

<p>भारत सरकार केंद्रीय विद्युत प्राधिकरण दक्षिण क्षेत्रीय विद्युत समिति बेंगलूर- 560 009</p>	 सत्यमेव जयते	<p>Government of India Central Electricity Authority Southern Regional Power Committee Bangalore- 560 009</p>	
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<p>सं/No.</p>	<p>SRPC/SE(O)/163<sup>rd</sup> OCC/2019-20</p>	<p>दिनांक/ Date</p>	<p>30.12..2019</p>

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

प्रचालन समन्वय समिति की 163 वी बैठक की कार्यसूची ।

AGENDA FOR THE 163<sup>rd</sup> MEETING OF THE OPERATION COORDINATION COMMITTEE

महोदय / Sir,


दक्षिण क्षेत्रीय विद्युत समिति की प्रचालन समन्वय समिति की 163 वी बैठक दिनांक 09 जनवरी 2020 (गुरुवार) को बेंगलूर में आयोजित होगी। बैठक की कार्यसूची आपके अवलोकनार्थ हमारा वेबसाइट [www.srpc.kar.nic.in](http://www.srpc.kar.nic.in) में अपलोड किया गया है।

समीक्षा तैयार करने हेतु आपकी प्रणाली से संबंधित आंकड़े को कृपया दिनांक 03 जनवरी 2020 तक भेजने की कृपा करें।

The agenda for the 163<sup>rd</sup> Meeting of the Operation Coordination Committee to be held on 09<sup>th</sup> January 2020(Thursday) at 10:00 hours at SRPC, Bangalore is uploaded in our office website [www.srpc.kar.nic.in](http://www.srpc.kar.nic.in) for your perusal.

Kindly arrange to send the data in respect of your system latest by 03<sup>rd</sup> January 2020 to enable this office to prepare review sheet etc.

भवदीय / Yours faithfully



(असित सिंह / ASIT SINGH)

(अधीक्षक अभियंता / SUPERINTENDING ENGINEER)

**Southern Regional Power Committee Bengaluru**  
**Agenda for the 163<sup>rd</sup> Meeting of Operation Coordination Committee**  
**to be held on 09.01.2020 at SRPC Bengaluru**

1 Confirmation of the Minutes of the 162<sup>nd</sup> Meeting of OCC of SRPC conducted on 10<sup>th</sup> December 2019 at SRPC, Bengaluru.

1.1 **Amendment to point no 3.47 of 161<sup>st</sup> OCC meeting minutes (by SRLDC)**

- SRLDC in its agenda dated 30.12.2019 had requested for the following amendment for 162<sup>nd</sup> OCC Minutes:

➤ For point no 3.47 **URS availability of other regions**

**Recording as per minutes:** — “It was noted that URS availability of WR was not visible after the LC/PS mechanism. SRLDC stated that they are working on it.”

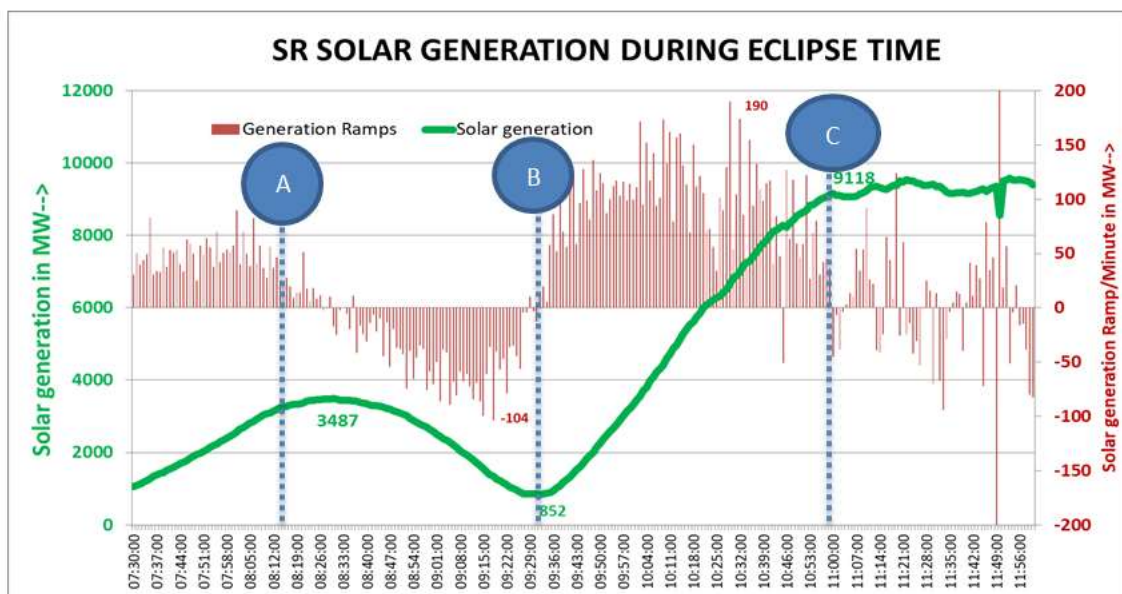
**Amendment requested as:**

“URS availability of WR is visible to all the constituents from the beginning, only direct entry by constituents is restricted to avoid scheduling beyond inter regional ATC.”

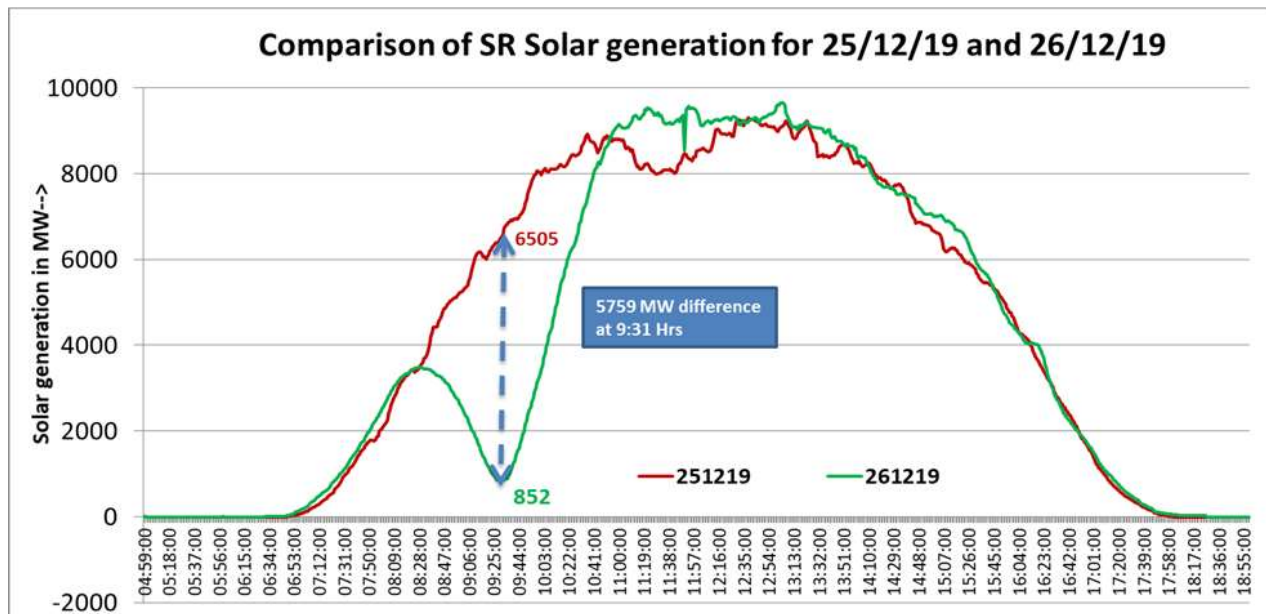
2 **MAJOR ISSUES**

2.1 **Solar eclipse on 26<sup>th</sup> December 2019: Sharing of experience**

- India has experienced annual solar eclipse on 26<sup>th</sup> December 2019. As per estimation main path of eclipse passed through Southern Region (SR) covering more than 80% of Sun at all major solar park locations of SR. Southern region solar generation from 07:30 Hrs to 12:00 Hrs is plotted below which includes eclipse period (08:06 Hrs to 11:17 Hrs approx.)



- Solar generation reduced from 3487 MW to 852 MW and then increased from 852 MW to 9118 MW, total shortfall of solar generation compared to 25<sup>th</sup> December is 5759 MW. SR solar for 25<sup>th</sup> and 26<sup>th</sup> December 2019 plotted below.



***SRLDC/SLDCs may present the operational experience on the same so that preparation for future events can be done based on the same.***

## **2.2 SCED: Suggestions by APTRANSCO for modification in the procedure: for submitting to CERC from RPC side**

- NLDC had issued the provisional National Net SCED benefits distribution statement to both generators and beneficiaries for the months of April to June 2019. APTRANSCO after analyzing these statements had observed that there are various commercial implications only to the beneficiaries rather than to the SCED generators because of SCED optimization. It is noted that the generators are given all the compensations for detrimental generation and variable charges for incremental generation but beneficiaries are being loaded with additional transmission losses and transmission charges in future(as per Regulations,2019 on Sharing of Inter – State transmission charges and losses-Draft). Hence the net benefits accrued in the SCED scheme are to be passed on to the beneficiaries only not to the generators. Further the net benefits shall be shared among the beneficiaries who have scheduled more costly power from the SCED generator in proportion to their scheduled energy from the generator. APTRANSCO vide letter dated 13.12.2019 (***Annexure-2A***) had requested SRPC to kindly take up these issues/suggestions with CERC.

## **2.3 Frequent reduced Voltage Operation of HVDC Talcher-Kolar Bipole.**

- NLDC vide letter dated 18.12.2019 (***Annexure-2B***) had listed out the following regarding the RVO mode of operation of Talcher-Kolar HVDC LINK:

- ✚ Talcher-Kolar HVDC LINK is being taken under Reduced Voltage mode of Operation (RVO) during early morning hours on a daily basis. The RVO mode is being taken reportedly on request by substation as a preventive measure without any observation of DC line fault. There are no indications observed from Phasor Measurement Unit (PMU) at NLDC/RLDC which may be associated with DC line faults in the HVDC bipole.
- ✚ The RVO mode operation results in reduction of power transfer capacity of HVDC bipole (upto 1600 MW) and to be precise effective reduction of approx. 400 MW from rated capacity (2000 MW) and 900 MW from inherent overload capacity (2500 MW). This reduction in capacity coincides with morning power demand ramp up of southern region. The import of Southern Region (SR) during this period is at maximum and almost reaching its Available Transfer Capacity (ATC).
- ✚ The transmission path is already congested owing to frequent and long outage of HVDC Bhadravathi Block-1 of capacity 500 MW.
- ✚ The congestion in the transmission path has caused the split in the prices discovered at power exchange on 13<sup>th</sup> Dec 2019.
- ✚ There was violation of ATC limit in import of SR for 28<sup>th</sup> time block (7 am morning) on 13<sup>th</sup> Dec 2019.
- ✚ The demand of Southern Region (SR) is expected to be on increasing trend and during the Jan-Mar months. The operation of HVDC on RVO mode results not only in congestion of transmission corridor but also to loss of an important control for real time system operator especially to handle system contingencies.
- ✚ NLDC requested PGCIL requested that concerned may be advised to take appropriate measures to ensure the healthiness of HVDC bipole.
- It is to be noted that as per Appendix-II, Procedure for Calculation of Transmission System Availability Factor for a month, computation of TAFMn for HVDC system would be computed considering, '*total actual operated capacity of HVDC pole*'. Accordingly, the RVO mode of operation at reduced capacity will have impact on availability factor also.

#### 2.4 ***Invitation of comments on the 'Guidelines for the Validity Period of Type Test(s) conducted on Major Electrical Equipment in Power Transmission System'***

- CEA vide letter dated 26.12.2019 (***Annexure-2C***) had informed that a meeting was held in CEA with power utilities and electrical equipment manufacturers on 10.09.2018 to deliberate and standardize the duration of validity of type tests conducted on transmission system equipment. All manufacturers and utilities emphasized the need of a uniform guideline in this regard across the utilities in the country as this is unnecessarily leading to wastage of national resources, time & money and increased in burden on manufacturer and cost to the end consumers. It was decided that draft Guidelines on the same will be prepared and comments will be invited from

stakeholders. Based on deliberation, draft Guidelines have been prepared. ***All the Utilities/Manufacturers/other Stakeholders requested to send their comments/observations/suggestions on the draft by post or through email ([faraz@nic.in](mailto:faraz@nic.in)) latest by 31.01.2020.***

## **2.5 Hunting on KTPS Unit 9**

- TSTRANSCO vide letter dated 19.12.2019 (***Annexure-2D***) had informed regarding the hunting on KTPS-U9 & KTPS-U10 experienced around 12:30 PM on 15.12.2019 & 08:00 hours on 17.12.2019. The problem was identified at Lower Sileru –U1 and Unit was deparallelled immediately by AP. Further it is noted that, the hunting was suppressed at KTPS-Vth stage. The issue was communicated to APSLDC for further investigation.
- TSTRANSCO had requested APTRANSCO to investigate the matter and avoid synchronization of suspected Unit.

## **2.6 Issues in SAS installed at 400 kV Nellore Substation for MEPL/SEPL bays**

- SAS (Substation Automation System) was installed for MEPL & SEPL bays at Powergrid 400 kV bays at Nellore during the year 2011. Initially SAS system was commissioned with SEPL & MEPL bays and subsequently Nellore-Tiruvalam lines were terminated in the same dia and integrated to SAS.
- Microsoft has announced end life of MS Windows server 2008 R2 and Windows 7 operating systems from January 2020 onwards on which these SAS is working. Also there was continuous breakdowns and non reporting of SAS due to the aged hardware and software. PGCIL vide letter dated 13.12.2019 (***Annexure-2E***) requested MEPL & SEPL to confirm the replacement action initiated as requested. In case of further delay in rectification of SAS system PGCIL will be compelled to initiate necessary corrective action at MEPL & SEPL's cost.

## **2.7 Revival of Kudgi Unit from RSD: for consideration of states**

- SRLDC vide letter dated 13.12.2019 (***Annexure-2F***) had requested all the states to consider bringing back of Kudgi units from RSD observing increasing trend of Regional Demand. It was observed that SR states were overdrawing in the range of 600-1000 MW during peak hours and even physical regulation measure (First Stage) was implemented on 10.12.2019. Also on 13.12.2019 market split had been occurred in NEW-SR Grid during morning peak hours due to congestion.

## **2.8 NNTPP: COD from 00:00 hours of 28.12.2019**

- NLCIL vide letter dated 26.12.2019 had informed that as per CERC Regulations the 72 hours continuous trial run to prove the maximum continuous rating of Unit –I of NNTPP(500 MW) had been carried out from 23:30 hours of 16.12.2019 to 03:30 hours of 20.12.2019. COD of the unit is declared from 00:00 hours of 28.12.2019. Acknowledgement of trial run operation had been issued by SRLDC vide letter dated 26.12.2019. CTU vide letter dated 20.12.2019 (***Annexure-2G***) had informed that part

LTA of 157 MW is being operationalized w.e.f 22.12.2019 as per terms and conditions.

- SRPC vide letter dated 27.12.2019 (**Annexure-2H**) had informed the COD of NNTTP Unit I to CEA.

#### 2.9 **High Loading of Hiriyur- Nelamangala(SRLDC agenda item-1(c)**

- SRLDC vide letter dated 27.12.2019 (**Annexure-2I**) had informed that the 400 kV Hiriyur –Nelamangala kV D/C line is experiencing higher loading during December 2019 closer to its N-1 security criteria limit. As per the real time SCADA data, with less generation at UPCL and high wind and Solar generation, the flow on 400 kV Hiriyur – Nelamangala D/C line is severely high and will further increase if BTPS Generation is full. This will compromise the security of Karnataka and Kerala grid and specifically Bengaluru, Mysore and Kozhikode regions. The 400 kV Hiriyur –Nelamangala D/C line being a critical line, it is suggested that the following actions to mitigate the line loading be taken up urgently.
  1. Maximization of hydro generation at Varahi, Sharavathy hydro complexes.
  2. Maximization of UPCL generation as and when necessary
  3. Ensuring optimal loading on parallel 220 kV Network.
- It is important to ensure that the SPS for outage of one circuit of the 400 kV Hiriyur – Nelamangala D/C line is fully operational. Mock exercise for testing the SPS may also be carried out at the earliest and the results may be intimated to SRLDC/SRPC.
- *In the 162<sup>nd</sup> OCC Meeting*, SR II had informed that 400 kV Hiriyur-Mysore line would be commissioned by March 2020 (Original schedule – December 2019). They are trying to complete the works by January 2020.
- OCC had requested PGCIL to complete the works at the earliest as LTA operationalization of Pavagada SPDs was linked to commissioning of these lines. PGCIL needs to take this issue seriously since SPDCs scheduling by SRLDC will be held up.

#### 2.10 **Frequent tripping of Nellore-Sriperumbudur 400 kV line-2(SRLDC agenda item-1(b)**

- SRLDC vide letter dated 23.12.2019 (**Annexure-2J**) had informed that has been frequent tripping of Nellore-Sriperumbudur 400 kV line-2 on ‘Over Voltage Protection Stage-1’ in the past few months. As per the information gathered, the tripping got initiated at Nellore 400 kV station end and there was Direct Trip (DT) receipt at Sriperumbudur end. It is a matter of concern that the tripping has been occurring at a much lower voltage between 419 kV to 424 kV at Nellore end (which is 105 to 106% of nominal voltage) as observed from SRLDC SCADA system.
- As per the SRPC document dated 01.02.2018 on “Adoption of Over Voltage relay (OVR) Gradings for 400 kV / 765 kV Transmission lines of Southern Region”, the over voltage protection settings at Nellore and Sriperumbudur 400 kV are as follows:

Sl. No.	Station	Element Name	Over Voltage Setting				
			Stage-1			Stage-2	
			Over Grading	% of nominal voltage	Time (secs)	% of nominal voltage	Time (secs)
1	Nellore 400 kV	Nellore-Sriperumbudur line-1	C	110	9	140	100
2	Nellore 400 kV	Nellore-Sriperumbudur line-2	G	109	6	140	100
3	Sriperumbudur 400 kV	Sriperumbudur -Nellore line-1	B	111	9	140	100
4	Sriperumbudur 400 kV	Sriperumbudur -Nellore line-2	G	109	6	140	100

Note: Drop Off to pick up ratio should be greater than 0.97.

- SRLDC had requested PGCIL SR I & SR II to look into the matter and arrange to rectify the same.

#### 2.11 Annual Outage Plan of Singareni TPP Project Unit –I

- SCCL vide letter dated 20.12.2019 (**Annexure-2K**) had requested SRPC to consider the Unit I AOH of STPP in the month of March 2020.
- SRPC vide letter dated 30.12.2019 (**Annexure-2L**) had requested STPP to kindly coordinate with TSSLDC and finalize the dates preferably during June 2020 or if possible during January 2020 and confirm to TSSLDC/SRPC urgently.

#### 2.12 Status of URTDSM PMU shifting as agreed in the 36<sup>th</sup> SRPC Meeting

- Shifting of PMUs(considering the requirements of SR Grid in view of large integration of RE and commissioning of LI projects) had been discussed in the 156<sup>th</sup>/157<sup>th</sup> OCC Meetings and subsequently in 36<sup>th</sup> SRPC Meeting held on 12.07.2019. The proposal for shifting of PMUs was also brought out. SRPC had approved that the charges towards shifting of PMU would be booked by PGCIL under O&M or any other project.
- SRLDC vide letters dated 25.11.2019 had expressed concern regarding the delay in shifting of PMUs as agreed in the SRPC Meeting. After discussion in the 162<sup>nd</sup> OCC the following were noted regarding this:
  - 🚩 SR I had informed that PMU from Srikakulam had been shifted to Hyderabad (Ghanapur) (STATCOM) and PO for commissioning works had been given to M/s GE and commissioning is expected by 15<sup>th</sup> December 2019.
  - 🚩 APTRANSCO/TSTRANSCO had assured of required support at their end. Advance information needed to be communicated by PGCIL.
  - 🚩 SR I & SR II had agreed to take up the other proposals of adding feeders to existing PMUs (Karaikudi (SR-II), Narnoor & Mahboobnagar (SR I)).



- ✚ SR I had stated that the discussions in the OCC would be communicated to the Higher Management.

### 2.13 **Outage of SCADA data of RTUs**

- SRLDC vide E-mail dated 15.11.2019 had informed regarding the continuous outage of SCADA data of 104 protocol RTUs. Some of the RTUs have been revived and are reporting to main SLDC. The data of all 104 protocol RTUs are not reporting to SRLDC back up control room.
- The following were noted after deliberations in the Meeting:
  - ✚ SRLDC had expressed concern on continuous outage of SCADA data of 104 protocol RTUs. NLC TS II Expansion data was not updated since one and a half month.
  - ✚ SR II had informed that the problem had been observed during reconfiguration while upgrading of RTU protocol from 101 to 104. Support from SRLDC was also required to resolve the issues. The issues would be resolved within 15 days.
  - ✚ NLCIL and SRTS II had agreed to resolve the NLC TS II Expansion issues within one week.
  - ✚ SRLDC had suggested PGCIL to hold up the works of upgrading of RTUs to 104 protocols till the current issues are resolved.
- SRLDC vide E-mail dated 31.12.2019 (**Annexure-2M**) had furnished additional agenda regarding Non reporting of SCADA data from NLC TS II Expansion and Simultaneous outage of 104 RTUs.

### 2.14 **RSD Procedure- TSTRANSCO proposal**

- TSTRANSCO vide letter dated 03.12.2019 had furnished certain cases to be considered for taking out generating units under shutdown (surrendered quantum by single beneficiary/multiple beneficiaries is equivalent to ex-bus capacity of one unit). TSTRANSCO desired discussion on the proposal in the 162<sup>nd</sup> OCC Meeting and also preferred to submit the same to CERC.
- In the 162<sup>nd</sup> OCC Meeting, it was decided that TSTRANSCO proposal would be further discussed in the next OCC Meeting. States were requested to give their comments in this regard.

### 2.15 **Deemed availability computation of M/s STPP U1 & U2**

- TSTRANSCO vide letter dated 27.11.2019 had requested for clarification regarding availability computation of M/s STPP U1 & U2 during the disturbance occurred at 400 kV Ramaguduru substation in the month of March 2019/during PG tests :
  - Is there any timeline to consider deemed availability during black out condition other than normal hot start up time timelines
  - Is there any precedence to consider higher DC for considering PG tests in addition

❖ **The following were noted in the 162<sup>nd</sup> OCC Meeting:**



- There was no approved procedure for deemed availability (DC) for ISG stations during complete black out as it had not been defined upto which time period from the time the external power is extended to the generating station the DC can be assured.
- **NTPC/NLCIL/NTECL/NTPL stated that they would examine and revert back by next OCC.**
- The issue of considering higher DC during PG tests (TSTRANSCO query) would also be discussed in the next OCC.

## 2.16 Renewable forecasting

- As requested by OCC forum SRLDC is presenting forecast, actuals and forecast errors for wind and solar for the previous month in the OCC Meeting. All states had been requested to furnish the **implemented forecast, day ahead forecast & actuals also (before 5<sup>th</sup> of every month)**. It was noted that this data was being sought by higher forums and other entities.
- SRLDC may present forecast, actuals and forecast errors for wind and solar for the months **of December 2019**.

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

- CEA/MoP is seeking updated information in respect of implementation of revised FGD installation/ESP Up-gradation Plan and the regular updated may kindly be furnished.
- CEA vide letter dated 06.11.2019 had requested to submit the Phasing Plan for units commissioned after 31.03.2019. In SR TSTRANSCO/TSGENCO was requested to furnish the plan w.r.t Kothagudam Stage VII Unit 7(800 MW) – COD -28.12.2018.
- TSGENCO vide letter dated 11.12.2019 (**Annexure-2N**) had furnished the information.
- CEA vide letter dated 27.11.2019 enclosing MoP letter dated 01.11.2019 had enclosed the consolidated information received from various developers for their respective FGD implementation phasing plan for the left out plants. A Special Meeting was convened on 11.12.2019 at SRPC Bengaluru discuss and update on the status. Minutes has been issued on 12.12.2019. All concerned generators were requested to revert back by 20.12.2019 with comments, if any. Incorporating the comments received from NTPC & TSGENCO (no comments received from any of the generators) the final plan had been forwarded to CEA vide SRPC letter dated 27.12.2019 (**Annexure-2O**) along with the minutes of the meeting convened on 11.12.2109 for needful action at their end.

## 2.18 Disaster Management Group

- Plant Level Emergency Group (EMG) formation confirmation to be communicated by GENCOs/generators/RE generators.
- It was noted that Plant Level Nominations had been received from the following:

NTECL, Vallur	NPCIL
NTPL	Tuticorin TPS & NCTPS (TANGEDCO)

HNPCL	NTPC (All NTPC Stations including Kayamkulam).
UPCL	CEPL
KSEBL	RTPP and VTPS(APGENCO)
KPCL	

- The first Meeting of RDMG for power sector was convened on 23.10.2019 at SRPC Bengaluru. Minutes of the Meeting are available at SRPC website. SRPC vide letter dated 31.10.2019 had communicated certain issues to CEA which were to be put up to CDMG as per deliberations in the Meeting.
- MoP had convened a meeting regarding manual of electrical infrastructure for natural disaster related to SRPC on 20.08.2019. There are few actionable points which need to be complied. SRPC vide letter dated 30.09.2019 had communicated in this regard to concerned entities. The following information were requested to furnish:
  - Nodal Officers from DISCOMs / TRANSCOs*
  - Central Basic Pool material*
  - Need for communication equipment which may be maintained as centralized spares*
  - Electrical infrastructure recovery Plan*
  - Insurance/Funding*
- All concerned (Except KPTCL) are requested to take action as per the minute of the meetings held on 20.08.2019.
- Disaster Management plan needed to be / updated by all the concerned entities keeping in view the CDMP for power sector released by CEA / MoP and other guidelines etc. The same would be submitted to RDMG.

## 2.19 **Energy Scheduled inside the region and outside the region from RES**

- CE (RPM) division, CEA vide letter dated 03.06.2019 had requested for the details - "*Energy Scheduled inside the region and outside the region from RE generating station which has been given connectivity & LTA on Green Energy Corridors (both Central & State)*".
- WPDs/SPDs connected to Sub stations under Green Energy Corridor along with Installed Capacity (MW) details & corresponding schedules and actuals (from April onwards) needed to be submitted.
- KSEBL & TSTRANSCO had informed that at present they don't have any WPD/SPD installed under GEC.
- In the 162<sup>nd</sup> OCC Meeting, KPTCL had informed that they have written to Planning and RE wing requesting them to furnish the details urgently vide letter dated 19.12.2019.

- APTRANSCO had informed that they have taken up with planning wing.
- All the concerned entities to furnish the information at the earliest.

## 2.20 **Technical Specifications of Interface Meters**

- The matter regarding the finalization of technical specifications required for the Interface Energy Meters (IEM/SEM (with AMR, configurable recording intervals etc.) was deliberated in various meetings.
- It was noted that PGCIL needed to take action in compliance of SRPC decision (not to link with other issues like common specifications for all the regions etc).
- In the 160<sup>th</sup> OCC Meeting, it was agreed that parallelly Pilot SEMs could be installed to assess the performance. The final specifications for SEMs under AMR could be prepared but frozen after amendment of CEA Metering Regulations is notified.
- **In the 162<sup>nd</sup> OCC Meeting the following were concluded:**
  - ✚ SR II assured that technical specifications (including at SRLDC control Centre) would be finalized within one month. The project may be completed in one year.
  - ✚ All the states suggested PGCIL to take necessary steps to comply with SRPC decision.

## 2.21 **Data requested by CEA- Optimal Generation capacity Mix for the year 2029-30**

- CEA had communicated that a draft report on Optimal Generation Capacity Mix for the year 2029-30, which was on public domain for comments of stakeholders. One of the comment received was regarding change in Load pattern (8760 hours) due the shift of agricultural load from peak time (usually night time to afternoon time when solar is available) by many states. In this connection, it was required to analyze the impact of shifting of Agricultural load and its impact on the All India hourly demand patten in recent time.
- To analyze the impact the following data is required at stage/regional level:
  1. Hourly regional load data (in MW) of 8760 hours for the last 3 years.
  2. Year-wise, state-wise hourly agricultural load data (in MW) of 8760 hours for the last 3 years for the states which have witnessed the shifting of Agricultural electrical load from peak to off peak hours over the last few years.

### **The following were noted in the 162<sup>nd</sup> OCC Meeting:**

- ✚ Hourly regional load data (in MW) of 8760 hours for the last 3 years-**SRLDC** had furnished **SR Demand. Only AP had furnished the details among the states.**
- ✚ Year-wise, state-wise hourly agricultural load data (in MW) of 8760 hours for the last 3 years for the states which have witnessed the shifting of Agricultural electrical load from peak to off peak hours over the last few years.- All the states to furnish.
- ✚ APTRANSCO had informed that they have received data from APEPDCL and data from APSPDCL is awaited. After receiving data from APSPDCL consolidated information would be furnished.

- ✚ KPTCL had informed that they would furnish the information within 15 days (by December end)
- ✚ TANTRANSCO had informed that they would furnish the information shortly.

#### 2.22 **MoP Requirement: Updation of existing transmission system.**

- MoP had desired for information regarding existing transmission system (220 kV and above, AC and DC Voltage level) in the country as on 31.03.2019. CEA had already prepared the same and is available on the Link <https://bit.ly/33qsbqN>.
- Vide letters dated 11.10.2019 CEA had requested States (STUs) and PGCIL to update/correct the information in the file available at the above link. It was also requested to furnish the State power map and single line diagram of transmission network (to be submitted by States) and regional level power map (to be submitted by Powergrid).
- ✚ In the 162<sup>nd</sup> OCC Meeting it was noted that SR I & SR II had furnished the details. States were requested to verify and update and upload the sought information. SLDs & Power map are to be submitted separately. CEA vide letter dated 29.11.2019 had sent reminder in this regard.

#### 2.23 **Weather forecast by IMD**

- SRLDC had informed that IMD had offered that if states provide required space for installing the weather monitoring equipment at substations they will provide weather forecast information location wise to SLDCs also. When formal proposal from IMD is received, it will be put up to OCC for further direction. (SRLDC to coordinate).
- SRLDC was again requested to revert back with formal proposal after discussion with IMD.

#### 2.24 **Declaration of “Peak” and “Off-Peak” Hours in a month and high and low demand seasons**

- As per clause 42(3) CERC (Terms and Conditions of Tariff) Regulations, 2019, the hours of Peak and Off-Peak periods during a day shall be declared by the concerned RLDC at least a week in advance.
- In the 161<sup>st</sup> OCC Meeting SRLDC had projected the procedure and had explained the computation. *SRLDC was requested to come out with the sample computations for computing Peak and Off-Peak hours during wind, non-wind seasons etc. The results may be on the total demand and on total demand – RE to have more comprehensive understandings of the procedure.*
- In the 162<sup>nd</sup> OCC Meeting, SRLDC had presented the analysis considering the data from November 2018 to October 2019. It was observed that when net demand is considered peak hours are coming at 08: 00 hours to 09:30 hours and in evening 18:00 hours to 19:00 hours and when peak demand is considered peak hours are coming at day hours (solar hours).

- TS, KAR & KER agreed for **(total demand – RE)**. TN and AP stated that they would revert back.
- SRPC/SRLDC had also suggested that peak hours could be declared on net demand which will capture the need for thermal power.
- SRLDC was suggested to share the analysis to all the concerned. States/Generators were requested to revert back on the analysis. The peak hours and off peak hours may be frozen by February 2020. As per Regulation this can be reviewed weekly also.
- It was noted that SRLDC vide E-mail dated had shared the information to all the states.

## 2.25 NPCIL Units availability during peak demand period

### • The following were noted in the 162<sup>nd</sup> OCC Meeting:

- KKNPP informed that unit-II would be taken out from 15.12.2019 to 17.03.2020 and unit-I would be taken out from first week of April 2020 for 75 days.
- KKNPP informed that Unit I would be generating 900 MW based on the request of beneficiary(ies). They are in receipt of a letter from Chief Engineer, APTRANSCO in this regard and part load compensation issues would be taken up separately.
- Annual Maintenance Schedules furnished by Generating Units have been analysed as per the guidelines finalized in the OCC Forums and Kukde Committee's recommendation. The suggestions / observations, had been communicated to all concerned vide letter dated 11.12.2019.
- In the 162nd OCC Meeting beneficiaries have expressed concern regarding the maintenance schedule furnished by NPCIL as below:

SI No.	Station/Unit	IC in MW	Start Date	End Date
1	MAPS Unit 2	220	During Jan-Feb 2021 for 45 days	
2	KGS Unit 1	220	During Feb-Mar 2021 for 45 days	
3	KGS Unit 3	220	01.01.2021	16.03.2021
4	KGS Unit 4	220	During Jan-Mar 2021 for 10 days	
5	KKNPP Unit 2	1000	18.01.2021	18.04.2021

- It was observed that number of NPCIL units BSD/Refueling shutdown has been planned during January 2021 to April 2021, which is the peak demand period of SR. This is a strong variance with the need of the power by beneficiaries, decision taken in the SRPC Meetings and at MoP.
- NPCIL vide letter dated 20.12.2019 (**Annexure-2P**) had replied to SRPC letter dated 11.12.2019.
- Chairperson, SRPC vide letter dated 21.12.2019 (**Annexure-2Q**) had requested CMD, NPCIL to arrange for reviewing the BSD/refueling SD of NPCIL units of SR and to schedule the shutdowns during the non peak period of June to December.

## 2.26 Scheduling Issues of Pavagada Solar Park

- Review Meetings were held on 05.12.2019, 20.12.2019 and 27.12.2019 at SRPC Bangalore. In the meeting held on 27.12.2019 it was decided that scheduling of 1000 MW SPDs (operationalized LTA) would be commenced from 13.01.2020. Balance 1050 MW would be scheduled by SRLDC once the LTA is operationalized by CTU. A review Meeting to update the status will be carried out on 10.01.2020.
- CTU vide letter dated 27.12.2019 (**Annexure-2R**) had informed that as per KSPDCL letter dated 26.12.2019 (**Annexure-2S**) additional 200 MW part LTA(out of balance 1050 MW)is being operationalized for transfer of power to Uttar Pradesh w.e.f 30.12.2019.
- Accordingly scheduling of 1200 MW SPDs (operationalized LTA ) would be commenced from 13.01.2020. Balance 850 MW would be scheduled by SRLDC once the LTA is operationalized by CTU.

## 2.27 Automatic Generation Control (AGC) implementation in India

- CERC in its Order dated 28.08.2019 had stated, '*In the interest of reliable and safe grid operation, the Commission directs that all the ISGS stations whose tariff is determined or adopted by CERC shall be AGC-enabled and the ancillary services including secondary control through AGC be implemented*'.
- As per CERC Order dated 28.08.2019 all ISG stations whose Tariff is determined or adopted by CERC should be AGC-enabled before 28<sup>th</sup> February 2020.
- NLDC vide communication dated 17.09.2019 had communicated the minimum requirement for AGC connecting equipment at Power plants. List of power plants identified for monitoring by NLDC was also enclosed.
- A Meeting was held on 03.10.2019 at NLDC to discuss on the requirements for AGC to be implemented at generator ends by the generators and activities to be undertaken by them for speedy implementation of AGC. The minutes are available at NLDC website. All concerned were requested to go through the minutes and initiate the actions accordingly.
- A Meeting in regard to communication availability from NLDC/ RLDCs to the nearest wide band node/ switchyard for the generating stations under AGC as per CERC Order 319/RC/2018 was carried out on 13.11.2019 at SRPC Bengaluru. The minutes of the meeting is available at SRPC website.

### ***The following were noted in the 162<sup>nd</sup> Meeting***

#### ***The following were noted in the Meeting:***

- ✚ PGCIL, SR II informed that communication ports are available at all the locations and there is a requirement of optical cards/optical fiber in some locations. The final requirement along with estimate will be finalized shortly.
- ✚ SR II was requested to come up with the detailed list of requirement with estimated cost. The same was to be put up to TCC/SRPC for approval.
- ✚ SR II agreed that they will submit the final estimate by end of December 2019.

## 2.28 Scheduling of Solar parks

**Pavagada Solar UMPP:** Refer Item No.

**Ghani Solar Park :**



- ❖ APTRANSCO had informed that the matter was under review.
- ❖ It was noted that one of the SPD had approached Hon'ble CERC in this regard. APTRANSCO informed that they had furnished their reply in this regard to CERC.

## 2.29 AGC at state Level- Pilot Project identification & Implementation

***The following were noted in the 162<sup>nd</sup> OCC Meeting:***

- 🌐 **Andhra Pradesh (APGENCO: Krishnapattanam):** M/s GE had submitted a proposal for AGC at Krishnapattanam/APSLDC. Note has been put up to the management for budgetary approval.
- 🌐 **Karnataka (KPCL: Sharavathy / Varahi):** Sharavathy expected to be completed by end of January 2020. Varahi is expected by February 2020. Payments to M/s ABB has been released by M/s USAID. Final configuration would be taken up.
- 🌐 **Kerala (KSEBL: Kuttiadi & Idukki):** M/s ABB had visited Kuttiadi SS on 15.11.2019 and a Meeting was also held in this regard. On 16.12.2019 M/s ABB was scheduled to visit SLDC. Specifications would be finalized in next two to three Meetings.
- 🌐 **Tamil Nadu (TANGEDCO: North Chennai Stage-II and MTPS Stage II):** TANGEDCO/TANTRANSCO had informed that the administrative approval was yet to be received and technical specifications are under preparation jointly by TANTRANSCO and TANGEDCO.
- 🌐 **Telangana (TSGENCO: Kothagudem E):** DPR prepared and waiting for budgetary offer. Dummy protocol testing from Kothagudem to SLDC was under progress.
- 🌐 SRLDC had informed that **NP Kunta AGC** was targeted to be commissioned by February 2020. The proposal would be discussed with APSERC/APDISCOMs.

## 2.30 Issues w.r.t KGS

***The following were noted in the 161<sup>st</sup> Meeting:***

- SEM related issues had been taken up with SR-II vide letter dated 09.04.2019.
  - ✓ SR II had informed that estimate (cost +) had been furnished to KGS.
  - ✓ KGS had informed that the matter was under consideration.
- Regarding Sirsi-Guttur section of Kaiga-Sirsi
  - ✓ KPTCL had informed that they have replaced 20 numbers of tension strings. Further replacement of 15 numbers and 22 numbers of insulator strings was planned, for Line I estimated cost is around 1.13 Crores and for line II it is 2.08 Crores.
  - ✓ Further activities are not carried out because of rains.
- Kaiga-Narendra I & II PLCC Channel Non-Availability
  - ✓ KGS vide E-mail dated 06.11.2019 had informed that on 05.11.2019 it is observed that Kaiga-Narendra Line I & II Channel I is in alarm condition. Narendra S/s also confirmed that the same channel is in alarm condition at Narendra end also.
  - ✓ SR II informed that channel II was rectified.

### 2.31 ***Rectification of OF cable between EDC to HAL***

- ❖ ***In the*** 162<sup>nd</sup> OCC Meeting, KAR SLDC had informed that EDC to HAL link will be rectified by end of December 2019.

### 2.32 ***LI projects grid integration***

- ❖ In the 161<sup>st</sup> OCC Meeting, APTRANSCO had informed that a Meeting had been convened regarding the coordinated operation of LI pumps in which it was opined that there was no scope of reactive control through LI pumps. Further studies needed to be carried out.
- ❖ APTRANSCO/TSTRANSCO may kindly furnish the updates.

### 2.33 ***Communicating the written instructions to Solar/Wind Generators***

- SRLDC vide letter dated 06.08.2019 had issued directions provisioned under Section 29(1) of the EA in respect of RE scheduling/curtailment. **Any curtailment along-with reason was to be made known to RE generator/SRLDC in writing and through SLDCs website.**
- **In the 161<sup>st</sup> OCC Meeting** it was noted that AP & KAR SLDC were uploading RE curtailment details on their website. TSSLDC and TNSLDC informed that they were communicating the details to SRLDC on daily basis.
- SRLDC vide letter dated 19.12.2019 (***Annexure-2T***) enclosing MNRE letter dated 01.08.2019 had further requested AP, KAR and TN SLDCs to furnish the compiled information of RE curtailment with reason. It was noted that MoP/MNRE have received letters from RE generators on irregular curtailment by SLDCs and they are closely monitoring RE curtailments.

### 2.34 ***Flexibilization of Thermal Plants: Units identified by APGENCO***

- ❖ TSGENCO had informed that they have identified KTPS Stage II - Unit 11 (500 MW) for conducting pilot test for flexible operation.
- ❖ APGENCO had informed that BHEL was to revert back on implementation/pilot tests of Rayalseema Unit I for flexible operation.

### 2.35 ***Ramp Rates, technical minimum & startup from hot/warm/cold***

- ✓ **All ISGS stations were requested to give ramp of 0.67%/min in line with the SRPC decision.**
- ✓ **All the SLDCs were requested to ensure ramps of at least 0.67%/min in line with the SRPC decision for the state generators.**
- ✓ All the entities were requested to take action in respect of ramp rates, technical minimum, start up from hot, warm and cold condition as discussed in the SRPC meeting (noted in the special meeting).
- ✓ POSOCO had pointed out that enhancing of the ramp rates would result in further savings in the SCED optimization.

### 2.36 ***Monitoring of scheme funded from PSDF***

- All the states/entities were requested to kindly furnish the updated status in a time bound manner.
- ❖ A review meeting was convened on 25.11.2019 by NLDC/NPC at SRPC Bengaluru. Minutes of the Meeting is awaited.
- ❖ Subsequently SRLDC vide letter dated 18.12.2019 had requested all the entities to furnish the status of PSDF schemes which is to be furnished to MoP. A VC in this regard is convened on 27.12.2019.
- ❖ A Meeting has been convened by NLDC on 03.01.2020 (Meeting notice at **Annexure-2U**)

### **2.37 PSS Tuning of generators**

- ❖ A Meeting to discuss the submitted reports and to discuss the status of schedule of PSS tuning/SRT was held on 14.11.2019. Minutes of the Meeting is available at SRPC website. All concerned are requested to take action as per the Minutes of the Meeting.
- ❖ Non representation of NTPC, KSEBL, IL & FS, SEL, MEL, SEIL, LANCO, UPCL etc were noted with serious concern.

### **2.38 Updates on newly commissioned /Upcoming Generating Stations**

- ❖ In the 157th OCC Meeting it was noted with concern that no timely information is furnished by entities regarding the upcoming generating stations. The information is being sought by higher bodies like CEA/MoP etc.
- ❖ All the States and ISG Stations were requested to furnish the progress of works of upcoming generating stations with expected date of commissioning. It was also noted that commissioning of new units also to be intimated in time. Declaration of COD letter from SLDC was required to be submitted to CEA, Fuel

## **3 Outage Proposals/LGBR**

### **3.1 Outage Coordination Scheduling Application**

- Outages will be discussed and processed through VC on 07.01.2020.

### **3.2 Shutdown request of NTPL-Tuticorin D/C line**

- NTPL had requested TANTRANSCO to restore the 230 kV connectivity to NTPL switchyard (230 kV NTPL –TTPS & 230 kV NTPL-TTN Auto).
- TANTRANSCO vide letter dated 31.10.2019 had raised some compensation issues during the shutdown.
- SR-II, PGCIL informed that the matter had been referred to the management. The same would be put up to SRPC Meeting.
- It was noted that the calculation projected in TN letter may be relooked. Backing down of Tuticorin units was not envisaged in the revised proposal.

- SRPC had suggested that compensation being a bilateral issue, it may be solved amicably through discussion in top level management.
- 230 kV connectivity of NTPL was discussed in the Joint Study Committee Meetings held on 21<sup>st</sup> and 22<sup>nd</sup> November 2019 at New Delhi. In the minutes the following had been noted:
  - Upon examination of the minutes of the 24<sup>th</sup> meeting of SCPSPSR, it was found that following transmission system had been agreed as the evacuation system for Tuticorin TPS JV (2x500 MW):
    - i) Tuticorin JV TPS – Madurai 400 kV D/c quad
    - ii) 2x315 MVA 400/220 kV ICT at Tuticorin TPS JV
    - iii) LILO of 2 nos. of 230 kV circuits at Tuticorin TPS JV
  - Accordingly, the referred 2 nos. of 230 kV circuits at Tuticorin TPS JV is a part of ATS.
  - TANTRANSCO stated that the referred 230 kV lines cannot be utilized for the evacuation of power from Tuticorin JV as the same leads to congestion in the downstream network.
  - It was decided that the referred 230 kV lines may be by-passed through suitable arrangement under normal operation to avoid congestion in downstream networks and the same may be utilized for drawl of start-up power whenever required.
  - Further the proposal shall be put-up in the upcoming SRPC-TP for approval of the constituents.
- Subsequently Meeting of first SRPC-TP was convened on 16.12.2019 at Hyderabad. Minutes of the Meeting is awaited.
- ***In the 162<sup>nd</sup> OCC Meeting*** SR II had informed that NTPL confirmation is awaited for availing the outage. One ERS is ready and other ERS will be ready shortly.
- SRPC had suggested that PGCIL may furnish an official request to SRLDC/SRPC for shut down whenever ERS is ready with specific dates, timings etc. NTPL concurrence to be sought accordingly.

### ***3.3 Outage proposal for KGS-Kadra & Kaiga – Kodasalli lines***

- NPCIL had requested for outage of Kaiga – Kadra Line-1 from 20.01.2020 to 23.01.2020 and Kaiga – Kodasalli Line-2 from 27.01.2020 to 30.01.2020 respectively on continuous basis for bay equipment by annual maintenance and circuit breaker overhauling.

## ***4 TTC/ATC computations***

- All states were requested to furnish PSSE base case for April 2020.
- KPTCL had informed that separate group was being formed to take up TTC/ATC, PoC and other issues (one EE, two AEE and two AEs). Officers are yet to be posted.

### ***4.1 TTC assessment considering temperature dependent rating of lines/terminal equipment***

- The information received from all the states had been forwarded to NLDC/NPC (CEA) for further needful action. SRLDC was requested to take up the issue with NLDC.

## **5 Review of Power Supply Position /Inflows**

### **5.1 Daily Load Forecasting by SLDCs**

SRLDC to present the error (forecast Vs actual demand) for the month of December 2019.

### **5.2 Constituents/ Generators to furnish the reasons for deviation:**

- Actual with respect to anticipated (MW & MU) for availability and requirement.
- Generation variation category wise with respect to MoP targets/LGBR figures.
- Inflows (MU) to major reservoirs: Actual w.r.t. 10 year moving average and w.r.t. same month last year.
- Reasons for demand -supply gap and its variation

## **6 Frequency**

### **6.1 High Frequency**

- Sustained high frequency & UD/OI incidents may be discussed.

### **6.2 Low Frequency**

- Summary statement of different violation messages issued by SRLDC.
- Sustained low frequency & OD/UI incidents may be discussed.

## **7 VOLTAGE PROFILE**

### **7.1 Low voltage**

- SRLDC may furnish the details/issues.
- Details of capacitors installed during December 2019. Details of the healthy/faulty capacitors to be furnished.

### **7.2 High Voltage**

7.2.1 SRLDC may furnish the details/issues.

#### **7.2.2 High Voltage in Karnataka Control Area**

- SRLDC in its agenda for 161<sup>st</sup> OCC Meeting had expressed concern regarding the Critical Grid Operation in Karnataka control area due to over voltages.
- KPTCL had informed that the issue has already been referred to RT wing.
- SRPC had suggested KPTCL to **check the overvoltage grading set points also.**
- **KPTCL** needed to **submit action taken report** in this regard.

#### **7.2.3 High Voltage at UPCL & Outage of UPCL ICT**

**The following were noted in the earlier Meetings:**

- KAR SLDC informed that 400 kV Hebbanahalli S/s (Yettinahole LIP) would be handed over to KPTCL and was expected to be taken over by March 2020.
- For reactor implementation, UPCL had earlier informed that KPTCL approval (drawing etc) was being undertaken. Electrical approval will be received only after KPTCL approval. KPTCL requested UPCL to write a reminder to PCKL and share the same with KPTCL so that KPTCL will also take up with PCKL.
- For repair of ICT, UPCL had informed that the ICT was expected to reach the site by end of December 2019 and the charging was expected by 15<sup>th</sup> January 2020.

### 7.3 MVAR Interchange

- All the SLDCs to kindly monitor VAR absorption/injection of generating units in their respective control areas in real-time.

The following were planned w.r.t BSRP & MVAR testing:

- ✓ TS: BSRP on 11.12.2019 at Kakatiya
- ✓ AP: BSRP on 20.12.2019 and MVAR testing on 19.12.2019 at Rayalseema (Report at **Annexure-7A**)
- ✓ KER: BSRP likely on 17.01.2020 at Kalamassery
- ✓ TN and KAR: would be finalized.

### 7.4 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 were noted in the Meeting:

- KPTCL- KERC had raised some queries. KEGC review panel had discussed the queries.
- KSEBL: Public hearing was held on 29<sup>th</sup> October 2019 at Thiruvanthapuram. Public hearing was held at Kochi also (only w.r.t RE). Based on all the inputs from these hearings and comments received from various stake holders final GRIDCODE would be notified shortly.
- TSTRANSCO: The charges are yet to be notified by TSERC. TSERC had started functioning.

### 7.5 MVAR interchange with ISTS

- ❖ SRPC had analyzed the nodes of high voltage coupled with MVAR injection during July 2019 to November 2019 and the following was observed:

Nodes with MVAR injection during V > 103%			
AP	KAR	TN	TS
Chittoor	Madhugiri	Tirunelveli	Maheshwaram
Sattenapalli	Nelamangala	Karaikudi	Hyderabad
Vemagiri	Raichur	Alamathy	Mehaboobnagar
Hindupur	Guttur	Pugalur	Dichipally



Vijayawada	Munirabad	S V Chatram	Warangal
Kurnool	Hoody	Kalavinthapattu	Malkaram
Gazuwaka			Gajwel
			Khammam
			Shankarpalli

❖ All entities are requested to kindly take appropriate action.

## 8 Status review of Bus/Line Reactors, Line Reactors and STATCOM

8.1 Status of implementation of Bus / Line Reactors approved in the Standing Committee / SRPC pending for commissioning by the SR constituents. **(Refer table-II)**

### 8.2 Hoody Reactor status

✚ In the 162<sup>nd</sup> OCC Meeting, KPTCL informed that Hoody reactor would be commissioned by end of 15<sup>th</sup> January 2020.

✚ SRLDC informed that Nelamangala Bus reactor (commissioned on 19.10.2019) data is not reporting. KPTCL agreed to look into the same.

### 8.3 Meeting to discuss the issue of delay in installation of bus reactors by NPCIL at Kaiga and Kudankulam NPP

- PSPA-II division, CEA had carried out a meeting on 22.11.2019 to discuss the following issues. Minutes are awaited.
- The KKNPP reactor is likely to be put back into service by March, 2020.
- NPCIL representative informed that tender had been floated for the work. Bids have been received and are under evaluation. The work is likely to be awarded by March, 2020.

## 9 Network Protection/Security issues

### 9.1 U/F & df/dt Relays Schemes

Specific issues, if any may be discussed.

### 9.2 Status update of SCADA mapping of feeders of AUFR & df/dt schemes

State	SCADA mapped %	Status
AP	64	ATRANSCO informed that 132 RTUs have been procured and would be commissioned within 6 months - by October 2019 (UFR and df/dt mapping and visibility would improve).
TS	77	Out of 29 RTUs 28 is commissioned. Pending 1 RTU will be commissioned by this month end. Mapping is to be carried out in coordination with SRLDC for some of the RTUs. (communication issues existing)
KAR	100	

KER	100	
TN	88	All the RTUs commissioned(28 RTUs )
Pudu	92	The points pertaining to the feeders identified for UFR tripping in the new RTUs have already been mapped in the SCADA system and the same will be communicated to SRLDC for including in the list.
SR	94	

### 9.3 Simhadri /Ramagundam Islanding scheme

- In the 162<sup>nd</sup> OCC Meeting the following were noted:
  - ✚ **Simhadri Islanding:** APSLDC had informed that they have submitted the updated scheme. SRLDC had informed that they have submitted the base case which is not sufficient for analysis and requested APTRANSCO to furnish the list of the lines being opened and the list of generators(IC/generation considered) for formation of the island. SRLDC/SRPC would review the same.
  - ✚ **Ramagundam Islanding:** SRLDC had informed that they have initiated the job, but in the island around 6990 MW LI scheme generation is involved and there is no clarity regarding the actual generation and connectivity. Existing scheme may not work. It was agreed that TS(study team & SLDC) SRLDC & SRPC would discuss the Ramagundam islanding Scheme in a separate meeting

### 9.4 Relocation of SPS schemes

- In the 162<sup>nd</sup> OCC Meeting SR II had informed that except KPTCL, at all other locations signals are through till load centers.
- SR II informed that two convertors were required for each link to extend the signal from control room to Kiosk in SAS stations. States had recommended that the cost of the convertors and associated cable etc could be booked in the project cost. SR II informed that they will procure the convertors shortly and they have approached manufactures.
- KPTCL to take up with PGCIL for the modifications at Kolar.

#### The following activities to be carried out:

- ✓ Carryout the pending works (refer **Annexure** No.V of 77 PCSC MOM).
- ✓ Carryout the mapping of the feeders in coordination with SRLDC.
- ✓ Furnish the revised list of feeders along with load reliefs under various SPS.
- All states to communicate the compliance report in this regard to SRPC / SRLDC.
- ✚ The mock drills in coordination with PGCIL and SRLDC would be carried out after all SPSs schemes are put in place.

### 9.5 Reliability of SPS Schemes

- In compliance of Commission's Order dated 26<sup>th</sup> March 2018 in Petition No. 09/SM/2015, the list of SPS in SR had been communicated to all concerned. 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.***

***The following were noted in the Meeting:***

- ✚ APTRANSCO had informed that RE injection feeder segregation would take 3 months. There were no radial feeders available in Cuddapah region. It was noted that APTRANSCO can identify the radial feeders anywhere in the state.
- ✚ SRLDC would come out with details (specified documentation) on SPS for Raigarh – Pugalur HVDC bipole link.
- ✚ KPTCL was again requested to analyze the reason for relief being realized.

## **10 RGMO/FGMO**

- RGMO implementation/ Extension of RGMO status point to SLDC (**Refer Table-V of Minutes**).
- As per 5<sup>th</sup> Amendment to IEGC, gas stations above 50 MW Installed Capacity were also to come under RGMO/FGMO Operation w.e.f. 1<sup>st</sup> October 2017.
- Inadequate response was needed to be taken up by SLDCs with respective SERC's in line with Hon'ble CERC Orders in respect of Petition No. 84/MP/2015 and 302/MP/2013. The non-performance of the generators under SRLDC control would be taken up by SRLDC with the respective generators.
- In the 162<sup>nd</sup> OCC meeting, SRLDC had presented RGMO response for the incidence on 01.11.2019. Some of the generators had informed regarding discrepancy in the data wrt SRLDC data. Subsequently incorporating the comments / changes noted, SRLDC had revised the analysis. The final table of response is as below:

STATE	HYDRO		THERMAL		TOTAL		
	Possible	Actual	Possible	Actual	Possible	Actual	%
AP	37.90	3.90	83.55	57.46	121.45	61.36	51%
TS	59.80	17.80	62.18	64.36	121.98	82.16	67%
KAR	59.80	17.80	45.55	9.40	105.35	27.20	26%
KER	20.70	9.00	0.00	0.00	20.70	9.00	43%
TN	0.00	0.00	63.40	20.00	63.40	20.00	32%
CGS	0.00	0.00	298.60	190.34	298.60	190.34	64%
SR	178.20	48.50	553.28	341.56	731.48	390.06	53%

- ✚ All concerned are requested to analyze and submit revised figures where ever mismatch is observed.
- ✚ No response/partial response/reverse response etc to be taken up with concerned generators by SLDCs and revert back with the reasons.

### **10.1 Testing of Primary frequency response of generators as per IEGC clause 5.2(g)**

SRLDC had informed that deviation of three agencies had been opened. There were some queries by the bidders which have been replied by NLDC. The price-bid will be opened by end of December 2019.

### **11 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)
- ADMS feeders may also be mapped, for enhanced visualization and analysis of ADMS operation.
- All states were requested to identify additional feeders which could be tripped through SCADA rotationally with load relief of (OD-Max dev limit). Any loads tripped under ADMS should be brought back only under the directions of SLDC keeping in view the frequency, overdrawal etc.

### **12 Grouping of loads (IEGC clause 5.4.2 (e))**

- Regulations to be complied by all the concerned utilities

### **13 LVRT Implementation**

- **Status review of Pending points as discussed in 4<sup>th</sup> RE/LVRT meeting**
  - 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 CEA (Technical Standards for connectivity to the Grid) (Amendment) Regulations, 2019 dated 06.02.2019 which are available at CEA website.
- Therefore all the SLDCs were requested to furnish the LVRT status(33 kV & above) for the WTGs being commissioned from 06.08.2019.

#### **14 Emergency Restoration System (ERS)**

The status was updated in the 35<sup>th</sup> TCC Meeting held on 11.07.2019 and is at Table IV of the 162<sup>nd</sup> OCC Minutes.

#### **15 SCADA AND COMMUNICATION**

15.1 Any specific SCADA/Communication Issues may be brought to the forum.

##### **15.2 URTDSM project**

- **SRLDC to present report of URTDSM Applications.**
- SLDCs to make use of the Analytical Applications in close coordination with SRLDC. Issues, if any, needed to be brought to the attention of PGCIL (Smart Grid) & IIT B.

##### **15.3 REMC facility installed at SRLDC**

- ❖ **In the 161<sup>st</sup> Meeting** SRLDC informed that SAVT (1000 hrs) test had been completed. The list of pending works was being compiled.

##### **15.4 REMC Project in SR SLDCs**

**The following were noted in the Meeting:**

- ❖ KAR SLDC: SAVT completed by 25.09.2019. Forecast Software under evaluation.
- ❖ AP SLDC: SAT over. SAVT stopped on 13.10.2019 due to some issues. M/s OSI was working on it. SAVT was scheduled to start from 10.12.2019
- ❖ TN SLDC: SAVT completed.
- ❖ All the entities (except TANTRANSCO) were requested to furnish the balance RE stations still to be integrated in REMC. The upcoming requirement for next two years may also be furnished to PGCIL. If PGCIL is not taking up the integration of balance RE stations, then the states needed to integrate the balance RE stations into REMC at their own cost/initiative.

#### **15.5 Periodical Audit and Vulnerability Assessment & Penetration Testing (VAPT) of Infrastructure**

- CISO MoP vide letter dated 31.01.2019, 20.02.2019, 22.04.2019 and 29.05.2019 had requested all stake holders to carry out Cyber Security Audit and VAPT of ICT Infrastructure, website, web application etc in defined intervals by CERT-IN empanelled cyber security audit agencies to avoid vulnerability and report to CISO MoP along with the key findings of the audit. The above details may kindly be sent to [itcea@nic.in](mailto:itcea@nic.in) with a copy to [srpc.operation@gmail.com](mailto:srpc.operation@gmail.com).

- SRPC vide letter dated 31.10.2019 had requested CE(IT) & CISO, MoP to arrange presentation from officers of CERT-in/NCIIPC in OCC Meeting to give exposure on the procedure for VAPT and ICT Cyber Security Audit.

The following entities had carried out the Cyber Security Audit during the year 2019-20:

Entity	Date	Entity	Date
APTRANSCO – VA Audit of assets	13.05.2019	TSTRANSCO – VA Audit	08/09.05.2019
NTECL– IT Audit	18-21.06.2019	PGCIL – GIGW Certification of website	14.01.2019 – Valid till 13.01.2022
SRLDC Main SRLDC SCADA	25.02.2019 & 27.02.2019 Next schedule is Feb/March 2020	SRLDC Backup SRLDC SCADA	27.02.2019 & 28.02.2019 Next schedule is Feb/March 2020

***The following were noted in the 162<sup>nd</sup> OCC Meeting:***

- ✚ KPTCL informed that tenders for third party auditing of Control Centers of SLDCs would be opened on 18.12.2019.
- ✚ KSEBL informed that the WO for Cyber Security Audit for Control Centre would be completed by 15.01.2020.
- ✚ TSTRANSCO informed that C-DAC was yet to take up Security Audit of TSTRANSCO website.
- ✚ CERT certified agencies needed to be approached for the audit.
- ✚ SRPC pointed out that as per CERC Regulations Cyber Security Audit was to be carried out for the year 2019-20. All the concerned entities needed to take note and communicate the dates and details in this regard to SRPC.
- ✚ MS, SRPC emphasized that vulnerability from internal sources/insider also needed to be taken care other than external sources.

### **15.6 Communication Audit**

- All the concerned entities are requested to comply to audit observations. **Readiness/preparedness** for Audit to be ensured by the concerned State/PGCIL.
- SRPC informed that the Communication Audit for **2019-20** in compliance to CERC Regulations would be carried **out in April 2020** and all the utilities needed to maintain the data in the requisite format.

### **15.7 VC Facility at SLDC**

Puducherry had informed that VC facility will be commissioned by March 2020.



## 15.8 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 162<sup>nd</sup> Meeting of OCC:

State	SCADA availability as on 30.11.2019 Mapped Vs I/C	Remarks
AP	Wind: 4079/3992MW (98%) Solar: 3233/2970 MW (92%) Total: 7312/6962 MW (95%)	Pending SCADA availability was for RE connected distribution level and for which action had been taken for compliance.
TS	Wind: 100.8/100.8 MW (100%) Solar: 3495/3475 MW (99%) Total: 3595/3575 MW (99%)	Action for balance SCADA availability at 33 kV and below was being followed up and notices had been issued.
KA	Wind: 4795/4775 MW (99.6%) Solar: 6404/5851 MW (91%) Total: 11199/10626 MW (95%)	
KE	Wind: 70/27 MW (38%) Solar: 95/87 MW (92%) Total: 165/114 MW (69%)	
TN	Wind: 9196/8768 MW (95%) Solar: 3837/648 MW (17%) Total: 13032/9416 MW (72%)	
SR	Wind: 18241/17663 MW (97%) Solar: 17063/13030 MW (76%) Total: 35304/30692MW (87%)	

## 16 Transmission network issues and System Operation issues

### 16.1 Commissioning of Tirunelveli - Kochi line

- It was noted that Tirunelveli- Kochi Circuit II was charged and synchronized to grid on 14.12.2019 at 16:35 hours.
- PGCIL, SR II vide letter dated 20.12.2019 (**Annexure-16A**) enclosing trial operation certificate dated 14.12.2019 had informed that Circuit II of Tirunelveli-Muvattupuzha (Cochin) 400 kV quad D/C line – asset under “Transmission System associated with Kudankulam Atomic Power Project” (Tirunelveli-Edamon on Multi Circuit line and Edamon to Cochin on D/C line) has been put under commercial operation w.e.f 00:00 hours of 20.09.2019.

### 16.2 Deviation in drawals by states

- SRLDC vide letters dated 10.12.2019 & 24.12.2019 (**Annexure-16B**) had expressed concern regarding deviation in drawals by AP, TS, KAR & TN.

- AP,TS,KAR & TN SLDCs were requested to take action in real time on the messages issued by SRLDC and also furnish reply to SRLDC letters issued subsequently.
- ❖ SRLDC vide message SRLDC/DW/Dec/2019/285 dated 31.12.2019 (**Annexure-16C**) had issued violation message(persistent deviation-intimation of physical regulation) to SLDC KPTCL.

### 16.3 **SR entities: Zero crossing violations**

- SRLDC vide letter dated 16.12.2019 (**Annexure-16D**) had furnished the details of block wise deviations made by SR entities at Grid Frequency less than 49.9 Hz. violating the volume limits as per the 5<sup>th</sup> Amendment of DSM regulations & violations of sustained deviation in one direction for more than 12 blocks(zero crossing violations) by SR entities based on the DSM Account.

### 16.4 **Request for additional assistance to Yerrandahalli by KPTCL**

- It was noted that all the line work has been completed between Mylasandra to Yerrandahalli SS and further no additional load feed assistance is required from Hosur SS in the view of line work in Mylasandra scope of project.

### 16.5 **URS availability of other regions**

- It was noted that URS availability of WR was not visible after the LC/PS mechanism. SRLDC stated that they are working on it.

## 17 **Black Start Procedure**

- Mock drills conducted in December 2019.
- Mock drills scheduled for January 2020 to June 2020 and from July 2020 to December 2020.
- Point to point mock exercise for black start by all constituents
- TSTRANSCO had informed that TSGENCO was planning to procure DG set of appropriate capacity for Jurala HEP.
- **All constituents are requested to suggest suitable dates and venues for Workshops on Black start restoration procedure**

## 18 **Any other point with the permission of the Chair.**

## 19 **Date and Venue of the next Meeting**

### **Data to be submitted**

Sl. No	Data to be furnished	By whom	To whom	Frequency	Comments
1	OCC approval requests for Generation Units Outages	Generators	SRPC/SRLDC	3 <sup>rd</sup> of every month	
2	Availed and non-availed transmission	SRLDC	Requestors/SRPC	3 <sup>rd</sup> of every month	

	elements report				
3	Comments/Reasons for non-availing the shut down.	Transmission Licensees/Generators	SRPC/SRLDC	6 <sup>th</sup> of every month	
4	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
5	Reasons for demand-supply gap and its variations	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.
6	LS(In MU/MW)	States	SRPC/SRLDC	Monthly	State/embedded consumers/embedded generators separately.
7	Bilateral Purchases/sales	states	SRPC/SRLDC	Monthly	
8	Installation/health of capacitors	All Constituents	SRPC/SRLDC	Monthly	Installation & ensuring healthiness of capacitor banks at distribution level should be ensured by all the constituents.
9	MVAR Interchange/MVAR capability testing	All Generators/SLDCs	SRPC/SRLDC	4 <sup>th</sup> 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.
10	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.
11	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.
12	Upcoming Wind/Solar Projects/other	All Constituents	SRPC/SRLDC	Monthly	
13	Outage deviation report	All States/Entities	SRPC/SRLDC	Monthly	Outage plan deviation Generating Units/Transmission Elements of Southern Region needed to be submitted by all the concerned which is to be communicated to Hon'ble CERC.
14	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: <a href="mailto:msssrpc-">msssrpc-</a>

					<a href="mailto:kar@nic.in/seoprnsrpc@kar.nic.in">kar@nic.in/seoprnsrpc@kar.nic.in</a>
15	Status of implementation of the recommendations of the Enquiry Committee			3 <sup>rd</sup> and 17 <sup>th</sup> of every month	
16	Energy Generation data Management from Renewable Energy Sources	All the states	To CEA with a copy to SRPC	Monthly	
17	Power supply hours in various States/UTs (Rural and Urban areas)	All States	SRPC	Monthly	For Replying to Parliament Questions: CEA Requirement
18	Physical 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, Sewa Bhavan, New Delhi-110066. Information required by CEA (vide letter dated 26.11.2013) regarding Security of power installations was to be furnished to CEA.
19	Cyber Security		CEA/SRPC	Monthly	
19	Declaration of availability and healthiness of various protection / defense mechanism	All States	SRLDC /SRPC	Monthly	Validated certificates needed to be communicated in a timely manner.
20	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.	
21	Compiled Telemetry status	Utility wise	SRPC/SRLDC	Monthly	
22	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).
23	Nodal Officer list : Disaster Management	All utilities	SRLDC	Update	The updated status as per the information available with SRLDC has already been shared.
24	Presentation on Operational Issues	States/Entities	SRPC/SRLDC	5 <sup>th</sup> of Every month	

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड  
(भारत सरकार का उद्यम)

POWER SYSTEM OPERATION CORPORATION LIMITED  
(A Government of India Enterprise)



CIN NO : U40105DL2009GOI188682

दक्षिण क्षेत्रीय भार प्रेषण केन्द्र, 29, रेस कोर्स क्रॉस रोड, बेंगलूर 560 009.

दूरभाष : कार्यालय : 080-2225 0047, 2235 2850, 2225 4525, 2225 1169, 2225 5962 फैक्स : 080 2226 8725, 2225 9219

Southern Regional Load Despatch Centre, 29 Race Course Cross Road, Bangalore 560 009.

Tel : Off : 080-2225 0047, 2235 2850, 2225 4525, 2225 1169, 2225 5962, Fax : 080 2226 8725, 2225 9219 www.srlc.org / www.psoco.in

संदर्भ संख्या / Ref. No.

SRLDC / SO-I/ 2019/OCC

दिनांक / Date :

30/12/19

सेवा में/To

सदस्य सचिव /Member Secretary

दक्षिण क्षेत्रीय विद्युत समिति/Southern Regional Power Committee,

बेंगलूर/Bangalore-09

विषय/Sub: एसआरपीसी की 163 वीं ओसीसी बैठक के लिए एजेंडा/Agenda for the 163<sup>rd</sup>

OCC Meeting of SRPC – Reg.

महोदय/Dear Sir,

कृपया अनुलग्नक -I में संलग्न परिचालन मुद्दे एसआरपीसी की आगामी ओसीसी बैठक के एजेंडे में शामिल करने का कष्ट करें।

The operational issues attached in Annexure-I may please be included in the agenda of the forthcoming OCC meeting of SRPC.

धन्यवाद /Thanking you,

भवदीय /Yours faithfully,



व.उप. महाप्रबंधक (एस ओ -I)

द.क्षे.भा.प्रे.कें., बेंगलूर

## **SRLDC Agenda for the 163<sup>rd</sup> OCC Meeting of SRPC**

It is requested that the following operational issues may please be included in the agenda of the forthcoming **OCC** meeting of SRPC:

### **1. Points for discussion**

#### **a) Amendment to point no 3.47 of 161<sup>st</sup> OCC meeting minutes**

##### **(i) For point no 3.47 URS availability of other regions**

- It was mentioned in the minutes that "It was noted that URS availability of WR was not visible after the LC/PS mechanism. SRLDC stated that they are working on it."
- "URS availability of WR is visible to all the constituents from the beginning, only direct entry by constituents is restricted to avoid scheduling beyond inter regional ATC."
- Accordingly minutes needs to be amended

#### **b) Frequent tripping of 400kV Nellore- Sriperumbudur line2**

- (i) Frequent tripping of Nellore Sriperumbudur 400 kV Line 2 on "Over Voltage Protection Stage 1- in the past few months
- (ii) As per the information gathered, the tripping got initiated at Nellore 400kV station end and there was Direct Trip (DT) receipt at Sriperumbudur end.
- (iii) It is a matter of concern that the tripping has been occurring at a much lower voltage between 419 kV to 424 kV at Nellore end (which is 105 to 106 % of nominal voltage) as observed from SRLDC SCADA system.
- (iv) Power grid SRTS-1&2 are requested to look into this matter and rectify the same.
- (v) SRLDC letter in this regard is attached at **Annexure-2**

#### **c) High Loading in Hiriya Nelamangala 400 kV D/C. Line**

- (i) 400 kV Hiriya - Nelamangala kV D/C line has again started experiencing higher loading during this Month ( December 2019) closer to its N-1 security criteria limit.
- (ii) As per the real time SCADA data, with less generation at UPCL and high Solar generation, the flow on 400kV Hiriya Nelamangala WC line is severely high and will further increase if BTPS Generation is full. This will compromise the security of Karnataka and Kerala grid and specifically Bangalore, Mysore and Kozhikode regions.
- (iii) The 400 kV Hiriya — Nelamangala D/C line being a critical line, it is suggested that the following actions to mitigate the line loading be taken up urgently.
  - Maximization of hydro generation at Varahi. Sharavathi hydro complexes.
  - Ensuring optimal loading on parallel 220 kV Network



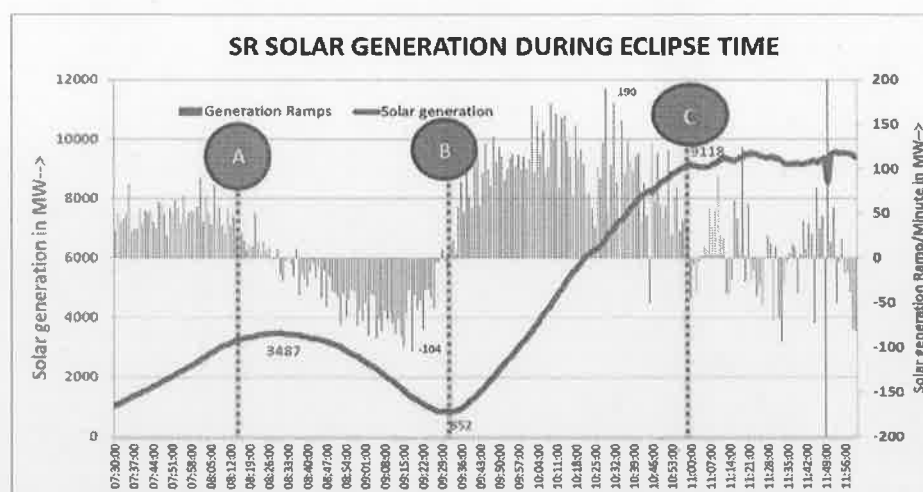
(iv) SRLDC letter in this regard is attached at **Annexure-3**

**d) Procedure for declaration hours of "Peak" and "Off-Peak" periods during a day**

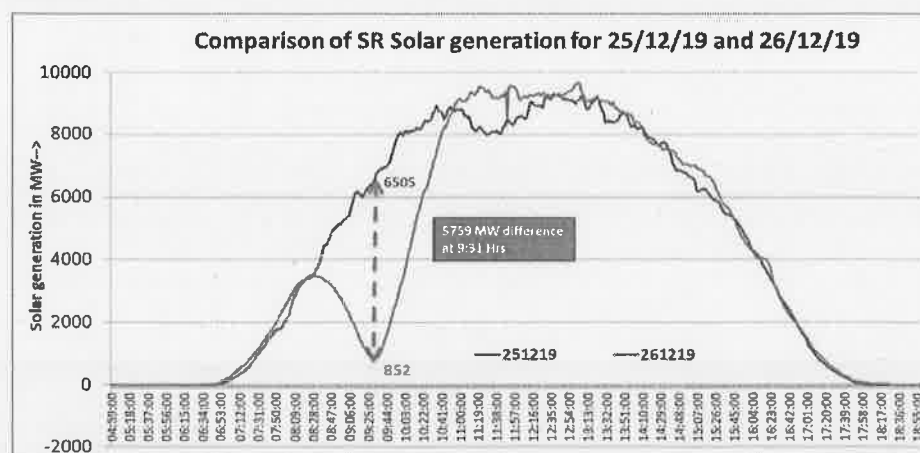
- (i) In 161<sup>st</sup> & 162<sup>nd</sup> OCC meetings the procedure for declaring **hours of "Peak" and "Off-Peak" periods during a day and sample calculations** were presented by SRLDC. Feedback from states if any may please be communicated.

**e) Solar eclipse on 26<sup>th</sup> Dec 2019 – Experience sharing by all**

- i) India has experienced annual solar eclipse on 26<sup>th</sup> December 2019. As per estimation main path of eclipse passes through Southern Region (SR) covering more than 80% of Sun at all major solar park locations of SR.
- ii) Southern region solar generation from 7:30 Hrs to 12:00 Hrs is plotted below which includes eclipse period (08:06 Hrs to 11:17 Hrs approx.)



- iii) Solar generation reduced from 3487 MW to 852 MW and then increased from 852 MW to 9118 MW, total shortfall of solar generation compared to 25<sup>th</sup> December is 5759 MW. SR solar for 25<sup>th</sup> and 26<sup>th</sup> December 2019 plotted below.



- iv) All the states are requested to share grid operation experience on eclipse day so that preparation for future events can be done based on the same.

**f) Workshops on Black start restoration procedure and MVAr testing**

- (i) MVAR testing at Rayalaseema TPS stg3 and AP Black start workshop conducted on 19<sup>th</sup> & 20<sup>th</sup> December 2019 respectively.
- (ii) Tamil Nadu, Karnataka and Kerala BSRP workshops dates yet to be given by states.

**g) Simhadri Islanding scheme**

- (i) In 162<sup>nd</sup> OCC APSLDC agreed to examine and revert back. AP has to revert back on this issue.

**2. Status review**

- a)** Commissioning of Bus reactors & Statcoms as approved in various meetings & Standing Committee.
- b)** Review of operational performance of Condenser mode of operation of N'Sagar & Srisaillam LB.
- c)** Status review of AUFR, df/dt & Automatic disconnection of Radial feeders
- d)** Review of forecast vs Actual demand of SR constituents
- e)** Status review of ATC / TTC calculation by SLDCs and LGBR submission
- f)** UFR & df/dt feeder's validation
  - (i) Status of implementation of validation findings can be updated in google spread sheets already circulated.
- g)** Mvar support by WTGs connected to Uravakonda to control over voltages /Mvar testing/ Approaching SERC for suitable PPA modifications –States may update the status. As an interim measure, SLDC could direct RE generators to reactive power management as per grid voltage profile. It is important considering the wind season commencement and also low demand.
- h)** Status review of Pending points as discussed in 4th RE/LVRT meeting
  - (i) Wind and Solar power forecasting by States.
  - (ii) Ensuring compliance of LVRT/HVRT before commissioning of RE generators.
  - (iii) Real time availability of Wind/Solar generation data
- i)** Flexibility Index computation on SCADA by SLDCs
- j)** Condenser mode of operation in other Hydro stations: