



Rate of Congestion charge in real-time operation in inter-state transmission of electricity

13.05.2026

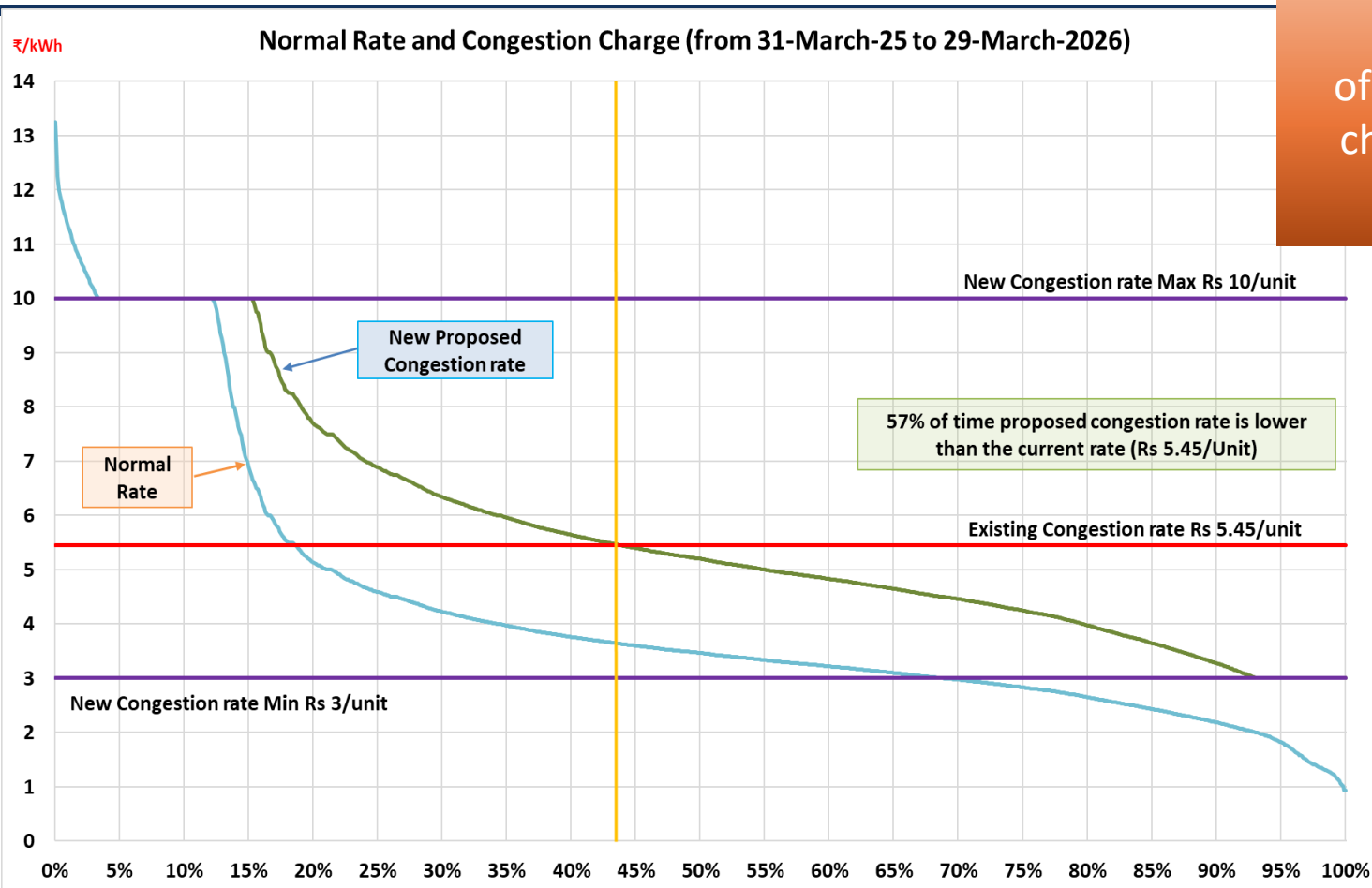
- CERC notified the “*Measures to Relieve Congestion in Real Time Operation Regulations, 2009*” on **22.12.2009**
- Objective:
 - Congestion charges serve as a **commercial mechanism** to relieve real-time transmission congestion
 - Helps maintain **grid security, stability, and reliable system operation**
 - make local generation economically preferable over overdrawing through constrained corridors.
- Congestion charge discourages through congested corridors :
 - **Over drawal /Under-injection** in importing region
 - **Under drawal /Over-injection** in exporting region
- Encourages entities to take **timely corrective actions** for secure grid operation
- Congestion charge derived from difference between maximum UI charge and UI charge at 50 Hz.
- Maximum UI charge: **Rs. 7.35/kWh**; UI charge at 50 Hz: **Rs. 1.92/kWh**.
- Resulting congestion charge fixed at Rs. **5.45/kWh**.

Proposed Congestion Charge Mechanism

- Congestion charge to be linked with DSM framework rates
- Applicable rate shall be **1.5 times** of:
 - Reference Charge Rate (RR),
 - Contract Rate,
 - Normal Rate of Charges for Deviation (NR)
- Proposed limits for congestion charge:
 - **Minimum: Rs. 3/unit**
 - **Maximum: Rs. 10/unit**

Analysis of the Proposed Congestion Charge

Block-wise Normal Rate data for FY 2025–26 was analysed to assess implications of the revised formulation.



Duration Curve of Normal Rate and Congestion Charge

~43%
of time blocks proposed
charge exceeds existing
Rs. 5.45/kWh

~57% of time the
proposed rate is lower
than the current Rs.
5.45/kWh rate

~7%, of time - capped at Rs. 3/kWh
($1.5 \times \text{Normal Rate} < \text{Rs. 3/kWh}$)

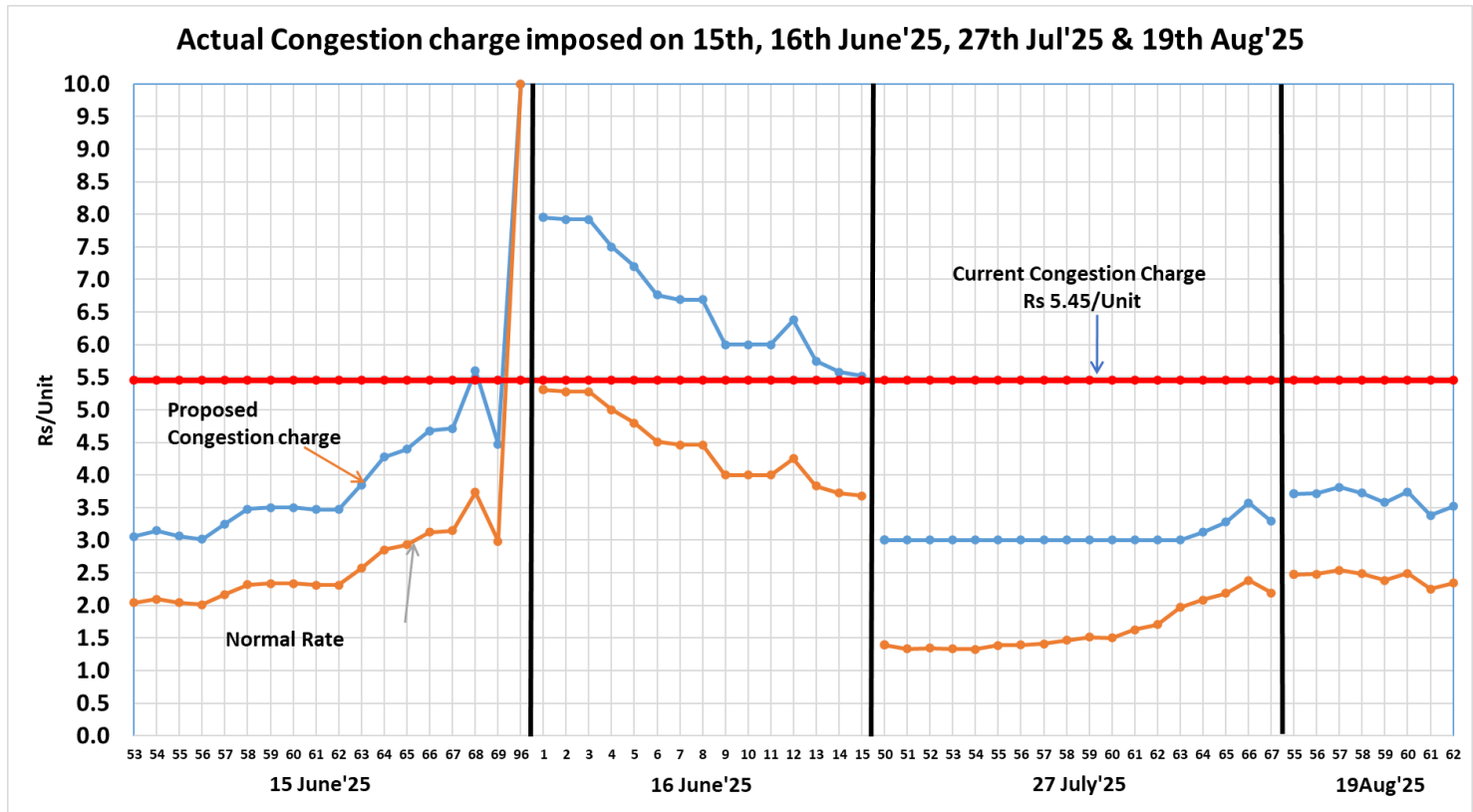
Key Observations

- DSM rates reflect market demand-supply position but may not fully capture real-time transmission congestion.
- Low DSM rates during high RE generation / low demand periods can weaken congestion signals.
- The NR is generally low during solar hours. So it is expected that proposed charge during solar Hrs and during high frequency condition may be close to Rs 3/Unit
- Proposed congestion rate signal seems to be stronger than the existing rate only for a part of the operating period.

Congestion Charge Instances in FY 2025–26

Congestion charges were imposed on four occasions during FY 2025–26.

Date	Time Block	Corridor
15-06-25	53 to 69 & 96	SR-WR
		SR-Export
16-06-25	1 to 15 and 46 to 66	SR-WR
		SR-Export
27-07-25	50 to 67	SR-WR
		SR-Export
19-08-25	55 to 62	SR-WR
		SR-Export
		WR-NR
		NR-Import



Key Findings

- For 15th June 2025, 27th July 2025, and 19th August 2025, the proposed charge was lower than the current rate.
- Only on 16th June 2025 did the computed proposed congestion charge exceed the existing level of Rs. 5.45/kWh. For all remaining instances, it was lower than the current rate.

- Revised framework should retain the effectiveness of congestion charges as a deterrent during transmission system stress conditions.
- Congestion charges are imposed only after operational measures have been undertaken and necessary warnings have been issued.
- Under stressed grid conditions, a strong commercial signal is necessary to induce corrective action.

submission:

- Grid-India supports the review of the congestion charge mechanism through the introduction of variability linked to DSM rates. However, the proposed minimum congestion charge levels require reconsideration.
- Considering large scale RE integration:
 - congestion charges shall be applicable to all entities, including RE generators.
 - this will ensures non-discriminatory treatment and uniform accountability by all entities
- Minimum proposed congestion charge may be reviewed as it is **lower than the existing level of Rs. 5.45/kWh.**

Thank You