

**Suggestions on**  
**Draft CERC IEGC 1st amendment**  
**Regulation, 2024**

**CERC Public Hearing**  
**14<sup>th</sup> Aug 2024**

# Issues & Challenges: (1)

## 1. Accommodating MTL requirement through SCED:

### **Inconsistency with SCUC framework**

- SCUC has been operationalized from 26th April, 2024. SCUC Cat#1 program is run daily at 1500 hrs. based on the reserve requirement, current position of schedules and MTL.
- The output of SCUC is then passed on as input to the Security Constrained Economic Dispatch (SCED) for further scheduling activity.
  - If SCED is also assigned the duty to adjust the schedules below the MTL, it would render the SCUC Cat#1 exercise redundant.
  - This is akin to giving all the plants a "Yes" in the SCUC Cat#1 exercise, because the units that are on bar are now guaranteed to reach the MTL.

# Issues & Challenges: (2)

## 1. Accommodating MTL requirement through SCED:

### Alignment with existing market-based initiatives

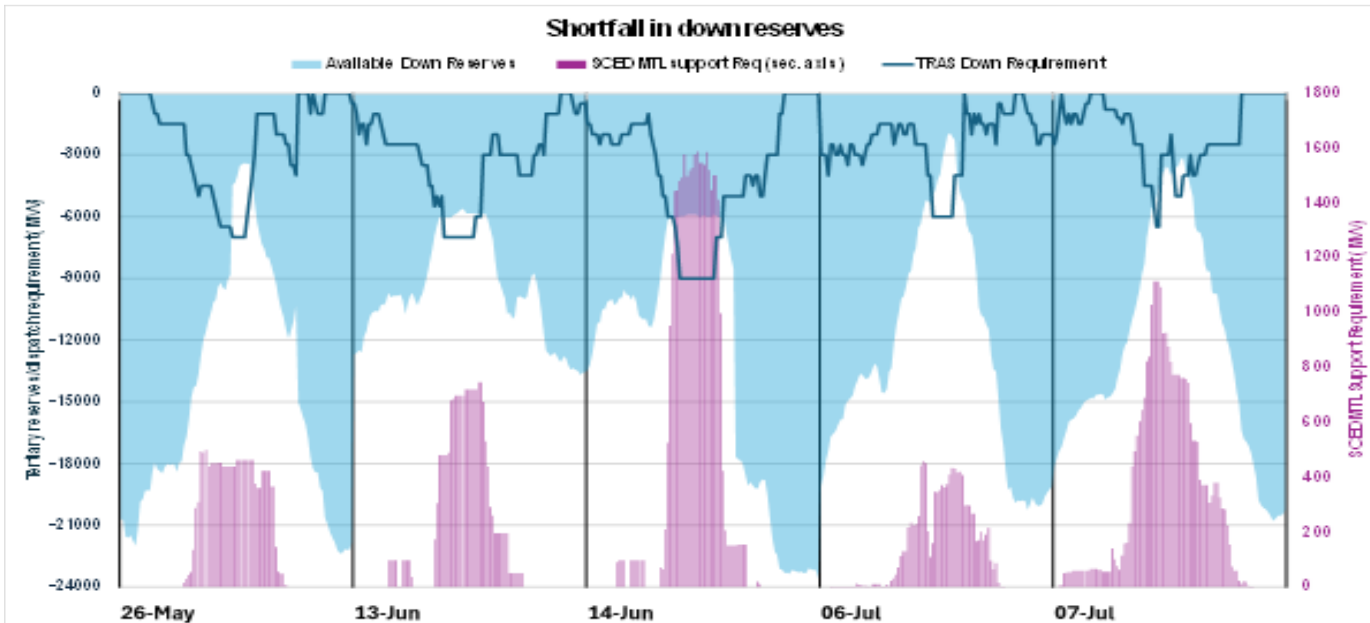
- The primary aim of SCED is to promote economic efficiency. However, as per the proposal in draft the potential savings from the **National SCED Pool will be used to facilitate the MTL** of individual stations in an **out-of-merit dispatch** and adds to the overall cost.
- This may lead to states depending on NLDC to ensure the MTL for the ISGS plants in which the respective DISCOMs have shares, discouraging spirit of decentralized scheduling.
- **Plants may become reliant on SCED support** and **Market based mechanisms may not be explored** by the power plants to meet the minimum turndown level even for a few (1-2) time blocks. As a result, the price signals may get distorted.
- MTL support through SCED would **eventually inhibit such natural signals for market design improvement needs.**

# Issues & Challenges: (3)

## 1. Accommodating MTL requirement through SCED:

### Reserves required for ensuring MTL through SCED and grid security aspects

- Draft Regulation 6(2)(a) mentions: “The schedule of the marginal generating stations ... shall be reduced ....”. The above provision assumes a priori that the marginal generating stations in SCED would always have ramp-limited down reserves, which is not the case as seen in actual operation.
- In such cases, **MTL cannot be guaranteed** for all the generating stations in full, and enforcing the technical minimum constraint would make the SCED formulation infeasible.
- It is also **difficult to identify the marginal generator**, as SCED-Up and SCED-Down could be due to natural merit order, maintaining MTL or both.

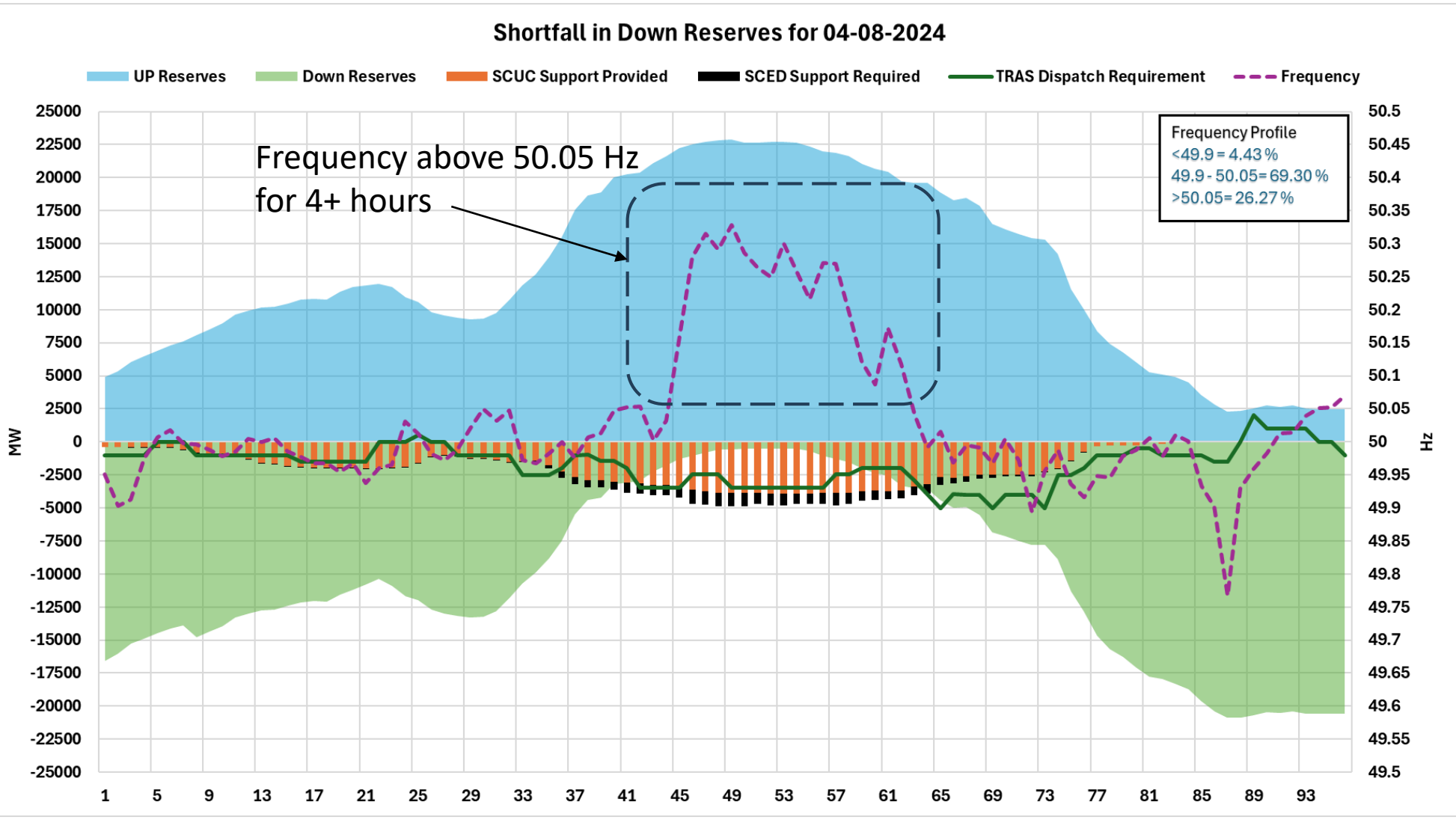


Since May 2024, there have been at least 10 days when the entire thermal ISGS have been backed down to MTL and available down reserves were inadequate to meet the dispatch requirement.

The figure below shows the down reserves availability and dispatch requirement under TRAS-Shortfall mechanism, along with the quantum of additional MTL support requirement from SCED for these 5 days.

- Further ability to dispatch down reserves may also be constrained by **ramp constraints & transmission congestion.**

# Case Study: Shortfall in Reserves – 4<sup>th</sup> August 2024



SCUC Support provided:  
3900 MW

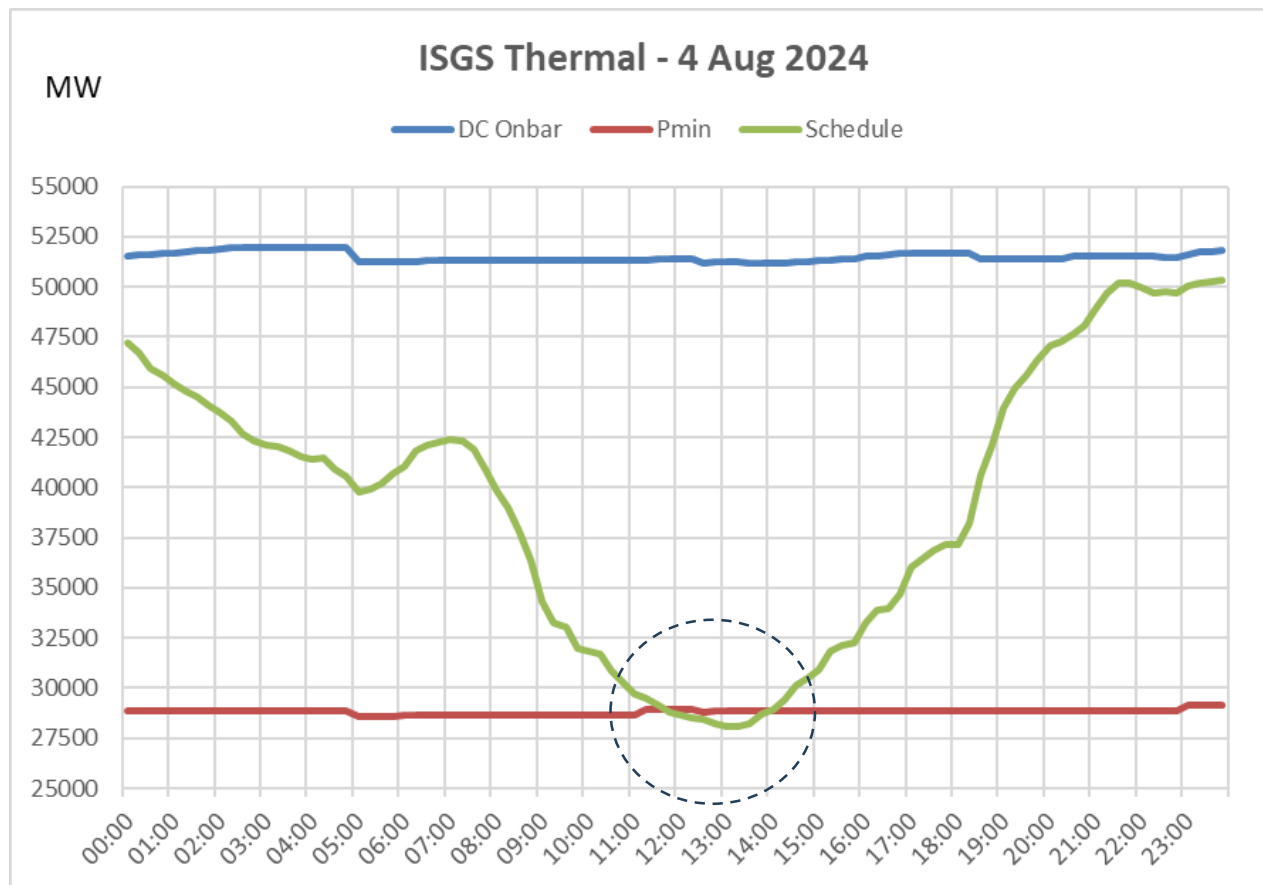
Down Reserves available  
(after SCUC dispatch):  
500 MW

TRAS dispatch  
Requirement in real-time:  
-3500 MW  
(40 MW dispatched from MBAS)

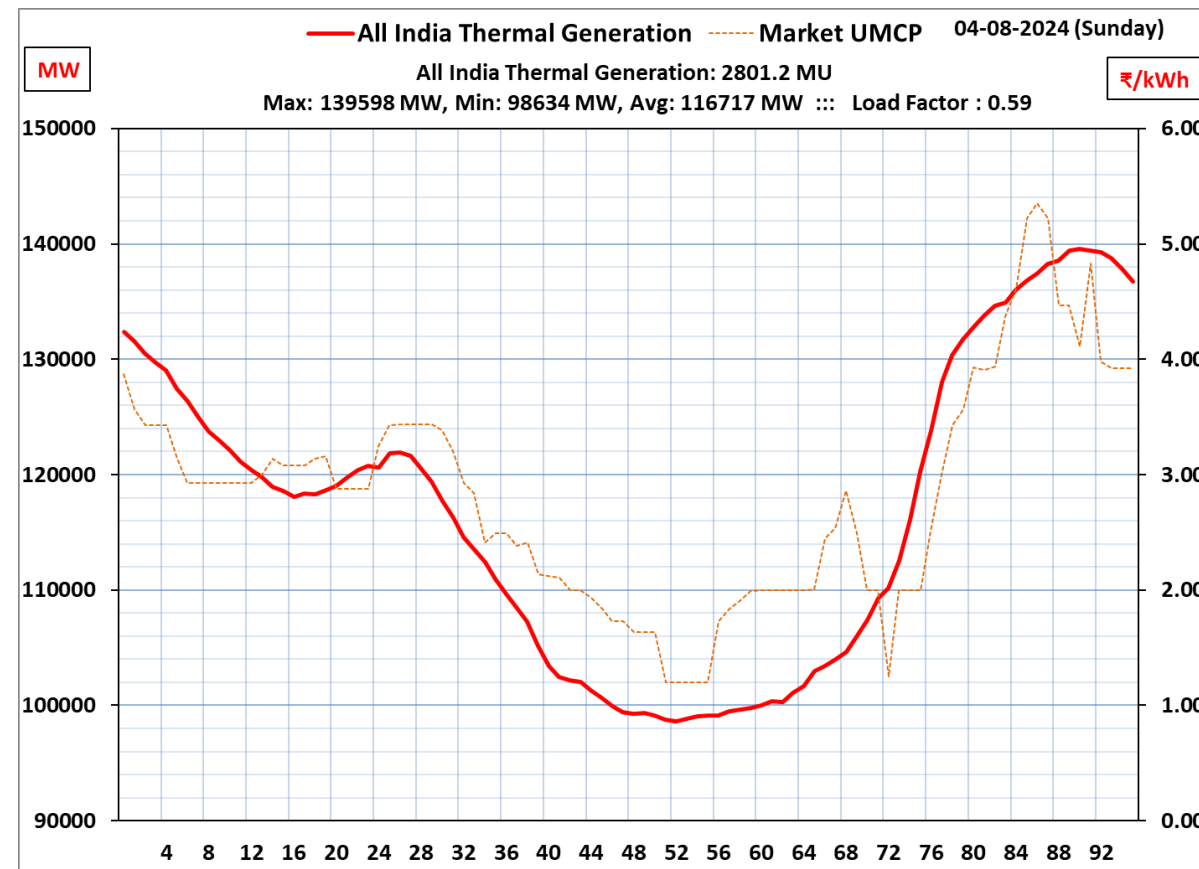
Schedule below MTL  
(addl. support req. from  
SCED):  
1000 MW

**Insufficient down reserves to maintain frequency. Also, available down reserves less than MTL support req.**

# Thermal generation – All India and ISGS – 4th Aug 2024



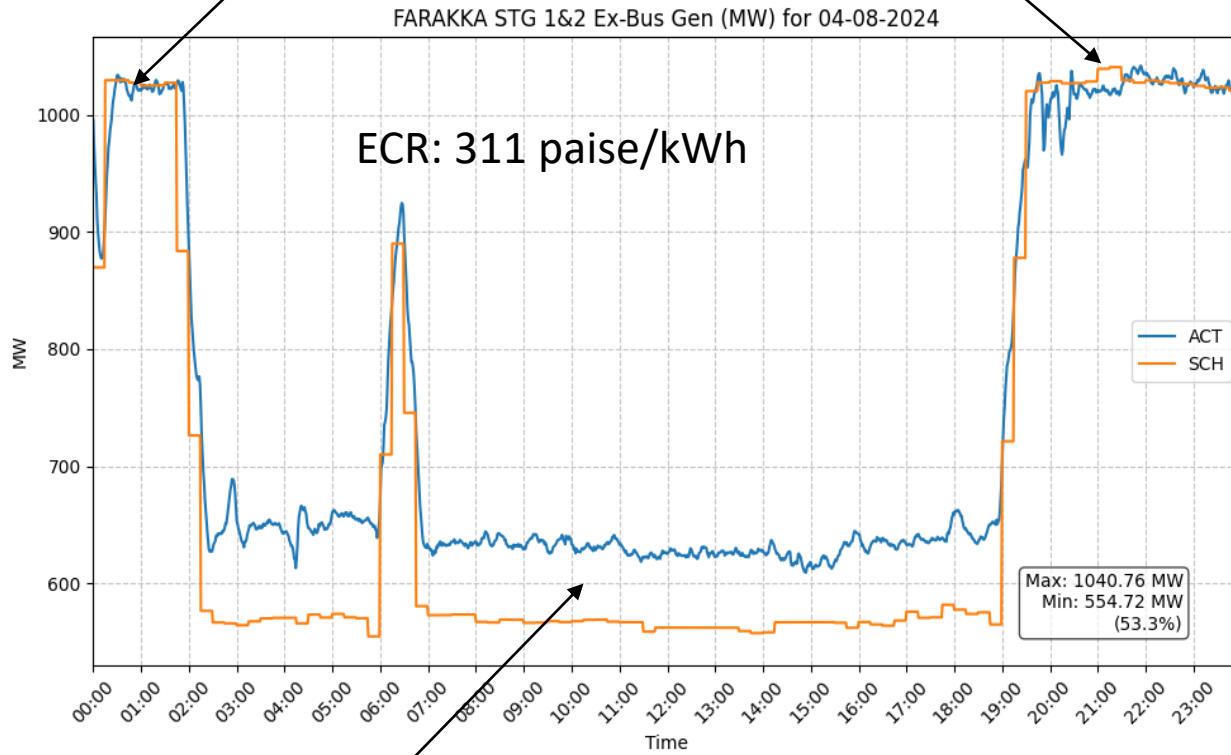
Aggregate ISGS Thermal scheduled below 55%



All India Thermal Generation below 100 GW

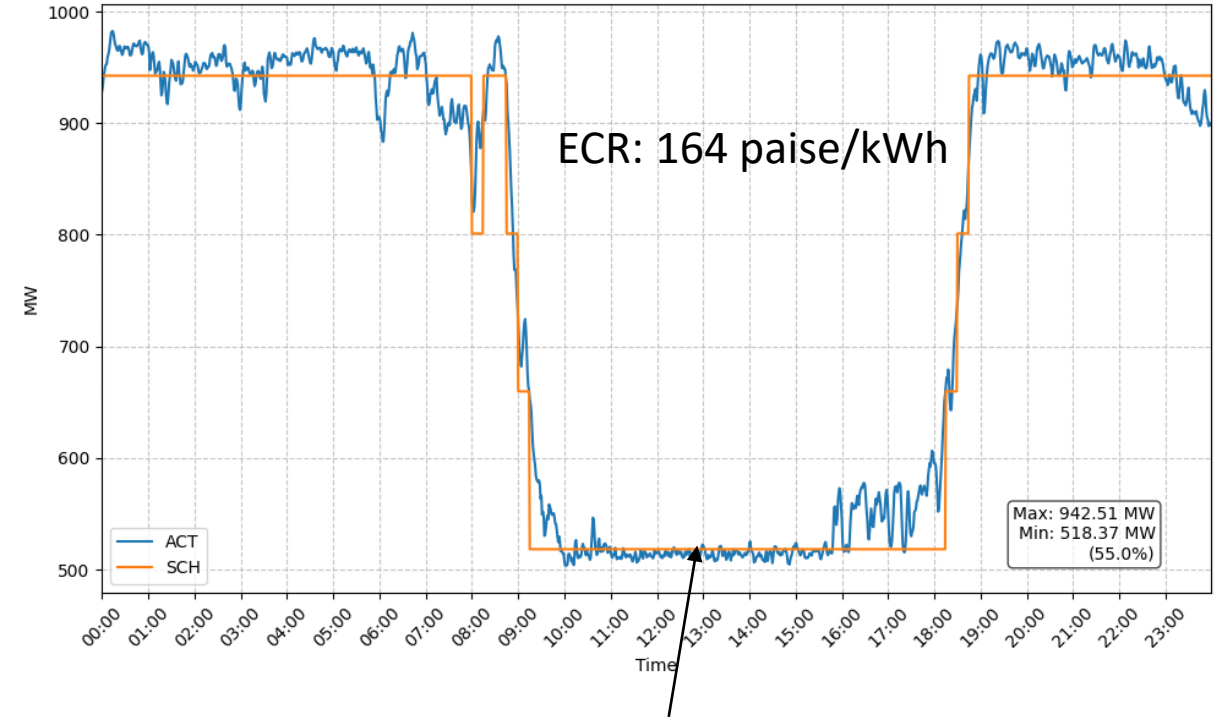
# ISGS Generation pattern – 4<sup>th</sup> Aug 2024

Fully scheduled during evening hours



Over injection throughout the day

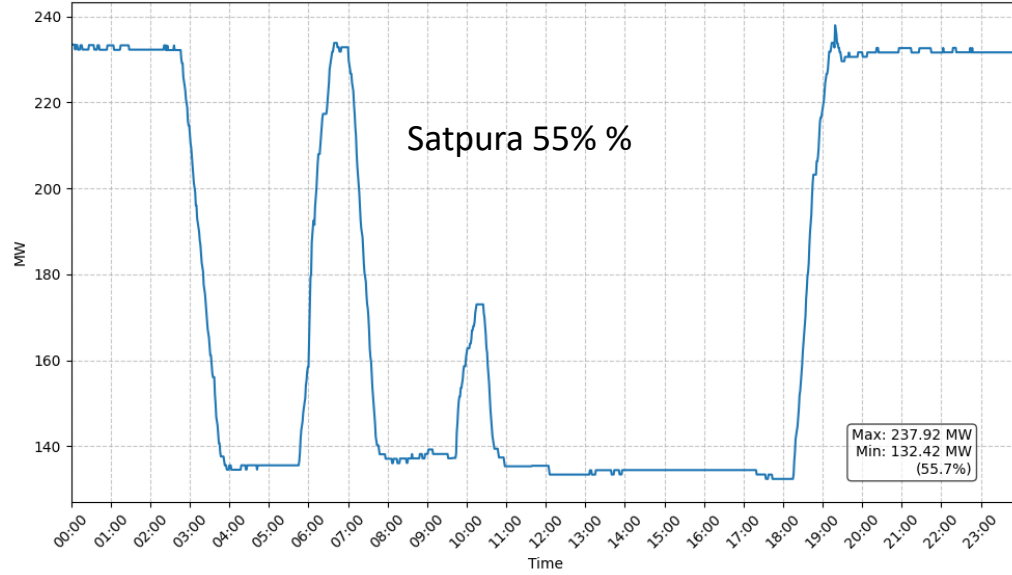
RIHAND-2 Ex-Bus Gen (MW) for 04-08-2024



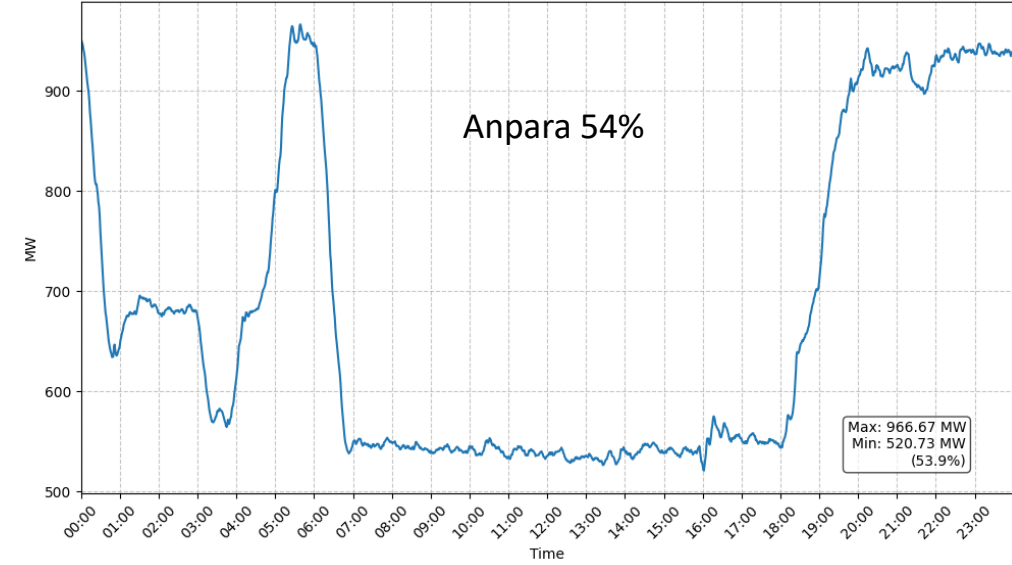
Pithead stations fully backed down till MTL (all down reserve depleted)

# Intra-state generation pattern – 4<sup>th</sup> August 2024

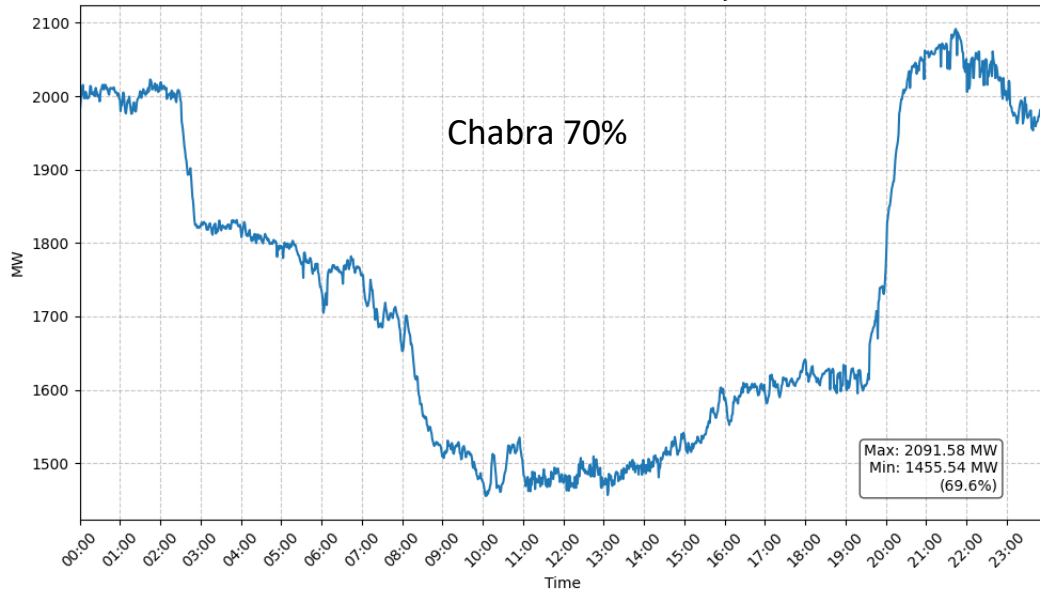
SATPURA Ex-Bus Gen (MW) for 04-08-2024 (MADHYA PRADESH)



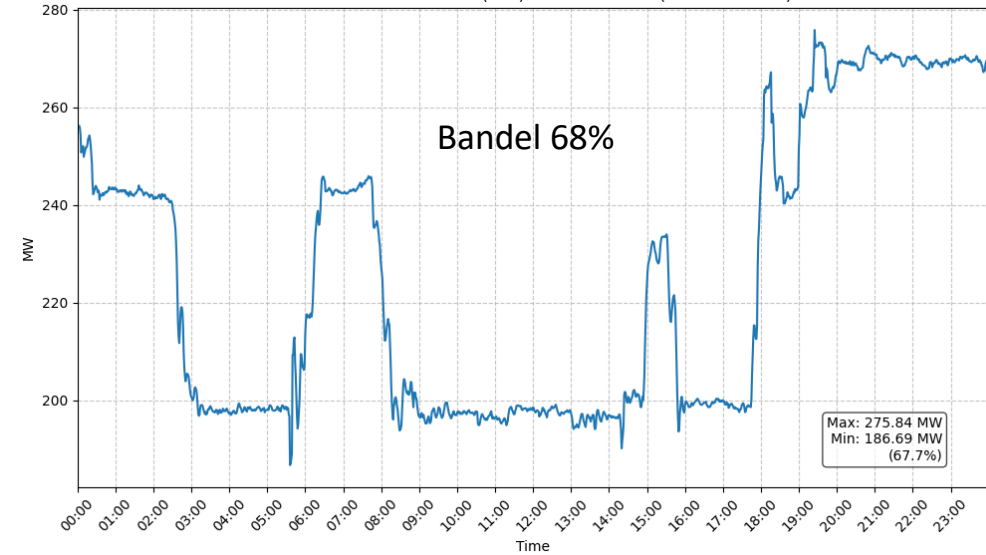
ANPARA D Ex-Bus Gen (MW) for 04-08-2024 (UTTAR PRADESH)



CHABRA Ex-Bus Gen (MW) for 04-08-2024 (RAJASTHAN)

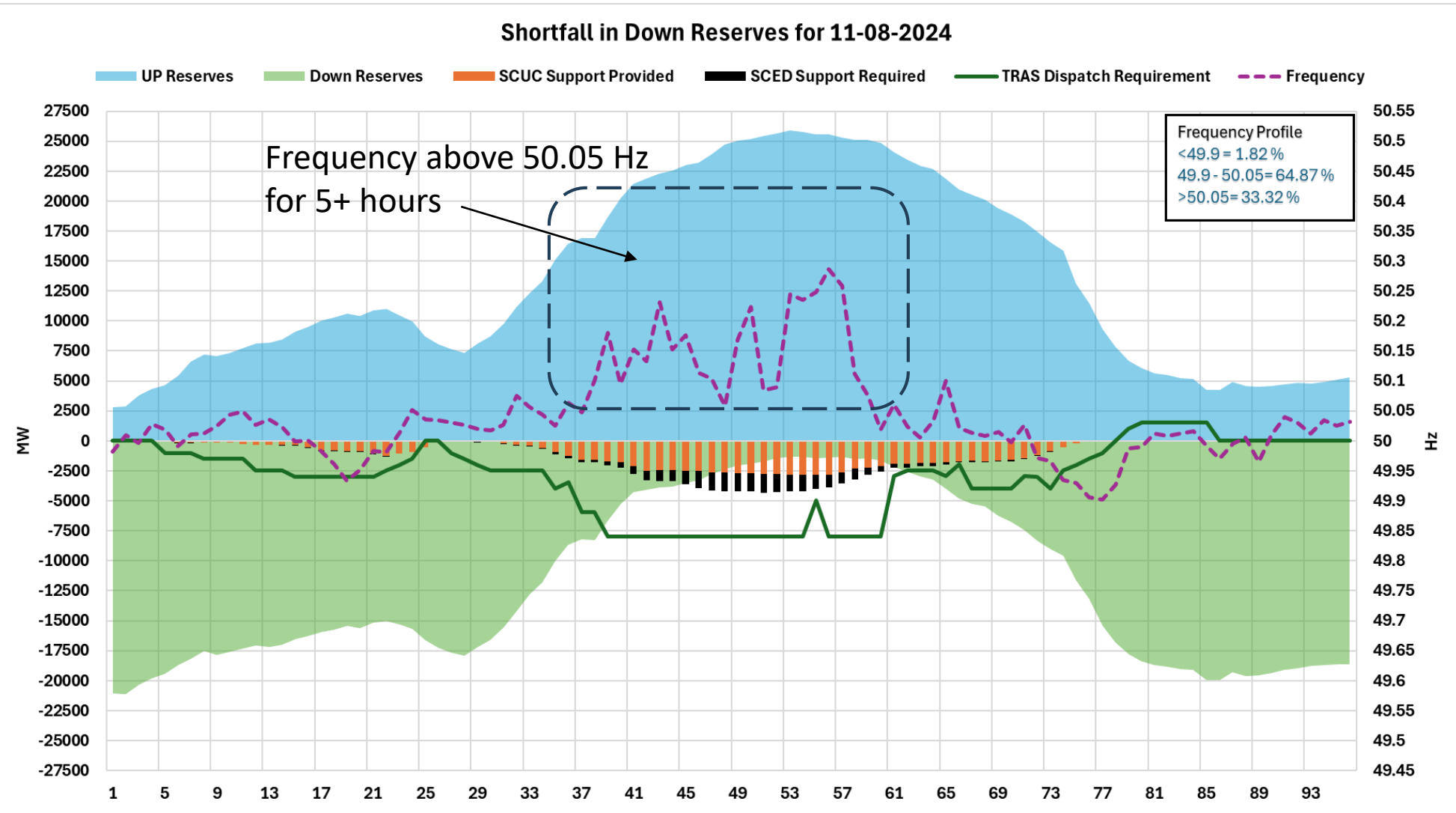


BANDEL TPS Ex-Bus Gen (MW) for 04-08-2024 (WEST BENGAL)





# Case Study: Shortfall in Reserves – 11<sup>th</sup> August 2024



SCUC Support provided:  
2800 MW

Down Reserves available  
(after SCUC dispatch):  
1300 MW

TRAS dispatch  
Requirement in real-time:  
-8000 MW  
(40 MW dispatched from MBAS)

Schedule below MTL  
(addl. support req. from  
SCED):  
1500 MW

**Similar pattern being observed frequently!**

**RE curtailment reported by some states**

## Ensuring MTL through SCED: Related aspects

- Congestion reduces the quantum of effective available reserves
  - For example: Kudgi (in SR) scheduled below MTL; Down reserves available in NR plants to balance SCUC Up given to Kudgi but can't be dispatched due to congestion in NR import
- ISGS connected units reluctant to go under USD
  - Choice between forgoing capacity charge or risking supply obligation created by upwards revision of requisition
- 45 units (24.3 GW) targeted for 40% MTL by CEA during 2024-25
  - Compensation mechanism proposed under 1<sup>st</sup> amendment of TCT Regulations, 2024
  - IEGC provisions for scheduling of these units till 40% MTL would reduce quantum of support needed

# Issues & Challenges: (4)

## 1. Accommodating MTL requirement through SCED:

### **Responsibility of states to ensure MTL**

- Draft Regulation 6(2)(b) mentions : “the entity which has caused the schedule of the generating station or unit thereof below minimum turndown level.”

Identifying the entity responsible for causing the schedule to move below MTL is very challenging, considering the continuous movement of requisitions until the gate closure of 7-8 time blocks before the delivery period.

It is also incorrect to assume that only one entity would be responsible for all the blocks. Therefore, these responsible entities must be identified on a block-by-block basis.

- Presently, SCED accounting is done on a net basis for a month. **Maintaining these details for every time block is a challenge from both a transparency and accounting perspective.**

# Challenges in identifying responsible entity - sample

## Kudgi – 16<sup>th</sup> May 2024 – 44<sup>th</sup> TB

State	Requisition On D-1 Day @ 1500 hrs	Requisition on D Day @ gate closure	Decrease in Requisition
<b>AP</b>	213	117	96
<b>Karnataka</b>	682	706	0 (23 increase)
<b>Kerala</b>	110	61	50
<b>Tamil Nadu</b>	354	195	159
<b>Telangana</b>	0	0	0
<b>Pondicherry</b>	0	0	0
<b>Total</b>	<b>1359</b>	<b>1078</b>	<b>305 (decrease)</b>

- Scheduled upto MTL on D-1 and brought below MTL in real-time
- From requisition pattern, AP, Kerala and TN responsible for the schedule to go below MTL
- Dilemma to identify responsibility of Telangana and Pondicherry
  - Both states didn't requisition at all
- Requisitions snapshot at gate closure insufficient to determine responsible entity. Need to also look at change in requisitions.
- Responsible entities may vary every time block
- Potential for disputes.

# Issues & Challenges: (5)

## 1. Accommodating MTL requirement through SCED:

### **Certification and verification may be difficult**

- Draft Regulation 6(2)(d): “Generating station furnishes to the RLDC the efforts...”

This clause is not in line with the earlier market-based mechanisms introduced by the Hon’ble CERC, where the confidentiality of the bids is also important.

It is also difficult for NLDC to verify and quantify the efforts put forth by such generators given the tight timelines involved in the scheduling process.

Additionally, as discussed, it may shift the focus of grid operators away from their core functions of grid security and reliability.

# Case-wise Analysis

Action	Impact on ISGS	Impact on Beneficiaries	Impact on Power System
<b>Forcible requisition to ISGS upto TM through SCUC/SCED</b>	Status quo or passive behavior encouraged	<ul style="list-style-type: none"> <li>(1) No incentive for going upto TM for intrastate generation.</li> <li>(2) Unreasonable requisition continues.</li> </ul>	<ul style="list-style-type: none"> <li>(1) Loss of flexibility (down reserves reduced).</li> <li>(2) Deficit in Pool Account &amp; grid security charges increase.</li> <li>(3) Curse of commons.</li> <li>(4) ISTS RE curtailment.</li> </ul>
<b>Forcible requisition to ISGS upto TM through beneficiary requisition jacking</b>	Status quo or passive behavior encouraged	<ul style="list-style-type: none"> <li>(1) Intrastate generation pressure to go to 55%.</li> <li>(2) RE curtailment in worst case at intrastate level.</li> <li>(3) DSM related issues.</li> </ul>	<ul style="list-style-type: none"> <li>(1) Loss of flexibility. (2) Frequency control difficult as down reserves would get exhausted if beneficiaries don't take action.</li> </ul>
<b>Leaving ISGS schedules below TM &amp; unit not taken out under USD</b>	<ul style="list-style-type: none"> <li>(1) Overinjection &amp; DSM-related issues</li> <li>(2) Selling under loss in RTM</li> </ul>	<ul style="list-style-type: none"> <li>(1) No incentive for going upto TM for intrastate generation.</li> <li>(2) Unreasonable requisition continues.</li> </ul>	<ul style="list-style-type: none"> <li>(1) Frequency control a challenge due to over- injection.</li> </ul>
<b>Leaving ISGS schedules below TM &amp; unit taken out under USD</b>	<ul style="list-style-type: none"> <li>(1) Availability hit if DC reduced.</li> <li>(2) Supply obligation if DC not revised (Limited supply in PX during peak hours).</li> </ul>	<ul style="list-style-type: none"> <li>Load shedding during peak hours if DC reduced.</li> </ul>	<ul style="list-style-type: none"> <li>(1) Low frequency control a challenge during peak hours, particularly if DC not reduced.</li> <li>(2) Costly gas operated in open cycle.</li> <li>(3) Grid security charge.</li> </ul>

# Issues and Possible Way Forward

- In all the cases, the system is at a loss due to loss of flexibility & frequency control issues.
- Formulation should put pressure on both ISGS & beneficiaries, to create conditions conducive for secure and reliable power system operation.
  - Draft amendments to T&C of Tariff. 40% TM compensation charge proposed
  - Need for all generators at ISTS and In-STS to follow this.
- RE curtailment pan-India due to above inflexibility would be a logistic issue unlike transmission constraint which is location or area-specific curtailment.
  - Beneficiaries of ISTS RE spread out in many non-RE rich states across regions.

## Way Forward

- *Some restraint on beneficiary requisition.*
- *Review of the provisions related to Supply Obligation on Generators*
- *ISGS should use all market opportunities*
- *Implementing essential reliability services from renewable generation needed*

***Considering the challenges associated with the proposal of accommodating MTL requirement through SCED, the amendment related to MTL support through SCED be reconsidered and held in abeyance***

Thank You!