

CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Draft Central Electricity Regulatory Commission (Power Market) (Second Amendment) Regulations, 2026

Explanatory Memorandum

1. BACKGROUND

- 1.1. In exercise of the powers conferred under section 178 of the Electricity Act, 2003, read with all other relevant provisions, the Central Electricity Regulatory Commission (hereafter referred to as "the Commission") notified the Central Electricity Regulatory Commission (Power Market) Regulations, 2021 (hereafter referred to as "PMR 2021") vide notification No. L-1/257/2020/CERC with effect from 15th August 2021.
- 1.2. The PMR 2021, inter-alia, provides enabling provisions for the implementation of market coupling among the power exchanges, which are yet to be brought into effect by the Commission. Regulations 2(1)(af), 2(1)(ag), 37 and 38 of PMR 2021 provide as under:

Definition of Market Coupling

"2(1)(af) Market Coupling" means the process whereby collected bids from all the Power Exchanges are matched, after taking into account all bid types, to discover the uniform market clearing price for the Day Ahead Market or Real-time Market or any other market as notified by the Commission, subject to market splitting."

Objectives of Market Coupling

"37. Objectives of Market Coupling

- (1) Discovery of uniform market clearing price for the Day Ahead Market or Realtime Market or any other market as notified by the Commission;*
- (2) Optimal use of transmission infrastructure;*

(3) Maximisation of economic surplus, after taking into account all bid types and thereby creating simultaneous buyer-seller surplus.”

Definition of Market Coupling Operator

“2(1)(ag) Market Coupling Operator” means an entity as notified by the Commission for operation and management of Market Coupling.”

Designation of Market Coupling Operator

“38. Designation of Market Coupling Operator

Subject to provisions of these regulations, the Commission shall designate a Market Coupling Operator who shall be responsible for operation and management of Market Coupling”.

- 1.3. The Commission understands that the objectives of market coupling in the Indian context, including the discovery of a uniform market clearing price, optimal use of transmission infrastructure and maximisation of economic surplus are different from those of other countries, where coupling broadly entails the integration of two or more electricity markets or different geographies. The need for implementation of market coupling in India has been a major subject of discussion in both policy and regulatory spheres.
- 1.4. The Ministry of Power (MoP), vide its letter dated 02.06.2023, emphasised the importance of market coupling for the overall development of the power market. The Report of the Group on Development of the Electricity Market in India, 2023, constituted by the MoP, also underscores the need to evaluate the feasibility of price coupling by CERC/MoP in order to ensure uniform price discovery.
- 1.5. Moreover, the Commission, in the matter of transmission corridor allocation on a pro-rata basis by an order dated 30.04.2015 in Petition 158/MP/2013, constituted an Expert Group to find an acceptable solution that may also

achieve social welfare maximisation. The Expert Group, comprising members from bodies such as CEA, POSOCO, CERC, Power Exchanges, and other subject experts from academia, noted in its report that merging the bids (integrated market clearing or market coupling) of the two power exchanges would give the most optimal solution with social welfare maximisation irrespective of congestion.

1.6. In July 2020, the Commission published draft Central Electricity Regulatory Commission (Power Market) Regulations, 2020, with relevant provisions with regard to the implementation of Market Coupling. Subsequently, after considering the views/ suggestions/ comments of the stakeholders in detail, the Commission decided that the provisions with regard to market coupling and Market Coupling Operator shall come into effect as and when decided by the Commission in accordance with the regulations to be specified separately. Accordingly, enabling provisions for the implementation of Market Coupling were provided for in PMR 2021.

1.7. With due regard to the recommendations of the expert committee(s) and the provisions in PMR 2021, vide a Public Notice dated 21st August 2023, a Staff Paper was issued on Market Coupling. The Staff Paper sought to initiate a discussion with market participants and other stakeholders on various issues and challenges involved in implementing coupling among power exchanges. The key points for discussion raised in the staff paper were:

- i. Does the current market scenario form a compelling case for Market Coupling?
- ii. Effect of coupling on technological innovation and competition
- iii. Operational Aspects:
 - a. Who shall be the Market Coupling Operator?
 - b. Which Algorithm should be adopted for a coupled market?
 - c. How will the Clearing & Settlement be carried out?
 - d. In which market segments should coupling be introduced first?
 - e. Changes in the Settlement Process

- 1.8. The Commission received responses to the Staff Paper from a wide spectrum of stakeholders, with a total of 127 stakeholders submitting their comments and suggestions. The list of stakeholders is available on the Commission's website.
- 1.9. After carefully examining the suggestions received from the stakeholders, the need was felt for more evidence-based results to decide on the potential benefits that coupling may accrue to the market participants and the power system as a whole. Accordingly, the Commission's staff carried out several simulations using bid data from power exchanges to study the impact of market coupling on volume, prices, and economic surplus, as stipulated in PMR 2021.
- 1.10. Accordingly, the Commission vide its directions dated 06.02.2024 in Petition No. 1/SM/2024, directed Grid-India to implement on a shadow pilot basis (a) coupling of the Real-Time Market of the three power exchanges, (b) separately coupling of the Real-Time Market at the three power exchanges along with SCED, and (c) coupling of the DAM of the three power exchanges.
- 1.11. Accordingly, in pursuance of the directions of the Commission dated 6.2.2024, Grid-India on 30 June 2025, submitted the *"Feedback Report on D+1 run of Shadow Pilot on Power System & Cost Optimization through Market Coupling for the four-month period from 1 December 2024 to 31 March 2025"*. Summary of the results of the D+1 run of Shadow Pilot for different market segments for the four-month period from 1 December 2024 to 31 March 2025 is as under:
- i. In case of DAM coupling, the overall welfare increases by ₹38 Cr (0.3%), overall volume cleared increases by 52 MU (0.2%), negligible impact on price due to skewed liquidity and welfare increases in every session in line with the objective of coupling.
 - ii. In case of RTM coupling, the overall welfare increases by ₹72 lakh (0.01%), overall volume cleared increases by 1.54 MU (0.01%), negligible impact on price due to skewed liquidity and welfare increases in every session in line with the objective of coupling.

- iii. In case of RTM-SCED coupling, the overall net savings improve by ₹1.4 crore/day in the coupled scenario; despite the reduction in aggregate costs, the average cost increases by ₹ 1/MWh in the coupled scenario due to reduced demand catered; and ACP volatility reduces in the coupled scenario.

1.12. Based on the submissions made by Grid-India and as per the provisions of Market Coupling specified in Regulations 37 to 39 of the PMR 2021, the Commission decided to initiate the process for implementing market coupling in a phased manner and its directions dated 23.07.2025 in Petition No. 8/SM/2025, directed the staff of the Commission to propose the regulatory amendments with respect to the implementation of market coupling.

1.13. In view of the above, the Commission has proposed the Central Electricity Regulatory Commission (Power Market Coupling) Regulations, 2026 (hereafter referred to as "Draft Regulations").

2. KEY ASPECTS CONSIDERED FOR PROPOSING DRAFT REGULATIONS

2.1. Development of the electricity market in India has followed a unique trajectory. The country achieved a fully synchronous national transmission grid in December 2013, which enabled electricity to be transmitted seamlessly across regions. Because of this integrated grid structure, India's electricity market is often described as "coupled by design and split by exception." Unlike Europe or North America, where market coupling primarily connects separate geographic markets across national borders, the Indian system already operates within a single interconnected grid. The challenge in India, therefore, is not geographical integration, but integration across multiple power exchanges operating parallel markets within the same system.

2.2. The idea of a multi-exchange model in the power sector was originally conceived with a view to encouraging competition amongst the exchanges and

catering to the growing and varying requirements of market participants. A voluntary approach has been followed for participation in various contracts in the power exchanges. Over the years, the volume of transactions in power exchanges has increased manifold, and similarly, the number of products and market segments has expanded across all power exchanges.

2.3. However, the multiple power exchange model has often resulted in scenarios such as:

- i. Price divergence across exchanges for identical delivery periods;
- ii. Sub-optimal utilisation of transmission corridors;
- iii. Market fragmentation;
- iv. Potential inefficiencies in congestion management;
- v. Arbitrage-driven distortions rather than fundamental price signals.

2.4. While the present market structure has been designed to maximise efficiency gains, the power exchanges with lower volumes often point to the intrinsic nature of the collective transactions segment (DAM and RTM), which leads to a concentration of liquidity in one power exchange, due to which the benefits of competitive efficiency do not percolate to the market participants. In the case of collective transactions such as DAM and RTM, which are based on a double-sided closed bid auction, the decision of an electricity buyer/seller is influenced by the certainty of getting his bids/offers cleared, which depends on the level of liquidity in an exchange. Thus, the liquidity on one exchange helps attract more liquidity over time in the same exchange.

2.5. The Commission, while striving to develop a power market that is efficient, transparent and free of any market manipulations, has made several interventions from time to time based on the observations and concerns raised by stakeholders with regard to the functioning of Power Exchanges. Some of them are as under:

- (1) Upon cognizance of practices of Power Exchange, such as allowing manual entry of bids, cancellation/ modifications of bids, which can provide a

potential breeding ground for market manipulation, the Commission vide order dated 21.02.2024 in petition no. 2/SM/2024 directed Power Exchanges to disable manual entry of bids, no acceptance of bids after the trading hours, and build a robust system with end-to-end encryption of data. In order to maintain bid anonymity and market integrity, power exchanges were also directed that the encrypted bid data of members/ clients is not made accessible to anyone till bid matching and finalisation of the results. The Commission in the order also noted that “while it is necessary to have some flexibility on the part of the power exchanges to deal with system exigencies and to accommodate the requests of members, the Commission feels that the procedure for bid entry and timelines, which constitute the key elements of a double-sided closed auction process with uniform price discovery, should be strictly complied with to avoid any scope for market manipulation”.

- (2) The Commission, in its order dated 28.04.2025, in petition no. 8/SM/2024, noted that all the power exchanges had attempted to introduce all possible slots of time blocks under TAM to cater to the specific needs of market participants, which did not augur well with the spirit of the term “pre-specified” intended by the Commission in the directions in petition nos. 229/MP/2021, 219/MP/2021 & 206/MP/2022. Given the distinct purpose of TAM, the Commission did not agree with the contention that pre-defined time restricts the market participants' ability to plan their procurement on a T+2 ahead basis. The Commission agreed with the stakeholders' view that allowing too many time slots, with overlapping time blocks and a high level of granularity, dilutes competition and leaves scope for manipulation on account of low market depth. Accordingly, the Commission directed the power exchanges to discontinue the provision of user-defined time slots (including hourly slots).

Despite several regulatory interventions by the Commission from time to time, there have still been concerns raised by the stakeholders on the functioning of the Power Exchanges. It is believed that very frequent regulatory interventions

are not desirable for the development of the market. After analysing the operational experiences of Power Exchanges, in the interest of probity and transparency in market operations, the Commission has decided to designate Grid India as Market Coupling Operator, rather than going in for the round robin method as envisaged earlier. This will improve regulatory oversight and reduce the need for frequent regulatory interventions.

2.6. The key benefits of Market Coupling are expected to be as under:

(1) Discovery of a Uniform Market Clearing Price: Presently, different prices are discovered on all three operational power exchanges for a particular time block of collective transactions. A uniform market clearing price discovered by the market coupling process would become the single reference price for the market. Moreover, as the Deviation Settlement Mechanism (DSM) charges are currently indexed to the clearing price of DAM, a single price from market coupling would minimise the scope for any arbitrage between deviation settlement and the market. Likewise, financial products in the electricity segment would benefit from a single, uniform price discovery.

(2) Optimal use of transmission infrastructure: The Commission, vide its Order dated 09.05.2022, modified the allocation principle for transmission corridors in the event of congestion, which would be in the ratio of the initial market clearing volume of the respective power exchange. Further, with the expected increase in the size of the short-term power market, particularly, in DAM and RTM, with growing electricity demand and increasing demand balancing closer to delivery, the problem of congestion is expected to be exacerbated.

Under the coupled market scenario, the market coupling operator would merge the bids from all power exchanges and then clear them in one go. Therefore, in the coupled scenario, transmission infrastructure is expected to be used in an optimal manner, and no reservation of the transmission corridor would be required for any of the exchanges. If a

situation is considered where the buyer and seller from the same bidding zone are participating in different exchanges, and due to congestion, their bids could not be cleared. However, in the coupled scenario, this could have been avoided.

Further, under RTM, the stakeholders on many occasions have highlighted that as there is a time gap of more than one hour between gate closure and actual dispatch of electricity, the demand forecasting becomes difficult, resulting in a mismatch of demand and supply in the grid, and attracts a penalty as per the provisions under the deviation settlement mechanism (DSM). Therefore, there is a strong need to reduce turnaround time and improve the efficiency of balancing closer to the time of delivery. In the present scenario, Power Exchanges, after clearing the market, share unconstrained provisional schedules with NLDC, and in case of congestion, NLDC allocates the transmission corridor to the respective power exchange. Based on corridor allocation, Power Exchanges then run the market clearing engine again and then submit the final schedules to NLDC. However, in a coupled scenario, there will be no need for exchange-wise corridor allocation, and the market can be cleared after considering the availability of the corridor from the beginning itself. This will significantly reduce the time required between gate closure and scheduling. This will help in reducing the time gap between gate closure and actual dispatch, thereby allowing balancing of power closer to delivery.

- (3) Improvement in liquidity, prices and maximisation of economic surplus: It is expected that in the coupled scenario, when the sell and buy bids from all the exchanges are merged, more volumes would be cleared, and hence there would be more liquidity in the market. The Grid-India Report on Shadow Pilot for Market Coupling (report available at <https://grid-india.in/en/documents/feedback>) highlights that in the coupled scenario, Overall Volume Cleared increases by 52 MU (0.2%) in DAM and 1.54 MU (0.01%) in RTM for the period considered (01.12.2024 to 31.03.2025), which is the power that could not be served. In some cases, an increase in Daily

Volume Cleared has been as high as 5 MU in DAM and 0.2 MU in RTM, with some instances of decreased Volume Cleared. Given the concentration of liquidity in DAM and RTM in one exchange, the results in terms of an increase in the magnitude of the volumes cleared are obvious. However, what is important is the insight that the Grid India analysis in the report brings forth. The analysis reveals that with market coupling there would definitely be a greater scope of serving a larger volume of demand and supply in the already supply-starved power scenarios in India.

Further, in the coupled scenario, optimisation process would change to maximising the collective economic surplus over power exchanges (with relaxed liquidity constraint) from the existing one that is optimising surplus at the individual exchange level (with stricter liquidity constraint), thereby increasing the total economic surplus. This is in line with the findings of Grid India, where it is noted that in a coupled scenario, overall welfare increases by Rs. 38 crore (0.3%) in DAM and Rs. 72 lakh (0.01%) in RTM for the period considered (01.12.2024 to 31.03.2025). The day-wise improvement in welfare goes as high as Rs. 5 crore in DAM and Rs. 0.17 crore in RTM, with no instances of decrease in welfare in DAM and rare instances of decrease (negligible) in RTM. Further, with increased market depth in future, welfare gains are only going to increase.

The prices discovered through a single clearing engine operated by Grid India would be more efficient and transparent, as Market Coupling is also expected to improve price efficiency by merging bids across power exchanges. Market Coupling with MCO, which is distinct from power exchanges, shall also eliminate the possibility of pre- or post-manual interventions and associated market manipulations thereof.

- 2.7. Some stakeholders have raised concerns that implementation of Market Coupling would lead to reduced competition, diminished role of Power Exchanges, and dampening of innovation & technology investments.

- 2.8. The Commission feels that competition in price discovery comes from the buy and sell bids, and with Market Coupling, the total pool of bids only increases. Therefore, the competitive pressure on prices remains fully intact or rather improves. What Market Coupling really changes is where Power Exchanges compete. Instead of competing on different prices for the same product, they will compete on service quality, technology, reliability, and even transaction fees. This is actually a healthier form of competition. In double-sided closed bid auctions, liquidity tends to attract more liquidity, and if there is a situation of skewed liquidity, competition does not work.
- 2.9. Once the liquidity constraint is no longer there for members, the market will become 'member' centric from the existing 'Power Exchange' centric. The role of Power Exchanges will shift towards better service delivery, which will, in turn, boost the market participation and possibly improve liquidity in the market. Market Coupling is expected to reduce liquidity fragmentation, improve transparency, and ensure that the most efficient bids get cleared regardless of platform.

3. PROPOSED AMENDMENTS TO PRINCIPAL REGULATIONS

- 3.1. In view of the above, the Commission proposes to amend the Principal Regulations, incorporating changes with regard to Market Coupling. The amendment to the Principal Regulations shall be called the Central Electricity Regulatory Commission (Power Market) (Second Amendment) Regulations, 2026, and shall come into effect from such date as may be notified by the Commission separately.

Amendment to Regulation 2 of the Principal Regulations

- 3.2. To provide clarity with regard to terms used in these Regulations, two new sub-clauses, namely sub-clause (x-i) after sub-clause (x) and sub-clause (as-i) after sub-clause (as) under Clause (1) of Regulation 2 of the Principal Regulations, are proposed to be inserted as under:

“(x-i) “Grid India” refers to the Grid Controller of India Limited;”

“(as-i) “Power Market Coupling Procedure (PMCP)” means the detailed procedure formulated by Grid India for implementation of Market Coupling;”

Amendment to Regulation 5 of the Principal Regulations

- 3.3. To assign responsibility of Price Discovery in DAM and/or RTM to Market Coupling Operator, clause (1)(a)(i) of Regulation 5 of the Principal Regulations is proposed to be substituted with the following:

*“(1)(a)(i) Price Discovery shall be done by the Market Coupling Operator from such date as may be notified by the Commission separately:
Provided that until such notification, the price discovery shall be done by the Power Exchanges.”*

Amendment to Part 5 (Market Coupling) of the Principal Regulations

- 3.4. In the interest of probity and transparency of market operations, the Commission has decided to designate Grid India as Market Coupling Operator, rather than going in for the round robin method as envisaged earlier. Accordingly, to designate the Market Coupling Operator who shall be responsible for the operation and management of Market Coupling, Regulation 38 of the Principal Regulations is proposed to be substituted with the following:

“38. Designation of Market Coupling Operator

Grid India shall function as Market Coupling Operator (MCO) and shall be responsible for operation and management of Market Coupling. For this, Grid India shall form a separate cell for discharging the functions of the MCO.”

- 3.5. To define the scope of Market Coupling, Regulation 39 of the Principal Regulations is proposed to be substituted with the following:

“39. Scope of Market Coupling

Market Coupling shall apply to the Day-Ahead Market (DAM), Real-Time Market (RTM) and other market segments from such date(s) as may be notified by the Commission:

Provided that different dates may be notified for different market segments.”

- 3.6. New Regulations to provide for Bid Aggregation across Power Exchanges and Price Discovery mechanism have been inserted. Further, it is proposed that to ensure effective and efficient operation of Market Coupling, a detailed procedure be formulated by Grid India. It is also proposed that provisions related to IT infrastructure, Information Dissemination & Market Surveillance as applicable to Power Exchange, shall also apply to MCO. Accordingly, four new Regulations, namely 39A, 39B, 39C & 39D after Regulation 39 of the Principal Regulations are proposed to be inserted as under:

“39A. Bid Collection and Aggregation

(1) All Power Exchanges shall collect bids in a uniform bid format from market participants in accordance with the procedure and format stipulated in Power Market Coupling Procedure (PMCP).

(2) All anonymous and validated bids (both buy and sell bids) shall then be transmitted from Power Exchanges to the MCO through secured channel as per the timelines stipulated in the Power Market Coupling Procedure (PMCP).

(3) The MCO shall aggregate bids for each market segment received across all Power Exchanges and ensure an efficient price discovery.

39B. Price Discovery

- (1) Price discovery mechanism shall adopt the principle of maximisation of economic surplus (sum of buyer surplus and seller surplus), taking into account all bid types.*
- (2) The price discovered for the unconstrained market shall be a uniform market clearing price for all buyers and sellers who are cleared:
Provided that in case of congestion in transmission corridor, market splitting shall be adopted.*

39C. Power Market Coupling Procedure

- (1) Grid India, with the approval of the Commission, shall formulate Power Market Coupling Procedure (PMCP) for the implementation of Market Coupling, within six months of the notification of these amendments.*
- (2) PMCP shall include the following but not limited to:*
 - (a) Roles and responsibilities of Market Coupling Operator, Power Exchanges and National Load Despatch Centre;*
 - (b) Operational sequence of events to be undertaken in a Market Coupling session and timelines thereof;*
 - (c) Submission of bids by Power Exchanges in a common standardised format to MCO, including details on encryption, decryption, and structure of bids submitted by the Power Exchanges;*
 - (d) Features of Price Discovery Algorithm;*
 - (e) Processing of bids, price discovery, scheduling & delivery, accounting, and clearing & settlement;*
 - (f) Procedure to deal with operational constraints or delays;*
 - (g) Such other details related and incidental to implementation of Market Coupling including charges for MCO.*

39D. *Following Regulations of Principal Regulations shall apply to Market Coupling Operator (MCO):*

- (1) Regulation 28(1), 28(3) to 28(8) as applicable to Power Exchanges shall also cover MCO.*
- (2) Regulation 29 (1), 29(2) as applicable to Power Exchanges shall also cover MCO.*
- (3) Regulation 31(1) to 31(6), 31(8) as applicable to Power Exchanges shall also cover MCO.*
- (4) Regulation 32 as applicable to Power Exchanges shall also cover MCO. ”*