gujarat	220 kV	Line	M/c	30		Planned	2027-28
38	LILO of both circuits of 220 kV D/c Mansar-Sadla line at Bhalgamda S/s	Gujarat	220 kV	Line	M/c	30		Planned	2027-28
39	LILO of 220 kV Jamnagar-Hadala line at Bangavadi S/s	Gujarat	220 kV	Line	D/c	53		Planned	2027-28
40	LILO of 220 kV S/C Hadala – Morbi line at Makansar	Gujarat	220 kV	Line	D/c	40		Planned	2027-28

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
41	400 kV D/C Ukai TPS - Nana Pondha line	Gujarat	400 kV	Line	D/c	300		Planned	2028-29
42	400 kV D/C Nana Pondha - Vapi-II line	Gujarat	400 kV	Line	D/c	70		Planned	2028-29
43	LILO of 220 kV S/C Vapi - Bhilad line at Nana Pondha	Gujarat	220 kV	Line	D/c	70		Planned	2028-29
44	Near Palanpur - Near Kheralu 400 kV D/C line	Gujarat	400 kV	Line	D/C	80		Planned	2028-29
45	LILO of one circuit of Ukai (Hydro) - Umarpada (Chikda) 220 kV D/c line at 220 kV Sarvala with AL-59 conductor	Gujarat	220 kV	Line	D/c	70		Planned	2028-29
46	Babara - Gondal-II 220 kV D/c line	Gujarat	220 kV	Line	D/c	160		Planned	2028-29
47	Pipavav - Rajula 220 kV D/c line	Gujarat	220 kV	Line	D/c	12		Planned	2028-29
48	Pipavav - Otha 220 kV D/c line	Gujarat	220 kV	Line	D/c	130		Planned	2028-29
49	LILO of Navsari-Nasik 220 kV D/c line at Vandsa (Limzer) s/s	Gujarat	220 kV	Line	2xD/c	120		Planned	2028-29
50	Near Palanpur – Prantij 400 kV D/c line	Gujarat	400 kV	Line	D/c	100		Planned	2028-29
51	LILO of both circuits of Kalavad – Siddheshwar 220 kV D/c line at Abhepar	Gujarat	220 kV	Line	M/C	80		Planned	2028-29
52	LILO of both ckt of Asoj - Mogar 220 kV D/c line at Manjusar with UG Cable	Gujarat	220 kV	Line	M/c	6		Planned	2028-29
53	LILO of existing Navsari-Atul and Chikli - Vapi 220 kV lines (after complete planned scheme LILO of both circuit of 220 kV D/C Chikhli - Atul line) at 220 kV Kankwadi / Danti substation (220 kV M/C line - AL-59 conductor with OPGW)	Gujarat	220 kV	Line	D/c	60		Planned	2028-29
54	LILO of both circuit of Amod-Gavasad 220 kV D/c line at 220 kV Jambusar Drug Park substation (220 kV M/C line - AL-59 conductor with OPGW)	Gujarat	220 kV	Line	M/c	80		Planned	2028-29

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
55	Saykha-Jambusar 220 kV D/c line (AL-59 conductor)	Gujarat	220 kV	Line	D/c	60		Planned	2028-29
56	LILO of both circuits of 2 Khanpur - Nicol 220 kV D/c line at Vehlal	Gujarat	220 kV	Line	M/C	100		Planned	2028-29
57	LILO of both circuits of Vav - Popda (Bhestan) 220 kV D/c line at Godadara	Gujarat	220 kV	Line	M/C	80		Planned	2028-29
58	Agiyol - New Agiyol 220 kV D/C line	Gujarat	220 kV	Line	D/C	70		Planned	2028-29
59	Morbi (765 kV) – Nagalpar 400 kV D/C line	Gujarat	400 kV	Line	D/C	140		Planned	2028-29
60	Pipavav - Amreli 400 kV D/c line	Gujarat	400 kV	Line	D/c	190		Planned	2028-29
61	Moti gop - Gondal-II 220 kV D/c line	Gujarat	220 kV	Line	D/c	220		Planned	2028-29
62	LILO of both circuits of 400 kV D/C Charanka - Zerda (Kansari) line at Deodar	Gujarat	400 kV	Line	M/C	80		Planned	2029-30
63	Shivlakha - Veloda 400 kV D/c line	Gujarat	400 kV	Line	D/c	490		Planned	2029-30
64	Bhachunda - Shivlakha 400 kV D/c line	Gujarat	400 kV	Line	D/c	420		Planned	2029-30
65	LILO of Asoj – Sevalia 220 kV S/c line at Desar	Gujarat	220 kV	Line	D/C	50		Planned	2029-30
66	LILO of Jarod – Sevalia 220 kV S/c line at Desar	Gujarat	220 kV	Line	D/C	50		Planned	2029-30
67	LILO of both circuits of Kalavad - Nyara (Rajkot) 220 kV D/C line at Khirsara	Gujarat	220 kV	Line	M/C	80		Planned	2029-30
68	LILO of both circuits of Jamla - Near Kheralu (400kv) 220 kV D/C line at Near Visnagar	Gujarat	220 kV	Line	M/C	80		Planned	2029-30
69	Morbi (765 kV) - Paneli 400 kV D/C line	Gujarat	400 kV	Line	D/C	50		Planned	2030-31
70	LILO of both circuits of Gandhinagar TPS - Ranasan 220 kV D/c line at Bhat substation by using existing RoW of 66 kV Ranasan-Bhat OR Ranasan-PRL 132 kV line	Gujarat	220 kV	Line	2xD/c	128		Planned	2030-31
71	Paneli (400 kV) - Maliya 220 kV D/C line	Gujarat	220 kV	Line	D/C	80		Planned	2030-31

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
72	LILO of both circuits of Navsari (PG) - Popda (Bhestan) 220 kV D/C line at Palsana	Gujarat	220 kV	Line	M/C	40		Planned	2030-31
73	220 kV D/C Near Kheralu (400 kV) - Near Mehsana line	Gujarat	220 kV	Line	D/C	100		Planned	2030-31
74	Veloda - Patan 220 kV D/C line	Gujarat	220 kV	Line	D/C	80		Planned	2030-31
75	Sami PS – Sankhari 400 kV D/C line	Gujarat	400 kV	Line	D/C	100		Planned	2031-32
76	Sami PS – Mujpur 400 kV D/C line	Gujarat	400 kV	Line	D/C	50		Planned	2031-32
77	220 kV D/C Nagalpar - Near Rajkot line	Gujarat	220 kV	Line	D/C	80		Planned	2031-32
78	LILO of Mitha - Soja 220 kV S/c line at 220 kV Mandali	Gujarat	220 kV	Line	D/c	30		Planned	2031-32
79	Chharodi - Mandali 220 kV D/c line	Gujarat	220 kV	Line	D/c	120		Planned	2031-32
80	LILO of one circuit of Ukai (Th) – Achhalia 220 kV D/c line at 220 kV Balethi substation	Gujarat	220 kV	Line	D/c	30		Planned	2031-32
81	GPEC - Achhalia 220 kV D/c line	Gujarat	220 kV	Line	D/c	180		Planned	2031-32
82	Achhalia - Haldarwa 220 kV D/c line	Gujarat	220 kV	Line	D/c	180		Planned	2031-32
83	Suva - Achhalia 220 kV D/c line	Gujarat	220 kV	Line	D/c	140		Planned	2031-32
84	LILO of both circuits of Gandhinagar TPS - Soja/Ranasan 220 kV D/c line at Chiloda	Gujarat	220 kV	Line	2xD/c	60		Planned	2031-32
85	LILO of both circuits of Sanand (Chharodi) - Bhat 220 kV D/C line at Near Zekda	Gujarat	220 kV	Line	M/C	100		Planned	2031-32
86	Kutch (PS)-1 - Kutch (PS)-2 765 kV D/C line	Gujarat	765 kV	Line	D/C	500		Planned	2027-28
87	Kutch (PS)-1 - Bhuj-II (ISTS) 765 kV D/C line	Gujarat	765 kV	Line	D/C	100		Planned	2027-28
88	Kutch (PS)-2 - Bagodara (PS) 765 kV D/C line	Gujarat	765 kV	Line	D/C	440		Planned	2027-28
89	Kutch (PS)-2 - Palanpur 765 kV D/C line	Gujarat	765 kV	Line	D/C	440		Planned	2027-28
90	Kutch (PS)-3 - Kutch(PS)-1 400 kV D/c line	Gujarat	400 kV	Line	D/C	150		Planned	2027-28

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
91	LILO of both circuits of Shivilakha (Mevasa) – Charanka 400 kV D/C line at Kutch (PS)-2 (765 kV)	Gujarat	400 kV	Line	M/C	80		Planned	2027-28
92	Bagodara (PS) - Sayakha 765 kV D/C line	Gujarat	765 kV	Line	D/C	440		Planned	2027-28
93	Amreli (PS) - Saurashtra (Ghela Somnath) 400 kV D/C line	Gujarat	400 kV	Line	D/C	150		Planned	2027-28
94	LILO of both circuits of CGPL - Bhuj Pool 400 kV D/C line at Gadhsisa	Gujarat	400 kV	Line	M/C	200		Planned	2027-28
95	LILO of Kosamva - Vav 400 kV S/C line at South Gujarat (PS)	Gujarat	400 kV	Line	D/C	80		Planned	2027-28
96	Radhanesda-II – Zerda 400 kV D/C line	Gujarat	400 kV	Line	D/C	200		Planned	2027-28
97	Kutch (PS)-2 - Gadhsisa 220 kV D/C line	Gujarat	220 kV	Line	D/C	50		Planned	2027-28
98	Patan (PS) - Radhanesda-II 220 kV D/C line	Gujarat	220 kV	Line	D/C	40		Planned	2027-28
99	Radhanesda-II - Near Palanpur 765 kV D/C line	Gujarat	765 kV	Line	D/C	480		Planned	2028-29
100	Near Palanpur - Near Vadodara 765 kV D/C line	Gujarat	765 kV	Line	D/C	520		Planned	2028-29
101	400 kV D/C Near Vadodara - Balethi line	Gujarat	400 kV	Line	D/C	220		Planned	2028-29
102	Bharuch (PS) - Saykha 400 kV D/C line	Gujarat	400 kV	Line	D/C	200		Planned	2028-29
103	Saykha - South Olpad 765 kV D/C line	Gujarat	765 kV	Line	D/C	200		Planned	2028-29
104	LILO of both circuits of Charanka - Zerda (Kansari) 400 kV D/C line at Banaskantha PS	Gujarat	400 kV	Line	M/C	80		Planned	2031-32
105	Kutch (PS)-2 – Hajipur 220 kV D/C line	Gujarat	220 kV	Line	D/C	80		Planned	2028-29
106	Botad (PS) - Pachchham (Fedra) 400 kV D/C line	Gujarat	400 kV	Line	D/C	200		Planned	2029-30
107	LILO of both circuits of Kasor – Rajgarh 400 kV D/C line at Dahod (PS)	Gujarat	400 kV	Line	M/C	200		Planned	2029-30
108	Dahod (PS) - Zalod 220 kV D/C line	Gujarat	220 kV	Line	D/C	80		Planned	2029-30

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
109	Surendranagar (PS) - Bagodara PS (765kV Ss) 400 kV D/C line	Gujarat	400 kV	Line	D/C	200		Planned	2029-30
110	Bagodara PS - Near Vadodara line	Gujarat	765 kV	Line	D/C	400		Planned	2029-30
111	Botad (PS) - Botad (PS) (400 kV) 220 kV D/C line	Gujarat	220 kV	Line	D/C	80		Planned	2029-30
112	Panchmahal (PS) - Dahod (PS) (400 kV) 220 kV D/C line	Gujarat	220 kV	Line	D/C	140		Planned	2029-30
113	Surendranagar (PS)-2 - Surendranagar (PS) (400 kV) 220 kV D/C line	Gujarat	220 kV	Line	D/C	100		Planned	2029-30
114	JamnagarPS-1 -Kalyanpur (ISTS) 765 kV D/C line	Gujarat	765 kV	Line	D/C	100		Planned	2030-31
115	JamnagarPS-1 -Fedra 765 kV D/C line	Gujarat	765 kV	Line	D/C	700		Planned	2030-31
116	LILO of JamnagarPS-1 -Fedra 765 kV D/C line at Morbi	Gujarat	765 kV	Line	D/C	100		Planned	2030-31
117	LILO of both circuit of 765kV D/c Kalyanpur (ISTS) - Gela Somnath (Rajkot) line at Jamnagar PS-2	Gujarat	765 kV	Line	D/C	80		Planned	2030-31
118	Near Vadodara (PS) - Near Surat PS 765 kV D/C line	Gujarat	765 kV	Line	D/C	400		Planned	2030-31
119	LILO of both circuits of Ukai - Nana Pondha 400 kV D/C line at Near Surat (PS)	Gujarat	400 kV	Line	M/C	160		Planned	2030-31
120	Dwraka PS - Jamnagar PS-2 400 kV D/C line	Gujarat	400 kV	Line	D/C	300		Planned	2030-31
121	Hajipir - Bhuj-II (ISTS) 400 kV D/C line	Gujarat	400 kV	Line	D/C	100		Planned	2030-31
122	Dahod (PS) - Dahod (PS) (400 kV) 220 kV D/C line	Gujarat	220 kV	Line	D/C	100		Planned	2030-31
123	Dwarka (PS) - Jamnagar PS-2 400 kV D/C line	Gujarat	400 kV	Line	D/C	150		Planned	2030-31
124	Banaskantha (PS) - Veloda 220 kV D/C line	Gujarat	220 kV	Line	D/C	70		Planned	2030-31
125	Amreli (PS) - Bagodara PS 765 kV D/C line	Gujarat	765 kV	Line	D/C	500		Planned	2031-32

Sl. No.	Scheme /details	State	Voltage (kV)	Type of Work	No. of circuits	ckm	MVA	Status (Under Construction/ Planned)	Date of Commissioning/ Anticipated date of Commissioning)
126	Bhavnagar PS - Amreli (PS) (765kV SS) 400 kV D/C line	Gujarat	400 kV	Line	D/C	200		Planned	2031-32
127	Bhavnagar (PS)-2 - Bhavnagar (PS) (400 kV) 220 kV D/C line	Gujarat	220 kV	Line	D/C	80		Planned	2031-32
128	Bharuch (PS)-2 - Bharuch (PS) (400kV SS) 220 kV D/C line	Gujarat	220 kV	Line	D/C	100		Planned	2031-32
129	Pipavav - Bagasara 220 kV D/c line	Gujarat	220 kV	Line	D/c	150		Planned	2031-32
130	Ukai TPS (Unit-7 switchyard) – Near Surat Pooling Station 400 kV D/C line with Twin AL-59 conductor	Gujarat	400 kV	Line	D/c	100		Planned	2031-32
131	400 kV D/C Near Surat Pooling Station – Vav line with Quad conductor	Gujarat	400 kV	Line	D/c	50		Planned	2031-32

Annex-VII

List of substations in which high fault level has been observed in the timeframe of 2034-35

Sl. No.	Bus No.	Bus Name	Voltage (kV)	Fault current (A)
1.	354001	ASOJ	400	49324
2.	354002	GANDHAR	400	42704.8
3.	354003	DEHGAM	400	40777.9
4.	354005	SOJA	400	44839.3
5.	354014	PIRANA PG	400	41091.6
6.	354015	APL MUNDRA	400	44724.8
7.	354017	RANCHODPURA	400	44405.9

8.	354018	HADALA	400	41152.2
9.	354019	ZERDA	400	46362.6
10.	354023	CGPL MUNDRA	400	46808.5
11.	354024	BACHAU	400	47739.4
12.	354035	VADODARA	400	55462
13.	354072	KALAVAD	400	41368.9
14.	354079	JAM NAGAR	400	49812.2
15.	354083	UBHRAT	400	42874.4
16.	354135	BHUJ PS	400	53901.4
17.	354136	BANASKANTHA	400	63381.8
18.	354137	SANKHARI	400	52380.8
19.	354146	RAPAR	400	51244.1
20.	354147	LAKADIA	400	58556
21.	354156	SAURASHTRA	400	41269.1
22.	358035	VADODARA	765	45894.8
23.	358044	AHMDABAD	765	51278.6
24.	358046	LAKADIA-II	765	49804.1
25.	358099	HALVAD	765	49756.1
26.	358111	VATAMAN	765	50769.8
27.	358129	NAVINAL	765	41098.3
28.	358135	BHUJ PS	765	53198.5
29.	358136	BANASKANTHA	765	54245.8
30.	358147	LAKADIA	765	52583.4
31.	358200	KPS-I7	765	58415.9
32.	358202	KPS-II7	765	58763.1
33.	358203	KPS-III7	765	58763.1
34.	358204	KHAVDA-IV	765	47989.6
35.	358205	KHAVDA-V	765	46707.5
36.	358208	NAVSARI NEW	765	52101.1

37.	358210	SOUTH OLPAD	765	51001.4
38.	358229	NAVINAL-II	765	40608.3
39.	358294	KPS-IV SPLIT	765	47989.6
40.	358299	KPS-I SPLIT	765	58415.9

