

भारत सरकार केंद्रीय विद्युत प्राधिकरण दक्षिण क्षेत्रीय विद्युत समिति बेंगलूर- 560 009		 सत्यमेव जयते	Government of India Central Electricity Authority Southern Regional Power Committee Bangalore- 560 009	
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सं/No.	SRPC/SE(O)/151 st OCC/2018-19	दिनांक/ Date	04.02.2019	

सेवा में / To: संलग्न सूचि के अनुसार / As per enclosed list

प्रचालन समन्वय समिति की 151 वी बैठक के कार्यवृत्त ।

MINUTES OF THE 151st MEETING OF THE OPERATION COORDINATION COMMITTEE

महोदय / Sir,

दिनांक **10 जनवरी 2019** (गुरुवार) को बेंगलूर में संपन्न **151** वी प्रचालन समन्वय समिति की बैठक के कार्यवृत्त आपके अवलोकनार्थ हमारा वेबसाइट www.srpc.kar.nic.in में अपलोड किया गया है। समिति की **152** वी बैठक दिनांक **12 फरवरी 2019** (मंगलवार) को बेंगलूर में होगी।

The minutes of the **151** Meeting of the Operation Coordination Committee held on **10th January 2019**, is uploaded in our office website www.srpc.kar.nic.in for your perusal.

The **152nd** Meeting of the OCC will be held on **12th February 2019 (Tuesday)** at **SRPC, Bengaluru** .

भवदीय / Yours faithfully,



(असित सिंह / ASIT SINGH)

अधीक्षक अभियंता

SUPERINTENDING ENGINEER

**Minutes of the 151st Meeting of Operation Coordination Committee
held at SRPC, Bengaluru on 10.01.2019**

1. Introduction

1.1 The 151st Meeting of Operation Coordination Committee of SRPC was held on 10th January 2019 at SRPC, Bangalore. The list of participants is given at **Annexure-1A**.

1.2 Wishing a very happy New Year, Shri S R Bhat, Member Secretary, SRPC welcomed all the esteemed participants to the 151st Meeting of OCC. He hoped that the cooperation and support extended by all the entities would continue in the coming year also.

MS noted that quick implementation of Islanding Scheme as communicated by SRPC vide letter dated 14.12.2018 was very vital. He emphasised on the necessity of proper safety net in the huge interconnected system.

DSM Fourth Amendment had been implemented w.e.f 01.01.2019. Few issues raised by some of the stake holders had been already taken up with NLDC and he hoped those would be clarified / sorted out.

The ensuing TCC /SRPC Meetings were scheduled to be held on 1st and 2nd of February 2019. Chairperson SRPC had addressed to MCL, SCCL, Railways and CIMFR seeking participation in SRPC Meeting to address the coal related issues. He requested all generators to furnish specific issues faced by them in allocation/transport/quality of coal etc. in advance. The issues could be consolidated and circulated to them for meaningful discussion in the SRPC Meeting. Reliability of SPS also was also a vital agenda for discussion and to be focussed being fallout of CERC Order.

He thanked SRTS II, Powergrid for arranging a Meeting with IIT, Mumbai on URTDSM Applications on 07.01.2019. He appreciated the efforts put by SRLDC team on the implementation part. He also requested SRLDC to kindly intimate the logs of VADR Application of URTDSM for effective utilisation of the project.

A Special SRPC Meeting had been conducted on 17.12.2018 to discuss some of the issues such as status of construction of Traction substations/lines, usage of polymer insulators in transmission lines, AGC implementation at State Level etc. The status regarding supply for Railway traction sub-station for Railway

electrification projects had been communicated to Ministry. However, the status needed to be monitored on a regular basis.

Loss of generation from ISG stations during December 2018 was around 827 MW. Simhadri station was at zero coal stock and had informed that they were utilising carpet coal at present. Super critical coal stock in some stations was indeed a matter of concern.

A Meeting had been scheduled on 21.01.2019 at SRPC Bengaluru to discuss on ramp rates, technical minimum and cold/warm/hot start-ups of thermal stations. All generators had been invited for that Meeting and he requested the concerned to furnish the information as had been sought by SRPC at the earliest. CEA had also been invited for the Meeting. The decisions arrived in the Meeting would be put up to SRPC.

The study on '*Dimensioning of Control Reserves in Southern Region Grid States*' had been awarded to M/S DNV-GL by M/s GIZ. He requested all generators/states to furnish the information in the attached format as required by DNV-GL at the earliest. He sought cooperation of all the concerned for timely completion of the study.

1.3 Superintending Engineer (O), SRPC took up the Agenda for discussions.

2. Confirmation of the Minutes of the 150th Meeting of OCC of SRPC held on 10th December 2018 at Bagalkot

The Minutes of the 150th OCCM were confirmed with the following amendment:

- ED SRLDC informed that w.r.t Pavagada actual scheduling is yet to commence. Accordingly in Para 3.14(2nd bullet) of the Minutes of 150th OCC Meeting, mention of Pavagada is to be removed.

3. MAJOR ISSUES

3.1 Review of islanding schemes in SR

- CERC vide communication dated 26.11.2018 had sought compliance report on the Commission's Order dated 26th March 2018 in Petition No. 09/SM/2015. The following had been noted regarding the Islanding Schemes:

"RPCs should ensure the reassessment and implementation of identified islanding schemes after deliberations with stakeholders on the recommendations of the

consultant, RPCs to identify additional islanding schemes, as required periodically.”

- SRPC vide letter dated 14.12.2018 had requested all concerned that necessary instructions be issued to the concerned divisions for immediate implementation of the revised islanding schemes. SRPC vide E-mail dated 31.12.2018 had again requested all concerned to ensure that **the islanding schemes be ready and implemented by 01.01.2019.**
- TSTRANSCO vide E-mail dated 02.01.2019(**Annexure-3A**) had furnished certain comments regarding the Revised Islanding Scheme. SRPC vide E-mail dated 02.01.2019(**Annexure-3B**) had replied for the same.
- TANTRANSCO vide letter dated 18.12.2018 (**Annexure-3C**) had communicated their comments/observations. Considering the comments, revised scheme for Tamil Nadu had been communicated to Tamil Nadu on 28.12.2018.
- In the Meeting MS SRPC again requested TANTRANSCO & TSTRANSCO to kindly expedite implementation.
- TANTRANSCO informed that the revised scheme had been passed on to P & C Wing and action had been initiated for implementation.
- TSTRANSCO informed that after receiving approval from higher management instructions will be given to the concerned wing for implementation and assured that by end January 2019, scheme would be implemented.
- CE, KSEBL informed that a Special Meeting had been convened with the concerned wing and it was confirmed that the relay settings have been set as per the revised scheme. On a query, it was stated that there was no need for actual testing of relays.
- It was informed that draft Islanding Scheme for Simhadri had been circulated. The Scheme is mainly aimed for avoiding complete black out of Vijayawada, capital city of Andhra Pradesh. APTRANSCO and NTPC agreed to study the same and revert back with comments/observations, if any, within 15 days.
- After deliberations the following were noted:
 - ✓ **TSTRANSCO and TNSLDC** agreed to obtain necessary approvals and implement the scheme by **25.01.2019.**

- ✓ All the entities agreed to communicate to the field for implementation of the set points as communicated by SRPC vide letter dated 14.12.2018.
- ✓ APTRANSCO and NTPC, Simhadri agreed to revert back on the draft ***Simhadri Islanding Scheme by 25.01.2019.***

3.2 Market Split for S3 alone for 1st January 2019 and 3rd January 2019

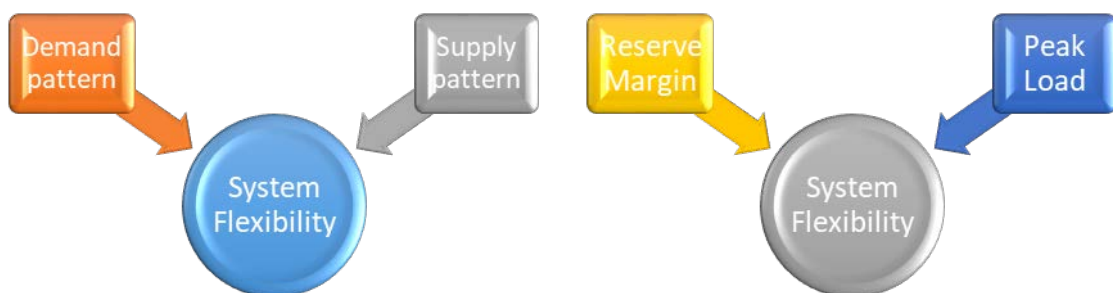
- KSEBL vide letter dated 04.01.2019(**Annexure-3D**) had informed that market split had happened on 1st and 3rd January 2019 for S3 region alone, despite clear corridor margin available to S3 region. Similar incidents of market split had happened in the month of December 2018 on multiple occasions and the matter had been brought to the notice of NLDC /SRLDC.
- In the Meeting CE, KSEBL stated that during December 2018 and in January 2019 first week market split had been observed in S3 region on multiple occasions. KSEBL wants to utilize the corridor availability to the optimum level. Though some clarifications had been given by SRLDC but KSEBL was still not convinced how the market split had taken place despite margins. It was observed that on 3rd January 2019, injection from S3 region (4.5 MW) had not been considered while arriving the margin to S3. He sought clarity on the Procedure being followed by SRLDC/NLDC.
- SRLDC informed that R0 entitlement was being considered to compute the margins for PX transactions. SRLDC agreed to discuss with KSEBL on specific issues.
- Generators were advised not to revise DC being given initially in the morning hours up to around 1800 hours when final schedules are prepared. States were requested to communicate on D-1 the non-availing of LTA/MTOA so that margins could be released for PX etc.
- DE, TSTRANSCO informed that the copy of approved STOA was not being furnished to states, but submitted only to trader and requested a copy of the approved STOA transactions by mail. He recalled that in the 149th OCC Meeting SRLDC had agreed to look into this requirement.
- ED, SRLDC appreciated that States need to know this information for planning their load -generation balance and assured that the STOA approvals would be uploaded on its website. SLDCs were requested to download the same.

3.3 Resource adequacy index and flexibility index

- In the Meeting, SRLDC made a presentation (**Presentation at Annexure-3E.**) on resource adequacy index and flexibility index keeping in view, high RE penetration. The demand of the country is rapidly increasing over the recent years and the increasing addition of renewable energy resources into the generation mix has brought about the need to examine the adequacy of the resources and their management in the country. Resource Adequacy simply put is to have adequate capacity of power sources and at the same time deliver power reliably across a range of reasonable foreseeable conditions. SRLDC informed that this white paper tries to examine the existing practices across the country and various parameters for evaluation in the present scenario with respect to resource adequacy. The paper also tries to explore new methods or reforms that can be brought about in different fields of grid operation for reliable and smooth operation of the grid in the future. New indices such as resource adequacy index and flexibility index assume importance in the era of high Renewable penetration, which provide the system operator valuable information regarding resource adequacy to meet the demand & flexibility available to manage variability of Renewable. SRLDC presented the net demand pattern from January 2018 to October 2018 which is at **Annexure- 3F.**

The following was noted:

- Variability in generation due to increasing share of renewable energy necessitates flexibility in planning and utilisation of the resources. To meet sustained and yet highly swinging energy demand it is not enough that adequate capacity is available but highly flexible sources at higher availability needs to be ensured. Flexibility needs to be thought of as a comparison of the need for the power system to be able to respond to variability and uncertainty (the flexibility demand) and the capability of the system to provide that response (the flexibility supply).



- Flexibility can be monitored based on metrics or indices of the power grid. Some of the metrics are:

1. Demand side metrics:

- (i) Load ramps during different times of the day and seasons of the year
- (ii) Ratio of Peak demand to Minimum demand on daily basis
- (iii) Wind and Solar penetration region wise

2. Supply side metrics:

- (i) Ramp rates of Generators with Reserves during the day
- (ii) Total of Minimum operational capacity of generators
- (iii) Energy storage capacity such as pumped storage, battery storage etc.
- (iv) Demand response and System Inertia
- (v) Transfer capability across regions combined with renewable energy mix

3. Net Flexibility Metrics:

- (i) Maximum Flexibility factor: The metric that defines maximum amount of generation that can be supplied during the hour as a ratio to the net demand.

$$\text{Max FF} = \frac{(\text{Total Hydro capacity} - \text{Total Actual Hydro}) + (\text{Total Thermal DC} - \text{Total Thermal Actual})}{\text{Total Demand} - \text{Total Renewables}}$$

$$\text{Min FF} = \frac{(\text{Total Actual Hydro}) + (\text{Total Thermal Actual} - 55\% \text{ IC of Generator})}{\text{Total Demand} - \text{Total Renewables}}$$

- (ii) Minimum Flexibility factor: The metric that defines the lower limit of sustained generation at which it the grid needs to be run as a ratio of the net demand with must run renewables.

4. Post-despatch and Planning stage metrics:

Metrics may be developed for grid planning (leading metrics) or for measuring historical performance (lagging metrics).

- MS SRPC suggested that ramp rate (MW/block) also should be considered while arriving at flexibility factor so as to have an idea about the time required for the available reserve to come on bar/ ramp up or down to the required level as necessitated by real time conditions.
- ED, SRLDC informed that SRLDC team is also working on computation of system inertia, demand response etc. Formulas for above indices would be finalized and ultimately states need to arrive at the indices considering each control area parameters.

- With respect to reserve adequacy, it was noted that LGB planning is for 100 % availability, ie assessment regarding the available resource and predicted demand and plans on how to meet the deficiency. As practiced in foreign countries like California the planning should be for 110 % of predicted demand.
- CE, KSEBL informed that KSEBL had taken permission from higher management to keep 100 MW reserve in Hydro during evening peak hours to avoid huge DSM charges after implementation of revised DSM Regulations.
- After deliberations **all SLDCs were kindly requested to extend support to SRLDC** in finalizing the formats and furnishing the requisite information etc. **SRLDC would come up with the indices and the data requirement before 152nd OCCM.** It was noted that these indices would be a good tool to assist the system operator in decision support .

3.4 Reliability of SPS Schemes

- In compliance of Commission's Order dated 26th March 2018 in Petition No. 09/SM/2015, the list of SPS in SR had been communicated to all concerned. To assess the reliability percentage, it had been kindly requested to furnish the no. of correct operations of SPSs, no. of mal operations of SPSs (if any), along with the relief details, generation backing down etc. SRLDC was to furnish the details of ISTS SPSs and SLDCs for other intra state SPSs. ***This information is to be submitted along with OCC on monthly basis.***
- Entities were also requested to furnish details of proposed modifications (including disabling) required for SPSs which could be discussed in the PCSC meetings.
- SRLDC had submitted the following agenda of ***review of existing SPS for 400 kV / 220 kV ICTs at KGS:***
 - Reliability of generation evacuation of 220 kV Kadra and 220 kV Kodasalli is getting affected with the present SPS action implemented at Kaiga i.e. tripping of 220 kV lines from Kaiga.
 - It had been felt prudent to review and modify existing SPS scheme at KGS by backing down/tripping generation at 220 kV Kadra and 220 kV Kodasalli Generating Plants

- In the Meeting, SRLDC informed that they have furnished the required information.
- MS, SRPC noted that the information provided is only regarding the SPS operation occurred during last month. The information w,r,t the incidents when the logic was satisfied but SPS had not operated, mal-operation, etc were apparently missing. All SLDCs need to furnish this information for SPSs under their control area to SRLDC on monthly basis.
- ED, SRLDC endorsed the views of Member Secretary and assured that the triggering of SPS logic, mal-operations etc would be closely monitored and SRLDC would come up with a modified format as suggested.
- SRLDC informed that complete outage of 220 kV Kadra, 220 kV Kodasalli hydro power station and 220 kV Karwar Substation had occurred on 13.11.2018 at 16:56 hrs due to operation of SPS provided for overloading/ contingency of ICT at Kaiga. In the antecedent condition, 400 KV/220 kV ICT-1 at Kaiga was out of service. Over-loading on ICT-2 at Kaiga had occurred due to increase of generation at Kadra and Kodasalli. Due to this, there was operation of SPS resulting in tripping of both 220 kV Kaiga-Kadra & 220 kV Kaiga-Kodasalli lines. Generation loss of 130 MW at Kadra & 110 MW at Kodasalli power station occurred and load loss at Karwar was around 70 MW. 220 kV Nagjheri Kodasalli line -1 & 2 is kept under idle charged conditions if there is generation at Nagjheri power station in-order to limit the loading on 220 kV Nagjheri-Ambewadi lines. During discussions in 80th PCSM held on 20.12.2018 at SRPC, it was observed that the reliability of generation evacuation of 220kV Kadra and 220kV Kodasalli is getting affected with the present SPS action implemented at Kaiga i.e. tripping of 220 kV lines from Kaiga. Existing SPS Logic at Kaiga is as follows:
 - During non-availability of one of the ICTs at Kaiga, if the power flow in the other ICT (in service) is more than 500 MW and less than 550 MW, there is an alarm.
 - If the power flow in the other ICT (in service) is more than 550 MW, then 220 kV Kaiga - Kadra and 220 kV Kaiga - Kodasalli lines will be tripped at Kaiga end.
- SRLDC suggested that it is prudent to review and modify the existing SPS scheme at KGS by backing down/tripping generation at 220 kV Kadra and 220

kV Kodasalli Generating stations which would avoid complete outage of Kadra and Kodasalli stations due to tripping of 220 kV Kaiga-Kadra & Kaiga-Kodasalli lines.

- MS, SRPC expressed that concern that no warning message was issued by KGS operators regarding the overloading of Kaiga ICT, even though around one and half hour ICT was overloaded, with other ICT in open condition. No action was taken to avoid the tripping of lines. MS, SRPC felt that KGS could have been informed SRLDC/KAR SLDC regarding the same so that necessary action to avoid the tripping of 220 kV Kadra Kodasalli and Kaiga- Kadra lines could have been taken. (through generation reduction by KPCL)
- SE(O), SRPC suggested that some alarm may be put in SRLDC SCADA on SPS activated elements for a preventive action.
- SRPC& SRLDC suggested that Kaiga control room operators be instructed to monitor ICT loadings, whenever overloading is observed they should inform KAR SLDC /SRLDC. SRLDC and KAR SLDC also agreed that they will also monitor the ICT Loadings and action would be taken to avoid vulnerable situations.

After deliberations, the following was noted:

- **SRLDC would come out with a revised format** (including the incident when the logic was satisfied but SPS had not operated, correct operation, mal-operation, reliefs etc) within 10 days. **All concerned entities would be required to submit the details in the format to SRLDC each month in respect of the SPSs under their control area. A summarized report would be furnished by SRLDC to the OCC.**
- **SPS at Kaiga GS** - Kaiga GS would make guidelines and instruct the control room to monitor the ICT loading and inform SRLDC / KAR SLDC during high loadings. KAR SLDC / SRLDC also agreed to monitor the loading of the ICTs to take preventive corrective action. The matter would be discussed in the PCSC.

3.5 Conversion of 400 kV Nellore PS-Nellore (PG)-Thiruvalem D/C line as 400 kV Nellore PS-Thiruvalem D/C line

- In the 42nd Meeting of Standing Committee on PSPSR held on 27.04.2018, it had been agreed to bypass Nellore PS-Nellore 400 kV D/C (Quad) line and Nellore-Thiruvalem 400 kV DC line at Nellore (PG) for making Nellore PS-Thiruvalem

400 kV D/C line to control loading on Nellore –Nellore PS 400 kV lines and control of short circuit levels. SRLDC vide letter dated 05.12.2018 had requested SRTS I, PGCIL to expedite the construction of the above arrangement in view of the high loading on 400 kV Nellore(PS)-Nellore D/C line.

- In the 150th Meeting of OCC, SR I, PGCIL had raised some protection issues. It was decided that protection aspects be discussed in the PCSC Meeting.
- Subsequently SR I, PGCIL vide letter dated 28.12.2018 (**Annexure-3G**) had informed that till construction of final arrangement as approved in the Standing Committee, SRLDC proposal of interim arrangement of 400 kV Nellore PS – Thiruvalem D/C by opening Main Circuit Breakers of both lines at 400 kV Nellore S/S could be implemented on receipt of SRLDC code, on SOS basis.
- In the Meeting SRLDC informed that presently power flow on 400 kV Nellore(PS)-Nellore DC is at around 850-900 MW where as earlier it was touching around 1,200 MW. At present Karnataka is meeting peak demands, Gooty, Nelamangala and Hiriyur ICTS are over loaded. Injection at Gooty and Gooty-Nelamangala flow would further increase if the revised configuration is implemented presently. When loadings would come down SRLDC will carry out further studies and the conversion would be taken up. ***SR-I confirmed that the modification would be carried out on SOS basis as per SRLDC instructions.***

3.6 Simhadri Unit – III & IV- Request for export of 575 MW (both the units combined) during Technical Minimum conditions

- NTPC vide letter dated 05.01.2019 (**Annexure-3H**) had informed regarding the high turbine shaft vibrations (touching 250 microns which is not advisable to persist for long duration) observed in Unit III & IV under low load conditions (less than 300 MW). It had been requested by NTPC that Simhadri Unit III & IV be allowed to operate at 310 MW level each and export around 575 MW combined (instead of 521 MW) during technical minimum conditions till issues are rectified at the earliest opportunity.
- NLCIL vide letter dated 18.12.2018 had informed regarding the main turbine vibration when running at lower loads. It was noted that the Unit is planned for major overhaul of Turbine in May-June 2019. NLCIL had requested all states to give requirement so that NLCIL Unit 7 can be operated at 190 MW.

- NTPC informed that at lower loads, vibrations were more. Unit III Rotor was required to be replaced and procurement and installation will take time. Even after replacing Unit IV Rotor, high vibrations were observed very recently at lower loads. He requested all the states to cooperate with NTPC in such a situation to the extent possible.
- All states expressed that beyond middle of April they cannot agree for Simhadri's request. In high RE season, no state can absorb higher technical minimum and they requested all ISG generators to effectively address all technical issues of the units before wind season starts.
- ED, SRLDC observed that Tariffs are based on specific characteristics/technical specifications and it was responsibility of the owner to make certain that the characteristics are met. Beneficiaries have the right to ask for the output as per specifications for which payments are being made. SRLDC & SRPC opined that Simhadri may take up with TCC with proper documentation like vibrations at lower loading etc.
- After deliberations it was noted that Simhadri-II could present its **issues in the TCC** (to be held on 01.02.2019) for decision in this regard. **OCC expressed concern** that number of ISG stations were requesting increase in technical minimum **which may hamper grid operation during night off peak hours and during high wind season** which would commence from May 2019.
- NLCIL vide letter dated 11.01.2019 (**Annexure-3f**) had submitted an agenda item w.r.t the vibration issues of Unit VII of TS II and requested for permission for operation at higher level.

3.7 High PAF of Simhadri Stage II during December 2019

- It was observed that the PAF for Simhadri Stage-II was more than 103 % for the month of December 2018 and the DC was around 980 on sustained basis while the schedule was being restricted by SRLDC at around 947 MW in line with provisions of IEGC.
- **It was agreed that Simhadri Stage-II would be scheduled upto the DC during evening/morning peak hours in line with provisions of IEGC.** The period and date would be decided by SRLDC. States/Generators would be informed of the enhanced schedules as and when the same is implemented.

SRLDC stated that they would discuss the matter with NLDC and take appropriate action.

3.8 High voltages in Telangana System /Frequent switching of lines / Bus reactors

- SRLDC vide letter dated 01.01.2019 (**Annexure-3J**) had informed regarding the sustained high voltages observed in the 765/400 kV substations of Telangana Control Area causing tripping of lines on over voltage.
- Subsequently SR I, PGCIL vide letter dated 09.01.2019 (**Annexure-3K**) had submitted regarding the frequent/daily hand tripping of 765 kV Lines causing stress on EHV equipment due to frequent switching.
- In the Meeting SR I, PGCIL informed that SRLDC is issuing codes on daily basis for taking the 765 kV Nizamabad - Maheswaram, Raichur - Kurnool, Kurnool-Kadappa and Kadappa - Thiruvalam lines out of service in evening and taking back into service in the morning. In the 34th SRPC Meeting held on 11.08.2018 SRLDC had assured to take up the issue proactively and to take out one of the double circuit lines on sustained basis ie 7 days to avoid frequent switching. SR-I expressed concern that due to this frequent tripping, EHV equipment were losing its life due to over stress. All EHV equipment are not designed for daily tripping.
- ED, SRLDC informed that switching operations are carried out considering the reliability and security as per system requirements. He assured that switching operations would be optimized. The sequence of action followed by SRLDC is, first reactor switching, then generator MVAR optimization and finally resorting to line switching
- MS, SRPC suggested that PGCIL submission should be highlighting specific/isolated events where further optimization could have been possible. He suggested SRLDC to furnish feedback on this issue to NLDC, since 765 kV switching comes under their purview.
- SRLDC further stated that mostly high voltage issues are being faced in Telangana leading for desired action on Wardha – Nizamabad and Nizamabad – Maheswaram lines. Being an Inter-Regional line, Wardha-Nizamabad lines cannot be opened, and the only option left out is Nizamabad – Maheswaram lines. The voltage level at which these lines should be opened would be further studied. On many occasions option was between opening of one 765 kV lines or

three or four 400 kV lines and SRLDC was forced to opt for one 765 kV line especially in Telangana, where lot of lines had been added. A simulation study had been carried out to analyze whether Wardha voltage is contributing for Nizamabad high voltage and it was observed that when voltage at Wardha increased by 10 kV, there was only about 1-2 kV increase in Nizamabad voltage.

- SRLDC agreed to look into the matter and assured to optimize switching operation. SRLDC was requested to provide a feed back to NLDC in this regard (for 765 kV elements).
- TSTRANSCO informed that some of the short term measures had been initiated by TSTRANSCO such as operating Srisailem/Nagargunasagar in condenser/pump mode, generator MVAR absorption, optimizing transformer tap position etc. As a long term measures approval for 10 reactors had been accorded in the Standing Committee. STU had been asked to expedite the commissioning of these reactors.
- SE(O), SRPC suggested the states to examine intra state reactive energy billing for DISCOMs/State entities which would sort out the issue to a certain extent. It was observed that in Telangana, many nodes are injecting reactive power.

After deliberations the following was concluded:

- TSTRANSCO was requested to take action to control the high voltage in their control area. TSTRANSCO agreed to look into the implementation of intra-state reactive energy billing which may address this issue to a certain extent.

3.9 NTECL- Unit – III & I – Complete shut down

- NTECL Vallur vide letter dated 08.01.2019(**Annexure-3L**) had informed that NTECL was constrained to take out Unit I & III as per the directive from Honorable High Court of Madras regarding stoppage of discharge of fly ash and bottom ash into the pond of NTECL Vallur. Subsequently, vide E-mail dated 08.01.2019 NTECL had further informed that Unit-III was taken out from 15:00 hours while Unit I would be taken out from 22:30 hours of 08.01.2019.
- In the Meeting NTECL informed that the SLP in this regard was scheduled to be heard by Hon'ble Supreme Court shortly.
- Subsequently it was noted that the units had been brought back on bars on 15.th January 2019.

3.10 400 kV Hiriyur-Nelamangala Over loading

- SRLDC had informed that 400kV Hiriyur-Nelamangala D/C line is getting loaded heavily. To control these line loadings, KPTCL & KSEBL need to take necessary action. A study report regarding the same had been furnished by SRLDC which is at **Annexure-3M**.
- In the Meeting SRLDC informed that both KPTCL and KSEBL need to take action to reduce loadings. KSEBL had to shift some of the Mysore fed loads during high loading. KSEBL informed that they are taking appropriate action in real time.
- PGCIL informed that Hiriyur-Mysore line would get commissioned by June 2019. After deliberations, the following was concluded:
 - **Action was to be taken as per the report furnished by SRLDC.** KSEBL agreed to shift some loads from Kozhikode, under directions by SRLDC.

3.11 Coal issues

- SRPC suggested **all generators to furnish the coal related issues in respect of MCL, SCCL, Railways and CIMFR by 21.01.2019** (KPCL had furnished the details).
- **All STUs were requested to follow-up the Railways linked Substation/lines** as discussed in the Special SRPC meeting held on 17.12.2018 and furnish monthly updates to SRPC.
- **Subsequently, it was noted that NTECL also had submitted the details. Other generators are requested to submit the details at the earliest.**

3.12 Power supply regulation to AP

- NTPC vide letter dated 03.01.2019 (**Annexure-3N**) had furnished the Regulation notice issued to APTRANSCO/APPCC (would be implemented from 09.01.2019) as per provisions of the CERC(Regulation of Power Supply), Regulations, 2010 , BPSA dated 28.09.1993, Tripartite Agreement and various other PPAs signed with APSEB/APDISCOMs.
- The forum noted the above

3.13 Data required from Generators

- The scheme on ‘*Dimensioning of Control Reserves in Southern Region Grid States*’ had been awarded to M/S DNV-GL by M/s GIZ. A kick-off meeting was conducted on 05th December 2018 with participation from M/S DNV-GL, M/s GIZ, SRLDC & SRPC. The Terms of Reference (TOR) covers the scope and deliverables to develop the methodology for reserve dimensioning and actual dimensioning of different types of reserves for each of the State in southern India (barring the Union Territory of Puducherry) by 2022.

The following are the main tasks of this assignment:

- a) Identification of types of reserves required at southern State and/or regional level
 - b) Detail out a methodology for reserve dimensioning
 - c) Reserve dimensioning using appropriate simulation method for 5 southern Indian States
 - d) Investigate the reserve sharing potential by southern region States
- In the Meeting all the generators/States were requested to furnish the information in the attached format as required by GIZ at the earliest.

3.14 Requirement of power flow and dynamic data

- In the Meeting SRLDC presented the **requirement of power flow and dynamics data** for modeling renewable energy generation in Indian grid. Indian power system is undergoing a systemic change towards integration of 175 GW of generation from RE sources. Variability of RE generation, haul of power over large distances through EHV lines, change in pattern of loads connected to the grid, increasing share of power electronic based equipments and a reducing share of rotating mass in the electric grid are likely to pose new challenges in the stable operation of the power systems. To ensure security of the inter connected grid it was imperative to conduct stability studies in both operational (short term) and planning (long term) horizons in the power system.
- Procedure issued by CTU for grant of connectivity to projects based on renewable sources to interstate transmission system did not specify any format for collection of modelling data, and a gap exists in terms of availability of necessary data for modelling. Accordingly, guidelines for collection of data for modelling utility scale wind and solar generation installations in India had been prepared by POSOCO. The same may be adopted as broad guidelines for

collection of information for fit-for purpose models for steady state and dynamic simulations. The necessary data for modelling need to be furnished prior to interconnection with the grid.

- Single line diagram of wind farms where 220 kV wind connectivity S/s /step up/step down transformers/evacuation lines in the downstream etc. also need to be furnished along with park capacity details. The models which may already available with wind developers may be submitted.
- The following was noted
 - Formats would be communicated to the OCC / RGMO / MVAR /PSS groups.
Entities were requested to furnish the information by end of January 2019. It was noted that **these requirements should be made part of connectivity agreement** and ensured at the time of approving connectivity for the upcoming RE generators. Information w.r.t all the grid connected generators needs to be submitted.

3.15 Request for inclusion of outages for bay –extension works at Tuticorin II GIS PS

- Orange SWPPL vide letter dated 09.01.2019 (**Annexure-30**) had requested for approval of outages for connectivity to Bay No.221 at Tuticorin-II GISPS (from 7th February 2019 to 09th February 2019). It was noted that SWPPL is executing an ISTS connected 200 MW wind power project in Thoothukudi district of Tamil Nadu, and the power from this project was to be evacuated through 400/230 kV Thirunelveli GIS PS, through 230 kV bay at PGCIL substation.
- In the Meeting it was noted that M/s Orange needs to approach SRLDC since it was commissioning of a new transmission element.

3.16 Non-disbursement of PSDF installments

- In OCC Meeting number of entities had raised the problems they are facing in paying to their contractors due to delay/non disbursement of PSDF.
- Chairperson, SRPC vide letter dated 13.12.2018 had requested CMD, POSOCO to look into the concerns of SR entities. It had also been requested to expedite release of PSDF disbursements to avoid any breach of contractual terms and conditions and also to facilitate smooth and timely completion of identified projects/activities.

- OCC noted the above.

3.17 Issues with OA Consumers

- In the 34th SRPC Meeting, SR constituents had pointed out that load generation balance of the states are being affected adversely (increasing requirements of reserves/ramps etc.) since OA consumers are approaching power exchanges for a few blocks or intermittent blocks, while power needs to be obligatorily supplied by DISCOMs for balance blocks.
- Chairperson, SRPC vide letter dated 14.12.2018 (**Annexure-3P**) had requested Secretary (Power), MoP to arrange for kind examination of this issue.
- OCC noted the above.

3.18 Establishment of 6x150 MW PSP in Sileru Basin- Environmental Clearance

- It is noted that at present in AP there are no Pump Storage Plants. State. AP has RE installed capacity of around 7230 MW as on 30th November 2018 and there is strategic importance to PSPs in addressing the intermittency and variability of RE sources.
- Chairperson, SRPC vide letter dated 14.12.2018 (**Annexure-3Q**) had requested Secretary, MoEF & CC to facilitate approval of Environmental Clearance for proposed 6x150 MW PSP at Sileru Basin which had been recommended by SRPC in its 34th Meeting.
- OCC noted the above

3.19 Deviation in Drawal by States

- The issue had already been taken up with states by SRLDC vide their letters dated 12.11.2018 and 05.12.2018. In the 150th Meeting all concerned states had been requested to reply to SRLDC letters on UD/OD at the earliest.
- SRLDC had further observed that the deviations persist during the period from 26th November 2018 to 30th December 2018 also. Letters dated 17.12.2018 & 03.01.2019 to states are given at **Annexure- 3R**.
- All concerned entities were requested to take appropriate action in real time to curtail sustained UD/OD and UI / OI on violation messages being issued by SRLDC and report compliance.

3.20 Establishing of Solar and Wind Hybrid Plant in place of Kudgi-II

- PCKL vide letter dated 23rd November 2018 had stated that NTPC is planning to establish solar and wind hybrid plant for Kudgi Stage-II in the Kudgi complex, instead of installing 2 x 800 MW thermal units. NTPC has sought in principle approval from beneficiaries to go ahead with the proposals. Since all states of SR are having share from Kudgi NTPC station, this matter needs views/suggestions of all the beneficiaries.
- The issue had been discussed in the Special SRPC Meeting held on 17.12.2018 at Hyderabad. After deliberations, it was concluded that all the states were passing through the transition phase and the requirement of additional thermal power could only be assessed and firmed up in coming one to two years. There were many old thermal plants which were not likely to comply to new environmental norms and may be required to be phased out. Kudgi being a new plant would comply to new environmental norms. Flexible thermal plants would be required to address the variability and intermittency of RE targeted to come up in Southern region. The constituent states also opined that shifting of the hybrid may not be a viable option.
- Subsequently, PCKL had addressed a communication to NTPC regarding the matter which is given at **Annexure-3S**. PCKL had opined that NTPC may put the proposed RE Hybrid Project on hold for the time being. The issue of implementation of 2nd Stage TPS at Kudgi may be taken up for discussions among beneficiaries at a later stage.
- OCC noted the above.

3.21 4th Amendment –DSM Regulations

- CERC, Deviation Settlement Mechanism and related matters (4th Amendment), Regulations 2018 dated 20.11.2018 is to be implemented **w.e.f 01.01.2019**.
- In the 150th OCC Meeting all the entities had raised some issues in implementation/sought clarification on some of the clauses.
- NLDC vide letter dated 21.12.2018 to Hon'ble CERC had taken up certain issues in this regard.

- NLDC vide letter dated 31.12.2018(**Annexure-3T**) addressed to RPCs had enclosed CERC letter dated 31.12.2018 advising NLDC to resolve the issues raised by stake holders.
- SRPC vide letter dated 02.01.2019(**Annexure-3U**) had sought clarification on specific issues in implementing certain clauses of amended DSM Regulations.

3.22 Presentation by States in Monthly OCC

- PPTs by entities to highlight the **progress, achievements and challenges** in system operation of the respective states. (**Annexure-3V**)

3.23 NPCIL – Flexibility issues/Guidelines for regulation of generation / Shutdown of MAPS Unit I & II – difficulty in Grid Management

- SRPC vide letter dated 13.12.2018 had furnished the guideline for regulating generation at NPCIL unit as per PPA clause as discussed in the 149th OCCM to TANGEDCO. Chairperson, SRPC vide letter dated 14.12.2018 (**Annexure-3W**) had communicated certain aspects regarding flexibility of Nuclear Plants, revision of PPA clause, ensure carrying out maintenance works during lean period etc to Secretary, (Power), MoP.
- Unit I at MAPS is under shutdown from 30.01.2018 while Unit II had also been taken out for BSD on 20.11.2018. The issues faced by TN in keeping TN's LGB and also some network issues caused by 'Nil' generation in MAPS complex, Interruption to IGCAR etc had been deliberated in various forums and also taken up by Government of Tamil Nadu. It had been requested that Unit II BSD be taken up only after restoring Unit I into the grid.
- TANTRANSCO vide letter dated 14.12.2018(**Annexure-3X**) had requested SRPC to suitably address this issue with MAPS so that revival of MAPS units are kept up strictly in order to tide over the critical power situation and to avoid unnecessary grid disturbances due to present network arrangements.
- In the Meeting, TNSLDC expressed the difficulties faced in meeting their LGB due to the outage of both the units of MAPS. Some loading issues due to outage of both units in the MAPS complex were also highlighted. TNSLDC pointed out that NPCIL Units were not adhering to the outage schedule and this uncertainty had impacted TN operationally as well as commercially.

- CE, KSEBL also expressed concern regarding the problems faced by them on account of uncertainty in the availability of NPCIL units since KSEBL is state which mainly depends on ISGS/purchases for meeting the demand.
- MS, SRPC requested KKNP to delve into the concerns of States and requested to furnish a reliable outage plan so that they can plan their LGB/purchases accordingly.
- Non representation form MAPS was noted with concern. KKNPP/KGS informed the following regarding NPCIL Units outages.
 - ✓ KKNPP Unit-I would come up by 28.02.2019.
 - ✓ KKNPP Unit-II would be operating at around 750 MW.
 - ✓ MAPS Unit-II would come back by 17.01.2019.
 - ✓ Kaiga Unit-I would come back by 15.02.2019.
- **OCC expressed concern that more than 1,800 MW generation availability was less from NPCIL units during peak months.** This needs to be addressed in the coming years by scheduling outages during June-December. Further, it was noted with concern that there were frequent re-scheduling of the outages affecting the load generation balance and purchase planning by the states.

3.24 **Restoration of SGPL-NPS Line I**

- 400 kV SGPL-Nellore line-I was out from 14.11.2018 to 01.12.2018. The reason for delay in restoration was due to delay in arranging the spares for GIS (imported from Sweden).
- OCC had suggested that **adequate spares should be procured and maintained in advance by SGPL** so as to avoid such reduced reliability operation in future. The action taken in this regard by SGPL was to be informed in the 15^{1st} Meeting of OCC.
- In the Meeting SGPL informed that action had been initiated to procure spares as recommended by the OCC Forum.

3.25 **Staggering of Load/Overdrawal during peak hours**

- In the 150th OCC Meeting SRLDC had highlighted the observation regarding the sudden and abrupt load change over during morning, noon and evening peak hours in Andhra Pradesh and in Karnataka systems. State SLDCs had been **requested to take up with Discoms for staggering of load changeover.**

Changeover needed to be analyzed suitably by SLDCs for corrective action. SRLDC was suggested to plot deviation of respective Control Area also in the graph for realistic assessment of the impact being passed onto the regional grid.

- SRLDC letters dated 03.01.2019 addressed to APTRANSCO and KPTCL is given at **Annexure-3Y**.
- In the Meeting, SRLDC informed that they had communicated to AP and Karnataka regarding this, but perceptible improvement is not observed. Deviation at the time of changeover also had been plotted. In KPTCL system a sudden variation is seen at 18:00 hours.
- KPTCL informed that they had requested two of their ESCOMs to stop the irrigation pump sets at 17:00 hours. Whenever major load change occurs, Sharavathi Generation is regulated accordingly. In the Meeting chaired by Additional Chief Secretary, Energy Department on 3rd January 2019, ESCOMs had been advised to stagger the loads. Actions had already been initiated and within 15 days issue would be sorted out.
- APTRANSCO informed that they had convened a Meeting with DISCOMs Load Monitoring Division during last week to make them aware of this issue and currently action is being taken to stagger the load. Another Meeting is proposed in next week and this issue would be further addressed. SRPC & SRLDC suggested that the minutes of the Meeting may be brought out and shared.
- **AP SLDC and KAR SLDC** agreed to coordinate with the Discoms for staggering of load changeover. The action taken in this regard would be furnished to SRLDC & SRPC.

3.26 Scheduling/evacuation of NNTPS (1000 MW)/LTA granted

- In the 150th OCC Meeting, NLCIL had informed that 1st unit is likely to have boiler light up in December 2018, synchronization in January 2019 and COD by March 2019. Unit-2 boiler lighting up was planned in March 2019 and COD by June 2019.
- In the Meeting, TANTRANSCO informed that the **reply of NLDC on loss application on TN schedule was awaited**.
- It was noted that CTU in its letter dated 22.10.2018 had mentioned that this issue comes under the purview of NLDC. SRPC had written to NLDC in this regard and requested SRLDC to expedite the reply from NLDC.

3.27 Deviations by SR Regional Entities and zero crossing violations

- SRLDC vide letter dated 17.12.2018 (**Annexure-3Z**) had furnished the data in respect of deviations by SR Regional Entities and zero crossing violations for the period from 01.11.2018 to 30.11.2018.
- It was observed that deviations had come down with respect to generating stations except in some of the stations (Simhadri Stage II -462, NLC Stage I-421, NLC TS I Expn- 497, NLC TS II Expn- 439). State deviations also observed to be improved but still needed to be reduced(TS-477, TN-453, Pudu-365, Goa-908)
- In the 150th OCC Meeting, following was suggested:
 - Powergrid to update regarding status of implementation of AMR Project in SR
- In the Meeting SRLDC presented a comparison between number of incidences during 1st December 2018 to 3rd December 2108 wrt 1st January 2019 to 3rd January 2019 to analyze the impact of DSM amendment implementation

3.28 Certification of ISTS lines between AP & TS

- APTRANSCO vide letter dated 19.11.2018 had informed that TSTRANSCO had not reconciled that data (availability for the period from January to June 2018 submitted by APTRANSCO to SRLDC/SRPC/TSTRANSCO). In the 150th OCC Meeting, TSTRANSCO had agreed that before next OCC, certification would be carried out.
- In the Meeting all SLDCs were requested to communicate the outage and availability computations for the lines wherever due, at the earliest to SRPC through SRLDC. TSTRANSCO informed that after verification w.r.t AP-TS lines, the details from July 2018 (as per CERC Order) onwards would be communicated.

3.29 SRLDC request for 765 kV elements for replacement of Porcelain Pilot Insulators with CLR Polymer insulators

- PGCIL vide letter dated 09.01.2019(**Annexure-3AA**) had informed that their Management had taken a decision to replace all pilot insulators in 765 kV switchyard with CLR insulators in a phased manner which can withstand high pollution levels. Required insulators had been procured and the cost and cost of replacement CLR insulators would be borne by Powergrid under O & M.
- In the Meeting SR I PGCIL informed that shutdown proposals for 765 kV elements had been submitted for approval in OCC Meeting. He requested that these outages may be considered as deemed since the shutdowns are being availed for

replacement of Porcelain Pilot Insulator strings with CLR insulators for system improvements to avoid trippings due to failure of insulators.

- In the Meeting, it was noted that SR I, PGCIL needs to take action as per the decision taken in the Special SRPC meeting held on 17.12.2018.

3.30 Pending works Regarding URTDSM project

a) Expected date of commissioning of Auxiliary Power Supply systems at SRLDC.

- ❖ Commissioning of APS system would be completed by 21.01.2019.

b) Expected date of establishment of standby by links between SRLDC and main NLDC (Delhi) and SRLDC and Back up NLDC (Kolkata)

- ❖ SR-II had informed that standby link would be established after commissioning of PDCs at Kolkata / NLDC by M/s GE.

c) Date of meeting to discuss and resolve the issue in operationalizing analytical applications with IIT Bombay and Smart Grid department.

- ❖ It was noted that a meeting was conducted with IIT Mumbai on operationalization of Analytical Application on 07.01.2019 at SR-II, PGCIL. (Minutes are available at SRPC website).

- ❖ It was proposed that SRLDC may kindly intimate the logs of VADR application of URTDSM. This would help in identification of vulnerable lines prone to tripping.

- ❖ SRLDC informed that report on URTDSM application output (logs of oscillation etc) would be furnished after the OS upgrade in the SCADA, from next OCC onwards.

- PMU Data Analytic Group would discuss the issues in the VC on 24.01.2019.

3.31 Renewable schedule entry and carrying out proper forecast and update during intraday

- In the 150th OCC Meeting, following was noted:
 - States agreed to furnish the RE (Wind and Solar separately) **forecast / actual for the month of November 2018 by 14.12.2018, positively.** SRLDC had agreed to come out with analysis on forecast vs actual and the details would be presented in the 151st Meeting of OCC. As a regular

requirement, ***all states to furnish the forecast and actual for Wind and Solar by 5th of each month (in respect of the past month).***

- In the Meeting, SRLDC/SLDCs were appreciated for submitting and presenting the wind and solar forecast error computations (actual Vs forecast).
SRLDC presented the following graphs (State wise)
 - Forecast VS Actual, Forecast errors in MW, Forecast errors w.r.t 80% IC and errors w.r.t forecast.
- SRLDC was requested to come up with some recommendations/suggestions to reduce the error.

3.32 Shut down of HVDC Talcher-Kolar Pole I & II and Bi-pole

- In the 150th OCC Meeting, shut down of HVDC Talcher-Kolar link was approved from 10.01.2019 to 15.01.2019 for replacement of Converter Transformer at Kolar and Talcher stations (Pole I & II) and for Electrode Line Diversion due to Railway Electrification Works (Bi-pole). CGM, SRTS II, Powergrid, vide letter dated 27.12.2018 had requested to approve the revised schedule from 30.01.2018 to 05.02.2018 (Bipole outage for 3 days from 01.02.2019 to 03.02.2019) and had submitted the following as the reasons for the revision in schedule:
 - At Talcher end, the supply of material for tower erection and stringing works cannot reach at site in the scheduled time.
 - Severe ROW issues are being faced for re-routing of electrode line at Tacher end(ER).
- SRPC vide letter dated 27.12.2018(***Annexure-3AB***) enclosing SR II letter dated 27.12.2018 had requested all the constituents to concur for the revised schedule. It was noted that shifting of HVDC electrode lines for Railway electrification works was being monitored by PMO. Hence completion of works only on SR side of the HVDC link would not fulfill the purpose completely.
- Subsequently KSEBL vide letter dated 29.12.2018 (***Annexure-3AC***) had communicated the issues being faced by them if the shutdown is rescheduled. SRLDC was requested to inform the interregional corridor availability during the

shutdown. It was highlighted that KSEBL is depending substantially on import of power using IR corridor for meeting their LGB.

- In the meeting expressing concern regarding the postponement of the shutdown, TSTRANSCO sought the reason for postponement. He stated that in the SRPC Meeting, it had been agreed by PGCIL that Talcher-Kolar outage would be taken out for AOH before 25th December of each year. TSTRANSCO had planned for 1,300 MW purchase from February onwards. During bipole operation entire STOA would be curtailed (total ATC reduction of 2,000 MW).
- SR II, PGCIL informed that even though the Converter transformer problem started at Kolar end during July 2018, replacement was originally planned in January 2019 and accordingly shutdown had been planned. Mean time issues (gas violations) started at Talcher end also. Operation beyond 2,000 MW was creating many issues such as arcing inside the transformer etc. Finally it was decided to replace the converter transformer each at Kolar and Talcher. But at Talcher end, the supply of material for tower erection and stringing works could not reach at site in the scheduled time. Also severe ROW issues are being faced for re-routing of electrode line at Tacher end(ER). This information was received from Talcher on 26.12.2018 only.
- TSTRANSCO further stated that shifting of an important IR link citing delay in material mobilization, even after planning well in advance, cannot be appreciated. TS added that since Panchayat Elections are scheduled for 30.01.2019, they cannot agree for the shutdown for 30th and the bipole outage should be on Saturday and Sunday. He insisted that from next year onwards Talcher-Kolar outages should be before 25th December as agreed in SRPC Meeting.
- All the states endorsed the views of TSTRANSCO.
- ED, SRPC informed that New Grid to SR TTC had been increased by 500 MW w.e.f 05.01.2019 due to following reasons:
 - Change in load generation balance.
 - Commissioning of circuit 3 & 4 of 765 kV Angul-Jharsuguda
 - Prevailing pattern of load in downstream of 400/220 kV Maradam ICTs.

He stated that AP need to carry out load management (20-50 MW) in case of violation of N-1 criteria on Maradam ICTs. He requested APTRANSCO to cooperate in such cases.

- After deliberations, the following was noted:
 - Forum approved the outages from 31.01.2019 to 06.02.2019 (bi-pole outage from 02.02.2019 to 04.02.2019).
 - However, concern was expressed regarding postponement of the shutdown to peak demand period. It was recalled that in the SRPC meeting, it had been agreed by PGCIL to avail Talcher-Kolar outage before 25th December every year.
 - SRLDC informed that during single pole outage there would be ER-SR TTC reduction of 1,000 MW and during bi-pole outage ER-SR TTC reduction of 2,000 MW. About 450 MW of generation reduction in Talcher Stage-II may be resorted to in case of transmission constraints.
- SRLDC vide letter dated 24.01.2019(**Annexure-3AD**) had communicated to all concerned in this regard.

3.33 Maintaining healthiness of HVDC Talcher-Kolar Bipole for operation at maximum rated capacity

- NLDC letter dated 02.01.2019 regarding Maintaining healthiness of HVDC Talcher-Kolar Bipole for operation at maximum rated capacity is at **Annexure-3AE**.

3.34 RTU replacement of POWERGRID stations of SR

- SR II, Powergrid vide E-Mail dated 03.01.2019 had furnished a letter dated 18.12.2018 copy of LOA (**Annexure-3AF**) placed for replacement/upgradation of RTUs of POWERGRID stations of SR. It was informed that so far consent had been received only from NLC and upon their request, cost of upgradation is being intimated.

3.35 National Energy Accounting

- NPC vide letter dated 18.12.2018(**Annexure-3AG**) had enclosed NLDC's proposal dated 09.11.2018 on National Energy Accounting and had intimated that in the 8th Meeting of NPC held on 30th November 2018, it had been decided

that this proposal be discussed in all RPCs and the observations be furnished to NPC Secretariat. 35th Meeting of SRPC is scheduled on 02.02.2019.

- Subsequently it was noted that the issue had been discussed in the Special Meeting held on 11.01.2019. Minutes of the Meeting and addendum are available on SRPC website.

3.36 DC Optimization during coal shortage/high demand period

- **All ISGSs were suggested to kindly optimize the DC during morning and evening peak hours in compliance of the decisions taken in the SRPC meeting / IEGC provision during fuel shortage conditions. States were also suggested to optimize the DC for state generators.**
- It was noted that earlier NLDC was releasing margins based on trend of availing of LTA/MTOA. SRPC vide letter dated 05.12.2018 had taken up the issue with NLDC.
- TSTRANSCO vide letter dated 29.12.2018(**Annexure-3AH**) had observed that there is variation in entitlement from R0(day ahead) to actual entitlement during the day of operation in respect of some of ISG stations during coal shortage and had requested to advise all ISGS to plan their generation in more balanced manner to avoid payment of DSM charges by states after implementation of DSM Regulations, 4th Amendment.
- In the Meeting DE, TSTRANSCO expressed concern regarding the intraday DC variations especially w.r.t Simhadri which caused high financial burden on TS as DSM charges.
- All ISGS (**specifically Simhadri**) were kindly requested to **minimize the intraday DC variations.**
- All entities were once again requested to kindly communicate details of LTA / MTOA not being availed (due to various reasons) to SRLDC on D-1basis (before margins are released to PX) for optimized / economical utilization of the IR / S1-S2/S3 corridors. SRLDC was requested to expedite the reply by NLDC on SRPC letter dated 05.12.2018 for a well defined procedure/guideline.

3.37 Furnishing of Details of Single Bus Operation

- In the Meeting, all concerned entities were requested to furnish the details of **single bus operation** (wherever due) by **31.01.2019** .

3.38 Rejuvenation and Parallel operation of 220 KV System on NEW-SR Corridor

- In the 149th OCC Meeting, SRLDC had informed that NLDC had requested to bring into service the following lines.
 1. 220 KV Chikkodi - Talangade Line
 2. 220 KV Chikkodi - Mudshingi Line
 3. 220 KV Upper Sileru - Balimela Line
- It was noted that a Joint Study meeting was held on 24th December 2018 regarding the rejuvenation of Chikkodi - Talangade & Chikkodi - Mudhsinghi Lines.
- In the Meeting, SRLDC informed that in a meeting in WR, MSETCL had agreed for trial operation.
- SRLDC opined that since 220 KV IR lines are not included in ATC computation, the trial operation may be agreed.
- KPTCL stated that they had not agreed for trial operation, as yet. **They have certain apprehension that the KPTCL system will get affected adversely. They are studying the impacts of tying the lines and report in this regard would be submitted by 15.01.2019.**

3.39 Testing of Primary frequency response of generators as per IEGC clause 5.2(g)

- In the 150th OCC Meeting, SLDCs were requested to kindly take appropriate action on testing of primary frequency response of generators as per IEGC clause 5.2(g). SRLDC had informed that the techno evaluation of the bids (by service providers) would be taken up on 14.12.2018 at NLDC.
- In the Meeting, SRLDC informed that NLDC may get the work carried out through 2-3 agencies. (9 agencies had submitted the bid). LOA would be issued after evaluation of bids.
- KPTCL informed they had already discussed the issue and KPCL had informed that services of empanelled agency for testing could be used. UPCL had attended not attended the Meeting. TSTRANSCO informed that they had taken

up with generators through TSGENCO and had informed Singareni TPS regarding compliance.

3.40 AGC at state Level- Pilot Project identification & Implementation

- In the 150th OCC Meeting NTPC Simhadri had raised some difficulties faced by them after implementation of AGC like schedules going below technical minimum, ramp violations, schedules exceeding the restricted schedules (margins kept for RGMO), schedules exceeding the DC etc. **After deliberations, NTPC, Simhadri had been suggested to take up the issues raised with NLDC with a copy to SRLDC & SRPC by 17.12.2018. It was noted communication in this regard from NTPC was awaited.**
- **In the Special SRPC Meeting held on 19.12.2018, the following was noted regarding state level AGC Implementation:**
 - ✚ KPTCL / PCKL had informed that trial operation of AGC at Sharavathy and Varahi was now planned during July-September 2019. The thermal stations AGC (Bellary and Yermarus) would be considered after gaining experience from these projects. AGC at 10 MW Solar plant at Sivasamudram was not being envisaged as the response was only upto 1 MW.
 - ✚ KSEBL had informed that the technical specifications were being prepared and the AGC implementation may commence from December 2019 after the up gradation works are over.
 - ✚ TANTRANSCO / TANGEDCO had informed that a meeting with M/s Siemens was scheduled on 20.12.2018 to discuss the technical requirements etc. Further, a meeting at NCTPS was scheduled on 28.12.2018 and a visit to Simhadri Stage-II was also planned during 1st week of January 2019.
 - ✚ TSTRANSCO / TSGENCO had informed that one unit at Kothagaudem E (500 MW) had been identified for Pilot project under AGC. Other hydro / thermal projects would be identified after gaining experience on AGC from this project. Other technical specifications etc were being worked out. They requested that the AGC for the states could be taken jointly and could be funded through PSDF.
 - ✚ It was pointed out that AGC was to be implemented by the states as per CERC Order / Regulation and NPC/NLDC have been highlighting the paucity of funds in PSDF and it would be prudent to take the AGC Pilot project in the states through their own funds.
 - ✚ It was noted that the AGC Pilot project in Karnataka was being funded through USAID; however, NLDC would be appraised whether the AGC Pilot project for

AP, TS, TN and KER could be taken up jointly to reduce the cost implications and have uniformity in all the states.

✚ AP and TS were requested to join TN in the visit to Simhadri-II in the 1st week of January 2019 (dates would be confirmed by NTPC, Simhadri / TN).

- In the Meeting, the following was noted:
- APGENCO informed that wrt Krishnapattnam, team had visited Simhadri Stage-II on 10.12.2018 and noted the requirements. Further course of action would be finalized after consultation with APSLDC.
- AP, TS, KSEBL and TN had agreed to visit Simhadri Stage-II on 24.01.2019.
- KPCL informed that work would be awarded within a week for Sharavathy and Varahi. PRDC is the Nodal agency and USAID is funding the project.

3.41 Scheduling of Pavagada Solar UMPP by SRLDC/Updates on other solar parks

- Mock scheduling of Pavagada UMPP by SRLDC was to commence from 15.12.2018 (as discussed in the Meeting held on 02.11.2018). SRLDC vide letter 12.12.2018 (**Annexure-3AI**) had informed that only one SPD, ReNew Wind Energy(TN2) Private Limited had registered as user of SRLDC. Subsequently vide E-mail dated 26.12.2018 SRLDC had informed that the following SPDs had Registered as User of SRLDC for 2,000 MW Pavagada Solar Park, Karnataka :
- 1. Avaada Solar Energy Pvt. Ltd. for 150 MW (50 MW x 3) Block - 4 , 7 & 8 .
- 2. Fortum Finnsury Energy Pvt. Ltd for 100MW (50MW x 2) , Block - 30 & 31.
- 3. Parampujya Solar Energy Private Ltd for 150MW (50MWx3) Block - 28, 29 & 36.
- 4. ReNew Wind Energy (TN2) Private Limited for 50MW , Block -33 .
- 5. Tata Power Renewable Energy Limited 150MW (50MW x 3) Block -27, 32 & 34.
- 6. Yarrow Infra Structure Private Ltd.- 50MW , Block – 35.
- AP was to revert back on Ghani/Uravakonda and TN on Kamuthi. It was noted that Ghani was an approved Solar Park under Solar Park Scheme of MNRE.
- In the Meeting SRLDC presented the status on data integration part which is given at **Annexure-3AJ**. It was noted that except one SPD (Avaada), all other SPDs had registered while there was some issues wrt SCADA availability. It was noted that mock scheduling had commenced except for Avaada. After

deliberations it was decided that a special meeting would be conducted to decide the future course of action.

- Regarding Ghani Solar Park APTRANSCO informed that the issue was being addressed and they were planning to shift the scheduling to SRLDC from April 2019 onwards. **APTRANSCO was requested to revert back on the issue before end of Jan 2019.**

3.42 Failure of KPTCL underground fiber links in Bengaluru intra-city

- In the 150th Meeting of OCC, Karnataka, SLDC had informed that the issue of rectification of cable between **HSR to NIMHANS, EDC to NIMHANS and EDC to HAL** had been taken up with Chief Engineer, Transmission Zone. The rectification was expected within 15 days.
- In order to establish protection path between NRS and SRLDC, PGCIL had requested KPTCL to arrange the permission for laying of fiber cable inside the S/s premises. KPTCL had informed that a note had been put up to Higher Management and approval is awaited.
- In the Meeting, KPTCL informed that all OF issues would be rectified within 20 days. SR-II informed that the 4th link to SRLDC from Hebbal would be made through within a week. The permission for laying of fiber cable inside the KPTCL S/s premises by PGCIL was granted by KPTCL higher management and written communication is awaited.

3.43 KPTCL request for early commissioning of Tumkur- Singanayakanahalli (Yelahanka) line

In the Meeting, KPTCL requested SR II, PGCIL to expedite the commissioning of Tumkur- Singanayakanahalli (Yelahanka) line. Hiriyur-Nelamangala lines are carrying around 600-700 MW and with commissioning of this line the loading on Hiriyur-Nelamangala line may come down.

- It was noted that 11 bays are available but only two bays are connected and at present KPTCL is drawing around 400 MW (200 MW each).
- KPTCL informed that two D/C lines, Tumkur-Madhugiri and Tumkur Anthrasanahalli lines are coming up by February end. Manyata Tech Park S/S will be commissioned by January 2019 and additional loads will be taken at Yelahanka. Yelahanka-Hoody direct line would be LILoed at Manyata Tech Park

SS. S/D had been taken for LILO work and the system will be commissioned within 15 days. In a phased manner KPTCL will increase the drawal to around 800 MW. The loading of Nelamangala-Hoody and Kolar – Hoody lines are to be reduced.

- SRPC & SRLDC stated that KPTCL downstream needs to be strengthened on priority.

3.44 Ramp Rates, technical minimum & startup from hot/warm/cold

- ISGS/State generators were suggested to improve the ramp rates.
- A Special Meeting was scheduled on 21.01.2019 at SRPC Bengaluru. It was noted that all the units of Central Sector, State Sector and IPPs need to comply to the technical requirements as mentioned in various Regulations/ technical specifications to meet the high RE penetration/load variability etc.
- In the Meeting all generators were requested to kindly furnish the information in the required format latest by 17.01.2019.
- Subsequently it was noted that as decided the Meeting was held on 21.01.2019 and minutes of the Meeting are available at SRPC website.

3.45 Charging of LILO of Neyveli-Bahoor line at Karaikal /Drawal at Karaikal under REA

- In the 150th Meeting of OCC, SR-II had informed that the LILO of Neyveli – Bahoor at Karaikal was expected by 15.12.2018. TN SLDC had raised certain ICT loading issues at Neyveli due to charging of this line before commissioning of NNTPS. It was agreed that this issue would be studied by SRLDC & SRPC and subsequently discussed with TN/NLC. PED vide letter dated 18.12.2018 (**Annexure-3AK**) had requested to retain Sorakudi Substation under TANGEDCO feeding arrangement as an interim measure until additional allocation is made by MoP or commissioning of NNTPS units, whichever is earlier.
- Puducherry vide letter dated 09.01.2019(**Annexure-3AL**) had further communicated in this regard.
- In the Meeting, ED, Puducherry clarified that earlier some portion of Karaikal power was met from Tamil Nadu (NLCIL TS I power through displacement) and payment would be settled with TN.
- MS, SRPC stated ICT loading at NLC issues had been discussed with TNSLDC through VC.

- In the meeting the following was noted:
 - ✓ Puducherry drawal would include Karaikal drawal (the drawal point will be Karaikal S/S, LILO of Neyveli-Bahoor).
 - ✓ Any drawal presently on Sorakudy – Thiruvarur and T.R.Pattinam – Thiruvarur 110 kV lines would be settled mutually between PED and TN.
 - ✓ Puducherry was advised to discuss and settle the issues, if any, with TN in this regard.
 - ✓ Puducherry assured that SEMs would be installed on Sorakudy – Thiruvarur and T.R.Pattinam – Thiruvarur feeders. Puducherry informed that the lines are kept in open condition and would only be closed after completion of SEM installation and meeting all the other requirements. The SCADA on these lines had been made through.
 - ✓ **It was agreed after confirmation by Puducherry to SRLDC, the drawals on Sorakudy – Thiruvarur and T.R.Pattinam – Thiruvarur feeders would be considered as Puducherry drawals after meeting all the requirements.**

3.46 RE Generators for Reactive Compensation & High Voltage

- All the states were again requested to kindly examine and ensure voltage based MVAR interchange for RE generators.

The following was noted in the Meeting:

- KPTCL informed that Committee meeting was convened on 10.01.2019 to discuss on the issue.
- Further KPTCL informed that their Management had directed REMC wing to submit DSM bills for RE.

3.47 Daily Load Forecasting by SLDCs

- SRLDC presented the error (forecast Vs actual demand) for the month of December 2018. It was noted that forecast error was more in TS on 7th & 8th (due to elections) and 17th & 18th (due to cyclone).

3.48 Scheduling of Machkund and TB Dam

- In the OCC Meetings , it had been requested to take action as per the decision taken in the 34th SRPC Meeting with regard to scheduling of Machkund and TB Dam.

3.49 Status of Implementation of the revised FGD Installation/ESP Up-gradation Plan

- CEA is seeking updated information in respect of implementation of revised FGD installation/ESP Up-gradation Plan. Status update is to be furnished in a time bound manner.

3.50 Compliance of CEA Regulations for Grid connectivity of Renewable Energy Sources

- The following is the updated status on RE SCADA availability as noted in the 151st Meeting of OCC:

State	SCADA availability as on 31.12.2018 Mapped I/C	Remarks
AP	Wind: 3908/4061 MW (96%) Solar: 2033/2591 MW (78%) Total: 5941/6652MW (89%)	Pending SCADA availability was for RE connected distribution level and for which action had been taken for compliance.
TS	Wind: 128.1/128.1 MW (100%) Solar: 3235/3479 MW (93%) Total: 3363/3608 MW (93%)	Action for balance SCADA availability at 33 kV and below was being followed up and notices had been issued.
KA	Wind: 4751/4795 MW (99%) Solar: 4602/5115 MW (90%) Total: 9353/9910 MW (94%)	
KE	Wind: 16/59.3 MW (27%) Solar: 93/116 MW (80%) Total: 109/175 MW (62%)	
TN	Wind: 8145/8312 MW (98%) Solar: 648/2366 MW (27%) Total: 8793/10677 MW (82%)	Notices had been issued for SS under 10(1) for SCADA availability. 100% SCADA availability of wind was likely to be ensured by December 2017. TANTRANSCO (Communication) and TANGEDCO (Metering) had jointly initiated action for Solar SCADA availability and was targeted to be completed by July 2018.

3.51 Data required for development of Geospatial Energy Map of India

- Data required (as per CEA letter dated 04.05.2018) for development of Geospatial Energy Map of India was to be furnished to CEA at email cedpd-cea@gov.in by all the concerned entities (31.05.2018 was the date). SLDCs had been kindly requested to communicate the requirements to DISCOMs and other entities in the control area.
- All entities (wherever pending) were requested to furnish the data required for development of Geospatial Energy Map of India to CEA at the earliest.

3.52 TTC assessment considering temperature dependent rating of lines/terminal equipment

- SRPC vide E-mail dated 24.09.2018 had requested all transmission utilities and states to furnish the required information by **01.10.2018 for onward transmission of consolidated data w.r.t SR to POSOCO with copy to NPC.** SRPC vide letter dated 25.09.2018 had taken up some of the issues with NLDC regarding the reassessment of transfer capability.
- In the Meeting, all concerned entities agreed to furnish the information to NLDC (refer SRPC mail dated 24.09.2018) on temperature dependent rating of lines / terminal equipment (at 400 kV level) **before end of January 2019 positively.**

3.53 Monitoring of scheme funded from PSDF

- The latest status (as on 30.11.2018) as received from NPC is at **Annexure-3AM.** All the states/entities were requested to kindly furnish the updated status in a time bound manner.

3.54 Installation of 2x125 MVAR bus reactors at UPCL

- In the Meeting KPTCL informed that the matter was being discussed among PCKL and the planning wing of KPTCL.

3.55 Reactor commissioning at Kaiga GS

- In the 150th OCC Meeting, Kaiga GS had informed that one 125 MVAR reactor would come up by December 2019 while action had been initiated for the 2nd 125 MVAR reactor.
- In the Meeting, Kaiga GS informed that they are going for new tender.
- OCC opined that the possibility of using regional spare reactor of PGCIL may be explored and **Kaiga GS may need to approach PGCIL urgently.** It had earlier been clarified in SRPC Meetings that in such cases, Tariff would be billed on respective users.

3.56 PSS Tuning of generators

- 6th Meeting of PSS Tuning had been convened on 27.09.2018. Minutes are available at SRPC website. Analysis and recommendations are to be referred to take necessary action. The schedule for next SRT is also mentioned in the Minutes. All the concerned are again requested to take appropriate action in this regard. **(Refer Table-III)**

- In the Meeting, APGENCO informed that PSS tuning for Unit-V at VTPS had been completed and report would be submitted. TSTRANSCO informed that the process of PSS tuning at KTPS-I, II, V&VI had been initiated.
- SRPC pointed out that PSS tuning for around 80 units was to be carried out during 2019 and action had to be initiated in this regard (kindly refer 6th PSS minutes available at SRPC website).

3.57 Prolonged Outage -KKNPP Reactors:

- In the Meeting KKNPP informed that second reactor is expected to be commissioned by December 2019.

3.58 NLC Complex: HTLS associated enhancement works

- SR-II informed that the works associated with HTLS enhancement at NLC would be awarded by end of January 2019.

3.59 Relocation of SPS schemes

- In the Meeting, SR I/SR II had informed that the commissioning of **DTPCs would be completed by end of January 2019. States were requested to complete their scope of works by end of January 2019** (refer PCSC minutes).

Outage Proposals

4.1 Issues faced in processing the outages between OCC & Mid Review – OCC

- SRLDC informed that the request on D-3 was being strictly implemented.
- OCC had noted that only emergency outages would be considered in real time and construction outages need to follow D-3 requirement.
- It was agreed that any change in dates of construction outages (not having impact on ATC) would be rescheduled by SRLDC (without bringing to SRPC) in between the OCC meetings. Other changes could be coordinated through mid-review. SRLDC was requested to approve the outages on D-2 (requested on D-3) for manpower mobilization. SRLDC had stated that they would optimize the approval timings.

4.2 LGBR for upcoming five months & TTC/ATC computations

- All states had furnished PSSE base case for May 2019 and following is the status:

State	5 months LGB	Converged PSSE Base case	ATC/TTC Computation furnished to SRLDC	ATC/TTC Computation posted on SLDC website	Nodal Officer Status

AP	All Furnished	Submitted	No	Nil	No
TS		Submitted			Yes
KAR		Submitted.			No
TN		Submitted			Yes
KER		Submitted			Yes

- SRLDC & SRPC pointed out that the demand being furnished for POC, ATC and LGB should be in synch with each other. Different values should not be furnished for different requirements. Node wise data should be as per the demand which is likely to be met from various sources keeping in view MOD etc.

5. **Availability and Requirement**

- Availability and requirement for the period from January 2019 to May 2019 is given at **Annexure-5A**).

6. **REVIEW OF THE POWER SUPPLY POSITION**

Grid Highlights

- Frequency remained within IEGC range during December 2018 (49.90 - 50.05 Hz) for 76.74% of time. Average frequency for the month was 49.98 Hz.
- Frequency remained below 49.90 Hz for 12.39% of time.
- Frequency remained above 50.05 Hz for 10.87 % of time.
- BSRP workshops for Kerala & Tamil Nadu completed on 14.12.2018 & 21.12.2018 respectively.
- Reactive Power Document of Southern Region released on 28.12.2018.
- 2.10 MW (WM) were added to Andhra Pradesh Installed Capacity (Private Sector).
- 250 MW (Solar) were added to Andhra Pradesh Installed Capacity (Private Sector).
- 69 MW (Solar) were added to Karnataka Installed Capacity (Private Sector).
- 6.3 MW (WM) were added to Tamil Nadu Installed Capacity (Private Sector).
- Andhra Pradesh, Telangana, Karnataka & Tamil Nadu imported 224 MU, 383 MU, 18 MU & 554 MU respectively intra-regionally through bilateral exchanges.
- Andhra Pradesh, Telangana, Karnataka & Tamil Nadu exported 682 MU, 40 MU, 28 MU, 429 MU & respectively intra-regionally through bilateral exchanges.
- Utilities located in Andhra Pradesh, Telangana, Karnataka, Kerala, Tamil Nadu & Puducherry imported 96 MU, 392 MU, 98 MU, 189 MU & 379 MU respectively through Power Exchange.

- Utilities located in Andhra Pradesh, Telangana, Karnataka, Kerala, Tamil Nadu, CEPL, IL& FS & SGPL Unit I exported 79 MU, 119 MU, 112 MU, 03 MU, 08 MU, 56 MU, 04 MU, & 225 MU respectively through Power Exchange.
- 400 kV Talaricheruvu SS ICT I in Ananthapur district of 315 MVA Capacity was commissioned on 17.12.2018 by APTRANSCO.
- LILO of 400 kV SCCL-Gajwel Circuit I at Ramadugu SS in Karimnagar district of 36 Ckm was commissioned on 14.12.2018 by TSTRANSCO.
- 220 kV D/C Line from 400/220 kV SS Julurupadu to 220/132/33 kV SS Pedagogathi I & II in Khammam district of 90 Ckm was commissioned on 01.12.2018 by TSTRANSCO.
- 220 kV D/C Line from Sithapuram to Huzurnagar in Suryapet district (58.62 Ckm) was commissioned on 05.12.2018 by TSTRANSCO.
- 220 kV D/C Line from LILO of Chillakalu – Narketpally to Huzurnagar in Suryapet district (24.61 Ckm) was commissioned on 05.12.2018 by TSTRANSCO.
- 220/132/33 kV SS Pedagogathi I & II in Khammam district of 200 MVA capacity was commissioned on 01.12.2018 by TSTRANSCO.
- 220/132/33 kV SS Huzurnagar I & II in Suryapet district of 200 MVA capacity was commissioned on 10.12.2018 by TSTRANSCO.
- 220/33 kV features at existing 220 kV Nagaram in Warangal district was commissioned on 20.12.2018 by TSTRANSCO with augmented capacity of 31.5 MVA.
- 315 MVA ICT at Sundilla SS ICT II Peddapalli District of 315 MVA Capacity was commissioned on 24.12.2018 by TSTRANSCO
- 2 Nos 400/11 kV PTRs at Medaram GIS in Karimnagar district of 320 MVA Capacity was commissioned on 28.12.2018 by TSTRANSCO.

7. GRID FREQUENCY

7.1 High frequency

- It was noted that the Regional Grid had operated above IEGC range i.e.50.05 Hz for **10.87%** of the time. It was also noted that the frequency on some of the days was higher for considerable duration of times. (**Refer Table-IV of Appendix**)
- SRLDC informed that maximum frequency had touched 50.25 Hz at 18.02 hrs on 27th December 2018. It was observed that during such instance drawal of all the SR States were within the limits except KPTCL whose under drawal was above 250 MW (Graph at **Annexure-7A**). KPTCL informed that since UPCL-Kemar line was out , it was forced to operate Sharavathy at 500 MW.
- SRLDC presented the underdrawal of states when frequency was above 50.05 Hz. (**Annexure-7B**). The maximum Under-drawals touched by States during December 2018 also was presented. (**Refer Table V of Appendix**)
- Constituents were advised to kindly avoid uneconomic operation at high frequencies. MS, SRPC requested all the constituents that action needs be taken to

adhere to the schedule since it had commercial/operational impacts even for underdrawal.

7.2 Pump mode operation

- It was noted that there was consumption of **0.00, 64.57 & 26.00** MU in pump mode for N'Sagar, Srisailam and Kadamparai stations respectively during the month of December 2018.

7.3 Low Frequency

- It was noted that the frequency of grid operation was at times lower than IEGC range. Grid had operated below IEGC range i.e. 49.90 Hz for **12.39** % of time during the month (**Refer Table-VI of Appendix**).
- SRLDC informed that minimum frequency touched 49.70 Hz at 09:18 hrs on 16th December 2018. It was observed that over draws of Southern Regional states at such instance were within limit (Graph at **Annexure-7C**).
- Overdrawal by SR constituents at frequency less than 49.90 Hz (**Annexure-7D**) was presented by SRLDC. The maximum over-drawals touched by States also was presented. (**Refer Table VII of Appendix**)
- As discussed in the 145th OCC meeting, TNSLDC was to come out with **independent drawal computation for the state as being done by other states in the region**. In the 150th OCC Meeting TANTRANSCO informed that monthly data is being analyzed for verification.

8 VOLTAGE PROFILE

8.1 Low voltage

- In the meeting, it was noted that low voltage had been observed at few nodes in December 2018.
- Details of Capacitors installed during December 2018 are at **Annexure-8A**. Details of the healthy/faulty capacitors to be furnished. Capacitor requirement for the year 2018-19 also had been furnished.

8.2 High Voltage

- SRLDC highlighted the severity of high voltage problem in many of the nodes (**Refer Table VIII of Appendix**)

8.2.1 Status review of GT Tap positions

- GT tap Positions – GT taps yet to be changed as per recommendation (**Refer Table-IX of Appendix**)

8.2.2 Status review of Bus/Line Reactors, Line Reactors and STATCOM

- Status of implementation of Bus / Line Reactors approved in the Standing Committee / SRPC pending for commissioning by the SR constituents is furnished at **Table X of Appendix**.
- In view of very high voltage at some nodes, it was emphasized that urgent action needs to be taken to commission reactors as per committed dates.

8.2.3 Reactive Power Planning

- Status update on capacitor installation is given at **Table XI of Appendix**.
- SRPC & SRLDC requested all the states to come up with updated information like till date commissioned, plan for new commissioning, quantum in working condition, action taken to rectify/replace faulty capacitors, etc.

8.2.4 MVAR interchange/Testing

- MVAR interchange meeting was convened on 26.09.2018. Minutes of the Meeting are available at SRPC website

9 Network Protection/Security issues

9.1 U/F & df/dt Relays Schemes

Implementation of SRPC recommended quantum

- It was noted that all States had implemented AUFR and df/dt schemes fully.
- In the Meeting, SRLDC presented the load relief realized as a percentage of AUFR quantum declared in the identified feeders during the month of December 2018 as follows: (Detailed Presentation is at **Annexure-9A**)
AP: 72%, TS: 76%, KAR: 76, KER: 83%, TN: 77%, Pudu: 88% & SR : 76%.
- In the Meeting SRLDC informed that the AUFR/df/dt relay validation had been completed for all the states. The discrepancies noted w.r.t TSTRANSCO had been identified and rectified. All states were requested to furnish the **Feeder wise monthly Average MW file for Jan-18 to Dec-18 9 (Formats already sent)** .
- **AUFR df/dt inspection observations**
- SRPC had carried out inspection on AUFR/(df/dt) relays of 220 kV Substations of Mahalingapur, Vajjaramatti, Bagalkot, Gadag and Hubli of KPTCL system. Observations/suggestions had been communicated to KPTCL vide SRPC letter dated 14.12.2018(**Annexure-9B**). It was requested that the same may kindly be examined and remedial action be arranged under intimation to SRPC.

9.2 SCADA mapping of feeders of AUFR & df/dt schemes

- Status update as per SRLDC after validation of all the States is as follows:

State	SCADA mapped %	Status
AP	64	There is further requirement of around 175 RTUs to cover up to all 132 kV SS and will be completed in phased manner with PSDF funding under reliable Communication project of MoP. Tender has been floated for procurement of RTUs along with communication equipment. Commercial bid has opened and LOA is to be placed.
TS	77	For 29 RTUs, Orders had been placed. By October end supply is expected. 92-93% visualization is expected by commissioning of these RTUs. There is an additional requirement of 11 RTUs for railway feeders also.(earlier 18 RTUs) With this they were likely to achieve 100% mapping. & PSDF fund is requested for balance 7 RTUs (for achieving 100 %).
KAR	100	
KER	100	
TN	88	
Pudu	92	
SR	94	

9.3 Automatic Demand Side Management Scheme (Petition No. 250/MP/2012) & GSES (Petition No. 265/MP/2012)

- It was noted that all states had implemented revised ADMS logic. (Alarm at 49.90 Hz and below for 10 minutes, Trip at 49.85 Hz, Min DSM limit for 15 Minutes)
- During the month of December 2018 there were 23 incidences when frequency was below 49.85 Hz. The incidences which satisfy the ADMS logic (OD<49.85 HZ.) were 3 in AP, 1 in TS, 3 in Karnataka and 1 in TN.
- It was noted that the ADMS relief identified is quite meagre as compared to overdrawal quantum. After deliberations in the 149th OCC Meeting, it had been suggested that in the next OCC Meeting, SRLDC would come up with a proposal of increasing of ADMS quantum and the same may be discussed.
- In the Meeting *SRLDC was again requested to come up with the proposal for increase in the ADMS quantum.*
- It was observed that some manual tripping was being shown as relief under ADMS. Only automated relief needed to be classified as relied under ADMS. SRPC stated

that litmus test was that any relief should reflect in reduction of ISTS draws and the same needs to be monitored. It was recommended that ADMS feeders may also be mapped, for enhanced visualization and analysis of ADMS operation.

9.4 Grouping of loads (IEGC clause 5.4.2 (e))

- As per IEGC, to maintain the frequency within stipulated band and also to ensure network security, the interruptible loads were to be arranged in four groups of loads, This was for the purpose of scheduled power cuts/load shedding, loads for unscheduled load shedding, loads to be shed through UF relays, df/dt relays and loads to be shed under any SPS scheme. These loads are to be grouped in such a manner that there is no overlapping between different groups of loads.
- This issue was noted for compliance by the concerned utilities.

9.5 LVRT Implementation

- Hon'ble CERC had passed Order in respect of Petition No. 420/MP/2014 on 05.01.2016. Five Special Meetings were conducted at SRPC on 05.02.2016, 18.04.2016, 05.07.2016, 25.10.2017 and 23.04.2018 (Meeting minutes are available at SRPC website).
- Quarterly reports of the SR constituents jointly validated by SRLDC/SRPC Secretariat are being communicated to Hon'ble CERC in regard to monitoring of the installation and performance of LVRT installed on existing WTGs as per the directives of Hon'ble CERC.
- CEA had issued draft second amendment in CEA (Technical Standards for connectivity to the Grid) Regulations. The final notification was awaited.

10 Emergency Restoration System (ERS)

- As per ERS requirement outlined in MoP letter dated 05.12.2014, status update on ERS is given at **Table XII of Appendix**.
- KSEBL confirmed that they were going ahead with ERS procurement.

11 SCADA AND COMMUNICATION

- All entities were requested to bring any specific/recurring SCADA/Communication related issues to the notice of OCC forum.
- All states were requested to furnish the SCADA mapping updates for the RE and at the pooling stations (as per the format of CEA) – *the details to be communicated wherever pending*.
- SRLDC vide E-mail dated 07.01.2019 had submitted agenda points w.r.t SCADA issues which is at **Annexure- 11A**

- KPTCL vide letter dated 04.01.2019 (**Annexure-11B**) had communicated the observations regarding the large deviation in SCADA data compared to SEM data which leads to huge financial implications and violation of Grid Code.
- In the Meeting, SRLDC informed that 220 kV side voltages of Kaiga, Trivandrum and Trichy were not reporting.

The following was noted:

- Kaiga GS informed that they were in touch with SR-II for card replacement in the RTU.
- SR-II agreed to sort out the SCADA issues at Thiruvanthapuram.
- TANTRANSCO also agreed to sort out the SCADA issues at Trichy.
- SRLDC agreed to look into the SCADA Vs SEM mismatch in respect of Karnataka. **It was noted that all SLDCs need to have a separate drawal computation** (independent from SRLDC SCADA drawal). **There was a need for well-coordinated approach on rectification of SCADA mismatches.**
- Subsequently SRLDC vide letter dated 24.01.2019(**Annexure-11C**) had replayed to KPTCL. it was noted that if there is any observation of continuous large scale deviation of any real time measurand used for Grid drawal computation, the same may be taken up by SCADA wing of KPTCL to SCADA wing of SRLDC in real time for necessary temporary adjustment in drawal computation. SRLDC had brought attention to the SOR of DSM 4th Amendment :
“ In order to facilitate accuracy in real time SCADA data and minimize the errors, the SLDCs are required to deploy and monitor telemetry in close coordination with STU/CTU”. Accordingly KPTCL, SLDC may be advised to take up the matter with CTU/STU for any continuous large scale deviation of SCADA data.

12 Black Start Procedure

- All concerned entities were requested to kindly furnish the details of BSRP Mock test completed during December 2018 and schedule for January to June 2019.
- In case of postponement or non-conducting of mock drill exercise then the same must be intimated to SRLDC along with reasons.

12.1 Black Start Mock Drill

- TSTRANSCO had earlier informed that TSGENCO was planning to procure DG set of appropriate capacity for Jurala HEP.

- In earlier Meeting, it was noted that the mock test at Bhadravathi was not carried out due to high demand in Telangana and would be carried out during November 2018 as requested by Telangana. In the 150th OCC Meeting TSTRANSCO agreed for Mock drill in first week of January 2019.
 - In this Meeting TSTRANSCO requested that Mock drill at Bhadravathi back to back may be carried out in May 2019 which was agreed.
- Mock exercise reports are to be submitted in the specified format.
- **Mock drill at Kaiga GS**
 - Mock drill at Kaiga is scheduled to be carried out on 14.01.2019.
- Subsequently it was informed that the mock test had been carried out on 23.01.2019 successfully.
- SRLDC informed that it is proposed to conduct Black start study workshop from **22nd to 24th January 2019** for reviewing and finalizing SR BSRP procedure 2019 with appropriate studies. Representation from Railways was requested on 24th for updating procedure w.r.t traction supply.

13 RGMO/FGMO

- RGMO response had been deliberated in various Special/OCC/TCC/SRPC meetings. Inadequate response was an area of serious concern and there was no noticeable improvement.
- Extension of RGMO status point to SLDC (**Refer Table-XIV of Appendix**).
- As per 5th Amendment to IEGC, gas stations above 50 MW Installed Capacity were also to come under RGMO/FGMO Operation w.e.f. 1st October 2017. SLDCs/SRLDC were requested to take action to comply the IEGC Amendment.
- Special Meeting had been convened on 26.08.2018 at SRPC Bengaluru to discuss on FGMO/RGMO related issues. **Minutes of the Meeting are available at SRPC website.**

14 SYSTEM OPERATION ISSUES

- Loadability of ICTs and revisit of the associated protection settings to prevent cascade tripping of ICTs/high loading of transmission lines. Insufficient action in controlling the loading of ICTs leads to N-1 criteria violation in compliance of Regulation 3.1 f(8) of CEA (Grid Standards) Regulations 2010 and Regulation 3.5 a(i) of CERC Indian Electricity Grid Code Regulations 2010.

15 Upcoming Generating Stations

- Status update of Central sector and State Sector Upcoming generating stations is given at **Table XIII of Appendix**.

- SRPC stated that declaration of COD letter from SLDC was required to be submitted to CEA, Fuel Management Division for purpose of coal linkages etc.
- SRLDC stated that new ISTS connected units should come out with detailed metering schemes for various units commissioning schedule, at least one year prior to synchronization. The scheme needs to be discussed and finalized in the Commercial Sub Committee.

16 Wind/solar Generation

- SRLDC presented the day-wise Wind Generation pattern in Andhra Pradesh, Karnataka & Tamil Nadu during the period 1st December 2018 to 31st December 2018. Wind generation in Andhra Pradesh had varied between 24.6 MU (15.12.2018) to 4.97 MU (19.12.2018). Wind generation in Karnataka had varied between 27.93 MU (15.12.2018) to 5.24 MU (06.12.2018). Wind generation in Tamil Nadu had varied between 17.91 MU (31.12.2018) to 0.44 MU (12.12..2018) (**Annexure-16A**).
- SRLDC presented the day-wise Solar Generation pattern in Andhra Pradesh, Telangana, Karnataka & Tamil Nadu during the period 1st December 2018 to 31st December 2018. Solar generation in Andhra Pradesh had varied between 13.56 MU (02.12.2018) to 5.22 MU (04.12.2018). Solar generation in Telangana had varied between 11.23 MU (14.12.2018) to 3.9 MU (24.12.2018). Solar generation in Karnataka had varied between 30.41 MU (02.12.2018) to 18.78 MU (07.12.2018). Solar generation in Tamil Nadu had varied between 20 MU (31.12.2018) to 5.59 MU (24.12.2018). (**Annexure-16B**).

17 Vote of Thanks

Member Secretary, SRPC thanked all the participants for their active participation in the Meeting.

18 Date & Venue of the next Meeting

The schedule for the next Meeting of OCC is as follows:

Meeting	:	152 nd OCC of SRPC
Date	:	12.02.2019 (Tuesday)
Time	:	10:00 Hours
Venue	:	SRPC, Bengaluru

**Appendix
Follow up Issues**

REMC Project Training	4 th and 5 th modules completed in July 2018. 6 th module on RE forecasting completed in August 2018. 7 th and 8 th module on system hardware is scheduled in December 2018
VC facility	➤ Puducherry to take up VC requirement in 2018-19
Closing of 220 kV Upper Sileru- Balimela line	➤ Idle charged from 8 th January 2015 from Upper Sileru end.
PMU Status	➤ PGCIL informed that a separate meeting will be called to discuss on the second stage after stream lining/usage of the first stage.

**TABLE – I
Number of Outages approved V/s Aailed**

Status of shut down aailed vs shut down approved as furnished by states is as below:

State/Utility	AP	TS	KAR	KER	TN	SR I	SR II
No of shut downs approved	37	14	12	15	50	27	18
No of shut downs carried out as per schedule	23	12	07	15	36	17	13
No of shut downs deferred	14	02	05	0	14	09	05
Percentage of shut down carried out	62	94	78	100	83	63	72

TABLE – II

Status of shut down aailed against shut down approved as furnished by SRLDC is as below:

AP	KA R	RST CL	KE R	PN MT L	NLC	NT PC	CEP L	UPC L	TN	TS	SR I	SR II	NP CI L	SR
86	78	0	100	0	100	0	100	0	83	87	56	71	0	75

TABLE III

PSS TUNING

- SRT of following units had been analyzed upto 6th Meeting of PSS and necessary action had to be taken as per Recommendations

Entity	Generating Stations/Units
APGENCO	Rayalaseema TPS U1 to U5; VTPS U1 to U4 & U7; SDSPP U1&U2; Srisailam RB HEP U1 to U7; Lower Sileru HEP U1

AP IPP	HNPCL U1 & U2
TSGENCO	Nagarjunasagar HEP U1 to U8; Srisailam LB HEP U1 to U6; Kakatiya TPS U1 & U2; Kothagudem TPS U7 to U11 [U9 to U11: 22-12-18]; Singareni Collieries U1 & U2
KPCL	Raichur TPS U1 to U8 [U5: 24-11-18, U6 & U7: 17-12-18, U8: 19-11-18]; BTPS U1 to U3 [U1: 15-10-18, U2: 31-12-18]; Varahi UGPH HEP U1 to U4; Nagjheri HEP U1 to U6; Sharavathy HEP U1 to U10
KAR IPPs	UPCL U1 & U2 [U1: 04-10-18, U2: 23-10-18]; JSWEL U1 to U3
KSEBL	
TANGEDCO	MTPS St-I U1 to U4; NCTPS St-I U1 to U3; Tuticorin TPS U1 to U5; NCTPS St-II U1, U2(U2 Report submitted for analysis); Kadamparai HEP U1 & U2, Mettur St-III
TN IPPs	
CGS	NTPC- Ramagundam U3, U4 & U7; NTPC-Simhadri U1 to U4; NTPC-Talcher STPS St-II U3 & U6; NTECL-Vallur TPS U1 to U3; NLC-Neyveli TPS II U4 to U7; NLC-Neyveli TPS II U1 to U3; NPCIL-KGS U2, U4(Full Report not submitted for U4); NPCIL-KKNPP U1 & U2; NLC-Neyveli TPS II Exp. U1 & U2; (NLC & TN JV) NTPL U1; NTPC-Kudgi U1 & U2
ISTS connected IPPs	TPCIL U1 & U2; Coastal Energen U1 & U2; IL & FS U1 & U2 [U1: 12-04-18]

- For the following Units, PSS is to be tuned and SRT to be carried out / information not available.

Entity	Generating Stations/Units
APGENCO	VTPS U5 & U6; Lower Sileru HEP U2 to U4
AP IPPs	
KPCL	Yeramarus TPP
KAR IPPs	JSWEL U4
KSEBL	Idukki HEP U1 to U6
TANGEDCO	Kadamparai HEP U3 & U4
TN IPPs	STCMS
CGS	NTPC-Ramagundam U1, U2, U5 & U6; NLC-Neyveli TPS I Exp. U1 & U2 (SRT reports not submitted) [U1: 12-10-18, U2: 05-11-18]; NTPC-Talcher STPS St-II U4, U5; NTPC-Kudgi U3; NPCIL-KGS U1, U3 [U3: 19-4-10]; NPCIL-MAPS U1 & U2 [U1: 11-

	01-09, U2: 03-08-06]
ISTS connected IPPs	Lanco Stage II & III; SGPL-Nellore; SEL U1 to U4; MEL U1 & U2

- Note: In the above two tables the date [in “dd-mm-yy” format] mentioned in the braces represents 3 years completion of PSS tuning of the AVR of the generating units upto December 2018. PSS tuning is to be again carried out for these units

Table -IV: Frequency was higher than 50.2 Hz.

Date	Percentage of time of Frequency	
	50.05 Hz & <50.2 Hz	More than 50.2 Hz
01- Dec-18	17.77	0.23
02- Dec-18	17.77	0.23
03- Dec-18	10.44	0.00
08- Dec-18	9.73	0.00
14- Dec-18	11.46	0.06
15- Dec-18	16.04	0.22
16- Dec-18	16.04	0.22
18- Dec-18	10.49	0.04
22- Dec-18	9.91	0.12
23- Dec-18	17.45	0.15
24- Dec-18	13.61	0.00
26- Dec-18	19.04	0.00
27- Dec-18	14.64	0.00
28- Dec-18	10.49	0.00
29- Dec-18	11.20	0.00
30- Dec-18	14.23	0.00
31- Dec-18	15.05	0.04

High frequency excursions w.r.t. 5.2 (j) of IEGC during load change over and remedial measures to arrest such instances

All SLDCs/constituents were again requested to kindly adhere to the Regulations in place. Following remedial measures to arrest high frequency operation in the Grid were noted:-

- Implementation of staggered load changeover by the constituents/DISCOMs
- Moderating own generation
- Restricted Governor Mode of Operation of all eligible machines to be in place
- Proper load management to prevent the sharp rise in frequency

- ADMS healthiness
- Exploring the possibility of running the units in pump mode
- Planned and advance intimation for surrender of ISGS
- Reduction in purchases/MTOA/STOA transactions

Table V: The maximum under drawal touched by States are as follows:

State	MW	Duration	Date
AP	686	02	20.12.2018
TS	688	01	28.12.2018
KAR	737	03	10.12.2018
KER	312	10	16.12.2018
TN	713	10	01.12.2018

Table VI: Frequency less than 49.90 Hz for significant duration

Date	Percentage of time of frequency				
	<49.2 Hz	49.2 Hz & < 49.5 Hz	49.5 Hz & < 49.7 Hz	49.7 Hz & < 49.8 Hz	49.8 Hz & < 49.9 Hz
03- Dec-18	0.00	0.00	0.00	0.06	12.86
04- Dec-18	0.00	0.00	0.00	0.94	13.06
05- Dec-18	0.00	0.00	0.00	1.85	17.23
06- Dec-18	0.00	0.00	0.00	1.09	20.49
08- Dec-18	0.00	0.00	0.00	0.19	10.85
09- Dec-18	0.00	0.00	0.00	0.27	10.83
10- Dec-18	0.00	0.00	0.00	1.46	21.91
11- Dec-18	0.00	0.00	0.00	0.58	16.10
12- Dec-18	0.00	0.00	0.20	1.00	19.44
13- Dec-18	0.00	0.00	0.00	0.50	7.25
15- Dec-18	0.00	0.00	0.15	0.87	7.94
16- Dec-18	0.00	0.00	0.15	0.87	7.94
17- Dec-18	0.00	0.00	0.00	0.15	12.74
19- Dec-18	0.00	0.00	0.00	2.92	17.57
20- Dec-18	0.00	0.00	0.00	2.21	17.96
21- Dec-18	0.00	0.00	0.23	3.38	21.74
24- Dec-18	0.00	0.00	0.00	0.63	10.88
25- Dec-18	0.00	0.00	0.00	0.57	18.83
28- Dec-18	0.00	0.00	0.00	0.86	12.23
29- Dec-18	0.00	0.00	0.00	0.17	10.82
30- Dec-18	0.00	0.00	0.27	0.39	5.64

Table VII: The Maximum over drawal touched by States are as follows

State	MW	Duration	Date
AP	738	29	28.12.2018
TS	798	23	18.11.2018
KAR	800	62	12.12.2018
KER	276	02	01.12.2018
TN	771	45	07.12.2018

Table: VIII: High Voltage Nodes

STATION	MAX VOLTAGE IN KV	AVERAGE DURATION IN MINUTES PER DAY WHEN V > 420 KV/ V > 780KV
Vijayawada	428	725
N' Sagar	427	300
Hyderabad	428	319
Gooty	432	489
Kurnool	428	446
Khammam	431	503
Vemagiri	423	143
Srisailam	433	1057
Hiriyur	432	666
Guttur	423	44
Raichur	424	185
Narendra	425	247
Chennai	423	105
Pugalur	428	398
Malkaram	437	1180
Sattenapally	434	1141
Almatty	435	867
Mysore	432	223
Hassan	431	214
Mehboob Nagar	430	651
Raichur TPS 765	809	169
Kurnool 765	812	236
Tiruvalam 765	809	81
Nizambad 765	809	150
Srikakulam 765	810	341

Table-IX - GT Tap: Recommended/Implemented

Station	Unit	Present Tap And Corresponding Voltage(In kV)	Recommended Tap And Corresponding Voltage(In kV)	Remarks
ISTS connected Generators:				
Kaiga I	1 & 2	6 & 229.125	7 & 223.25	MVAR interchange as per Special Meeting to be ensured.
Kaiga II	3 & 4	3 & 409.5	4 & 399	
APGENCO/APSLDC				
IPPs of AP	It is recommended that all IPPS under APSLDC could be advised to change their Tap position corresponding to voltage level of 400 kV / 220 kV.			
KPCL/KAR SLDC				
Sharavathi	9 & 10	2 & 231	4 & 220	First GT (9) reached during October 2017. Second GT reached during December 2017. Unit 10 GT erection works completed. Tap change would be carried out after receiving the ICTs.
UPCL	1 & 2	4 & 409.5	5 & 400	Observed rotor teeth temperature issues. 2 x 125 MVAR reactors agreed in 39 th SCSPSR. 41 st It was suggested that their MVAR absorption should be around 50-60 MVAR in case they are not able to change Tap.
TANGEDCO/TN SLDC				
Tuticorin TPS	1,2,3,4 5	8 & 243	230	All the GTs in TTPS are kept in Tap No. 10.
MTPS St.III	1	6 & 409.5	7 & 399	Provision of Bus Reactor is being carried out by GCC/TANTRANSCO, Salem. After the provision of Bus Reactor the GT Tap will be increased to 7(399 kV) from Tap-Reactor bay works were completed at present and allotment of reactor is awaited.

**Table –X- Reactor Installation Status
As per of 33rd SRPC**

Entity	Bus Name	Status	REMARKS
KPTCL	Hoody	Reactor erected on platform.	2018-19
	Nelamangala	Reactor erected on platform	2018-19

Entity	Bus Name	Capacity in MVAR	Approved in	Type	Remarks
PGCIL	Yelahanka	2x63	40 th SC	Bus	PGCIL (Nov 18): Award placed in May 2018; expected by June 2019
	Cuddapah	50 to 125	39 th SC		Commissioned in Oct 2018
	Kurnool 765 kV	2 x 240			2 nd reactor commissioned on 31.10.2018
	Raichur 765 kV	2 x 240			2 nd reactor commissioned on 31.10.2018
	Nellore 765 kV				2 nd reactor commissioned on 31.10.2018
	Thiruvalam 765 kV	2 x 240			42 nd SCSPSR. 27 months from April 2017.
	Pavagada	2 x 125			42 nd SCSPSR.
	Nellore (PG)	2 x 50	42 nd SC	Line to Bus	
	Hosur	63 to 125	42 nd SC/1 st SRSCT	Bus	1 st SRSCT: agreed for implementation.
	Madhugiri	63 to 125	42 nd SC/1 st SRSCT	Bus	1 st SRSCT: agreed for implementation.
	Dharmapuri	125	42 nd SC/1 st SRSCT	Bus	1 st SRSCT: agreed for implementation.
	Hiriyur	125	42 nd SC/1 st	Bus	1 st SRSCT: agreed for

			SRSCT		implementation.
	Pugalur	125	42 nd SC/1 st SRSCT	Bus	1 st SRSCT: agreed for implementation.
	Pugalur HVDC	2 x 125	42 nd SC/1 st SRSCT	Bus	1 st SRSCT: agreed for implementation.
APTRANSCO	Vemagiri	125	36 th SC	Bus	December 2017 – LOA issued on 18.06.2017
	Kurnool	125		Bus	December 2017 – LOA issued on 18.06.2017
	Kalpaka	125		Bus	2018-19. PO issued on 18.06.2016
	Chittoor	125	39 th SC	Bus	APERC approval awaited
	Vijayawada	125	39 th SC		It was noted that a separate reactor at Vijayawada in scope of AP had been identified. The exact location could be firmed up by APTRANSCO.
	Uravakonda	125	42 nd SC	Bus	
	Uravakonda	80			42 nd SCSPSR
	Jammalmadugu	80			42 nd SCSPSR
	Sattenapalli	125			42 nd SCSPSR
	Aspiri	2 x 125		Bus	
	Mylavaram (Kadapa)	125		Bus	
	Talaricheruvu (Ananthapuram)	125		Bus	
	Rachagunneri	125	42 nd SC/1 st SRSCT	Bus	1 st SRSCT: agreed for implementation.
Hindupur	80 to 125	42 nd SC/1 st SRSCT	Bus	1 st SRSCT: agreed for implementation.	
APGENCO	VTPS Stage IV	125	39 th SC	Bus	Fresh tenders opened on 28.03.2016.
	Polavram HEP	2 x 125	42 nd SC	Bus	

KPTCL	Davanagere	125	39 th SC		33rd TCC: Approved in TCCM, estimate under preparation.
	Talaguppa	125	39 th SC		
	C N Halli	2 x 125	42 nd SC/ 1 st SRSCT	Bus	1 st SRSCT: KPTCL consent for the reactor implementation.
	Jagalur	2 x 125	42 nd SC/ 1 st SRSCT	Bus	33rd TCC: C N Halli – Land identified. Jagalur – Work under progress.
KPCL	Yeramarus	125	42 nd SC/ 1 st SRSCT	Bus	
	Bellary	2 x 125	42 nd SC/ 1 st SRSCT	Bus	
KSEBL	Wayanad	125	42 nd SC/ 1 st SRSCT	Bus	1 st SRSCT: agreed for implementation.
TANTRANS CO	Almathy	125	39 th SC		Specification under process
	Manali	125	39 th SC		
	Kayathar	125	39 th SC		
	Kamuthi	2 x 80			42 nd SCPSR
	Virudhnagar (765 kV)	2 x 330	42 nd SC	Bus	
		2 x 330	42 nd SC	Line	
	Coimbatore (765 kV)	2 x 240	42 nd SC	Line	
	Kayathar	125	42 nd SC	Bus	
	Kamuthi	125	42 nd SC	Bus	
	Thappagundu	125	42 nd SC	Bus	
	Kadaladi	125	42 nd SC	Bus	
	Parali	125	42 nd SC	Bus	
	Arni	2 x 125	42 nd SC	Bus	
Velalividu	125	1 st SRSCT: agreed for implement ation.	Bus	1 st SRSCT: agreed for implementation.	

	Rasipalayam	63		Bus	2018-19
	Edayarpalayam	2 x 125		Bus	
TSGENCO	KTPP	125	1 st SRSCT: agreed for implementation.	Bus	
TANTRANS CO/ TANGEDCO	Mettur	125	39 th SC		2018-19. To be diverted from Palavadi and works to be taken up.
TSTRANSCO	Asupaka	80			42 nd SCSPSR
	Suryapet	125	42 nd SC/1 st SRSCT	Bus	1 st SRSCT: agreed for implementation. TSTRANSCO may implement reactors at Tippapur, Kamalapuram, Manikonda and Yellampalli in first phase
	Raidurg	125	42 nd SC/1 st SRSCT	Bus	
	Kamalapuram	125	42 nd SC/1 st SRSCT	Bus	
	Narsapur	125	42 nd SC/1 st SRSCT	Bus	
	Maheshwaram	125	42 nd SC/1 st SRSCT	Bus	
	Tippapur	125	42 nd SC/1 st SRSCT	Bus	
	Manikonda	125	42 nd SC/1 st SRSCT	Bus	
	Jangaon	125	42 nd SC/1 st SRSCT	Bus	
	Choutuppal	125	42 nd SC/1 st SRSCT	Bus	
Yellampalli	125	42 nd SC/1 st SRSCT	Bus		
TSTRANSCO	2nd Reactor at Dindi in place Srisailam LB	125	1st SRSCT	Bus	
NPCIL	Kaiga	2 x 125		Bus	One reactor by December 2019. 2 nd reactor soon after 1st

					reactor. Action had been initiated for the 2 nd 125 MVAR reactor.
UPCL	Udupi	2 x 125			41 st SCPSR: It was informed that the requirement was assessed based on system studies, therefore, it was decided that the decision taken in 39 th SC Meeting may be implemented.
	In the OCCM, KPTCL had informed that Planning section had communicated to PCKL in this regard and PCKL would take a call.				
NLC	NLC TPS-II 2 nd Expansion	125	42 nd SC	Bus	

- Regional entities to implement the steps to contain the rise in the voltages in their respective control area stations as given below:
 - Ensure Bus reactors and Line reactors are switched in.
 - Capacitor banks especially at high voltage areas are switched off.
 - Optimizing the GT and ICT tap positions as per the advice of SRLDC/SRPC.
 - Tap optimization at lower voltage levels to be carried out by STU/SLDC in coordination with DISCOMs.
 - All the generating units on bar to absorb reactive power as per their capability limits.
 - Operate generating units on synchronous condenser mode for VAR absorption, whenever feasible.
 - Release loads in high voltage areas keeping in view the drawl of the control area.
 - Maintain drawl from grid close to schedule.
 - Operate available hydro units on pump mode in high voltage nodes keeping in view the drawl of the control area.
 - Load re- arrangement, wherever feasible, may be taken up to optimize loading on trunk lines.
 - Line opening would be the last resort by SRLDC after receipt of message from the constituents.
 - Concerted action/follow up by SLDC.

Table XI- Capacitor Installation

Utility	Reactive Power Planning	Voltage level	Remarks
APTRANS CO	Kadapa: 151.2 MVAR Vijayawada: 144 MVAR	On 33 kV side	57.6 MVAR commissioned 21.6 MVAR commissioned

	Visakhapatnam: 165.6 MVAR		14.4 MVAR commissioned
APSPDCL	640 MVAR		24 MVAR commissioned
APEPDCL	234 MVAR		210 MVAR commissioned.
KPTCL	Bengaluru Tr. Zone: 784 MVAR	12.1 kV	0 MVAR commissioned
	Bagalkot Tr. Zone: 118.9 MVAR	12.1 kV	58 MVAR commissioned
	Hassan Tr. Zone: 75.4 MVAR		17.4 MVAR commissioned
	Mysore Tr. Zone: 29 MVAR		0 MVAR commissioned
	Gulbarga Tr. Zone: 81.2 MVAR		52.2 MVAR commissioned
	Tumkur Tr. Zone: 255.2 MVAR	12.1 kV	69.6 MVAR commissioned.
TSNPDCL	288 x 2 MVAR		285 x 2 MVAR
	110 x 1 MVAR		110 x 1 MVAR commissioned
TSSPDCL	223 x 2 MVAR		111 x 2 MVAR
	48 x 1 MVAR		37 x 1 MVAR commissioned
KSEBL	360 MVAR	66 kV	Works will be taken up after approval.
		11kV	
TANGED CO	34 X 2.4 MVAR ,11 KV	11 kV	Work not yet completed. Court case is filed by the company (executing the works) vide WP No.25515 of 2018.
	16X 2.4 MVAR , 22 KV	22 kV	16 X 2.4 /22 KV - 16 Nos Commissioned
	11 KV 2MVAR - 94 sets	11 kV	IPDS - Tender opened on 29.08.18 and Price bid opened on 12.10.2018 and under negotiation
	13 X 24 MVAR , 110 kV	110 kV	PO placed on M/s Shreem Electric Ltd and under execution.
	11 kV 2MVAR - 78 sets	11 kV	DDUGJY - Tender opened on 06.09.18 and Price bid

			opened on 12.10.2018 and under negotiation
	82 Sets of 11 KV, 2.4 MVAR capacitor Bank in Coimbatore region	11 kV	Instead of 183 sets (82+101) quantity revised as 68 (67+1) as per NLDC remarks for Coimbatore and Erode Regions respectively. DPR submitted to PSDF, Delhi,
	11/22 kV 2.4 MVAR 101 sets - Erode region	11/22 kV	
	11/22 kV 2.4 MVAR 32 sets - Vellore region	11/22 kV	Quantity revised as 30 sets based on NLDC remarks. DPR submitted to PSDF, Delhi.
	75 sets of 2.4 MVAR 11/22 kV- Trichy, Villupuram, TVL, MDU, CNI(S)	11/22 kV	Quantity revised as 49 sets based on NLDC remarks. DPR submitted to PSDF, Delhi.

Table –XII- ERS status

Transmission Utility	Requirement as per MoP	Existing	Status/Remarks
APTRANSCO	3	2	ERS III- In the Meeting APTRANSCO informed that Proposal for PSDF fund had been rejected and is planned to procure under R & M works.
TSTRANSCO	1		Being retendered. Subsequently, it would be taken up for PSDF funding.
KPTCL	2	2	
KSEBL	1		In the 147 th OCC Meeting KSEBL confirmed that they are moving ahead with the proposal.
TANTRANSCO	2		As per Minutes of BLTC held on 03.01.2017, Procurement is put on hold
PED	NIL	NIL	

PGCIL	4 (2 Nos. Additional)	4 (SR I & SR II is having 2 no. Each)	765 KV ERS (one each for SR-I and SR-II) tendering under progress.
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Table –XIII- Generating Units- Under Progress

Central Sector

Station	Unit	Installed Capacity MW	Scheduled date of synchronizing / commissioning	Remarks
NTPC				
Telangana STPP Phase I		2 x 800	33rd TCC: U-I CoD August 2020(Synchronizati on by Mar 2020) U-2 CoD Nov 2020(Synchronizati on by May 2020)	33rd TCC: MoP has allocated 85 % to Telangana and 15% retained as unallocated subjected to approval of competent Authority.
Pudimadaka AP		4 x 1000	52 Months from Zero Date	85% share to AP. Zero date yet to be finalized. AP had requested NTPC to firm up the zero date at the earliest.
			31st TCC: NTPC had informed that the domestic coal was yet to be tied up. Within two months, the status would be communicated. CTU informed that there was no connectivity / LTA application pending with them. 33rd TCC: GoK vide letter dated 19.07.2018 had sought status on share of allocation of power from Pudimadaka and Ramagundam Stage IV (rechristened as Telangana STPP Phase-I) NTPC informed that MoP has allocated 50% to home state (AP) and balance allocation has to be made.	
NLC				
New Thermal	I	500	33rd TCC :	

Power Project			COD by March 2019	
	II	500	33rd TCC : June 2019	
	CEA (May 2018): LILO of Neyveli – Puducherry by July 2018, New Neyveli TPP - Ariyalur (Villupuram) by July 2019.			
TPS –II 2 nd Expn	1 & 2	2 x 660		42 nd SCSPSR: Seeking connectivity for 1320 MW w.e.f. 01.04.2021
NPCIL				
KKNPP	3 & 4	2 x 1000	32nd TCC U3: 2023 U4: 2024	41 st SCSPSR: CTU had informed that they had not received any LTA application from NPCIL for Kudankulam - 3 & 4 units. Any system strengthening would be planned on receipt of the LTA application based on proper studies.
BHAVINI				
Kalpakkam (PFBR)	I	500	33rd TCC: March 2019	
UMPP				
Krishnapatnam		3960 (6 x 660)	32 nd SRPC: CMD, APTRANSCO had informed that several Meetings had been held with beneficiaries and coastal UMPP. In the present scenario, the usefulness of this project for beneficiaries was limited. In the meeting it had been decided that since the matter was pending before Delhi High Court, it was appropriate to file a Petition for Expeditious Hearing. However after seeking legal opinion, a SLP before Hon'ble Supreme Court was contemplated seeking directions to Delhi High Court to kindly expedite and pass Orders at the earliest.	

	32nd TCC: AP informed that after discussing with the beneficiaries, an Expeditious Petition was contemplated before Hon'ble Delhi High Court (before approaching Hon'ble Supreme Court). The petition was likely to be heard in the month of March 2018.		
Cheyzur		4000	New bids would be called
	<p>33rd TCC:As per the latest policy of GOI the issues regarding conversion of the originally envisaged Cheyyur UMPP utilizing imported coal to domestic coal UMPP is under discussion by MOP/ GOI. The CEA has indicated a requirement of additional land of 767 acres if domestic coal is to be utilized. The District / collector Kanchipuram has been addressed by the Secretary/Energy Department in this regard.</p> <p>In line with GOI policy for using domestic coal in place of Imported coal, the bidding documents are being revised and the bidding process will be commenced by Ministry of Power.</p>		

**Table-XIV
RGMO status extension to SLDC/SRLDC**

State/Entity	RGMO Status extension to SLDC/SRLDC	Comment
TS	Thermal updated. Hydro Manually updated at the TSSLDC	TSTRANSCO is requested to take up the issue with GENCO and solve the issue
KAR	RTPS-4, Supa and LDPH	RTPS Unit IV: will be made available during R & M works. LDPH: Carried out the works. Complete wiring is over. Extended upto SLDC. Supa: yet to be carried out.
KER	Sholayar	Sholayar: One unit is out of service and is undergoing Renovation and RGMO/FGMO with MI will be available when the unit is put back after Renovation. The Renovation of other two units will be carried out subsequently.

TABLE-XV Load shedding

The following was informed by constituent states for month of December 2018:

State/UT	Load shedding in MU	Max load shedding in MW	Bilateral Purchases import (+)/export (-)	Comments

			in MU	
AP	0	0	1091/411	
TS	0	0	1283/255	Agricultural supply is extended to 24 hours in all the districts from 1 st January 2018.
KAR	0.00	0	266/131	
KER	6.125	300	882/13	
TN	0	0	1880/11	
PED	0.00	0		

Data to be submitted

	Data to be furnished	By whom	To whom	Frequency	Comments
1	OCC approval requests for Generation Units Outages	Generators	SRPC/SRLDC	3 rd of every month	Planned Outages of CGS/ISG stations/MPPs approved for the month of January/February 2019 are enclosed at <i>Annexure-I</i>
2	ISTS/State Sector Transmission Lines and Elements Outage Proposals	Transmission Licensees/Generators	SRPC/SRLDC	3 rd of every month/Mid review by	Outage proposals for the months of January/February 2019 in respect of Central and State Transmission lines and elements were approved and posted on SRPC website (http://www.srpc.kar.nic.in/website/2017/operation/plout1147occ.xls).
An outage coordination group had been created (sr_outage_coordiantion@googlegroups.com) for review of the previous OCC approved shut downs (construction/critical).					
3	Availed and non-availed transmission elements report	SRLDC	Requestors/SRPC	3 rd of every month	
4	Comments/Reasons for non-availing the shut down.	Transmission Licensees/Generators	SRPC/SRLDC	6 th of every month	

5	Annual Outage plan schedule vs Actual maintenance	All Generators	SRPC	Monthly	Information is required for the Annual Outage Plan Deviation Report being submitted to CERC. (CGS, State & IPPs) and Transmission Licensees
6	<i>Reasons for demand-supply gap and its variations</i>	Constituents	SRPC for further communication to MoP/CEA	Every month along with PSP	MoP/CEA specifically needed the reasons for load shedding like transmission constraints, distribution constraints, regulatory constraints viz the power purchase not allowed beyond an agreed cost or quantum, natural calamities, tripping of some of major transmission lines etc. Even if load shedding is zero a 'Nil' report needed to be furnished on monthly basis.
7	LS(In MU/MW)	States	SRPC/SRLDC	Monthly	Refer Table XV
8	Bilateral Purchases	states	SRPC/SRLDC	Monthly	
9	Installation/healthy capacitors	All Constituents	SRPC/SRLDC	Monthly	Installation & ensuring healthiness of capacitor banks at distribution level should be ensured by all the constituents.
10	MVAR Interchange/MVAR capability testing	All Generators/SLDCs	SRPC/SRLDC	4 th of every month	All the SLDCs to kindly monitor VAR absorption/injection of generating units in their respective control areas in real-time. Order of Hon'ble CERC dated 23.12.2009 merited attention in this regard. All agencies needed to provide required reactive compensation thus avoiding the need for exchange of reactive power to/from ISTS and maintain ISTS voltage within specific range.
11	AUFR & df/dt schemes	All constituents	SRPC/SRLDC	Updates if any changes	Details of the feeders implemented in AUFR & df/dt schemes along with the status of SCADA mapping as per the specified Formats.
12	detailed report of operation of AUFR	All constituents	SRPC/SRLDC	Daily basis	In accordance with clause 9 (2) of CEA (Grid Standards) Regulations, 2010. It was noted that only KSEBL and PED were submitting the daily report regarding operation of relays.
13	Upcoming Wind/Solar Projects	All Constituents	SRPC/SRLDC	Monthly	Procedure for RE Frameworks had been notified and is available at NLDC website. Progress of works of RE Generators and evacuation system are available in the minutes of the LVRT/RE Meeting held on 25.10.2017.
14	Outage	All	SRPC/	Monthly	Outage plan deviation Generating Units/Transmission

	deviation report	States/Entities	SRLDC		Elements of Southern Region needed to be submitted by all the concerned which is to be communicated to Hon'ble CERC.
15	Power Supply to Rural Areas	All DISCOMS	SRPC	First week of the month for previous month.	In the Meeting held at MoP on 09.04.2014 it had been decided to collect the data invariably from DISCOMs. It is requested that the data in this regard in the required format may please be arranged to be communicated to SRPC Secretariat at the following E-mail addresses: mssrpc-kar@nic.in / seoprnsrpc@kar.nic.in
16	Status of implementation of the recommendations of the Enquiry Committee			3 rd and 17 th of every month	
17	Energy Generation data Management from Renewable Energy Sources	All the states	To CEA with a copy to SRPC	Monthly	Information furnished by states as on 31.12.2018 is at <i>Annexure-II</i>
18	Power supply hours in various States/UTs (Rural and Urban areas)	All States	SRPC	Monthly	For Replying to Parliament Questions: CEA Requirement
19	Physical and Cyber Security/Crisis Management Plan/Black Start Procedure		CEA/SRPC	Quarterly	Cyber Security: To be furnished to Chief Engineer, DPD, CEA, Sewa Bhavan, New Delhi-110066. Physical Security, other Mock Drills for CMP, Mock Drill for Black Start Restoration: Chief Engineer, DMLF, CEA, SewaBhavan, New Delhi-110066. Information required by CEA (vide letter dated 26.11.2013) regarding Security of power installations was to be furnished to CEA.
20	Declaration of availability and healthiness of various protection / defense	All States	SRLDC /SRPC	Monthly	Validated certificates needed to be communicated in a timely manner.

	mechanism				
21	Tripping Details/Reports	All the concerned	SRLDC		Within 24 hrs as per IEGC/CEA regulations. Para 29 of Hon'ble CERC Order dated 20.02.2014 in respect of Petition No.146/MP/2013 was brought to attention of the OCC.
22	Compiled Telemetry status	Utility wise	<i>As directed by Hon'ble Commission</i> Hon'ble Commission vide order dated 19.12.2013 on Suo-moto petition No. 56/SM/2013 had directed all the utilities to provide the required telemetry within six months of this order. It was requested that MAPS, KGS & KKNPP may please furnish the compliance status of pending SCADA inputs the earliest. Details in this regard were available on SRLDC web site. For KKNPP only 2 points are pending w.r.t GT tap position. Re-tendering was going on and it will take 5 more months to complete the works.		
23	Prolonged outage	States	SRPC/SRLDC	Monthly	All constituents were requested to convey the schedule of revival for the elements under prolonged outage to SRPC, which was to be reported to Hon'ble CERC on monthly basis. (CERC Order on petition no 146/MP/2013).
24	Nodal Officer list : Disaster Management	All utilities	SRLDC	Update	The updated status as per the information available with SRLDC has already been shared.
25	Presentation on Operational Issues	States/Entities	SEPC/SRLDC	5 th of Every month	