List of Participants

Hon'ble Chairman & Members:
1. Shri Anand Kumar, Chairman, GERC
2. Shri P. J. Thakkar, Member (Technical), GERC

Members / Representatives of Co-ordination Forum:

1. Shri Pankaj Joshi, IAS, MD, GUVNL
2. Shri Rajesh Manjhu, IAS, MD, MGVCL
3. Shri Swaroop P., IAS, MD, UGVCL
4. Ms. Arda Agarwal, IAS, MD, DGVCL
5. Shri J. J. Gandhi, I/c MD, PGVCL
6. Shri H. H. Khoja, Chief Electrical Inspector
7. Shri B. B. Mehta, CE, SLDC
8. Shri K. M. Bhuva, Director (T), GUVNL
9. Shri K. P. Jangid, GM (Commerce), GUVNL
10. Shri S. P. Trivedi, I/c CE, GUVNL
11. Shri N. P. Maheshwari, CE, GETCO
12. Shri N. P. Jadav, ACE, GETCO
13. Shri Y. A. Pathak, DE, GSECL
14. Shri Hitendra Patel, Dy. Secretary, EPD
15. Shri R. J. Desai, CE, DGVCL
16. Shri B. R. Icecreamwala, ACE, DGVCL
17. Shri J. L. Bhatt, ACE, UGVCL
18. Shri R. P. Patel, EE, UGVCL
19. Shri K. D. Barot, DE, UGVCL
20. Shri Amit Sachan, Asst. Manager, GETCO
21. Shri Chetan Bundela, VP, TPL
22. Shri Rakesh Arya, GEDA
23. Ms. N. C. Bhuptani, Assistant Project Executive, GEDA
24. Shri Ranjitsinh Dhadhal, AGM, GPPC
25. Shri Nitin Malkan, VP, CLP India Pvt. Ltd.
26. Shri Piyush Pandya, GM, CLP India Pvt. Ltd.
27. Shri Gourav Sharma, Associate Manager, MUPL
28. Shri S. Mehta, Sr. Div. Engineer, Western Railway
29. Shri S. P. tripathi, Sr. Section Engineer, Western Railway
30. Shri Manan Rathod, Western Railway
31. Shri Priyank Patil, Western Railway
32. Shri N. B. Shah, PA to Chief Electrical Inspector

Officers of the Commission:

1. Shri D. R. Parmar, Joint Director, GERC

2. Shri S. T. Anada, Joint Director, GERC
3. Shri M. R. Jhala, Joint Director, GERC
4. Shri P. J. Jani, Deputy Director, GERC
5. Shri Apurva Adhvaryu, Deputy Director, GERC
6. Shri A. S. Makwana, Assistant Director, GERC
7. Shri Santosh K. Asipu, Assistant Director, GERC
8. Ms. S. B. Dal, Executive, GERC
9. Shri K. M. Thanki, Executive, GERC

Venue: Conference Room, Office of the Commission, GIFT CITY, Gandhinagar
Date: 11th July, 2018
Time: 11:30 AM

The meeting started with address by Hon'ble Chairman, GERC welcoming members of the Co-ordination Forum and asked Joint Director (Technical) to start the proceedings of the meeting. Joint Director (Technical) initiated discussions on the Agenda Items.

Agenda Item No. 1: Approval of the minutes of the 19th Meeting of the Co-ordination Forum held on 14th November, 2017.

Minutes of the last meeting i.e. 19th Meeting was circulated to the members of the Forum and since no comments were received from any of the members of the Forum, it was put forward for confirmation and accordingly the said minutes were confirmed.

Agenda Item No. 2

Item No. 2.1: Joint Director (Technical), GERC recalled the discussions took place during 19th Meeting of the Co-ordination Forum regarding high losses of JGY feeders and directives issued for identification of JGY feeders having losses greater than 50% and initiate measures to curb these losses by 5%. The Forum was informed about Action Taken by DISCOMs in this regard. While discussing the issue of higher losses of JGY feeders, Hon'ble Chairman, GERC put across an issue raised during the meeting of State Advisory Committee regarding higher distribution losses in PGVCL's license area. I/c Managing Director, PGVCL stated that for other than agriculture sector, distribution losses are low, however, for agriculture feeders, distribution losses are more than 50% and provided the reasons for such high losses which are seasonal variations, monsoon, etc. The Forum was also apprised about measures taken by PGVCL to reduce these losses such as release of large number of agriculture connections as it has been identified

that electricity pilferage by agriculture electricity connection applicants not having provided with electricity connections yet are resorted to such measures and thus being cause of high distribution losses and it was also informed that during the year 2017-18, more than 85000 agriculture connections were released. Further, measure such as implementation of HVDS scheme was also put forward for information of the Forum. Hon'ble Member (Technical) desired to know of any action plan PGVCL have to reduce such losses considering vocal opinion of Members of the State Advisory Committee to which I/c Managing Director, PGVCL informed that action plan is in existence to reduce loses and curb pilferage of electricity through rigorous vigilance activities.

Continuing the discussion on high distribution losses, Hon'ble Chairman, GERC inquired whether such issue is taken up at GUVNL level where Managing Director, GUVNL informed that the said issue has been taken up as the agenda item during meeting at Managing Directors level where reasons for high distribution losses and measures being initiated to curb them are being discussed and it was also asked to the Commission to observe downward trend of distribution losses. It was also added that PGVCL has been facing problem of electricity pilferage for so long and due to administrative issues, it has not been easy implementing measures relating to reduction of distribution losses. However, Hon'ble Chairman, GERC insisted PGVCL to make an attempt to reduce theft and distribution losses, to which, I/c Managing Director, PGVCL replied that PGVCL is having long list of pending application for agriculture connections and with clearance of such list, electricity theft will reduce. It was also added that introduction of SKY scheme for farmers will also reduce electricity pilferage, however, it will take time. Agreeing with the measures provided by PGVCL, Managing Director, GUVNL also added that it has been planned to clear all backlog applications for agriculture connection in next two years to reduce electricity theft. It was also informed that voluntary scheme for load reduction was also introduced during the months of June and July, 2017 as a measure to curb electricity theft and distribution losses, however, response from the farmers was very poor. Further, farmers were contacted personally to create awareness and implications of unauthorised usage of electricity and thus asking them to regularize their demand and thereafter, notices of unauthorised usage of electricity were issued with assessment in accordance with the provisions of the Electricity Act, 2003. On an inquiry about ways of issuance of notices to farmers regarding unauthorised usage of electricity, I/c Managing Director, PGVCL informed that notices are issued through registered post with acknowledgment in accordance with the Regulations. Further, it was also added that Khedut Shibir, village level farmers meeting, are some of means to make farmers aware about repercussions of unauthorised usage of electricity. Moreover, it was also informed that agriculture consumers can approach to PGVCL to get information

of their contracted load and usage of electricity and thus to apply for load extension and citing reference of voluntary scheme introduced as informed by Managing Director, GUVNL, it was stated that poor response led PGVCL to opt for other measures to curb unauthorised use of electricity and electricity theft. The argument was further reasoned with information that farmers use additional pump set with high capacity to draw water during the months of January and February in case of poor rainy season in which case water level is deep and thus usage of load is high which is difficult to prevent. Hon'ble Chairman, GERC insisted for technical solution for prevention of electricity theft and unauthorised usage of electricity.

Item No. 2.2: Joint Director (Technical), GERC gave a brief about deliberations held during last meeting in reference to a meeting held with officials of SLDC, GEDA and CEI regarding monitoring of RPO by obligated entities and development of web tool and advise given to GEDA to collect RPO status from the obligated entities and submission of RPO compliance report on quarterly basis to the Commission in accordance with GERC RPO Regulations. The Forum was then informed about action taken by GEDA in this regard where representative of GEDA apprised the Forum that list of 276 Short Term Open Access consumers and list of 107 Captive Power Producers which are obligated entities to comply with RPO has been received from SLDC and Chief Electrical Inspector respectively. It was also informed that for the year 2017-18, 37 STOA consumers and 15 CPPs have complied with the RPO respectively out of which 6 STOA consumers have fulfilled RPO. The Forum observed non-compliance of RPO by the obligated entities and asked GEDA to insist obligated entities to fulfil RPO requirements in accordance with GERC RPO Regulations to which, representative of GUVNL stated that the said Regulations have been challenged before Hon'ble High Court of Gujarat. Deputy Director (Legal), GERC provided further information that amendment in the principle RPO Regulations has been notified in the year 2011 covering STOA and CPP consumers under obligated entities for compliance of RPO, which was challenged before Hon'ble High Court of Gujarat where decision of single judge bench was in favour of the compliance of RPO by the said obligated entities, however, the said order has been challenged before division bench and the matter is still pending. Hon'ble Chairman, GERC asked the staff of the Commission to pursue the matter with Hon'ble High Court in all possible ways.

Further, it was informed by the representative of GEDA that captive consumption data of CPPs for the year 2017-18 has been received on dt. 10.07.2018 from Chief Electrical Inspector and RPO compliance report will be submitted in due course. Hon'ble Chairman, GERC inquired whether Chief Electrical Inspector has sufficient staff considering amount of work CEI has to handle, to which CEI

apprised the Forum about recruitment taking place and also raised concern of staff shortage.

Item No. 2.3: The Forum then was informed about deliberations regarding setting up bench mark for reliability indices which took place during last meeting by Joint Director (Technical), GERC and in-house study being conducted by the staff of the Commission to evaluate consumer services provided by distribution utilities and visits being carried out at various offices of distribution utilities by the staff of the Commission in this regard.

Joint Director (Technical) shared an experience of visiting PGVCL Rajkot, Jamnagar and Porbandar license areas for the said study purpose and it was observed that GETCO should provide interruption data to PGVCL without any human intervention for effective reporting and reliability indices. On a query regarding eliminating human intervention on measurement and reporting of interruptions, Chief Engineer, SLDC informed that measurement devise has already been installed at sub-station level which measures data every half an hour but the devise is not capturing the data of interruption. Hon'ble Chairman, GERC apprised the Forum about evolvement of power quality issue at national level and penalty mechanism is under pipeline for poor reliability indices. He also insisted on creating a model for others where data are measured and reported without any human intervention at feeder level and set a target to achieve the same. Hon'ble Member (Technical) informed about the initiative of REC about installation of devise to measure interruption at feeder level.

Item No. 2.4 and Agenda Item No. 3: While discussions on development of web tool for monitoring of RPO compliance and action taken from GEDA in this regard, it was informed by representative of GEDA that online tool has been developed and already hosted in GEDA's website but new RPO targets set by the Commission are to be incorporated in that web tool. It was decided to have a further deliberation on the usage of web tool for RPO monitoring in the next meeting by the time the tool is updated.
(Action: GEDA)

Item No. 2.5: The Forum was apprised that the Commission has also set up new RPO targets for the year 2017-18 to 2021-22 vide GERC (Procurement of Energy from Renewable Sources) (Second Amendment) Regulations, 2018 notified vide notification no. 1 of 2018 dated 21.04.2018 in consideration with national target set by Ministry of Power, Government of India.

Item No. 2.6: Next item in the agenda regarding pending railway crossing applications with Western railway causing hurdles in providing power supply to

consumers was taken up by Joint Director (Technical), GERC where he informed that based on the complaint of GETCO the issue was taken up during last meeting of the co-ordination forum, however, GETCO has submitted in the action taken report that long pending proposals have been approved by Western Railway after discussions during last meeting of the co-ordination forum and applications pending are of recent period only. Distribution Utilities were asked to apprise the Forum with updated status on pending railways crossing application, to which, Managing Director, DGVCL and Managing Director, MGVCL stated that applications are pending with Western Railway and applications as old as June 2017 are still pending for clearance. Representative of Western Railways justified that the said applications are pending due to non-response from the applicants to which Managing Director, MGVCL countered that due to non-provision of estimates by Western Railway, said applications are still pending. Managing Director, UGVCL informed that 8 applications were pending which have now been resolved. Representative of Western Railways has updated the Forum that the said work of clearance of pending applications for railway crossing was being handled by engineering department which now has been transferred to electrical department and the said department is now closely monitoring the status of the pending applications of railway crossing and a time line has been set for clearance of the said applications.

The Commission asked distribution utilities to share the details of pending applications of railway crossing with representatives of Western Railway and insisted Western Railway to clear the said pending applications up to the year 2017. Accordingly, DGVCL, MGVCL and PGVCL have shared list of pending applications of railway crossing which is annexed as Annexure I.
(Action: Western Railway, DGVCL, MGVCL and PGVCL)

Agenda Item No. 4 and 5: The said agenda items were put forward by the Joint Director (Technical), GERC before the Forum where information on issuance of Biomass tariff order and issuance of order on additional surcharge was provided.

Agenda Item No. 6: The Forum was informed about observations of the Commission from Reports on Standard of Performance submitted by distribution utilities in accordance with GERC Standard of Performance of Distribution Licensee Regulations, 2005, in reference to less number of meetings being scheduled of grievances redressal committee established and functioning in accordance with the said GERC SoP Regulations, 2005. Managing Directors of Distribution Utilities stated that meetings at the level of grievances redressal committee are being scheduled in accordance with the GERC SoP Regulations, 2005.

Hon'ble Chairman, GERC put forward a suggestion of increase in number of CGRFs considering the recent visits at PGVCL's license areas for the purpose of in-house study to evaluate consumer services offered by distribution licensees where it was observed that consumers staying at far distance from the office of the CGRF have to travel more than 100 KMs and this may be one of the reasons of avoidance of consumers to approach the CGRF. It was requested to apprise the Commission with work load of existing CGRFs for creation of new CGRFs to which Managing Director, MGVCL stated that the complaints are being taken up at division level and if consumer is not satisfied with redressal then he may approach to CGRF and grievances redressal committees are in existence at division level and therefore there is no need to increase number of CGRF in MGVCL's license area. Managing Director, DGVCL opined that CGRFs can be established at far off areas where consumers are unable to approach to existing CGRF. Managing Director, UGVCL stated that looking to large base of agriculture consumers, more CGRF can be established for redressal of grievances of these agriculture consumers. However, Managing Director, DGVCL pointed out issue of appointment of Chairperson of CGRF where it was informed that looking at the criteria depicted under GERC Consumer Grievances Redressal Forum and Ombudsman Regulations, 2011, for appointment of Chairperson of CGRF, it has become very difficult find suitable candidates for the said post. On inquiry, the Forum was informed that eligibility criteria for appointment of Chairperson of CGRF as per the said Regulations senior electrical engineer not below the rank of Chief Engineer, retired district Judge, retired senior judicial office or retired civil servant not below the rank of Collector can be appointed as Chairperson of CGRFs. It was informed that engineers are being retired before reaching at the level of Chief Engineer and thus creating scarcity of Chief Engineers for the posting of Chairperson of CGRFs. The Commission then decided to have separate discussions in this regard requested the staff of the Commission to look into the matter and have deliberations with the Commission. However, considering the observations made during the visits as stated above, four State Owned DISCOMs are requested to explore possibilities of establishment of CGRFs at Banaskantha in DGVCL's license area, Dahod in MGVCL's license area, Valsad in UGVCL's license area and Junagadh in PGVCL's license area.
(Action: Staff of the Commission, four State Owned DISCOMs).

Agenda Item No. 7: The Standard of Performance reports submitted by distribution utilities in accordance with GERC SoP Regulations, 2005 were discussed in this agenda item. Looking at these reports, it was observed that number of fatal electrical accidents are till high which was also pointed out by the members of the State Advisory Committee during 25th Meeting of the State Advisory Committee and Chief Electrical Inspector being authority to look after

safety aspects was asked to deliberate on the issue, where, Chief Electrical Inspector informed the Forum that most of the accidents are within consumers' premises which do not come under the purview of distribution utilities and many electrical accidents in Saurashtra Region of PGVCL's license area are due to consumers taking electricity matters in their own hand and carrying out wrong electricity connections and he also suggested to make consumers aware of electrical safety. Hon'ble Chairman also pointed out discussions held on the issue of poor maintenance activities carried out by distribution utilities during 25th meeting of the State Advisory Committee, to which, Chief Electrical Inspector apprised about Joint Inspection carried out with officers of distribution utilities and necessary suggestions were also provided. Managing Director, GUVNL also informed about consumers awareness programmes being taken up by distribution utilities. Representative of DGVCL also informed the Forum about appointment of safety officers in reference to Safety Regulations of Central Electricity Authority. Managing Director, MGVCL apprised the Forum about measures taken up to make consumers aware about electrical safety such as holding of rallies, advertisement through posters before Diwali and Uttarayan festivals, holding of safety week to make personnel of MGVCL aware about electrical safety, etc. Chief Electrical Inspector was asked whether every electrical accident is being analysed to which it was replied that each electrical accidents is thoroughly analysed and necessary suggestions are being provided for prevention of such electrical accidents in future course. Further, on inquiry about system being adopted for physical verification of electrical installation, representative of TPL apprised that such verification is carried out by personnel of TPL where wiring is checked and megger exercise is carried out in case of doubt about earthing and consumer is also asked to provide separate earthing, to which, representatives of four State Owned DISCOMs also informed about the same practice of asking consumers to provide for separate earthing in existence in their license areas, however, it was also informed that megger exercise is not carried out in their license areas. Hon'ble Chairman, GERC insisted Chief Electrical Inspector, being the authority to look after electrical safety, to carry out cross-verification of separate earthing provided by distribution utilities on sample case basis i.e. 5% of total earthing provided along with electrical installations at consumers' premises on the said basis and suspend licensed electrical contractor in case of visibility of any defects in wiring of electrical installation observing that quality of electrical installation at consumers' premises should be proper. Chief Electrical Inspector informed that four State Owned DISCOMs have adopted TT earthing system where separate earthing is provided at consumers' premises which made it mandatory for distribution utilities to provide separate earthing pit at consumers premises, which, distribution utilities have been providing for new electricity connection and for old electricity connection, said earthings are being provided through electrical contractors. Based on the

information provided, distribution utilities were advised to carry out the said cross-verification for earthings provided at consumers' premises on sample basis i.e. 5% of total earthing provided and submit the report to the Commission. Managing Director, MGVCL apprised about such cross- verification being carried out for separate earthing provided at consumers' premises and penalizing electrical contractors and personnel of MGVCL at Anand south division and Vadodara for poor earthing. Joint Director (Technical), GERC informed the Forum about provision of mandatory installation of ELCB by consumers for electricity connections having more than 2 kW contracted demand in accordance with Safety Regulations of Central Electrcity Authority, to which, representatives of distribution utilities stated that such practice is being followed and it is also incuded in test report but due to high cost of such ELCBs, these are not installed. Further, it was also added that in case such ELCBs are installed, they are bypassed due to sensitivity of the devices and in case of high rise buildings, switch over of power supply to generator set also causes such ELCBs to trip and due to this reason, ELCBs are bypassed. The Commission, considering sensitivity of provision of earthing, asked distribution utilities to have a joint discussion with Chief Electrical Inspector and submit the report to the Commission.

Thereafter, the Forum was briefed about mystery calling exercise carried out by the staff of the Commission to customer care centres established by distribution utilities and shared the experience that customer care executives need proper guidance and training. Managing Director, GUVNL second the opinion provided and stated that they are aware about issues with customer care centres where there is a behaviour problem and basic training is required and training agencies have been asked to provide such training which will be carried out within a month. Experience was also shared of calling customer care centre of Torrent Power Limited and efforts of customer care executives were appreciated. Representative of TPL informed that they have in-house customer care executives and proper training is provided to them.

Hon'ble Chairman, GERC then discussed suggestion provided by Additional Chief Secretary, Energy and Petrochemicals Department, Government of Gujarat about creation of cell at the office of the Commission for interpretation of Rules and Regulations notified by the Commission. The members of the Forum observed that interpretation of Rules and Regulations is an issue and petition in this regard takes time and thus, the said suggestions should be implemented where regulatory officers should be assign entrusting them with responsibilities of interpretation and clarification of Rules and Regulations notified by the Commission. The Commission stated that the possibilities of implementation of the said suggestion would be explored considering legality in mind.

While going through the SoP Reports, the Commission observed that transformer failure in PGVCL's license area is quite large and I/c Managing Director, PGVCL was asked to provide justification for the same, where, I/c Managing Director, PGVCL informed that 87% transformer failure is in agriculture sector due to agriculture consumers using excess load. It was also informed that release of pending agriculture connections would resolve the issue of transformer failure where during the year 2016-17, it reduced to 10.85% compared to 11.97% during the year 2015-16, however, it increased up to 11.51% during the year 2017-18 due to good rain during the months of June-July, 2017, playing significant part in transformer failure. Managing Director, UGVCL informed that Banaskantha flood was the main reason for higher transformer failure rate during the year 2017-18. Managing Director, GUVNL apprised the Commission that this issue is being taken as one of the agenda item during monthly meeting to deliberate on the reasons for such transformer failure. Managing Director, MGVCL also informed that transformer failure is one of the criteria for decision of incentive for the employees of four State Owned DISCOMs and GUVNL and thus importance is provided to reduction of transformer failure. It was also informed that in case of MGVCL's license area, cluster is chosen and staff is appointed for measurement of transformer failure rate and to take adequate steps to reduce this rate. Managing Director, DGVCL apprised the Commission about practice being adopted in DGVCL's license are where sub-division offices cannot afford to have more than 5 transformer failures. Managing Director, GUVNL informed the Commission that base line for such transformer failure is different for four State Owned DISCOMs based on geographical area and past trend of distribution transformer failure.

Further discussions were held regarding faulty meters and it was observed that the number is large in case of DGVCL and PGVCL, to which, Managing Director, DGVCL stated that number was large due to backlog which is cleared now. The Commission insisted on distribution utilities to adhere to provisions of GERC Supply Code Regulations, 2015 and GERC SoP Regulations, 2005 regarding time line for replacement of faulty meters.
(Action: Chief Electrical Inspector, four State Owned DISCOMs)

Agenda Item No. 8: In the absence of Managing Director, GETCO, Chief Engineer, SLDC made a detailed presentation, as a part of regular agenda item, about GETCO's performance where he apprised the Forum about growth in installed capacity in the state of Gujarat, growth in transmission network in reference to growth in installed capacity, inter-State transmission network, rise in usage of renewable energy sources and transmission network's ability to cater variations of wind, transmission infrastructure capacity addition planned to meet growing demand, achievement of transmission infrastructure planned during FY

2017-18 and transmission network planning for the year 2018-19, green energy corridor, various technologies adopted, and weakness of GETCO's network and remedy to overcome those weaknesses. Hon'ble Chairman, GERC emphasized on conductance of study of congestion in transmission network considering increasing installed capacity of renewables within the State and outside the State as well. Chief Engineer, SLDC informed that Gujarat is able to draw 8500 MW of capacity from intra-State transmission network and inter-State and intra-State transmission planning is being carried out considering the congestion issues. Further, GETCO network is also able to withstand varying wind intake. Hon'ble Member (Technical), GERC desired to know status of transmission network being laid down in Green Energy Corridor scheme to which it was informed that by the year 2019, it will be completed and first phase is in verge of completion where transmission network is to be laid down within the State. Representative of GUVNL added that a Committee is formed at Central level which is closely monitoring progress of transmission network under Green Energy Corridor project. It was also informed that the Committee has identified 36000 MW of off-shore wind capacity near GSPC Pipavav and target has been set of installing such capacity by the year 2025-26 and accordingly transmission network planning has been carried out in consultation with GETCO. The Forum was also informed about transmission network planning carried out to evacuate 1000 MW Solar capacity being installed at Solar Park and on a query from the Commission about approval of ARR such transmission network, it was informed that ARR for the said transmission network has already been approved in MYT Order dated 31.03.2016 where transmission line is already awarded and transmission sub-station is under progress. Further information on underutilization of Bhopal Dhule Transmission line was provided to the Forum where it was stated that assessment is carried out, however, the said transmission line is connected to Power Grid network and therefore, GETCO is not concerned about the said transmission line and also, GETCO is exclusively looking after transmission network within the State, however, for inter-State transmission network, it is responsibility of CTU to look after the network. Chief Engineer, SLDC also informed that as per order of Central Electricity Regulatory Commission on approval of procedure for grant of connectivity, for transmission lines connected with renewable energy generating stations having 50 MW and above capacity and also with Central Transmission Utility network is under the purview of Central Transmission Utility, however, transmission network connected with renewable generating stations having capacity of less than 50 MW and intra-State transmission network is under the purview of GETCO.

Copy of the presentation is annexed herewith as Annexure II.

Agenda Item No. 9: Representative of GEDA informed the Forum about RPO compliance status of obligated entities for the year 2017-18 and upto second quarter of the year 2017-18. For the RPO compliance status of Open Access consumers and CPPs, it was informed that during the year 2017-18 out of 278 obligated entities, 37 obligated entities have submitted their RPO compliance status for the said year where 06 obligated entities have fulfilled their RPO compliance for the said year while for CPPs, out of 107 obligated entities 15 obligated entities have submitted RPO compliance status for the said year where no obligated entities have fulfilled their RPO compliance for the said year. Further, information on status of development of web tool for monitoring compliance of RPO was also informed to the Forum where it was informed that four State Owned DISCOMs are still not using the said web tool inspite of trainings provided to personnel of DISCOMs to which Hon'ble Chairman, GERC insisted on DISCOMs and TPL to use the said web tool and ask GEDA, DISCOMs and TPL to have a separate discussion for effective usage of web tool. Representative of GEDA also presented a few issues for guidance of the Commission to which it was requested to have a separate communication in this regard and the Commission, after deliberations on the issues, will surely provide the necessary guidance.
(Action: GEDA, four State Owned DISCOMs and TPL)

Copy of the presentation is annexed herewith as Annexure III.

Agenda Item No. 10: General Manger, GUVNL made a detailed presentation on the power sector scenario in the State. It was informed that total installed capacity is 26884 MW is having highest share of coal and lignite based fuel followed by Renewable, Gas, Hydro and Nuclear. Information on total renewable installed capacity and GUVNL's share in that capacity was also provided. Present power sector scenario was also highlighted where it was informed that state owned DISCOMs are having 22788 MW tied up capacity on long term basis against peak demand of 15000 MW out of which 17905 MW capacity is of convention energy course while 4883 MW capacity of renewable energy source. It was also pointed out that 4805 MW of tied up capacity based on imported coal is not being use due to stoppage of generating stations in supplying power, however, it was added that Adani Power Limited has started supplying 250 MW power but Essar Power Limited is not under shutdown. Further, it was also pointed out that capacity of 5500 MW can be imported to meet demand due to un-availability of transmission network, but with coming of NTPC plans, transmission network capacity will increase. Arrangements made by GUVNL to mitigate demand due to non-availability of power from Essar Power and Adani Power generating stations were also informed to the Forum, where it was informed that 8312 MUs of power is purchase from power exchanges at average rate of Rs. 4.18/unit during April 2017

to June 2018, however, on a query about utilization of gas based power plants, it was answered that if exchange price is more than Rs. 4.70/unit than gas based power plants are utilized. On a query about utilization of renewable power plants, it was informed that such renewable power cannot be utilized to mitigate base load due to wind variations and time restriction for usage of solar. It was also added that gas based capacity is available, however, cost of gad based generation which is Rs. 6.5/unit, leads to power purchase from power exchanges. Hon'ble Chairman, GERC desired to know whether enough capacity is available with power exchanges, to which, it was replied that 5000 MW to 6000 MW power supply is available with power exchanges. Information on capacity added and de-rated during the year 2016-17 and 2017-18 was also provided to the Forum along with capacity addition plan up to the year 2022. On a query about retrofitting due to strict environmental norms established at Central level by Ministry of Environment, Forest and Climate Change, Government of India, it was informed that Plant Availability Factor will be affected due to such retrofitting of power plants to meet the specified environmental norms. Power purchase tie up from renewable sources to mitigate demand were also discussed. The presentation ended with information on status RPO compliance by four State Owned DISCOMs during the year 2017-18 and it was added that solar rooftop and solar home lights are also considered under RPO.

Copy of the presentation is annexed herewith as Annexure IV.

Hon'ble Chairman, GERC thanked members of the Forum for their valuable suggestions to make electricity system of the State better. The meeting was concluded with a Vote of Thanks to the Chair.

-Sd/-
(Roopwant Singh, IAS)
Secretary
Gujarat Electricity Regulatory Commission
Gandhinagar

Annexure I

List of pending applications of Railway crossing

DGVCL

SR. NO.	NAME OF CIRCLE	NAME OF DN	NAME OF SDN	NAME OF LINE	RAILWAY CROSSING BETN		NAME OF RAILWAY DN	DT OF SUBMISSSION PRAPOSAL TO RAILWAY	STATUS OF JOINT SURVEY	2%INITIAL PAYMENT ON DT.IF ANY	STATUS OF FINAL ESTIMATE	PAYMENT OF FINAL ESTIMATE	APPROVAL	WORK PERMISSION	QUERRIES	COMPLIANCES	REMARKS	NOS.OF DAYS SINCE PRAPOSLS PENDING.
					TP NO	RLY STATION												
1	**Valsad**	Valsad-R	Rankuva	11 Kv Chachha JGY	20/6 - 20/8	Chihli Road - Rankuva	Mumbai Central	24.03.2017	01.12.17	SD charges of Rs. 5 Lacks paid on 14.11.17.	Pending	Pending	Pending	Pending	Pending	Pending	SD charges Rs. 2000000/- paid on dt. 14.11.17 by DD. Joint inspection carried out ondt.1.12.17 . Origional tracing copy submitted on dt.3.4.18 .as per required format by railway . Telephonic talked with concern employ on dt. 15.5.18 for approval . He said that the process for approval is going on and it can be take time in Engineering department.	
2	Valsad	Valsad-R	Rankuva	11 Kv Undhval Ag	20/7-20/8	Chihli Road - Rankuva	Mumbai Central	24.03.2017	01.12.17	SD charges of Rs. 5 Lacks paid on 14.11.17.	Pending	Pending	Pending	Pending	Pending	Pending		
3	Valsad	Valsad-R	Rankuva	11 Kv Rankuva JGY	21/10-21/11	Rankuva - Dhilikuva	Mumbai Central	24.03.2017	01.12.17	SD charges of Rs. 5 Lacks paid on 14.11.17.	Pending	Pending	Pending	Pending	Pending	Pending		
4	Valsad	Valsad-R	Rankuva	11 Kv Donja Ag	21/12-22/01	Rankuva - Dhilikuva	Mumbai Central	24.03.2017	01.12.17	SD charges of Rs. 5 Lacks paid on 14.11.17.	Pending	Pending	Pending	Pending	Pending	Pending		
5	**Surat-R**	NIL																
6	**Surat City**	NIL																
6	**BHARUCH**	ANKLESH WAR RURAL	ZAGADIA	11 KV KHADOLI AG FEEDER	KM-23/3 to 23/4	Between ZAGADIA & Avidha	WESTERN RLY. DIVISION	20-07-2017	COMPLETED	SUBMITTION OF MONEY RECEIPT OF 2% INITIAL PENDING(Required DD/Money receipt obtained from railway station on dta.3.11.17, Ankleshwar and required to submit to DR office Vadodara.	GET FINAL ESTIMATE ON DTD 08.02.2018	SUBMITTION OF MONEY RECEIPT OF Estimate Payment on dtd08.03.2018 to DRM office Vadodara.	Pending	Pending	Pending	Pending	The agreement for the said work is submited, and contractor details pending to submit (The tender is under process for this work)	322 DAYS

MGVCL

Sr No.	Name of Circle	Name of div	Name of sub div	Railway approach for feeder bifurcation	Name of Scheme	Dt of application registered to Railway	Date of final Estimate issued by railway authority	Date of Estimate payment to Railway	Status
1	Baroda- R	Baroda	Chhani	11KV Siswa - At GSFC	DDUJGY	16.06.17	NA	NA	Estimate not received from Railway
2	Baroda- R	Dabhoi	Sankheda	11KV Makni Ag fdr bifurcation	DDUJGY	31.08.17	NA	NA	Estimate not received from Railway
3	Baroda- R	Dabhoi	Sankheda	11KV Bhatpur Ag fdr bifurcation	DDUJGY	31.08.17	NA	NA	Estimate not received from Railway
4	Baroda- R	Baroda	Waghodia	11KV Khandha AG	DDUJGY	09.05.18	NA	NA	Estimate not received from Railway
5	Baroda- R	Jambuva	Jambuva	New 11 KV Ramangamdi (agdom) feeder bifurcated from Itola & Puniyad (agdom) feeder.	DDUJGY	28.5.18	NA	NA	Estimate not received from Railway
6	Baroda- R	Jambuva	Padra-1	New 11 KV Sokhada (JGY) feeder bifurcated from Goriyad (JGY) feeder.	DDUJGY	28.5.18	NA	NA	Estimate not received from Railway
7	Baroda- R	Jambuva	Padra-1	New 11 KV Banco(Ind) feeder bifurcated from Bill (Ind) feeder.	DDUJGY	29.5.18	NA	NA	Estimate not received from Railway

8	Godhra-R	Godhra	Godhra East	Kashudi closed Railway crossing for bhagvat feeder bifurcation	IPDS	30-07-2017		--	Preliminary estimate of RS.31,90,856/- received on 15.12.2017,but as the railway crossing work is estimated around 5 to 6 lacs approx.,matter is referred to Railway authority for due rectification. They have principally agreed to revise the same.The revised estimate is awaited.
9	Godhra-R	Godhra	Godhra East	Spare cable for Godhra city fdr under Godhra East	IPDS	30-07-2017		--	---do---
10	Godhra-R	Godhra	Santrod	Near kabir complex old Railway crossing under santrod sub dn Santroad Jgy fdr bifurcation	DDUJGY	30-07-2017		--	---do---
11	Godhra-R	Godhra	Santrod	Near kabir complex old railway crossing under santrod sub dn (For replacement of old deteriorated cable Asaydi Ag fdr)	DDUJGY	30-07-2017		--	---do---

12	Anand	Anand	Anand(S)	AGDOM Feeder - Chikhodra(Anand-Vadod)	DDUJGY	27.03.17	12.12.2017	08.01.2018	Bank Gaurantee of Rs 5,00,000/-given to western Railway on dtd 08.02.2018.Railway permission awaited.
13	Anand	Borsad	Vasad	Ginning JGY fdr Bifurcation under Vasad sub dn	DDUJGY	13.6.17			Proposal sent vide letter no : BSD/Tech-3/Railway Crossing/2851 dtd 13-JUN-2017 but estimate is awaited form Railway authority.

PGVCL

Sr No	Circle	Division	Sub division	Type of work i.e feeder BF/New HT conn/New LT connection/Shifting of line/DTC Review /other etc	Work Involved			Location no of Railway crossing/ between station	Proposal No date	Estimate No and date by Railway	Approval No and Date by Railway authority	Amount Paid to railway authority Rs/Date	Latest status of approval	Detail of works held up due to railway crossing approval	Remarks	Updated status of same
					HT in Km	LT in Km	TC in Nos									
1	JMN	JJD	JJW	NEW S/S LINK LINE	0.1	0	0	919/1,919/2	6231/29.9.16	not received	Approval yet to be received	2000/26.07.2016,REGISTRATION CHARGE PAID THROUGH CHEQUE NO:583571	Joint Inspection report is already submitted to DRM BVN on Dated: 09.03.2018 throguh ADEN-PBR		Estimate is still not received	Approval pending

2	JMN	JJD	JJW	NEW S/S LINK LINE	0.1	0	0	919/1,919/2	6231/29.9.16	not received	Approval yet to be received	2000/26.07.2016,RAGISTRATION CHARGE PAID THROUGH CHEQUE NO:583571				Approval pending
3	RRC	RRD	RONKI	FEEDER BF	3.6	0	0	TP NO:754/4 &754/5	RRD/T-2/U.G./2769 DT: 08/03/2017	not received	Approval yet to be received		WESTERN RAILWAY CIRCLE DSM OFFICE PENDING	APPROX 7.5LKS/XLPE-0.150 KM(DFOUBLE CKT)		Approval pending
4	RRC	JETPUR	JETPUR-R	FEEDEER B/F	0.5	0	0	JETALSAR-CHAPRAJPUR, JETALSAR-NAVAGDH	4189/20.05.17	not received	Approval yet to be received		For final approval proposal sent to Bhavnagar by Jetalsar Railway Department	Load of Janki Urban to be transferred to Junction		Approval pending

								76/4-5 & 129/6-7						JGY feeder		
5	RRC	JETPUR	JETPUR-R	FEEDEER B/F	0.1	0	0	JETALSAR-CHOKI 79/4 to 79/3	4189/20.05.17	not received	Approval yet to be received		For final approval proposal sent to Bhavnagar by Junagadh Railway Department	Load of Panchnath Ag to be transferred to Jetasar Ag feeder		Approval pending

6	SNR	DHG	DHG-R 22 KV RAJPAR FDR	Other (LINK LINE FOR 22 TO 11 kv Conversion)	1.1	0	0	632/1 and 632/2	DHG/TECH-1/5662 Dtd 25/09/2012	W 221/1/436 Dtd.25/07/2014	Approval yet to be received	Rs.941039.00/- BY D.D. NO 598395 Dtd.22/04/2015	Pending	Supervision work will be carried out by agency approved by EDM/EDM, Now Approved Agency is fixed for work carried out and Supervision	Supervision work will be carried out by agency approved by DEN/Sr DEN, Approved Agency is fixed but approval is awaited and now as per railway office Letter No. W 221 1/436 dt.14.3.2018, re-registration Fees Rs. 2000 is paid	Approval pending

7	SNR	DHG	DHG-T 22 KV Kantava v FDR	Other (LINK LINE FOR 22 TO 11 kv Conversion)	1.1	0	0	629/4 and 629/5	DHG/TECH-1/5662 Dtd 25/09/2012	W 221/1/435 Dtd.25/07/2014	Approval yet to be received	Rs.959286.00/- BY D.D. NO 598392 Dtd.22/04/2015	Pending	Supervision work will be carried out by agency approved by EDM/EDM, Now Approved Agency is fixed for work carried out and Supervision	Supervision work will be carried out by agency approved by DEN/Sr DEN, Approved Agency is fixed but approval is awaited and now as per railway office Letter No. W 221 1/435 dt.14.3.2018, re-registration Fees Rs. 2000 is paid	Approval pending
8	PBR	PBR-CITY	UDHYOGNAGAR	SHIFTING	0.08	0	0	955/9 TO 956/0	PCD/T/1548 DT:-21.02.17	W/220/835 DT:-16.03.17	W/220/5/835 DT 19.4.17	RS. 595796 DT:-28.3.17	Reapproval and T.W.O. Extention		During site visit with JE railway path Porbandar for giving point to	Approval pending

															contractor, JE railway path has pointed that in skech cable laying is towords porbandar side of LC No.74 in approve drowing, while it is astually surved ranavav side after LC No.74. Hence sent for correction and reapproval by railway. Letter PCD/Tech/ 1286 dt:- 16.03.18	
9	JND	VE RA	AN KO LW	LINK LINE	0.1			8/4-5	AKL /TE CH/	W/220/ 6/746 DT	Appro val yet to be	RS 439337 DT	Pending			

		VAL	ADI						2886 DT: 29.09.14	27.04.2017	received	15.05.2017				

Annexure II

20th Meeting of The Co-ordination Forum

Gujarat Energy Transmission Corporation Limited

[An ISO 9001 : 2008 Company]

11th July, 2018

Presentation Outline

1. Brief on Gujarat Power System
2. Development of Transmission Network
3. Achievement of FY 2017-18 & Planning of 2018-19
4. Status of Green Energy Corridor
5. Adoption of State of Art Technology
6. Constraints in GETCO Network & Remedy

1 Brief on Gujarat Power System

Growth in Installed Capacity

	State Sector	Private Sector	Central Sector	Wind Farm	Solar	Biomass	Mini Hydro	Total
31-03-13	**4995.57**	**7018.44**	**5571.17**	**3087.4**	**856.81**	**31.2**	**6**	**21566.59**
31-03-14	5495.57	7422.94	5811.09	3351.95	860.8	31.2	8.56	22982.11
31-03-15	5495.57	8125.8	5811.09	3541.68	973.54	41.1	8.56	23997.34
31-03-16	5995.57	8025.8	5904.54	3932.73	1015.86	41.1	8.56	24924.16
31-03-17	5996.67	8411.86	6051.44	5318.38	1229.6	41.1	8.56	27057.61
31-03-18	**5516.67**	**8411.86**	**6198.34**	**5574.75**	**1493.31**	**41.1**	**20.56**	**27256.59**

80% rise in Wind Installed capacity five year

74% rise in Solar Installed capacity five year

26% rise in Total Installed capacity five year

Growth in Transmission

Sr. No.	Voltage Class	As on 31.03.2012		As on 31.03.2018	
		No. of Substations	Transmission Lines (*in circuit Km*)	No. of Substations	Transmission Lines (*in circuit Km*)
1	400 KV	11	3188.67	15	5497.00
2	220 KV	79	14852.38	99	19476.00
3	132 KV	49	4807.53	58	5448.00
4	66/33 KV	1131	22099.00	1697	30635.00
	Total	**1270**	**44946.00**	**1869**	**61056.00**

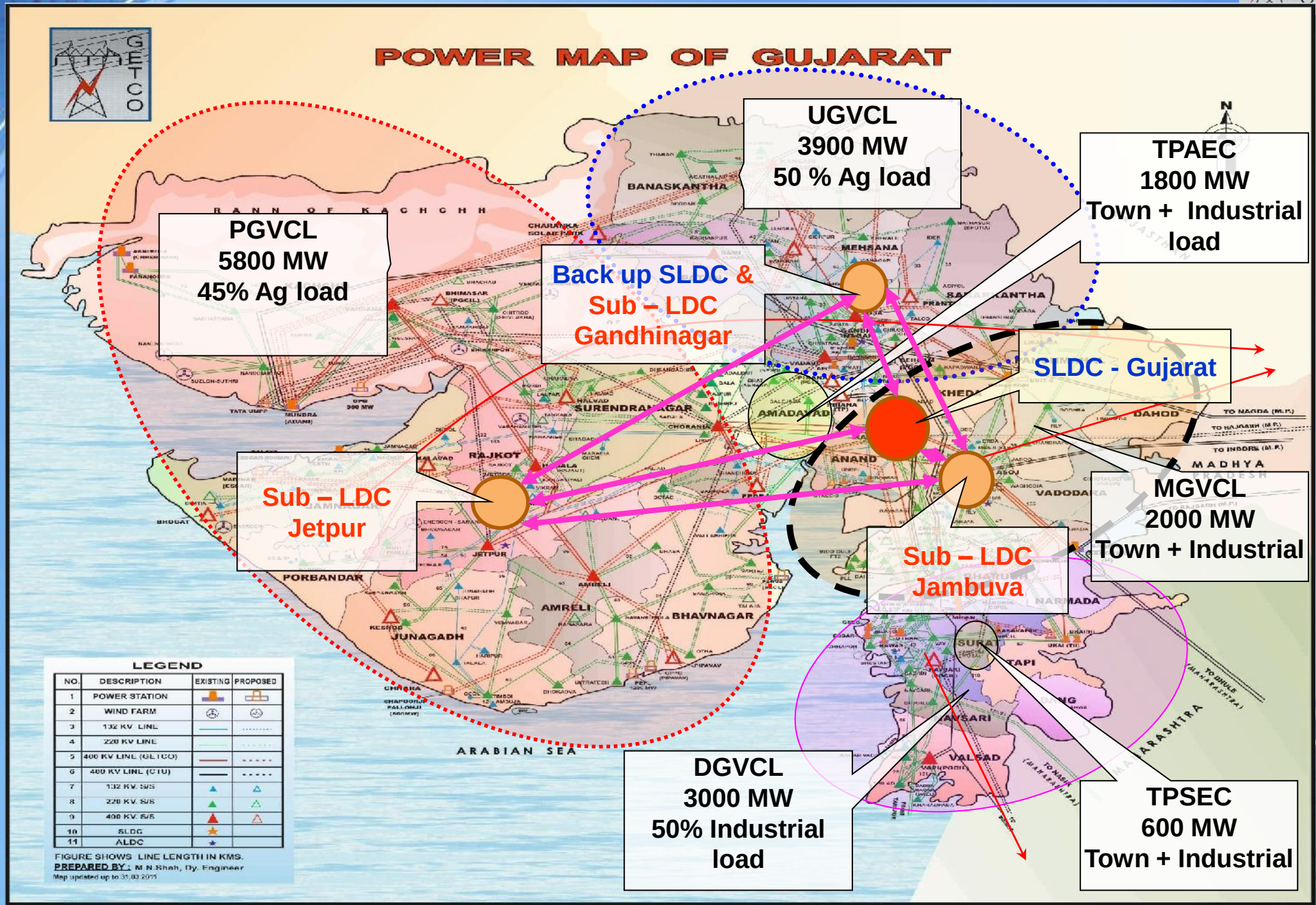
72% rise in 400 KV Circuit Km In last Six year

31% rise in 220 KV Circuit Km In last Six year

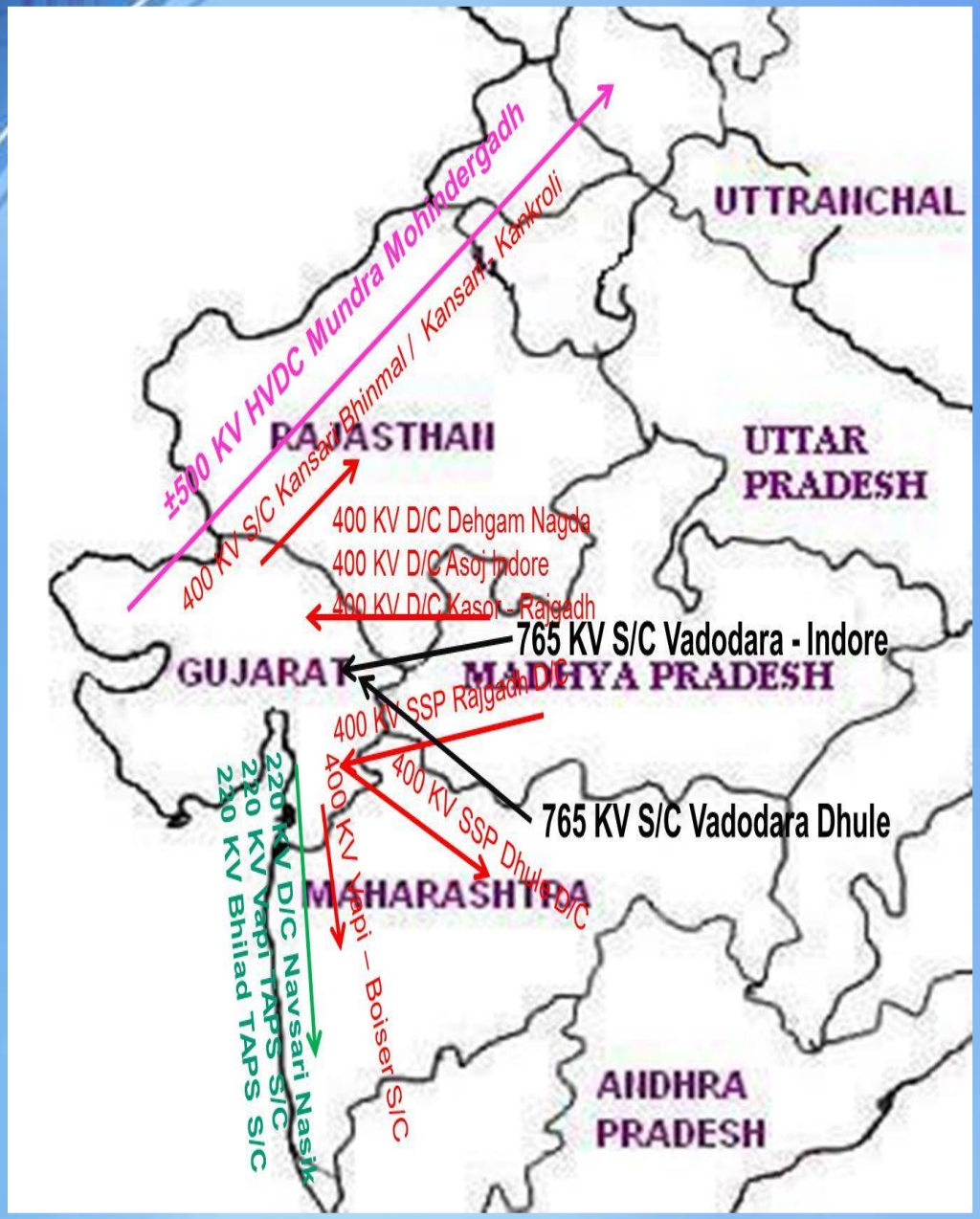
35% rise in Total Circuit Km In last Six year

46% rise in number of substation added

Distribution companies & SLDC Set up in Gujarat



Strong Inter connection with neighboring States / Region



WITH MAHARASHTRA

765 KV S/C Vadodara – Dhule line

400 KV D/C SSP – Dhule line

400 KV S/C Vapi (PG) – Boiser line

400 KV D/C Vapi (PG) – Kala line

400 KV D/C Dastan – Magarvada line

220 KV D/C Navsari – Nasik line

220 KV S/C Vapi – TAPS

220 KV S/C Bhilad - TAPS

WITH MADHYA PARADESH

765 KV S/C Vadodara - Indore line

400 KV D/C Asoj - Indore line

400 KV D/C SSP - Rajgadh line

400 KV D/C Dehgam - Nagada line

400 KV D/C Kasor - Rajgadh line

WITH RAJASTHAN

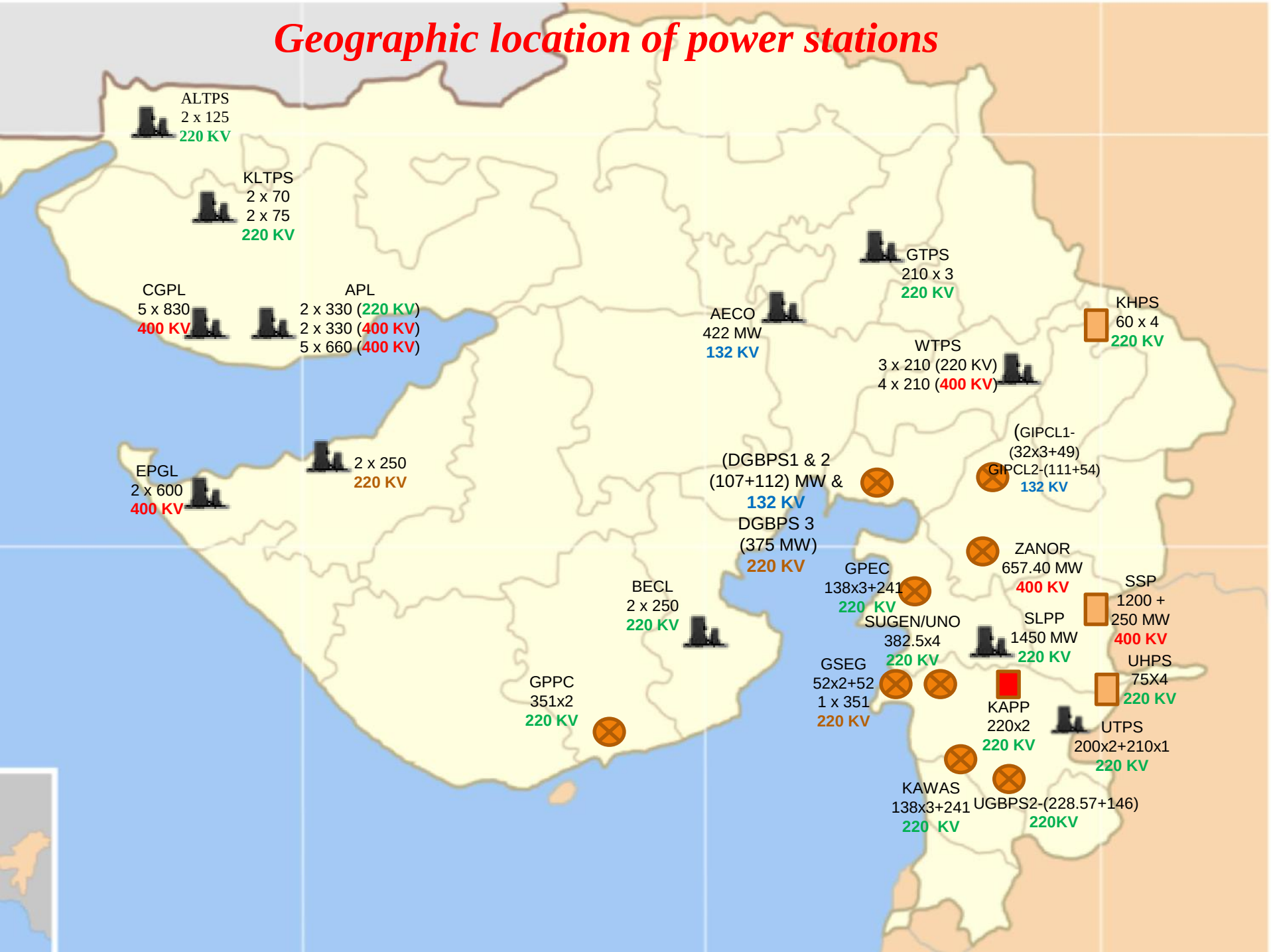
400 KV S/C Kansari - Kankroli line

400 KV S/C Kansari - Bhinmal line

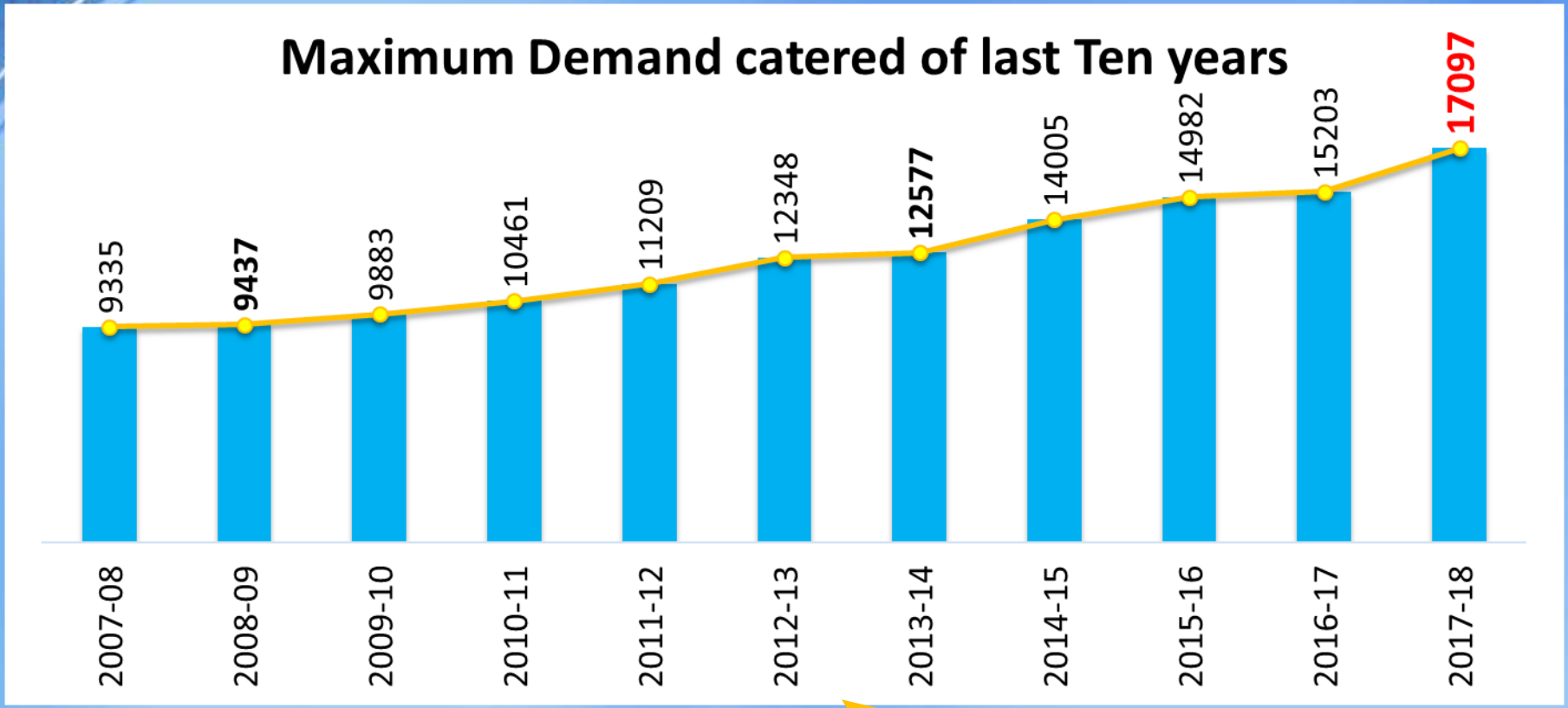
WITH HARYANA

± 500 KV Mundra – Mohindergarh HVDC bipole line having capacity of 2500 (1250 x 2) MW

Geographic location of power stations



Rise in State Demand



81% rise in State demand In last ten year

Rise in Energy Supplied

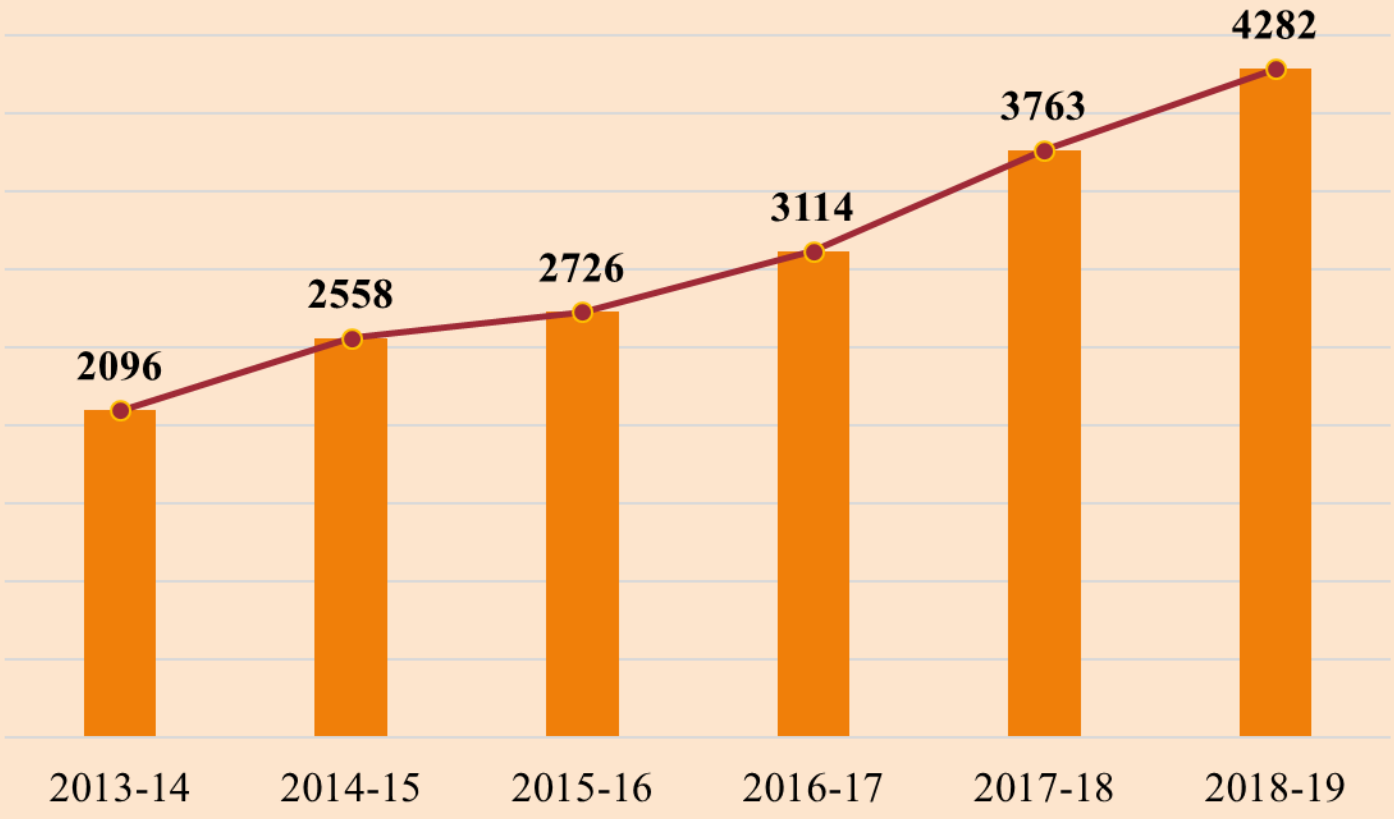
Year	GSECL	Private Sector	Central Sector	Wind Energy	Solar	Biomass	Mini Hydro	Total MUs
2012-13	23631	42682	14754	5436	1145	43	32	87723
2013-14	15850	46202	17440	5289	1369	24	47	86221
2014-15	21415	48721	19276	5660	1475	40	49	96636
2015-16	19277	53219	22480	6447	1645	25	45	103137
2016-17	16254	51024	27500	7720	1738	12	36	104285
2017-18	23683	42518	32776	9636	2048	33	45	110739

77% rise in energy received from Wind In last five year

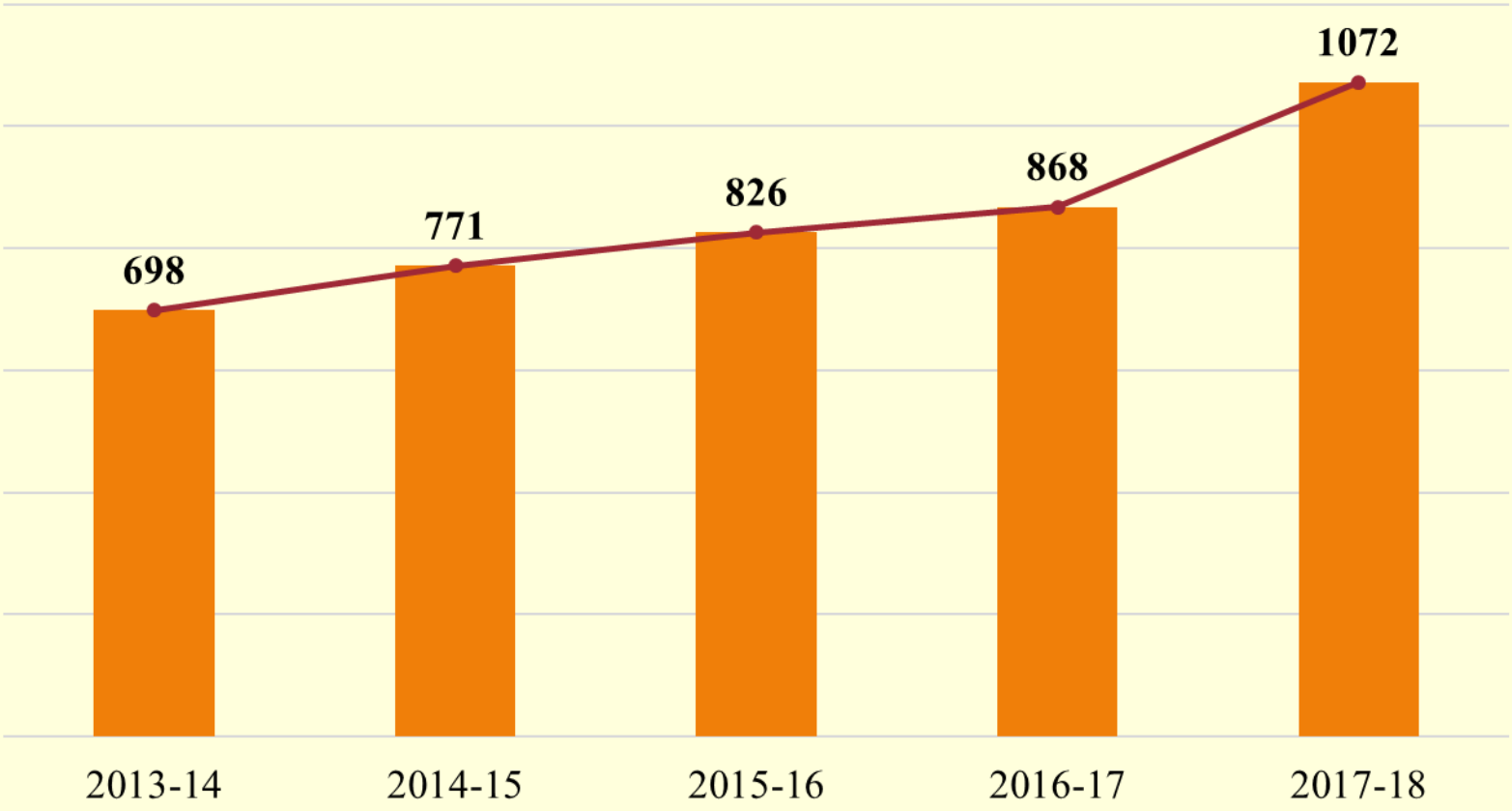
79% rise in Energy received from Solar in last five year

26% rise in Energy supplied in last five year

Maximum wind energy integrated during the Year in MW

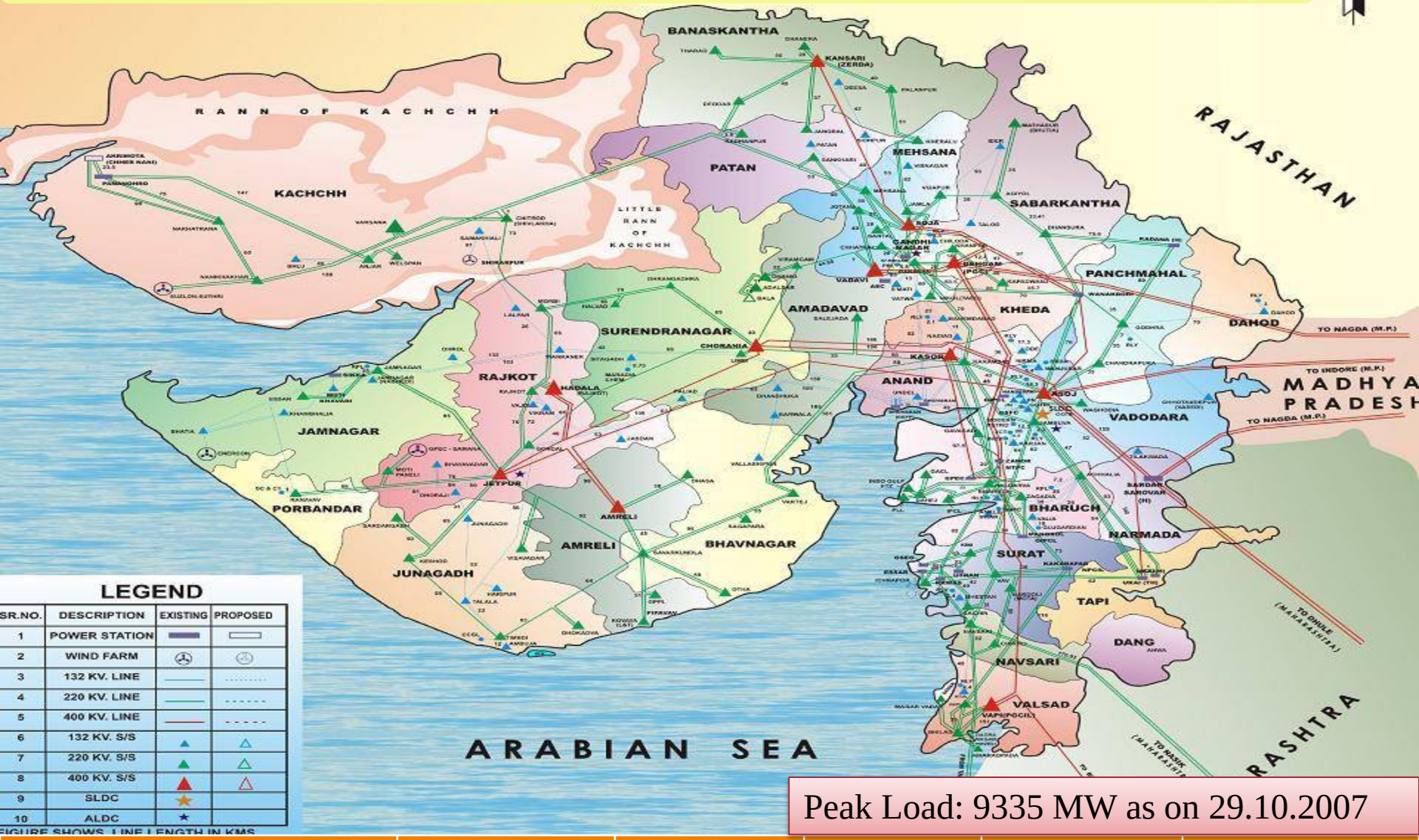


Maximum Solar injection during the Year in MW



2 Development of Transmission Network

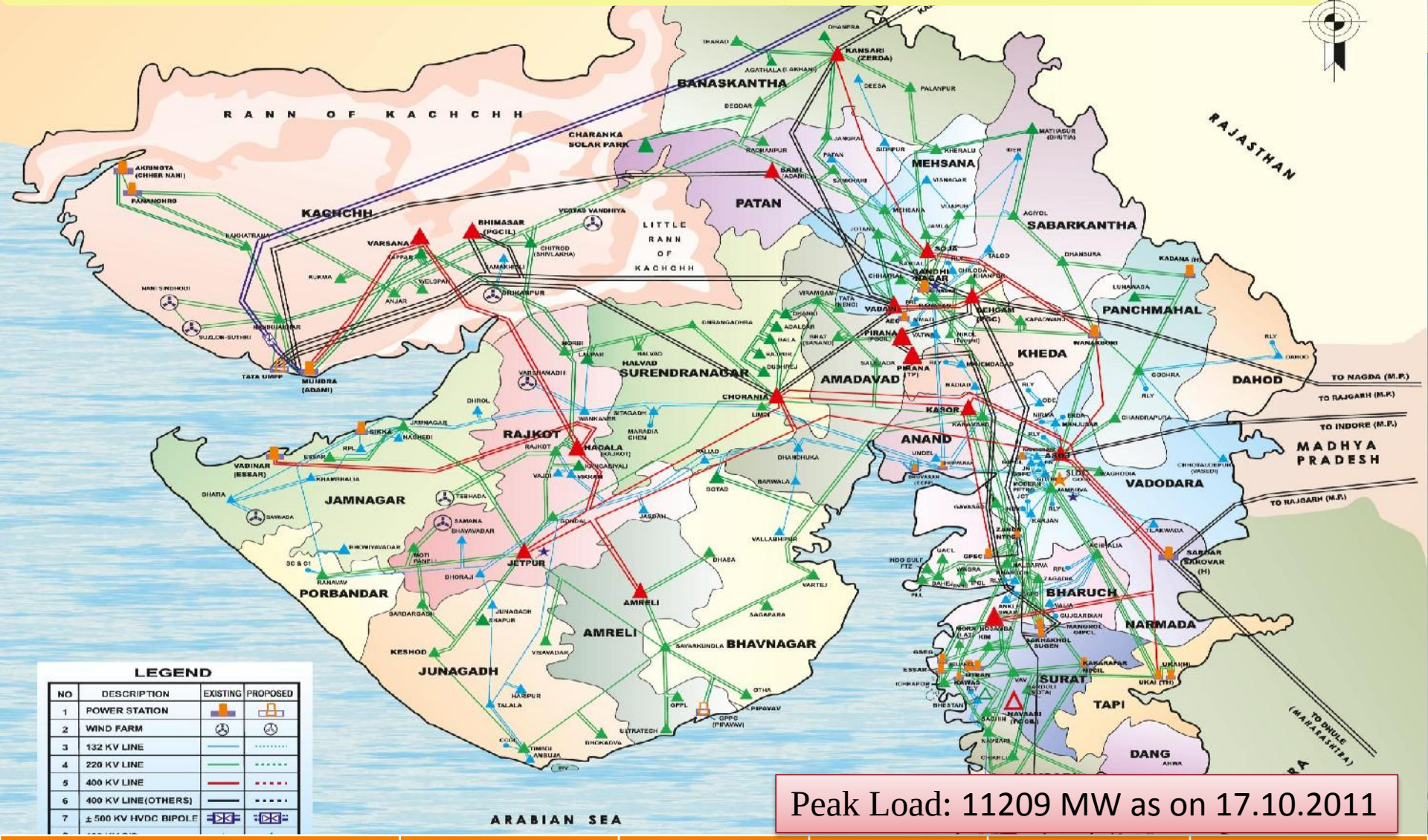
Transmission Network Scenario - 2007



Peak Load: 9335 MW as on 29.10.2007

Type of Asset	400 kV	220 kV	132 kV	66/33 kV	Total
Substation (nos)	9	65	48	758	**880**
Tr. Line (Ckm)	1847	11895	4551	16876	**35169**

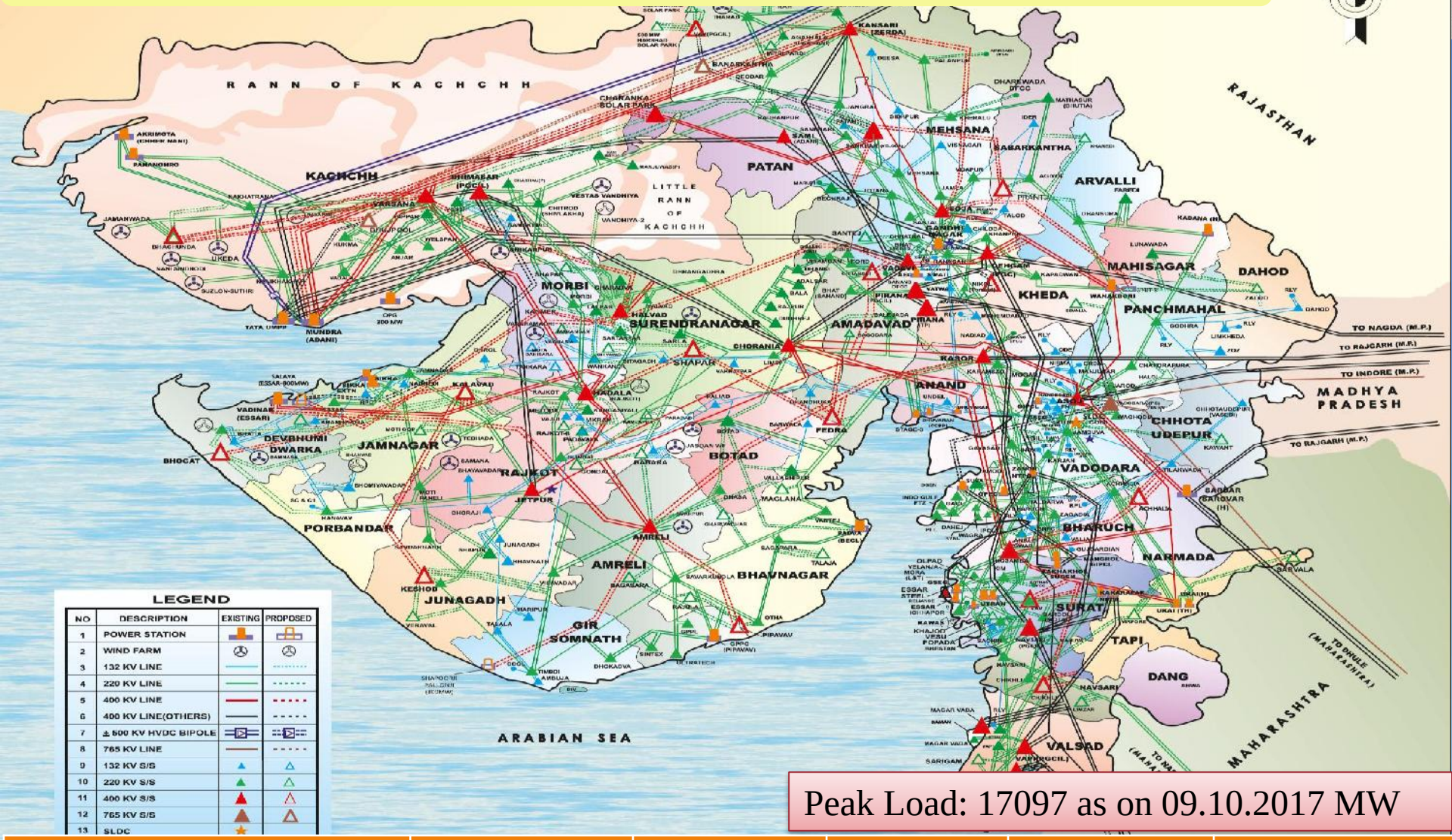
Transmission Network Scenario - 2012



Peak Load: 11209 MW as on 17.10.2011

Type of Asset	400 kV	220 kV	132 kV	66/33 kV	Total
Substation (nos)	11	79	49	1131	**1270**
Tr. Line (Ckm)	3188	14852	4807	22099	**44946**

Transmission Network Scenario - 2018



Peak Load: 17097 as on 09.10.2017 MW

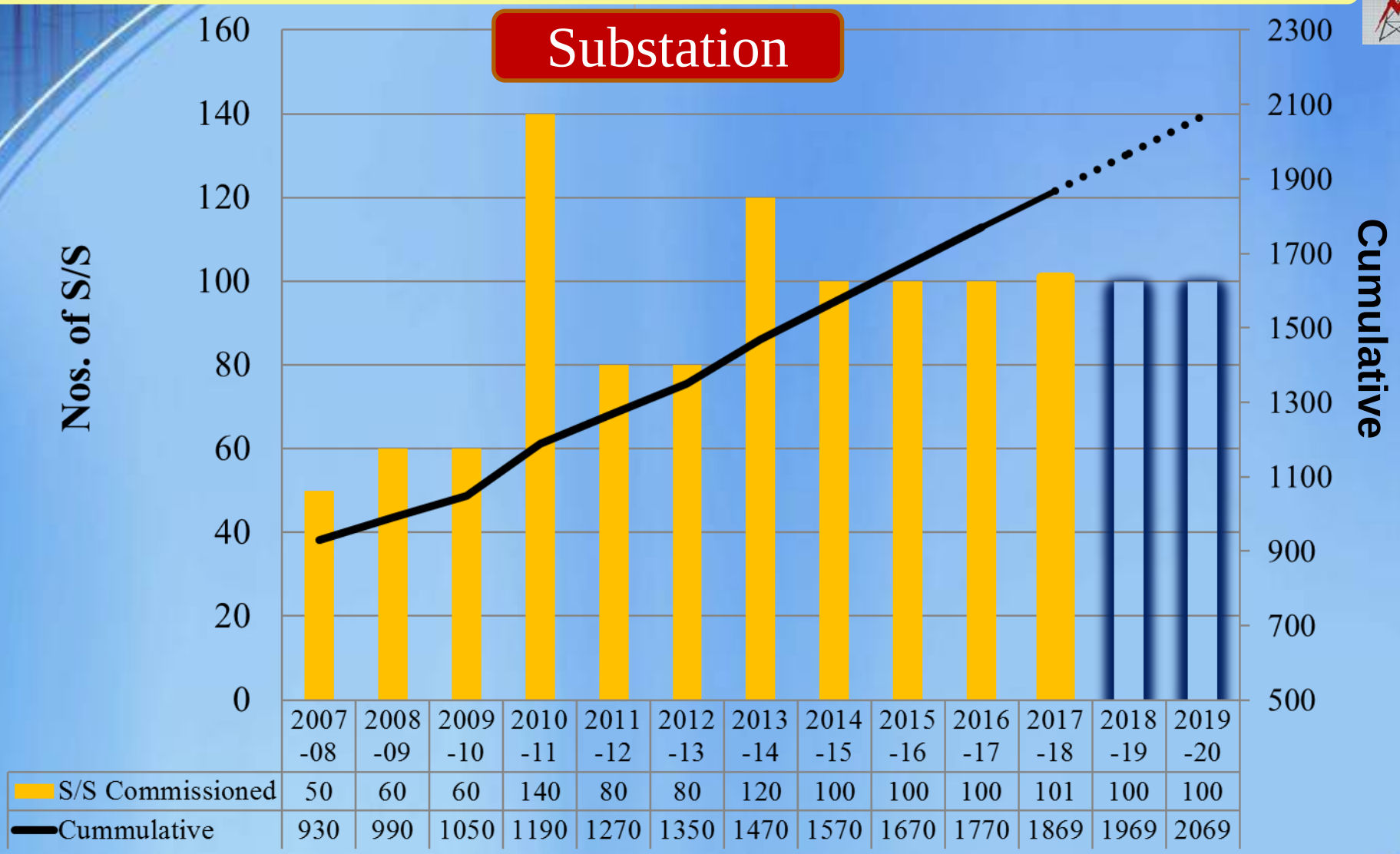
Type of Asset	400 kV	220 kV	132 kV	66/33 kV	Total
Substation (nos)	15	99	58	1697	**1869**
Tr. Line (Ckm)	5497	19476	5448	30635	**61056**

Transmission Network Growth - Comparison

Peak Demand (MW)	Year 2007	9335 MW as on 29.10.2007	% Rise
	Year 2012	11209 MW as on 17.10.2011	20%
	Year 2018	17097 as on 09.10.2017 MW	53%
	% Rise from 2007		83%

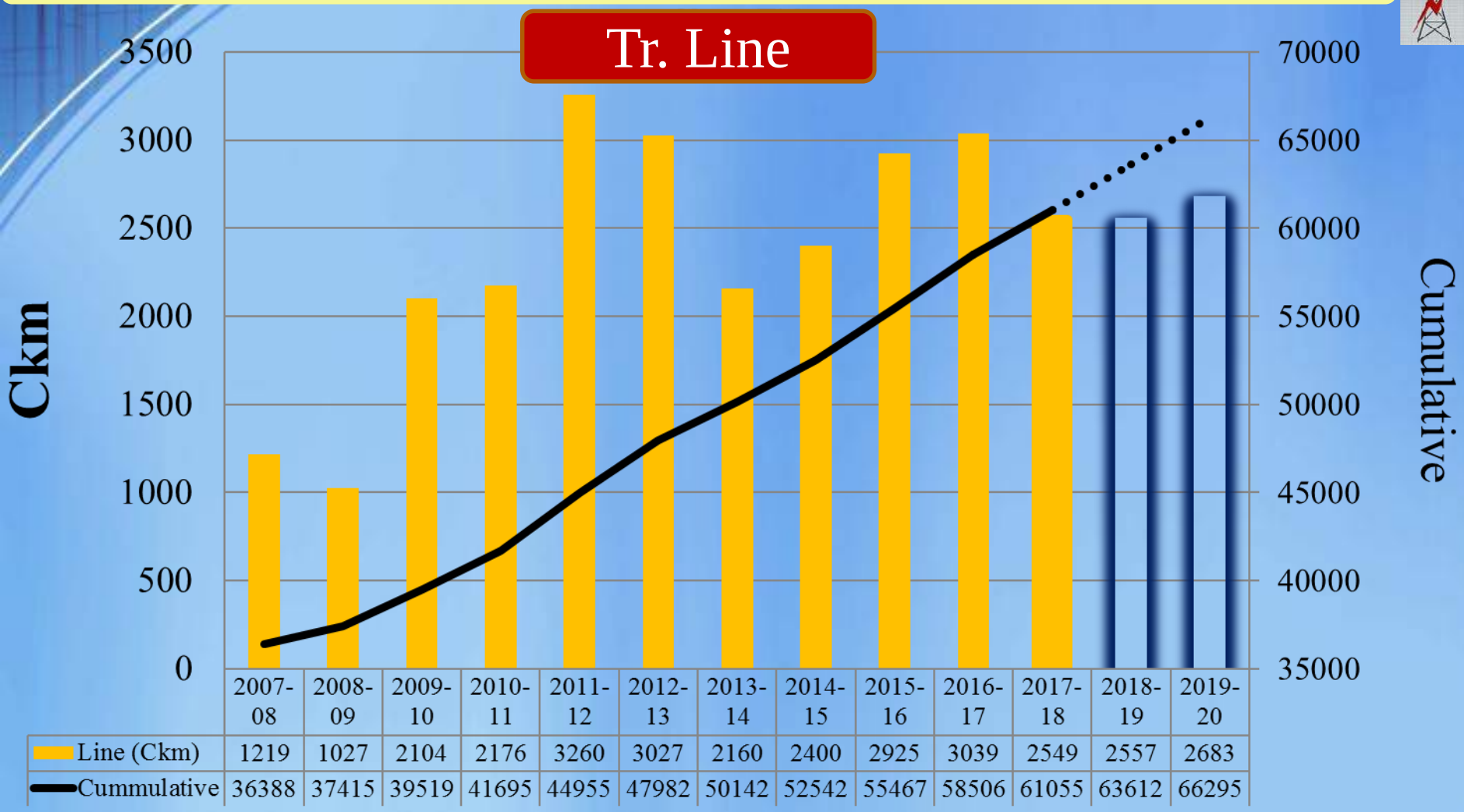
Type of Asset		400 kV	220 kV	132 kV	66/33 kV	Total
Substation (Nos.)	Year 2007	9	65	48	758	880
	Year 2012	11	79	49	1131	1270
	Year 2018	15	99	58	1697	1869
	% Rise from 2007	**66%**	**52%**	**21%**	**124%**	**112%**
Tr. Line (Ckm)	Year 2007	1847	11895	4551	16876	35169
	Year 2012	3188	14852	4807	22099	44946
	Year 2018	5497	19476	5448	30635	61056
	% Rise from 2007	**198%**	**64%**	**20%**	**82%**	**74%**

Transmission Infrastructure Capacity Addition



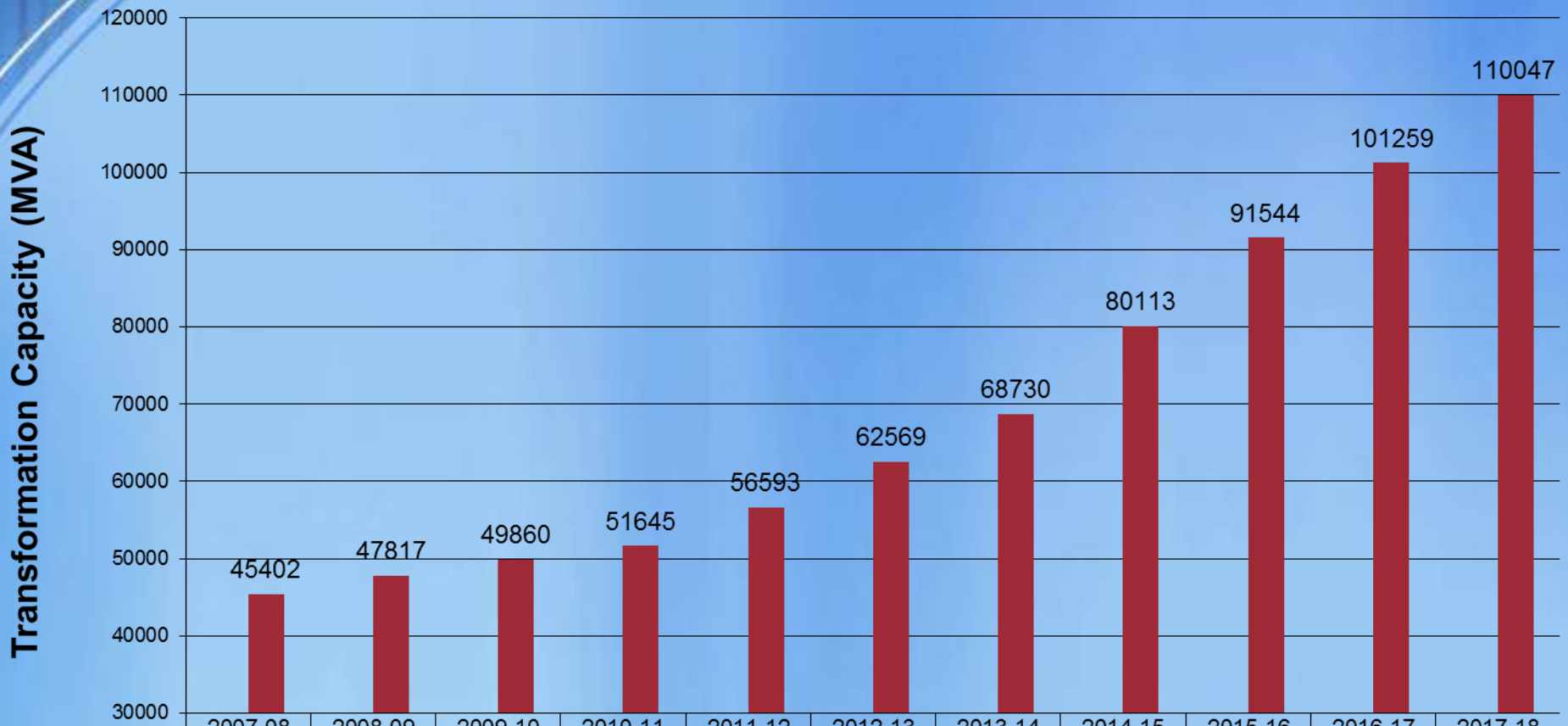
FYP	11th (2007-08 to 2011-12)	12th (2012-13 to 2016-17)	2017-18	Planning (2018-19 to 2019-20)
Nos. of Substations (Addition)	390	500	101	200

Transmission Infrastructure Capacity Addition



FYP	11th (2007-08 to 2011-12)	12th (2012-13 to 2016-17)	2017-18	Planning (2018-19 to 2019-20)
Transmission line in Ckm (Addition)	9786	13551	2549	5240

Transformer Capacity Addition - MVA

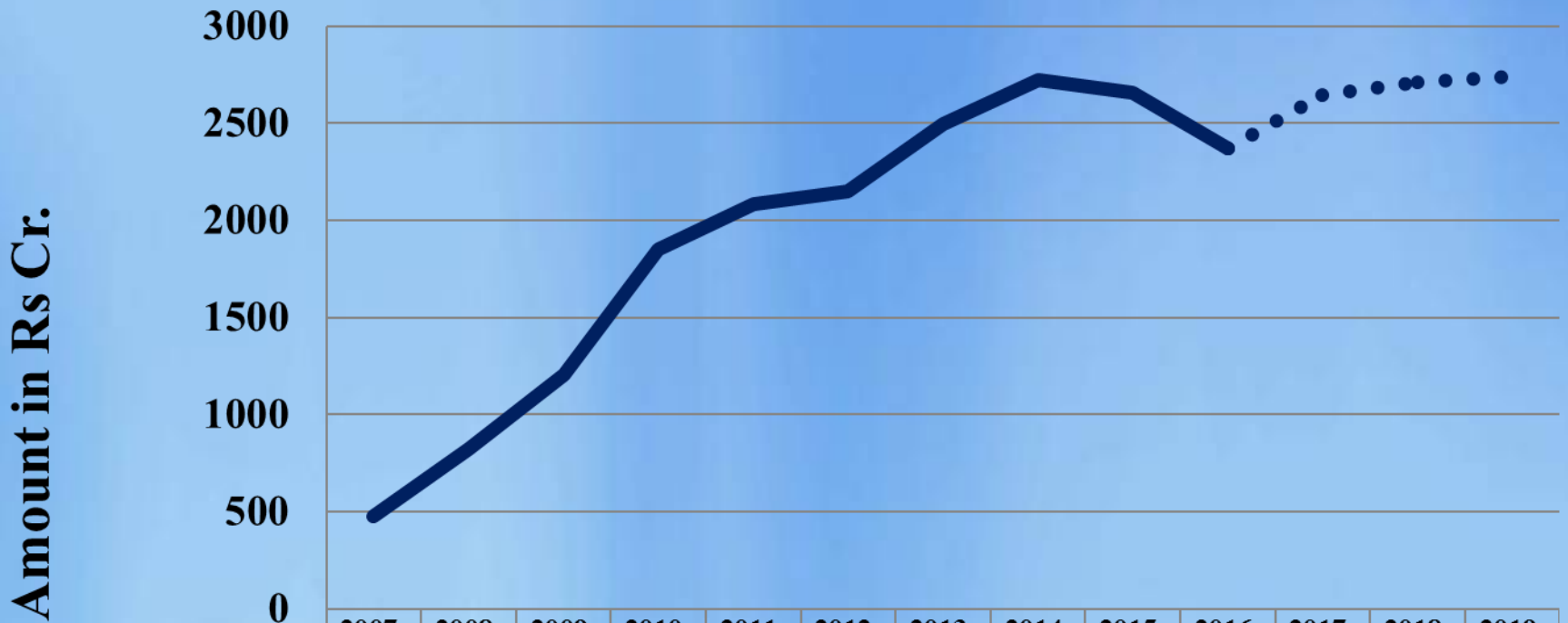


	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Addition	1660.5	2415	2043	1785	4948	5976	6161	11383	11431	9715	8788
Cummulative	45402	47817	49860	51645	56593	62569	68730	80113	91544	101259	110047

FYP	11th (2007-08 to 2011-12)	12th (2012-13 to 2016-17)	2017-18
Transformation Capacity in MVA (Addition)	12,852	44,666	8788

Transmission Infrastructure Capacity Addition

Investment (in Rs Crore)



	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
CAPEX (in Rs Cr.)	476	823	1205	1850	2085	2149	2496	2723	2655	2371	2647	2712	2738

FYP	11th (2007-08 to 2011-12)	12th (2012-13 to 2016-17)	Planning (2017-18 to 2019-20)
Capex in Rs Cr.	6439	12394	8097

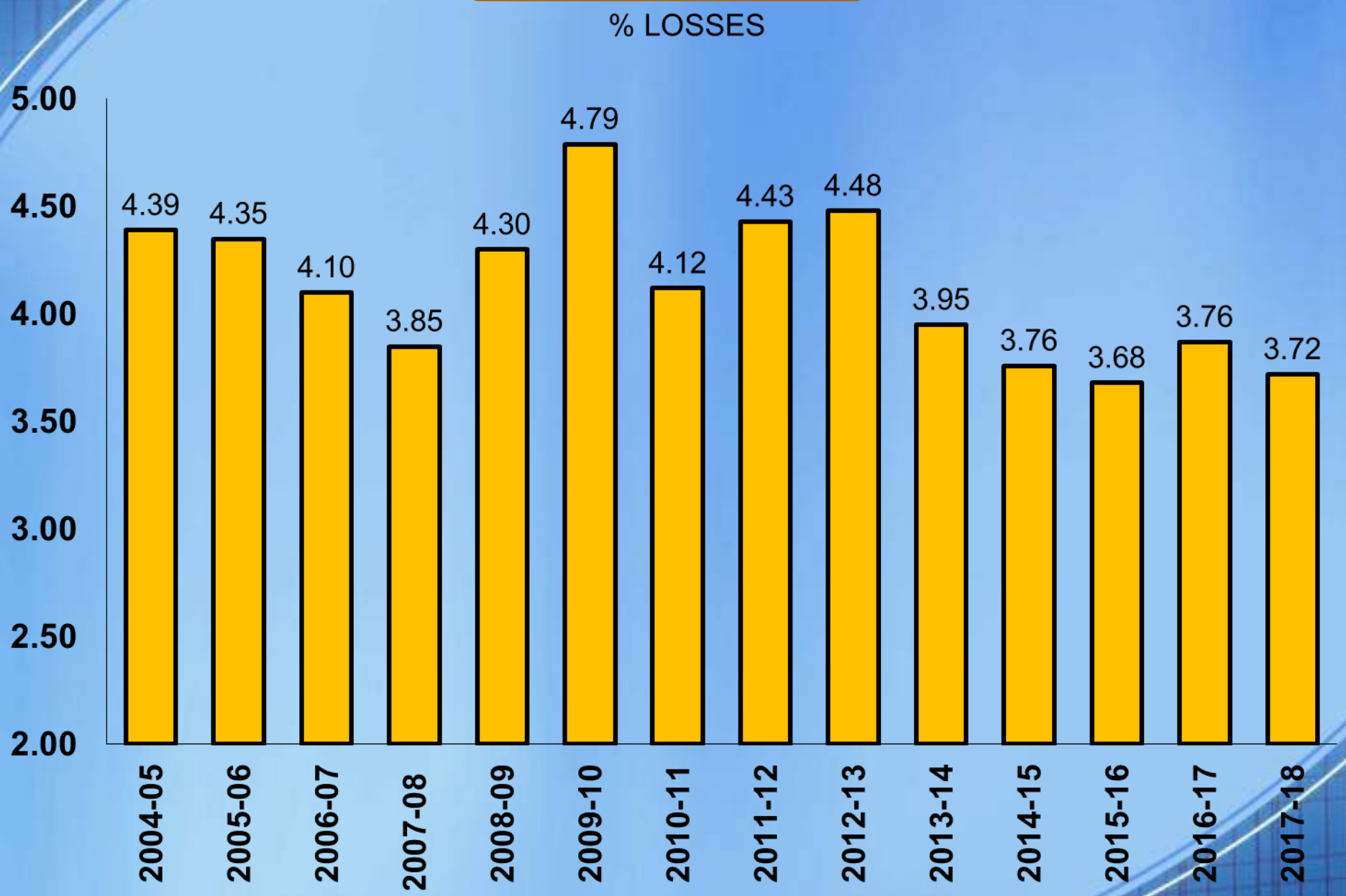
Energy (MUs) & Peak Demand (MW) catered

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Energy Catered (Mus)	66569	68939	69883	71255	78651	87723	86221	96636	103137	104285	110739
Peak Demand (MW)	9335	9437	9883	10461	11209	12348	12577	14005	14982	15203	17097

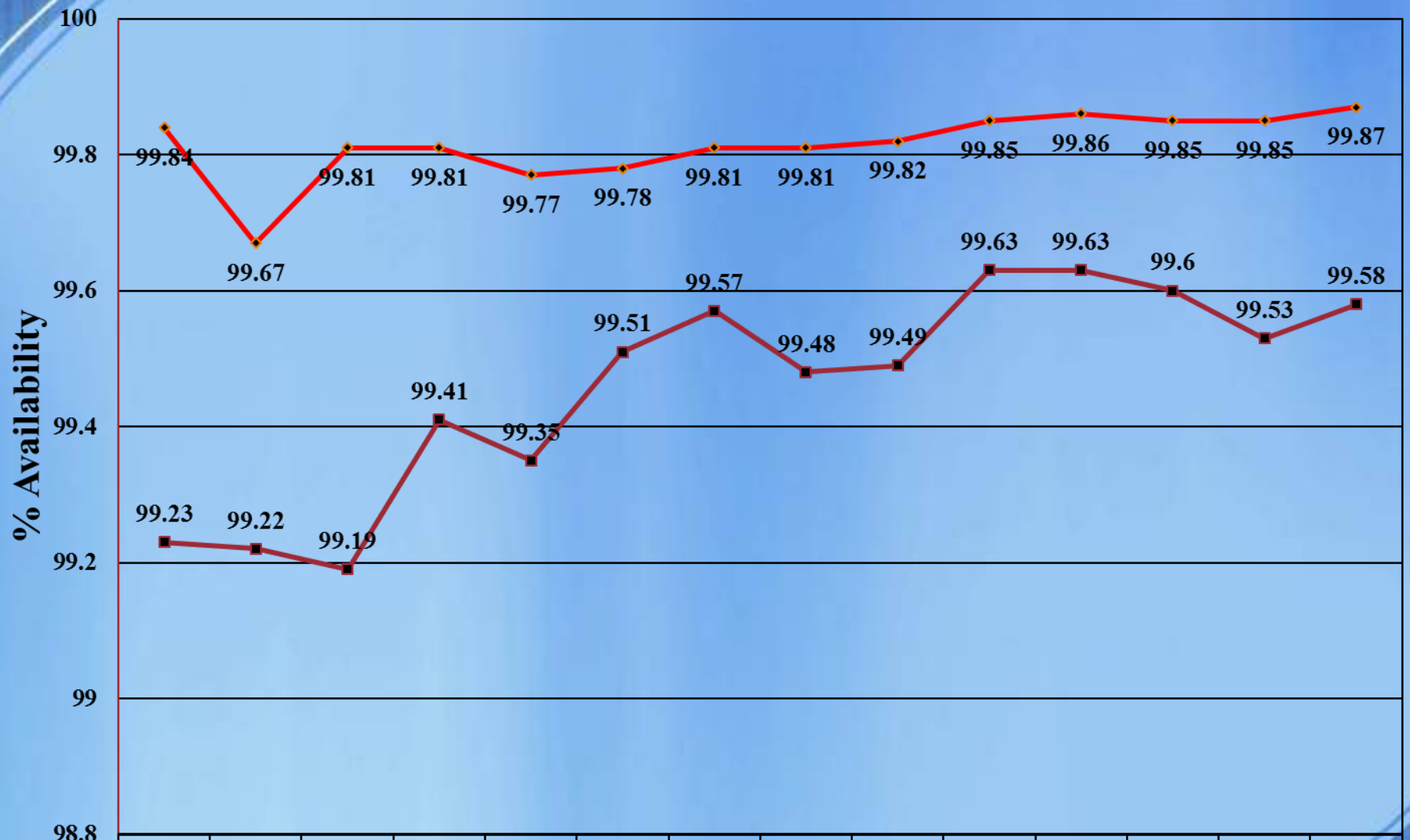
- **Highest ever demand of 17097 MW of the State was catered on 09.10.17.**
- **Maximum energy supplied in a day was 367 MUs on 06.10.17**

Performance of Transmission System

% Transmission Losses



Improvement in System Availability



	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
S/S	99.84	99.67	99.81	99.81	99.77	99.78	99.81	99.81	99.82	99.85	99.86	99.85	99.85	99.87
Line	99.23	99.22	99.19	99.41	99.35	99.51	99.57	99.48	99.49	99.63	99.63	99.6	99.53	99.58

3

Achievement of FY 2017-18 & Planning of 2018-19

Asset Addition in FY 2017-18

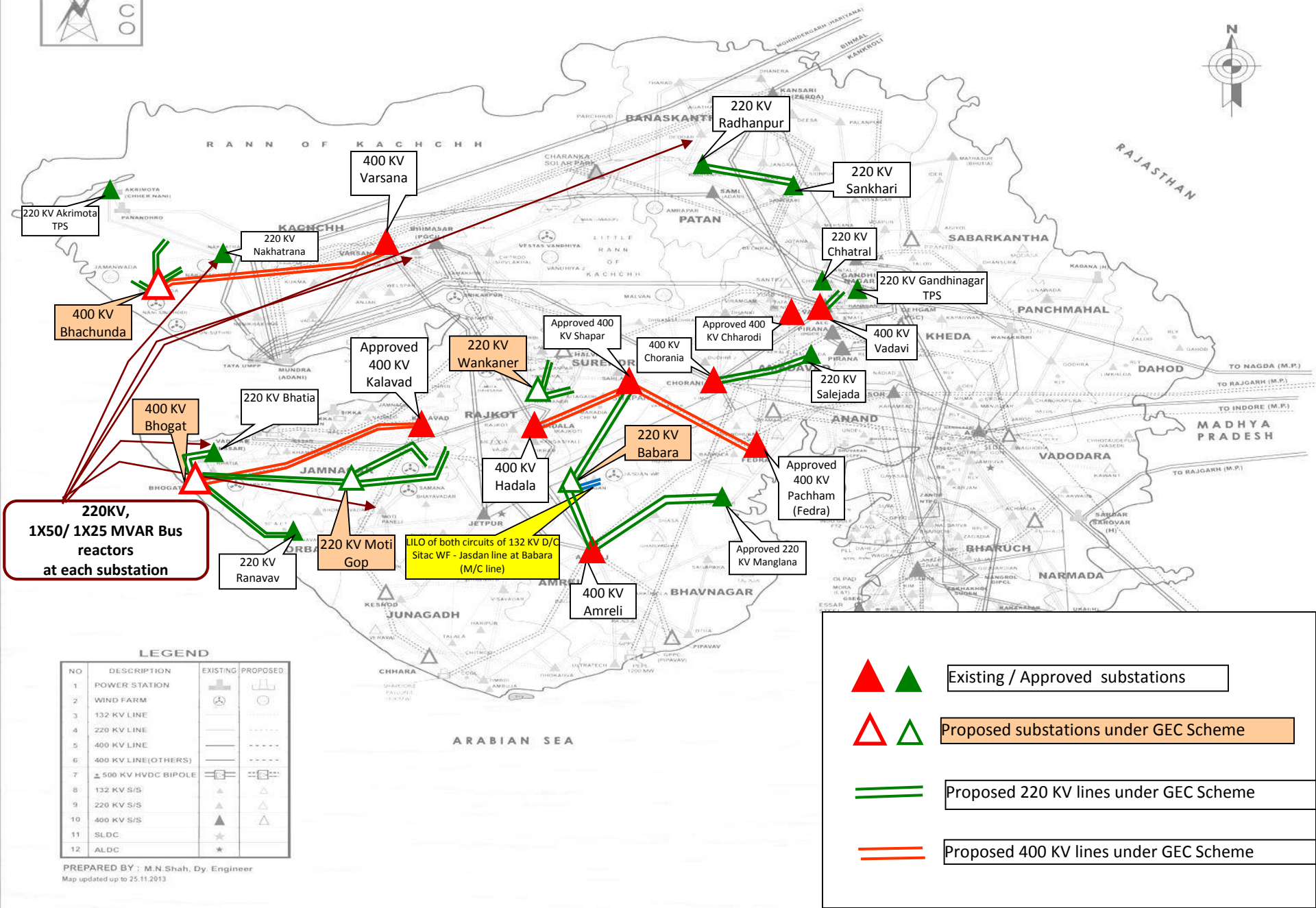
Voltage Class	Substation in Nos.		Transmission Line in Ckm	
	Planning	Achievement	Planning	Achievement
400KV	1	1 (Veloda)	823	482
220KV	0	0	890	671
132KV	2	2 (Tankara, Mota Dahisarda)	73	12
66KV	97	98	900	1384
Total	**100**	**101**	**2686**	**2549**

Planning of FY 2018-19

Voltage Class	Substation in Nos.	Transmission Line in Ckm
400KV	1 (400 kV Vav)	549
220KV	4 (220 kV Amod, 220 kV Bagodara, 220 kV Kwant, 220 kV Motigop)	893
132KV	0	115
66KV	95	1000
Total	**100**	**2557**

4 Status of Projects under Green Energy Corridor

Intra-State Transmission Schemes under GEC of Gujarat



Status of the Transmission Projects under Green Energy Corridor

Work	Total nos of Tender	NIT done	Work Awarded	Target
Substation (Supply & Erection)	7	7	7	
Transformer & Reactor	2	Reactor: 1 Trf Pkg A: 1; Trf Pkg B: Pending	1	1st pkg of Transformer (for 3 substations namely Motigop, Kalawad & Wankaner) - NIT on 02.06.2018; Opening date: 17.07.2018 Award by Sep'18 2nd Pkg of Transformer (for 3 substations namely 220 kV Babra, 400 kV Bhachunda & 400 kV Bhogat) - NIT by Dec '18 Award by Apr-19
Transmission line	18	18	16	1 Package of 132 kV line will be awarded by Jul-18 1 Packages of 220 kV transmission lines will be Retendered as per Board Directive
Reactor Bay	1	1	1	Awarded
Feeeder Bay	1	0	0	To Drop
Total (Excluding drop item)	28	27	25	
To Include				
Substation (Supply & Erection)	1	0	0	NIT will be done after getting approval from MNRE to include the package in GEC-I

5 Adoption of State of Art Technology

Adoption of State of Art Technology - Implemented

Technologies adopted	Purpose / Benefit	Status
Substation Automation System	Remote Control Operation: One or more substations are centrally operated from nearby substation which works as a master remote control centre.	SAS installed at 33 Nos. of substations. Out of them, 16 substations are operated from Remote Control Centre (Adjacent substations)
Optical CT and merging units	Digital Substation: A step towards better reliability and speed. Inputs for protection control, monitoring and measurements are captured in digits through optical sensors. There will be no hard copper wire cabling in switchyard.	Two pilot projects completed.
Integrated Asset Management System	Centrally Managed Monitoring System through INTRANET	Transmission Asset Management System (TAMS) in operation
GIS and Hybrid switchgear	Suitable for Hostile & Polluted Environment Especially in Urban Areas where there is Scarcity or high cost of Land. Maintenance free and economical on life cycle cost basis	• 2 Nos of 220 KV and 2 Nos of 132 kV Substations are with Hybrid Switchgear. • 3 Nos of 66kV and 1 No. of 220 kV GIS substations are in service.

Adoption of State of Art Technology - Implemented

Technologies adopted	Purpose / Benefit	Status
High Capacity Conductor & HTLS conductor	50% more capacity with lesser transmission loss	AL 59 permanently adopted for 220 kV & 400 kV
Power transformer with Ester oil	High flash point to safeguard transformer from catching fire. 30% higher MVA Extension	Successfully Adopted in 66/11 kV Class
Geographic Information System (GIS) Mapping of Transmission Assets	Capturing asset information on geographical map for better asset management and network planning	Entire GETCO network is mapped.
Wind Forecasting & Scheduling	Tools for wind generation forecast which will help in Scheduling of Power	Installed.
Real Time Grid Visualization	Phasor Measurement Units (PMU) and Wide Area Monitoring System (WAMS) 3 Data Analytics Developed ▪ Online Power System oscillation Mode Identification ▪ Hybrid State estimator ▪ Dynamic security assessment with voltage stability	113 PMUs on 25 Locations

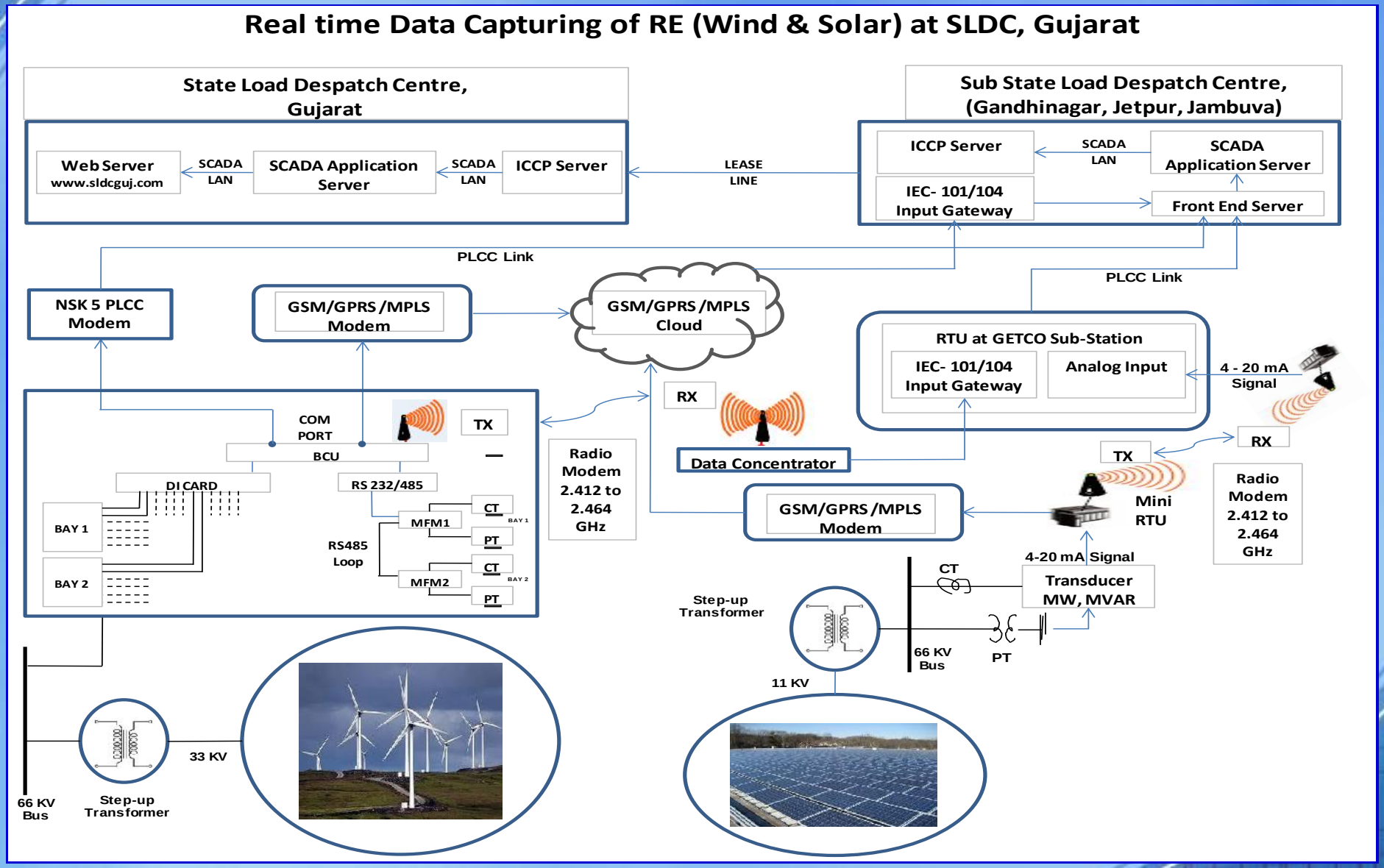
Adoption of State of Art Technology - Implemented

Technologies adopted	Purpose / Benefit	Status
Web based Scheduling & Accounting software	1. Quick response to acknowledge the acceptance of declared capability of generators and subsequent revisions from them. 2. Instant Response with Acknowledgement 3. Reduced Correspondence and Efficient 4. utilization of resources 5. Reliable 6. Less chances of Error	Implemented
Automatic meter reading solution	Data from 1100 Nos of ABT Meter are successfully collected through AMR on daily basis for last 10 days which is pulled between 00 Hrs. to 2:30 Hrs. Timely collection of data Saving of man power.	Implemented
Automatic demand management scheme	It will help to curb over drawl especially when grid frequency falls below 49.80 Hz or any other frequency as set therein.	Implemented

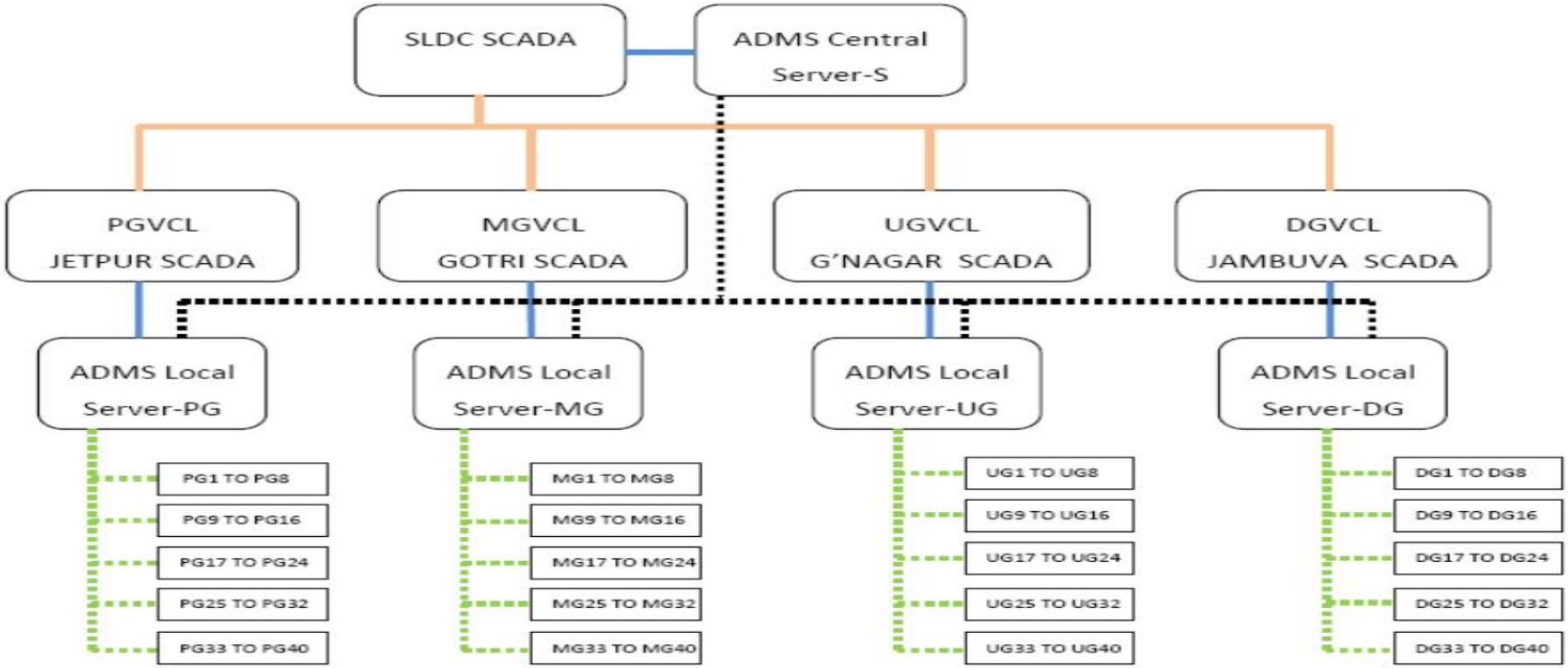
Adoption of State of Art Technology - Implemented

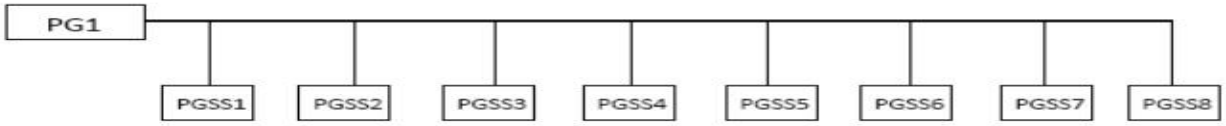
Technologies adopted	Purpose / Benefit	Status
Integration between WAMS and SCADA and URTDSM	To ensure 100% real time data availability Data fetching at faster rate for importat elements	Implemented
100% real time data capturing using available Technologies a. Radio Modem, b. GSM/GPRS, c. Lease Line, d. PLCC	Accessing reliable data of RE generation in real time which is very much helpful to recognize trend of RE generation and handle its variation.	Implemented

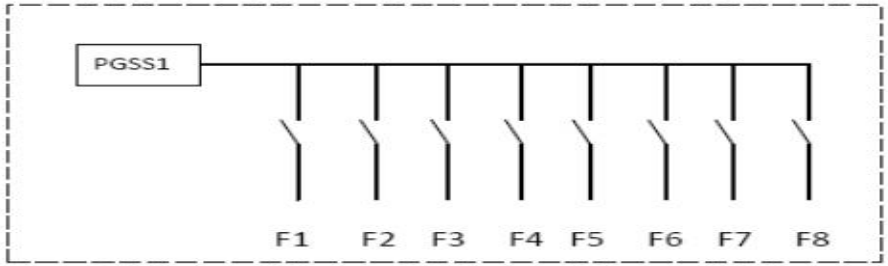
System Architecture For Real-time RE Data



1. System Architecture







MPLS Communication between control center

SCADA communication-wired

SCADA to Server FTP Communication-wired

Wireless GPRS Connection with Sub-station

PGSS1 Control Box in 1 Sub-Station

F1 to F8 Feeder No.1 to 8 in a Sub-Station-

Adoption of State of Art Technology – Under Implementation

- **Line monitoring unit (DLR)** – to assess the maximum line capacity – Plan to install in 66 kV Line Connected to wind Generation
- **11 kV SF6 insulated compact switchgear with SCADA**
- **Static Synchronous Compensator (STATCOM) -** For dynamic reactive power compensation and improvement in voltage profile.
- **Communication Highway – Optical Fiber Ground Wire –** 1469 KM completed, 4402 KM under construction & 15288 KM approved under PSDF – Planned to complete in next 3 years in phase manner
- **Grid Stabilization Solution:** Technology which can provide solutions for system level challenges like transient stability, network congestion / overloading aspects. This will address transmission element overloading problem, Improvement in Voltage Instability & transient stability, Enhances the available transfer capacity, Avoiding the economical loss in the case of large scale black out
- **Development of Energy Accounting and scheduling software with AMR solution**

220 KV Atul GIS Substation

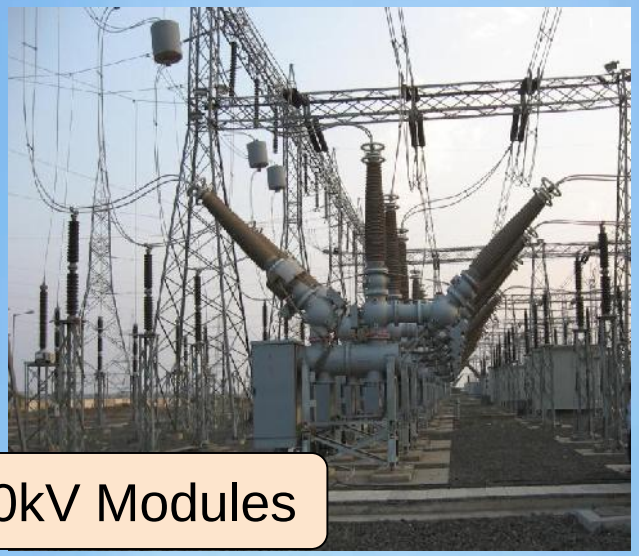
220kV Line Bays

220/66kV X'mer Bay

GIS Modules

220 kV Suva Hybrid Switchgear Substation

220kV Switchyard



220kV Modules

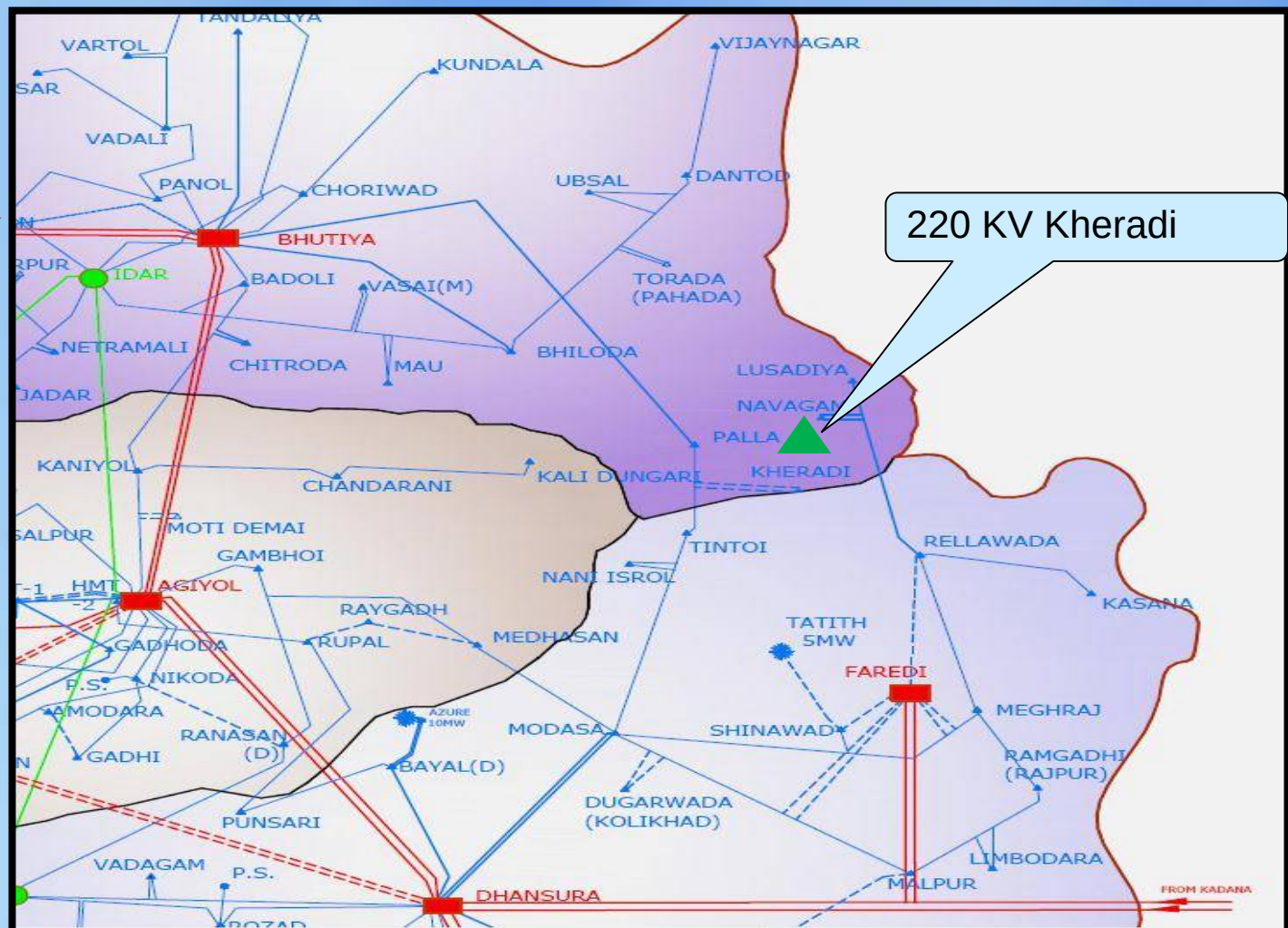
66kV Modules

66/11 kV, 20 MVA Green Transformer : 66 kV Sargasan

5 Weakness in GETCO Network & Remedy

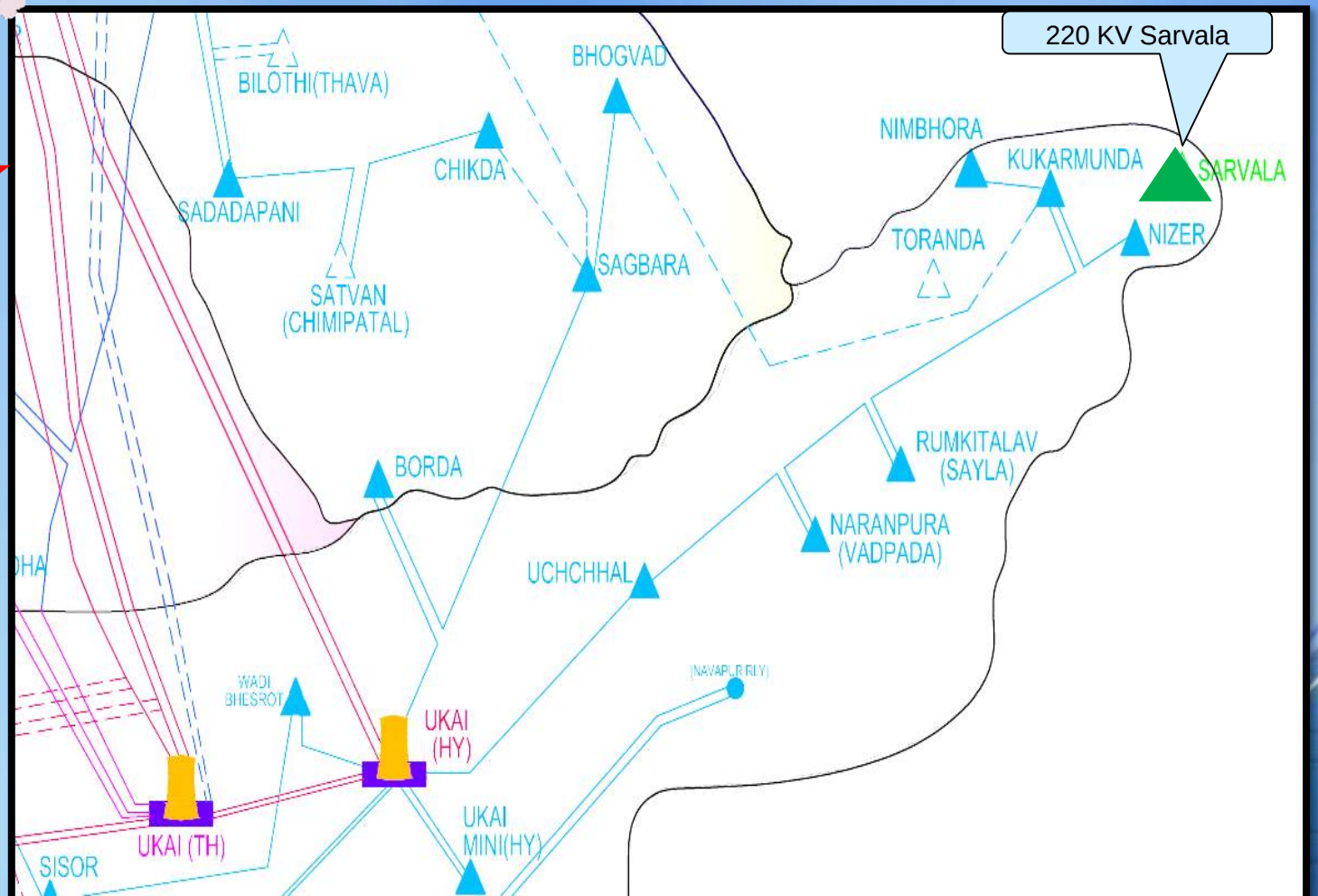
Weakness of Transmission Network and Remedy

Aravalli Dist.

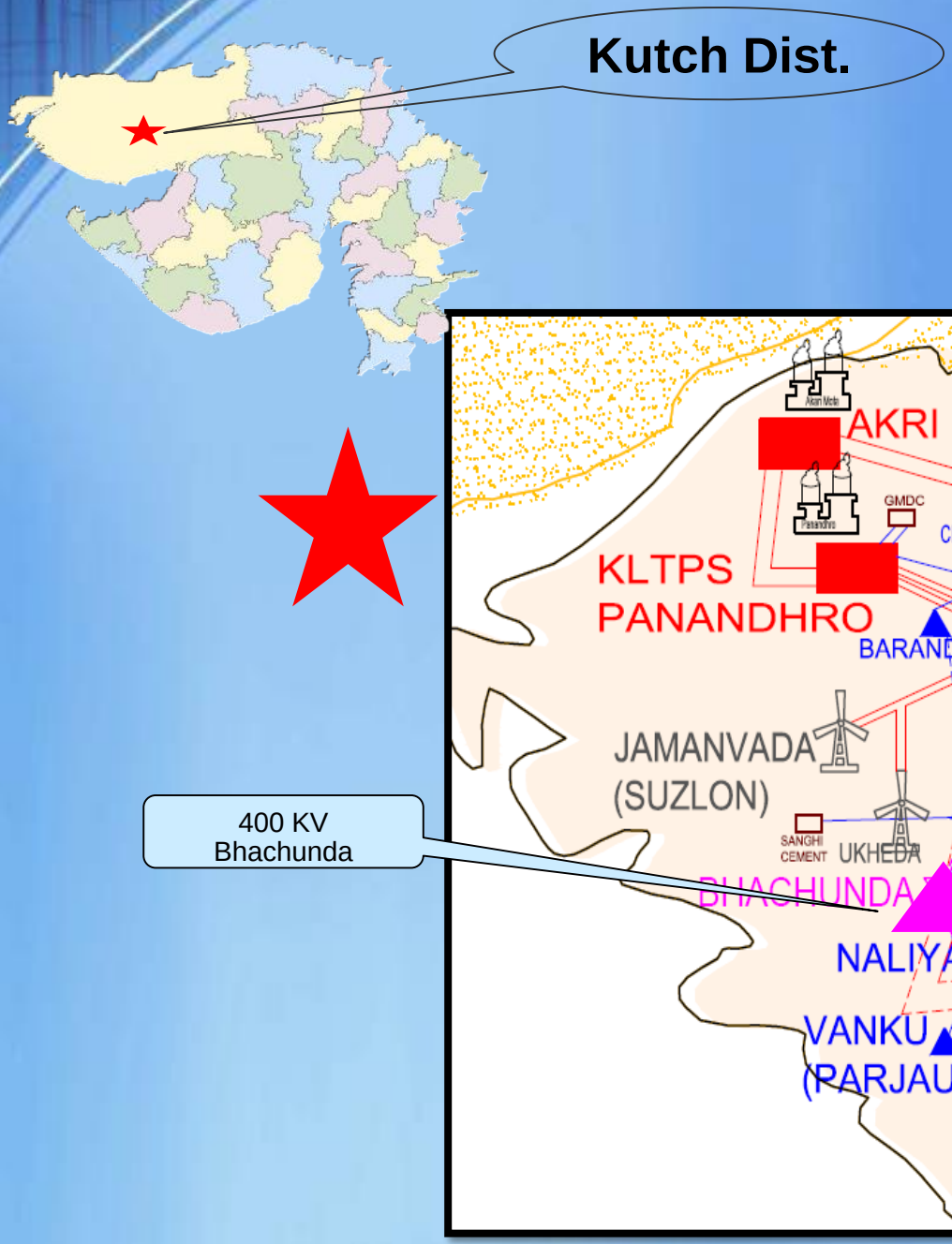


Weakness of Transmission Network and Remedy

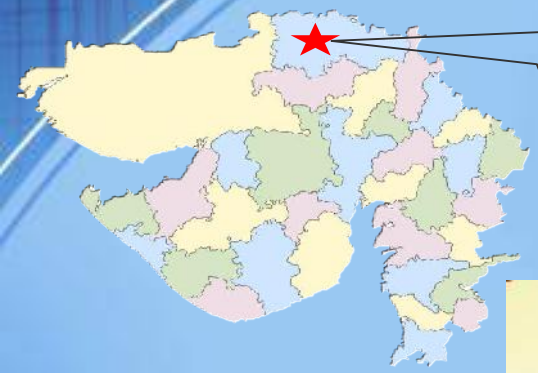
Tapi Dist.



Weakness of Transmission Network and Remedy



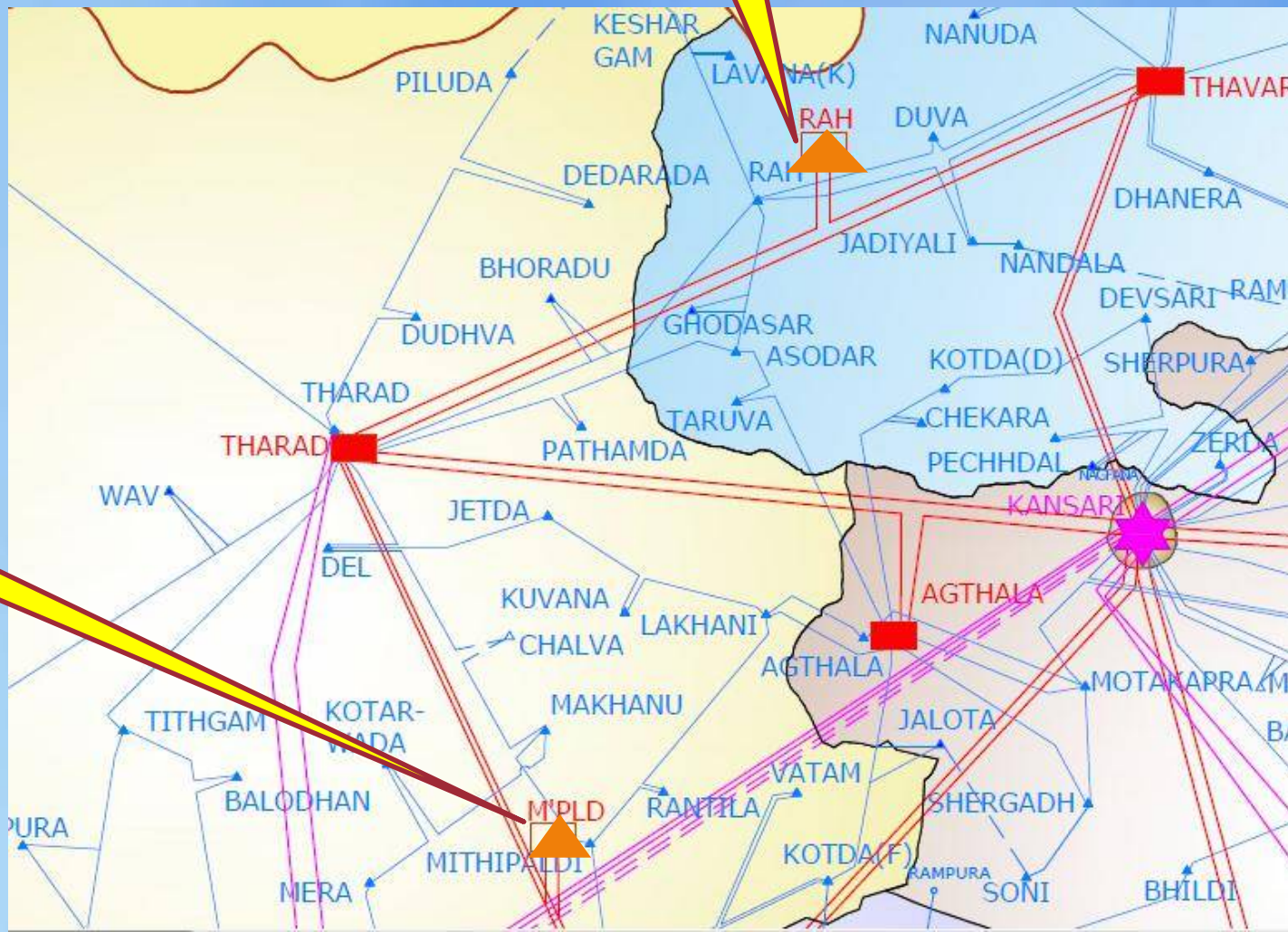
Weakness of Transmission Network and Remedy



Banasakantha Dist.

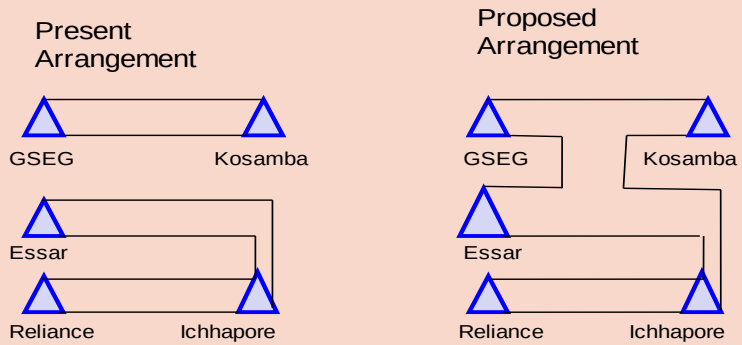
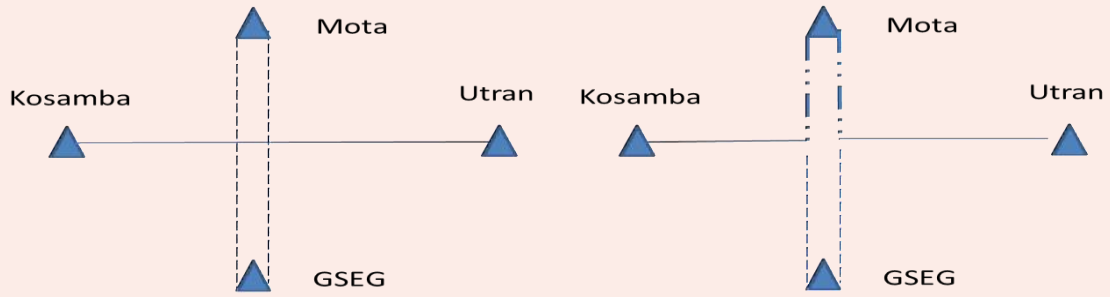
Rah

Mithi Paldi

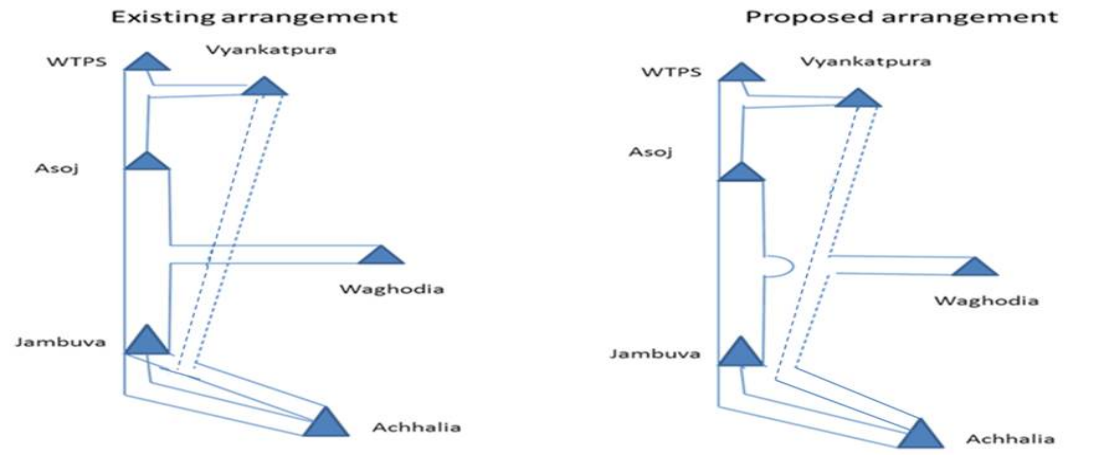
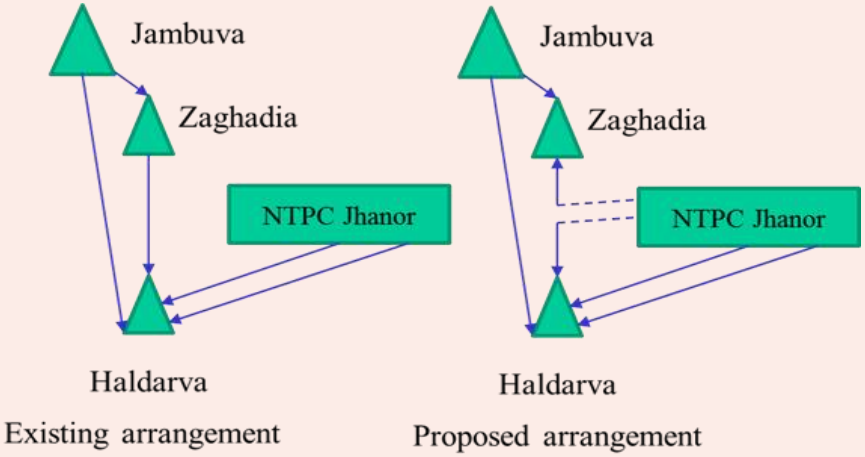


Network topology changes implemented

The following worthwhile changes in network topology for relieveing congestion in the network have been implemented:

Suggestions	Present status
Interconnection of one circuit of 220 KV D/C GSEG – Kosamba line with one circuit of 220 KV D/C Essar – Ichhapore line so as to have 220 KV S/C GSEG – Essar line and 220 KV S/C Kosamba – Ichhapore line.	**Implemented** 
3Interconnection of 220 KV D/C GSEG - Mota line (under construction) with existing 220 KV Kosamba – Utran lineso as to have one circuit of 220 KV Kosamba - Mota and one circuit of 220 KV Utran - Mota line	**Implemented** 

Network topology changes implemented

Suggestions	Present status
LILO of one circuit of 220 KV Vyankatpura - Achhalia line (under construction) at Waghodia S/S from crossing point of 220 KV Asoj - Waghodia and 220 KV Waghodia – Jambuva line to have 2nd circuit of 220 KV Asoj – Jambuva line.	**Implemented** 
LILO of 220 KV S/C Haldarva - Zaghadia line at NTPC Jhanor to have 3rd circuit of 220 KV Haldarva – Jhanor line and establishing one more substation connectivity with NTPC station.	**Line work completed by GETCO. Bay work at NTPC is under progress** 

Thank You

Status of Ongoing EHV Substation

Sr No	Name of S/S	Name of Circle	Name of District	Name of Taluka	Land Possession Date	Status of Civil Work (In %)	S/S Agency Finalized
1	400/220KV Bhachunda	Anjar	Kutch	Abadasa	27-03-2014	100%(CW & AG) 68%(GIS)	Y
2	220KV Amod (Upgradation 66KV)	Bharuch	Bharuch	Amod	Existing	55%	Y
3	220KV Kawant	Jambuva	Chota udepur	Kawant	Existing	90%(FDN)100% (CW& CR)	Y
4	220KV Motigop	Jamnagar	Jamnagar	Jamjodhpur	04-08-2016	73% (CWAG)	Y
5	220KV Santej	Mehsana	Gandhinagar	Kalol	Existing	100%PH-I(66KV) 96%PH-II	Y
6	400KV Chharodi (Sanand)	Nadiad	Ahmedabad	Sanand	27-12-2011	100%(CW & AG) 82%(EPC)	Y

Status of Ongoing EHV Transmission Line

SR. NO.	NAME OF LINE & (Type of Conductor)	No. of Ckts	Length (CKM)	Cumulative Progress till date				Work completed in %	Remarks/Constraints
				Total No. of Tower Loc.	Stubs Completed	Towers Erected	Stringing Completed (CKM)		
A	**400kV SCHEME**								
1	400kV Mundra - Hadala LILO to Halvad with ACSR Twin Moose Conductor	D/C	89.400	136	124	96	19.270	67%	W I P
2a	400kV D/C Vadinar(Essar)-Amreli with ACSR Twin Moose Conductor (Package-I)	D/C	116.850	168	168	168	116.850	100%	400kV Hadala-Jetpur made LILO at Amreli through Vadinar-Amreli line (Pkg-1) at Amreli S/s on 22.11.13 (Stop Gap).
2b	400kV D/C Vadinar(Essar)-Amreli with ACSR Twin Moose Conductor (Package-II)	D/C	118.260	173	173	173	118.260	95%	Line charged on 66kV voltage from 66kV Jetpur-Virpur line on 22.01.2016.
2c	400kV D/C Vadinar(Essar)-Amreli with ACSR Twin Moose Conductor (Package-III)	D/C	120.940	192	136	94	0.000	48%	LOA issued on 05.03.2018.
	Total		**239.200**	**533**	**477**	**435**	**235.110**	**81%**	
3a	400kV D/C Mundra - Zerda Line No.1 with ACSR Twin Moose Conductor (Package-I)	D/C	160.000	260	163	123	0.000	44%	Tender to be invited on risk & cost of EPC Contractor.
3b	400kV D/C Mundra - Zerda Line No.1with ACSR Twin Moose Conductor (Package-II)	D/C	190.000	284	103	65	0.000	26%	Tender to be invited on risk & cost of EPC Contractor.
3c	400kV D/C Mundra - Zerda Line No.1with ACSR Twin Moose Conductor (Package-III)	D/C	314.000	453	187	87	0.000	27%	W I P / Severe RoW problems
	Total		**664.000**	**997**	**453**	**275**	**0.000**	**33%**	

Status of Ongoing EHV Transmission Line

SR. NO.	NAME OF LINE & (Type of Conductor)	No. of Ckts	Length (CKM)	Cumulative Progress till date				Work completed in %	Remarks/Constraints
				Total No. of Tower Loc.	Stubs Completed	Towers Erected	Stringing Completed (CKM)		
4a	400kV D/C Amreli - Kasor line (Part-1) (Amreli Gantry to AP-28) with ACSR Quad Moose Conductor	D/C	160.950	238	214	181	0.000	64%	W I P / Severe RoW problems
4b	400kV D/C Amreli - Kasor line (Part-2) (AP-28 to AP-44) with ACSR Quad Moose Conductor	D/C	164.340	235	235	233	128.200	90%	W I P / Severe RoW problems
4c	400kV D/C Amreli - Kasor line (Part-3) (AP-44 to Kasor Gantry) with ACSR Quad Moose Conductor	D/C	145.264	206	175	158	53.102	69%	W I P / Severe RoW problems
	Total		**470.554**	**679**	**624**	**572**	**181.302**	**74%**	
5a	400kV D/C Vadavi - Halvad Line (Package-I) (From Vadavi to AP-41) with ACSR Twin Moose conductor	D/C	146.404	215	214	214	133.382	93%	WIP
5b	400kV D/C Vadavi - Halvad Line (Package-II) (From Halvad to AP-41) with ACSR Twin Moose conductor	D/C	144.420	196	122	11	0.000	32%	WIP
	Total		290.824	411	336	225	133.382	62%	
6a	400kV D/C Varsana - Halvad Line (Package-I) (From Varsana to AP-44) with ACSR Twin Moose conductor	D/C	143.388	224	184	176	19.440	64%	WIP
6b	400kV D/C Varsana - Halvad Line (Package-II) (From AP-44 to Halvad) with ACSR Twin Moose conductor	D/C	93.804	154	33	5	0.000	15%	Tender to be invited on risk & cost of EPC Contractor.
	Total		**237.192**	**378.00**	**217.00**	**181.00**	**19.440**	**39%**	

Status of Ongoing EHV Transmission Line

SR. NO.	NAME OF LINE & (Type of Conductor)	No. of Ckts	Length (CKM)	Cumulative Progress till date				Work completed in %	Remarks/Constraints
				Total No. of Tower Loc.	Stubs Completed	Towers Erected	Stringing Completed (CKM)		
7	LILO of one ckt. of 400kV D/C Kosamba-Chorania line at 400kV Sanand-II GIDC S/s	D/C	90.000	132	125	125	89.252	91%	W I P / Severe RoW problems
8	LILO of one ckt. of 400kV D/C Kosamba-Chorania Line at 400kV Pachchham S/s	D/C	46.000	72	63	62	21.920	75%	W I P / Severe RoW problems
9	400kV D/C Wanakbori TPS (Existing Switchyard) - Wanakbori Unit No. 8 Line (Tie Line)	D/C	2.728	5	5	5	2.728	95%	Line charged on 17.05.2018.
10	400kV D/C Wanakbori-Soja line (Pkg-1)	D/C	121.758	186	171	171	104.896	87%	W I P / Severe RoW problems
11	400kV D/C Wanakbori-Soja line (Pkg-2)	D/C	91.412	157	95	93	27.346	53%	WIP
12	400kV D/C Soja-Zerda line (Pkg-1)	D/C	133.656	223	191	188	80.180	77%	W I P / Severe RoW problems
13	400kV D/C Soja-Zerda line (Pkg-2)	D/C	135.262	224	182	175	75.408	72%	W I P / Severe RoW problems
14	LILO of one ckt. of 400kV D/C Ukai-Kosamba line at 400kV Vav S/s	D/C	62.000	106	89	81	42.228	75%	WIP

Status of Ongoing EHV Transmission Line

SR. NO.	NAME OF LINE & (Type of Conductor)	No. of Ckts	Length (CKM)	Cumulative Progress till date				Work completed in %	Remarks/Constraints
				Total No. of Tower Loc.	Stubs Completed	Towers Erected	Stringing Completed (CKM)		
15	LILO of one ckt. of 400kV D/C Jhanor-Navsari line at 400kV Vav S/s	D/C	20.000	34	23	17	0.000	47%	WIP
16	400kV D/C Hadala-Shapar line	D/C	124.340	198	100	90	0.000	39%	WIP
17	400kV D/C Bhogat-Kalawad line	D/C	260.572	444	90	41	0.000	16%	WIP
18	400kV D/C Bhachunda - Varsana line	D/C	276.160	499	119	67	0.000	19%	WIP
19	400kV LILO to Dehgam from 400kV S/C Wanakbori – Soja line No. 2	D/C	12.000	23	16	13	0.000	50%	WIP
20	LILO of both ckt. of 400kV D/C Mundra - Zerda line at 400kV Charanka S/s	D/C	25.760	43	34	13	0.000	46%	WIP
21	400kV D/C Fedra (Pachchham) - Dholera "AA" line and 220kV D/C line from Fedra to AP-12/0	D/C	400kV - 2x30.720 220kV - 2x1.900	400kV - 104 220kV - 8	0	0	0.000	0%	WIP
34	LILO of One Circuit of 220kV D/C Kasor – Gavasad line at 220kV Gotri S/s along with conversion of 132kV D/C Gotri – Dhuvaran – Karamsad line	M/C	94.680	90	0	0	0.000	5%	LOA issued on 03.05.2018.

Status of Ongoing EHV Transmission Line

SR. NO.	NAME OF LINE & (Type of Conductor)	No. of Ckts	Length (CKM)	Cumulative Progress till date				Work completed in %	Remarks/Constraints
				Total No. of Tower Loc.	Stubs Completed	Towers Erected	Stringing Completed (CKM)		
B	220kV SCHEME								
1	220kV D/C GSEG(Hazira) - Mota line with AL-59 Conductor	D/C	111.060	182	111	96	41.818	53%	WIP
2	220kV LILO at Kukma S/S from one Ckt. of Shivlakha - Nanikhakhar line with ACSR Zebra conductor	D/C	34.000	60+2G	54+2G	50+2G	30.658	84%	W I P / Severe RoW problems
3	220kV D/C Gavasad - Salejada line with AL-59 conductor	D/C	194.000	313	277	203	54.010	65%	W I P / Severe RoW problems
4	220kV D/C BECL - Botad line with ACSR Zebra conductor	D/C	190.000	292	182	142	33.798	48%	W I P / Severe RoW problems
5	220kV D/C Halvad - Sadla line with AL-59 conductor	D/C	76.000	124	101	101	59.100	78%	Contractual notice issued to EPC Agency.
6	220kV D/C Bhatiya - Kalawad line with AL-59 conductor	D/C	238.000	373	176	127	10.514	35%	Contractual notice issued to EPC Agency.
7	220kV D/C Kalawad - Kangasiyali line with AL-59 conductor	D/C	111.880	191	177	159	63.700	78%	Contractual notice issued to EPC Agency.
8	Termination of one D/C line of 220kV Achhaliya-Jambuva line at Vyankatpura (Jarod) S/S with ACSR Zebra conductor	D/C	68.386	128+2G	124	124	40.438	84%	WIP

Status of Ongoing EHV Transmission Line

SR. NO.	NAME OF LINE & (Type of Conductor)	No. of Ckts	Length (CKM)	Cumulative Progress till date				Work completed in %	Remarks/Constraints
				Total No. of Tower Loc.	Stubs Completed	Towers Erected	Stringing Completed (CKM)		
9	220kV Vadavi-Chhatral line LILO at 220kV Santej S/s	D/C	50.660	88	69	60	0.600	57%	Tender to be re-invited & last date of tender is 26.06.2018.
10	220kV D/C Vadavi-Sanand DFCC line	D/C	61.080	108	54	41	0.000	36%	WIP
11	220kV D/C Botad-Chorania line	D/C	103.240	196	96	84	0.000	37%	WIP
12	220kV Amreli-Dhasa line LILO at 220kV Botad S/s	D/C	99.880	170	170	170	96.420	94%	WIP
13	220kV D/C Kheralu-Dharewada (DFCC) line	D/C	53.360	97	79	67	5.644	60%	LOA issued on 05.03.2018.
14	220kV D/C Soja-Journang (DFCC) line	D/C	43.420	75	51	42	0.000	49%	LOA issued on 05.03.2018.
15	220kV D/C Palanpur-Amrigadh DFCC Line	D/C	80.000	144	119	64	0.000	51%	Contractual notice issued to EPC Agency.
16	220kV D/C Gavasad-Bhayali DFCC Line	D/C	47.364	84	84	84	47.364	95%	WIP
17	LILO of 220kV S/C Kasor-Vartej line and 220kV S/C Karamsad-Vartej line at 400kV Pachchaam S/s on M/C tower	M/C & D/C	39.840	29-M/C + 04-D/C = 33	32	32	39.360	93%	WIP
18	LILO of one circuit of 220kV D/C Kadana-Godhara line at 220kV Zalod S/s	D/C	124.000	223	217	207	62.970	82%	WIP

Status of Ongoing EHV Transmission Line

SR. NO.	NAME OF LINE & (Type of Conductor)	No. of Ckts	Length (CKM)	Cumulative Progress till date				Work completed in %	Remarks/Constraints
				Total No. of Tower Loc.	Stubs Completed	Towers Erected	Stringing Completed (CKM)		
19	LILO of one circuit of 220kV D/C Hadala-Sartanpar line at 220kV Wankaner S/s	M/C	12.880	16	14	14	0.000	66%	WIP
20	220kV D/C Radhanpur-Sankhari line	D/C	95.640	152	152	152	95.316	95%	WIP
21	LILO of 220kV D/C Nyara-Thebda line at Moti Gop S/s on M/C tower	M/C	59.360	59	49	45	0.000	61%	WIP
22	220kV D/C Bhogat-Moti Gop line	D/C	138.960	251	75	63	0.000	24%	WIP
23	220kV D/C Chorania-Salejada line	D/C	134.540	240	136	120	6.442	44%	WIP
24	220kV D/C Bhogat - Bhatiya Line	D/C	26.000	53	28	25	0.000	40%	WIP
25	220kV D/C Bhogat - Ranavav Line	D/C	140.000	248	84	48	0.000	24%	WIP
26	220kV D/C Pirana - Barejadi Line	D/C	44.960	92	37	26	0.000	30%	WIP
27	220kV LILO of both ckt. of 220kV D/C Mobha - Mangrol line at 220kV Amod S/s	M/C	57.000	66	54	40	0.000	56%	WIP
28	220kV D/C Jambuva – Vadodara (765kV PGCIL) line	D/C	67.960	131	34	27	0.000	22%	WIP

Status of Ongoing EHV Transmission Line

SR. NO.	NAME OF LINE & (Type of Conductor)	No. of Ckts	Length (CKM)	Cumulative Progress till date				Work completed in %	Remarks/Constraints
				Total No. of Tower Loc.	Stubs Completed	Towers Erected	Stringing Completed (CKM)		
29	LILO of 220kV Lalpar - Sartanpar line at 220kV Wankaner S/s	D/C	37.000	72	29	0	0.000	21%	WIP
30	220kV D/C Bhilad - Sarigam line and LILO of 220kV Vapi - Tarapur line at 220kV Sarigam S/s	M/C	25.600	33	10	6	0.000	23%	WIP
31	LILO of one circuit of 220kV D/C Gandhinagar – Chhatral line at 400kV Vadavi S/s	D/C	24.720	52	33	30	0.000	48%	WIP
32	LILO of 220kV GSEG - Kim line and 220kV GSEG - Mora - Kim line at 220kV Velanja S/s	M/C	7.040	12	7	5	0.000	41%	WIP
33	220kV D/C Asoj - IOCL line	D/C	O/H - 2x26.128 & U/G - 2x4.8	94	22	1	0.000	15%	WIP (Deposit Work)
34	LILO of One Circuit of 220kV D/C Kasor – Gavasad line at 220kV Gotri S/s along with conversion of 132kV D/C Gotri – Dhuvaran – Karamsad line	M/C	94.680	90	0	0	0.000	5%	LOA issued on 03.05.2018.

Status of Project under KfW

Package No.	Package Details	MVA/ CKM	DPR Cost	NIT publish date	Placing of order/	Award Cost (in Rs Crs)	Remarks
1	220 KV Babara substation (Dist. Amreli) (1) 220/132 KV, 2 X 150 MVA, (2) 220/66 KV, 3 X 160 MVA,	780	68.75	23.10.17	May-18		Price Bid Opened, Under Approval
2	220 kV Kalavad GIS substation (Dis. Jamnagar) (1) 220/66 kV, 3x160 MVA	480	137.75	12.04.16	27.04.17	Rs 58.32 Crs USD 5.33 m	WIP
3	220 KV Moti Gop substation (Dist. Jamnagar) (1) 220/66 KV, 3 X 160 MVA	480.00	48.94	26.04.16	22.02.2017	30.95	WIP
4	Up-gradation of 132 KV Wankaner substation to 220 KV level (Dist. Rajkot) - Hybrid / GIS technology (1) 220/66 KV, 3 X 160 MVA, 220/132 KV 2X150 MVA	780.00	116.17	27.04.16	25.04.17	3.6 M. USD + Rs 52.53 Cr	WIP
5	400 KV Bhachunda GIS substation (Dist. Kutch) (1) 400/220 KV, 3 X 500 MVA (2) 400 KV, 1 x 125 MVAR Reactor with bay	1500.00	154.60	27.04.16	23.10.17	72.93	WIP
6	400/220/66 KV Bhogat GIS substation (Dist. Jamnagar) (1) 400/220 KV, 3 X 500 MVA (2) 220/66 KV, 2 X 160 MVA (3) 400 KV, 1 x 125 MVAR Reactor with bay	1820.00	210.90	23.10.17	27.04.18	143	WIP
7	400 KV D/C Shapar – Pachham (Fedra) line (Twin AL-59)	200	150.00	01.01.18	Jun-18		Price bid opened & under approval
8	220 kV D/C Amreli-Babara line (AL-59)	50	15.25	09.01.18	Jun-18		
9	220 kV D/C Shapar-Babara line (AL-59)	120	36.60	09.01.18	Jun-18		
10	220 KV, 1 x 50 / 1 x 25 MVAR Bus Reactors each at 220 KV Moti Paneli, Bhatia, Nakhatrana, Bhachau & Deodar substations	5	10.00	29.09.17	02.04.18	10.16	WIP
			948.96				

Status of Project under NCEF

Package No.	Package Details	MVA/ CKM	DPR Cost	NIT publish date	Placing of order/	Award Cost	Likely completion schedule	Remarks
11	220 KV Bhachunda GIS substation (Dis. Kutch) (1) 220/66 KV, 2 X 160 MVA (2) 6 Nos. of 220 KV & 6 Nos. of 66 KV feeder bays	320.00	106.74	22.04.15	10.11.15	76.95	Jun-18	WIP (220 kV GIS is under construction)
12	400 KV D/C Bhogat – Kalavad line (Twin AL-59)	261	202.50	03.02.16	26.09.2016	159.86	25.03.20	WIP F - 90/444 E - 41/444 S - 0/261 (16%)
13	400 KV Hadala – Shapar line (Twin AL-59)	124	97.50	29.01.16	26.09.2016	75.61	25.03.19	WIP F - 100/198 E - 90/198 S - 0/124 (39%)
14	LILO of both circuits of 220 KV D/C Jamanvada – Varsana line at 220 KV Bhachunda (AL-59) M/C line	82	28.00	19.06.15	26.11.15	15.66	Test Charged 06.06.16	Test Charged 06.06.16
15	LILO of one circuit of 220 KV D/C Akrimota – Nakhatrana line at Bhachunda	52	19.52	23.02.16	15.07.16	13.57	14.01.18	Line Test charged on 20.12.17
16	220 KV D/C Bhatia - Bhogat line (AL-59)	26	9.15	28.01.16	08.12.2016	10.78	Dec-17	WIP F - 28/53 E - 25/53 S - 0/26 (40%)
17	220 KV D/C Bhogat - Ranavav line (AL-59)	150	45.75	28.01.16	30.12.2016	43.75	30.12.18	WIP F - 83/248 E - 48/248 S - 0/140 (24%)

Status of Project under NCEF

Package No.	Package Details	MVA/ CKM	DPR Cost	NIT publish date	Placing of order/	Award Cost	Likely completion schedule	Remarks
18	LILO of one circuit of 220 KV D/C Gandhinagar TPS – Chhatral line at Vadavi (AL-59)	50	15.25	18.03.16 Re Tender: 17.03.17	04.09.17	13.33	Apr-19	WIP F - 33/52 E - 27/52 S - 0/25 (46%)
19	220 KV D/C Chorania – Salejada line (AL-59)	140	42.70	05.04.16	29.09.16	44.82	Feb-19	WIP F - 136/240 E - 118/240 S - 6/135 (43%)
20	220 KV D/C Radhanpur – Sankhari line (AL-59)	96	33.55	18.03.16	20.08.16	28.97	Aug-18	WIP F - 152/170 E - 152/170 S - 95/96 (95%)
21	LILO of one Circuit of 220 KV D/C Hadala - Sartanpar at 220 KV Wankaner (AL-59)	13	6.10	08.03.16	28-07-16	6.92	Mar-18	WIP F - 14/16 E - 14/16 S - 0/13 (66%)
22	LILO on 220 KV S/C Lalpar - Sartanpar line at 220 KV Wankaner	40	28.00	08.03.16 17.03.17	24-07-17	22.94	Jan-19	WIP F - 29/72 E - 0/72 S - 0/37 (21%)
23	220 KV D/C Bhogat – Moti Gop line (AL-59)	140	42.70	20.05.16	13.10.16	44.05	Oct-19	WIP F - 75/251 E - 63/251 S - 0/139 (24%)

Status of Project under NCEF

Package No.	Package Details	MVA/ CKM	DPR Cost	NIT publish date	Placing of order/	Award Cost	Likely completion schedule	Remarks
24	LILO of both circuits of 220 KV D/C Tebhda – Nyara line at Moti Gop substation (M/C line : AL-59)	59	21.00	20.05.16	13.10.16	24.28	Apr-18	WIP F - 49/59 E - 45/59 S - 0/59 (61%)
25	400 kV D/C Bhachunda – Varsana line (Twin AL-59)	280	210.00	21.07.16	30.12.16	192.76	Jun-20	WIP F - 118/499 E - 64/499 S - 0/276 (18%)
26	LILO of both circuits of 132 KV D/C Sitac WF - Jasdan line at Babara (M/C line)	50	20.00	17.03.18	May-18			Price Bid Opened & under approval

Annexure III

THE 20th MEETING OF THE CO-ORDINATION FORUM

Date : 11.07.18

STATUS OF RPO

PRESENTED BY:

GUJARAT ENERGY DEVELOPMENT AGENGY, GANDHINAGAR

GERC (PROCUREMENT OF ENERGY FROM RENEWABLE SOURCES) (FIRST AMENDMENT) REGULATION, 2014

- The Commission has declared the following trajectory for the RPO.

	Minimum Quantum of purchase (in %) from renewable sources (in terms of energy in kWh)			
Year	Wind(%)	Solar(%)	Other(%)	Total(%)
2010-11	4.5	0.25	0.25	5
2011-12	5.0	0.5	0.5	6.0
2012-13	5.5	1.0	0.5	7.0
2013-14	5.5	1.0	0.5	7.0
2014-15	6.25	1.25	0.5	8.0
2015-16	7.0	1.5	0.5	9.0
2016-17	7.75	1.75	0.5	10.0

GERC (PROCUREMENT OF ENERGY FROM RENEWABLE SOURCES) (SECOND AMENDMENT) REGULATIONS, 2018

- The Commission has declared the following trajectory for the RPO. Contd*

Minimum Quantum of purchase (in %) from renewable sources (in terms of energy in kWh)				
Year	Wind(%)	Solar(%)	Other(%)	Total(%)
2017-18	7.75	1.75	0.5	10.0
2018-19	**7.95**	**4.25**	**0.50**	**12.70**
2019-20	8.05	5.50	0.75	14.30
2020-21	8.15	6.75	0.75	15.65
2021-22	8.25	8.00	0.75	17.00

Obligated Entities (OE's) for RPO Fulfillment

(1) GUVNL (MGVCL+PGVCL+UGVCL+DGVCL)

(2) Torrent Power Ltd. (A'bad + Surat)

(3)Torrent Energy Ltd. (Dahej, SEZ)

(4) Jubilant Infrastructure Ltd.

(5) Aspen Infrastructure Ltd.

(6) Kandla Port Trust

(7) MPSEZ Utilities Pvt. Ltd.

(8) GIFT Power Company Ltd.

Status Report for RPO Compliance of Obligated Entities for FY 2017-18

Obligated Entities	Compliance Year FY 2017-18	Total RPO Obligation Percentage		RE Procurement at Preferential Tariff for the year (%)		Actual Purchase of RECs from PX for the year (%)		Actual Total RPO fulfilled for the year (%)	
		Non-Solar	Solar	Non-Solar	Solar	Non-Solar	Solar	Non-Solar	Solar
		(A)	(B)	(C)	(D)	(E)	(F)	(C) + (E)	(D) + (F)
Gujarat Urja Vikas Nigam Ltd (Provisional)	10.00%	8.25	1.75	7.60	1.83	0.00	0.00	7.60	1.83
Torrent Power Ltd. (Ahemadabad & Surat)	10.00%	8.25	1.75	6.43	2.59	1.81	0.00	8.24	2.59
Torrent Power Ltd. (DAHEJ)	10.00%	8.25	1.75	8.80	3.22	0.00	0.00	8.80	3.22
MPSEZ Utilities Pvt.Ltd.	10.00%	8.25	1.75	0.00	0.69	8.24	0.12	8.24	0.81
Total	**10.00%**	**8.25**	**1.75**	**7.44**	**1.92**	**0.24**	**0.00**	**7.68**	**1.92**

Status Report for RPO Compliance OF Obligated Entities for the FY 2017-18

- (5) **M/s. Jubilant Infrastructure Ltd:** M/s. Jubilant has conveyed vide their letter dated 30/09/17,that they are procuring power from DGVCL for the year 2017-18.
- (6) **M/s. Aspen Infrastructure Ltd:** M/s. Aspen Infrastructure Ltd have conveyed that they are exempted for RPO by the commission as per order in Suo-Motu petition No.1542/2015 for FY 2016-17 and are procuring power from MGVCL for FY 2017-18.
- (7) **M/s. Kandla Port Trust:** Details are awaited
- (8) **M/s. Gift Power Company Ltd:** M/s. Gift Power Company Ltd. has conveyed vide their letter dated 26/09/17,that they are procuring power from UGVCL for FY 2017-18.

Status Report for RPO Compliance of OE's for the FY 2017-18

Case I: STOA's

No. of OE's	No. of OE's complied	No. of OE's fulfilled RPO
278	37	06

Case II: CPP's

No. of OE's	No. of OE's complied	No. of OE's fulfilled RPO
107	15	Nil

Status Report for RPO Compliance of OE's for the FY 2017-18 using RPO Web Tool

- On receipt of audit clearance certificate for no vulnerabilities, the web tool has been hosted on the Govt. of Gujarat's server at http://rpo-guj.gujarat.gov.in. The same link is also made available on GEDA's website.
- Soft copy of help manual for the web tool has been circulated among the OE's through mail and the same is also made available on GEDA's website.
- A training workshop on Implementation of RPO web tool was organized on 15th day of February 2018 for all the OE's

OE Type	Total No. of OE's	No. of OE's Registered on Web Tool	No. of OE's complying data	No. of OE's fulfilled RPO
DISCOM	7	0	0	-
STOA	278	48	4	2
CPP	107		2	0

Guidance required from The Hon'ble Commission

The following queries have been raised by various OE's, for which GEDA also requires guidance;

- As the trading of Solar REC's has been resumed in April'18, can the obligation for FY 2017-18 be complied by purchasing Solar REC's in FY 2018-19?
- In case of CPP, if the OE has multiple units in various locations under the name of one single legal entity, can the RPO be complied by a single unit for the consumption done at all the units or the compliance has to be done individually?
- In a case where the installed capacity of conventional energy source is more the 5MW but the energy is consumed by multiple legal entities, is the RPO applicable? If it is applicable, then to whom will the RPO be applicable?
- Is RPO applicable on Auxiliary Consumption?

THANK YOU

Annexure IV

Presentation to

Co-ordination Forum

Gujarat Power Sector Scenario

On 11th July 2018

Gujarat Urja Vikas Nigam Ltd.

Gujarat – Installed Capacity

Sector	MW	%share
State Owned	8121	30%
Private IPPs	7207	27%
Central Sector	4227	16%
Renewable	7329	27%
Total	26884	100%

Fuel	MW	% Share
Coal & lignite	13667	51%
Gas	4550	17%
Hydro	779	3%
Nuclear	559	2%
Renewable	7329	27%
Total	26884	100%

**Capacity includes 1547 MW Torrent capacity(400 MW – coal & 1147 MW – Gas)*

Gujarat - Renewable Capacity in MW

Source	Installed Capacity*	GUVNL's share
Wind	5595	3715
Solar	1671	1116
Biomass	41.2	30
Small Hydel	21.6	21.6
Total	7329	4883
**Includes capacity set up for wheeling / 3rd party use*		

Present Power Scenario – Highlights

- **At present, State DISCOMs are having total tied up capacity of 22,788 MW on long term basis against the peak demand of 15,000 MW:**

  Conventional: 17,905 MW

  Renewable : 4,883 MW

- **State is having tie up from 4805 MW capacity based on imported coal – such projects has stopped supplying power / supplying partial capacity citing under recovery in tariff and non-viability due to promulgation of Indonesian Regulation**

- **In addition, there has been severe shortage of domestic coal across the country due to which thermal stations have been operating at critical coal stock position**

Present Power Scenario – Highlights

- **The details of arrangement made by GUVNL from alternate sources is as under:**
  - **8312 MUs power purchased from Power Exchanges at avg. rate of Rs. 4.18 / unit during Apr-17 to Jun-18**
  - **500 MW capacity tied up with M/s GMR under Flexible Utilization of Coal policy of Ministry of Power at Rs. 2.81/unit**
  - **300-700 MW capacity tied up through DEEP Portal, Govt. of India at rate of Rs. 3.20-4.15/unit during Mar-May 18**
  - **SPOT RLNG gas on high sea sale basis sourced from GSPC for around 1000 MW capacity at Rs. 4.91-5.52/unit during Apr-May 18**

Capacity Added - 2016-17 & 2017-18

Project	Dev.	Sector	Fuel	MW	COD
Bhavnagar Energy Co. Ltd	BECL	State	Lignite	500	May-16 & Mar-17
Mouda Stage II	NTPC	Central	Coal	294	Feb-17 & Oct-17
Total				794	

Capacity De-rated - 2016-17 & 2017-18

Project	Dev.	Sector	Fuel	MW	Reason
Essar Power Ltd.	Essar	Private	Gas	300	Completion of useful life / PPA expiry
Gandhinagar TPS (Unit 1 & 2)	GSECL	State	Coal	240	
GSECL Utran	GSECL	State	Gas	135	
GIPCL Stage II	GIPCL	State	Gas	165	
Ukai TPS (Unit 1 & 2)	GSECL	State	Coal	240	
Sikka TPS (Unit 1 & 2)	GSECL	State	Coal	240	
Total				1320	

Capacity Addition Plan by 2022

Project	Dev.	Sector	Fuel	MW	Likely COD
NTPC Lara (Unit 1 & 2)	NTPC	Central	Coal	157	Sep-18 & Sep-19
NTPC Gadarwara STPP	NTPC	Central	Coal	304	Nov-18 & Sep-19
Wanakbori Ext. Unit 8	GSECL	State	Coal	800	Dec-18
NTPC Khargone	NTPC	Central	Coal	246	July-19 & Jan-20
Kakrapar Expansion	NPCIL	Central	Nuclear	476	2020-21
Total				1983	

Demand/supply scenario - State

(MW)

Year	Cap. Add. during the year	Capacity de-rated	Cumulative Capacity available	Demand @ 6% growth p.a
As on 1.4.2018	147	480	19555	17097(Actual)
2018-19	1030	655	19930	18123
2019-20	477	-	20407	19210
2020-21	476	-	20883	20363
2021-22	-	-	20883	21585

Demand includes 2000-2400 MW load & Capacity includes 1547 MW generation capacity of M/s Torrent Power Ltd.

Power tie up on long/ short term basis

- **In order to meet future demand, GUVNL is in process of inviting bids for 3000 MW + 20% under different fuel categories namely:**

  (i) Captive

  (ii) Linkage

  (iii) Offering linkage under SHAKTI scheme

- **Pursuant to request of Govt. of Gujarat, Ministry of Power vide Office Memorandum dated 03.05.2018 has recommended Ministry of Coal, Govt. of India to assign coal quantity of 19.712 MTPA (G 13 grade) to Gujarat – allocation from Ministry of Coal is awaited**

- **GUVNL has invited bids for procurement of 1000 MW power for the period 1.08.2018 to 30.06.2019 under Flexible Utilization of Coal policy of Ministry of Power - case 4 bidding – last date of bid submission is 20.07.2018**

Tie up from Renewable Sources

- **Out of 175 GW RE target proposed by 2022, Gujarat has been allocated 17,133 MW target by MNRE:**

Wind	**–**	**8,800 MW**	**Solar**	**–**	**8,020 MW**
Biomass	**–**	**288 MW**	**Small Hydel**	**–**	**25 MW**

- **GUVNL/DISCOMs would be required to tie up around 7000 MW by 2022 (5500 MW – Solar & 1500 MW – Non-Solar)**

- **GUVNL has tied up 1000 MW bids through competitive bidding in FY 2017-18 wherein PPAs has been signed for 500 MW Wind Capacity (Rs. 2.43-2.45/unit) & 500 MW Solar Capacity (Rs. 2.65-2.67/unit) through reverse auction**

Tie up from Renewable Sources

- **State is developing two more Solar Parks at Radhanesada (700 MW) & Harshad (500 MW) in North Gujarat**

- **GUVNL in co-ordination with GPCL (Designated Agency for Solar Park) is at advanced stage of initiating tender(s) for procurement of power from Radhanesda Solar Park and Harshad Solar Park**

- **Govt. of Gujarat has recently notified "Wind-Solar Hybrid Power Policy 2018" on 20.06.2018 with an objective of optimum utilization of land to promote simultaneous production of wind & solar power**

Power purchase from Renewable Sources

Status RPPO for FY 2017-18 – As per MYT

2017-18 (Prov.)	Wind	Solar	Others	Total
RPPO (%) – As per GERC	7.75%	1.75%	0.50%	10%
RE Requirement as per MYT (MUS)	6563	1482	423	8468
Actual Purchased (MUS)	6671	1735	76	8482
Achieved RPO (%)	7.88%	2.05%	0.09%	10.02%

GERC RPPO Regulation – trajectory

- **Hon'ble GERC vide Regulation dated 21.4.2018 has notified RPO trajectory for FY 2017-18 to FY 2021-22**

- **In the above Regulation, the RPO for Solar has been increased to 4.25% for FY 2018-19 as against 1.75% in FY 2017-18 – the increase is very steep**

- **GUVNL has tied up 500 MW solar in FY 2017-18 and new tender for 500 MW tie up through competitive bidding has already been floated in June-18**

- **GUVNL vide letter dated 12.06.2018 has apprised Hon'ble Commission about present RE scenario and has requested to revise RPO on linear basis as stipulated commissioning period for new projects is 2 years**

Thank You