



NSE ELECTRICITY
FUTURES
Performance Review
2025-26

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Performance Review of Commodity Derivatives - FY 2025-26

1. Background

a. Brief about the commodity such as sample picture, lifecycle and various varieties/grade of the commodity found in India

Electricity is a unique secondary energy carrier produced from primary sources such as coal, natural gas, nuclear fuel, hydropower, solar radiation, and wind. Unlike most commodities, electricity cannot be stored economically at scale and must be consumed the instant it is generated, making real-time balancing of supply and demand critical. It is transmitted through interconnected power grids and distributed to residential, commercial, and industrial consumers. Its characteristics are generally classified according to voltage levels, frequency stability, generation source, and delivery schedules. Being a critical input for economic activity, electricity plays a vital role in India's growth and energy security. The importance of this commodity has led to the development of financial trading instruments such as electricity futures, enabling generators, distribution companies, industrial consumers, traders, and investors to manage price risks effectively.

India is the third-largest producer and consumer of electricity in the world, with a total installed generation capacity of approximately 5,23,959 MW as of FY26. The country generated approximately 1,840 million Mwh of electricity in FY26, driven by thermal, hydro, nuclear, solar, and wind sources.

b. Commodity fundamentals and balance sheet as per the following format (to be prepared based on publicly available information on best effort basis):

Table - Indian Scenario (Million Mwh)

Balance sheet	FY25	FY26
Generation	1,824	1,840
Import	5	8
Source: CEA		

c. Major changes in the policies governing trade in the spot markets of the commodity.

During FY 2025-26, the Indian electricity market continued to witness policy and regulatory developments focused on strengthening competitive electricity markets, facilitating renewable energy integration, and improving efficiency in power procurement through market-based mechanisms.

- **Green Energy Open Access:** Continued implementation of the Green Energy Open Access Rules expanded access for commercial and industrial consumers to procure electricity through power exchanges. The reforms encouraged greater participation in competitive electricity markets and supported improved market liquidity
- **Renewable Purchase Obligation (RPO) Framework:** The progressive RPO trajectory continued to drive renewable energy procurement by obligated entities. The increasing

share of renewable energy highlighted the growing importance of exchange-based markets for balancing requirements and efficient procurement.

- **National Electricity Plan (NEP):** The ongoing implementation of the National Electricity Plan emphasized expansion of generation capacity, transmission infrastructure, and energy storage systems to support India's evolving power sector. These developments reinforced the need for transparent price discovery and effective risk management tools.
- **Exchange-Based Market Development:** Continued emphasis on market-based economic dispatch and competitive procurement mechanisms strengthened the role of power exchanges in short-term electricity procurement, promoting transparent and efficient price discovery.
- **Cross-Border Electricity Trade:** Ongoing initiatives to facilitate electricity trade with neighbouring countries, including Bhutan, Nepal and Bangladesh, supported regional power market integration, enhanced resource optimisation, and expanded electricity sourcing opportunities.

d. Geopolitical issues in the commodity and its impact on Indian scenario

During FY 2025-26, geopolitical developments, particularly the conflict in West Asia and disruptions to key international shipping routes, heightened uncertainty across global energy markets. These events influenced the prices of primary energy commodities such as crude oil, natural gas and thermal coal, leading to increased volatility in electricity generation costs.

India's dependence on imported energy inputs exposed the power sector to fluctuations in fuel prices and freight costs, particularly for imported coal and LNG. The resulting changes in generation economics impacted power procurement strategies and contributed to periodic volatility in spot electricity prices, especially during periods of peak demand.

The increasing share of renewable energy further amplified the need for flexible balancing resources, making electricity prices more sensitive to changes in fuel availability, weather conditions and geopolitical developments. Consequently, exchange-traded electricity markets witnessed greater price variability, highlighting the growing importance of transparent price discovery and risk management through electricity futures.

2. Trading related parameter

a. Monthly and Annual traded volume (quantity in appropriate units)

Month	Million MWh
Aug 2025	6.30
Sep 2025	5.98
Oct 2025	3.56
Nov 2025	3.49
Dec 2025	2.41
Jan 2025	2.35
Feb 2025	2.93
Mar 2025	2.37

FY 2025-26	29.40
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b. Annual traded volume as proportion of total deliverable supply (quantity in appropriate units)

Contract	Electricity Volume (Million Mwh)	Deliverable Supply (Million Mwh)	Annual traded volume as proportion of total deliverable supply (%)
Electricity Futures	29.40	1,848	1.59

Source: CEA

c. Annual traded volume as proportion of total annual production (quantity in appropriate units)

Contract	Electricity Volume (Million Mwh)	Annual Production (Million Mwh)	Annual traded volume as proportion of total annual production (%)
Electricity Futures	29.40	1,840	1.59

d. Annual average Open interest as proportion of total production

NSE Electricity Average Open Interest (Million Mwh)	Total Electricity Production in India (Million Mwh)	Ratio (in %)
0.01	1,840	0.0005

e. Annual average Open interest as proportion of total deliverable supply

NSE Electricity Average Open Interest (Million Mwh)	Total Electricity Deliverable Supply (Million Mwh)	Ratio (in %)
0.01	1,848	0.0005

f. Monthly and Annual value of trade (in Rs. Crores)

Month	Total Turnover (Rs Crores)
Apr-25	-
May-25	-
Jun-25	-

Jul-25	975.75
Aug-25	1,940.91
Sep-25	2,231.66
Oct-25	997.59
Nov-25	1,130.75
Dec-25	996.17
Jan-26	1,034.45
Feb-26	998.83
Mar-26	1,027.25
Total FY 26	11,333.36

g. Monthly and Annual quantity of delivery (in appropriate units)

Electricity Futures are cash settled contracts. Thus, the same is not applicable.

h. Monthly and Annual value of delivery (in Rs. Crores)

Electricity Futures are cash settled contracts. Thus, the same is not applicable.

i. Monthly and Annual Average Open Interest (OI) (in appropriate units)

Month	Average Open Interest (contracts)
Apr-25	-
May-25	-
Jun-25	-
Jul-25	439.29
Aug-25	877.65
Sep-25	1,091.82
Oct-25	869.86
Nov-25	761.80
Dec-25	867.68
Jan-26	719.38
Feb-26	604.05
Mar-26	575.77
Average FY26	756.37

j. Annual average volume to open interest ratio

NSE Electricity Futures Average Volume (Million Mwh)	NSE Electricity Futures Average Open Interest (Million Mwh)	Ratio (in %)
0.162	0.037	439.32

Total number of unique members and clients who have traded during the financial year.

Contract	Unique Member Count	Unique Client Count
Electricity Futures	133	907

k. Ratio of open interest by FPOs/farmers/Hedge/VCP positions to total open interest (Annual average as well as maximum daily value)

The traded volume by FPOs / farmers and VCPs/hedgers* for Electricity Futures in FY 2025-26 was NIL/Negligible.

* Based on the self-declaration available for the categorization of clients/members

l. Number of unique FPOs / farmers and VCPs/hedgers who traded in the financial year.

The traded volume by FPOs / farmers and VCPs/hedgers* for Electricity Futures in FY 2025-26 was NIL/Negligible.

Based on the self-declaration available for the categorization of clients/members

m. Algorithmic trading as percentage of total trading

Contract	Algorithmic trading as percentage of total trading (%)
Electricity Futures	12.30

n. Delivery defaults

- i. Number of instances**
- ii. Quantity involved**
- iii. Value involved**

Electricity Futures re cash settled contracts. Thus, the same is not applicable.

3. Price movements

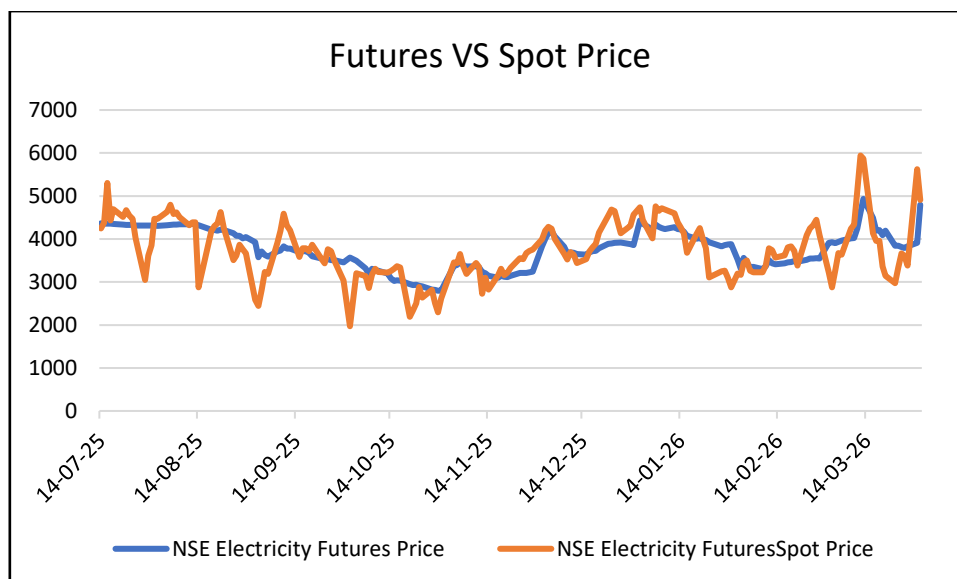
a. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international futures price (wherever relevant comparable are available)

Not Applicable

b. Comparison, correlation and ratio of standard deviation of Exchange futures price vis-à-vis international spot price (wherever relevant comparable are available) and domestic spot price (exchange polled price).

Not Applicable

c. Correlation between exchange futures & domestic spot prices along with the ratio of standard deviation.



Correlation – 0.71 ; Ratio of Standard Deviation – 0.66

d. Correlation between international futures & international spot prices along with ratio of standard deviation (wherever relevant comparable are available).

Not Applicable

e. Comparison of Exchange polled price and mandi price (in case of agricultural commodities) / other relevant price (in case non-agricultural commodities) at basis centre.

Not Applicable

f. Maximum & Minimum value of daily futures price volatility and spot price volatility along with disclosure of methodology adopted for computing the volatility.

Commodity	Max Volatility in Futures Prices (%)	Min Volatility in Futures Prices (%)	Max Volatility in Spot Prices (%)	Min Volatility in Spot Prices (%)
Electricity	22.60	0	66.10	0.02

Volatility calculation: $(\text{Day} - \text{Previous day's price}) / \text{Previous day's price}$

g. Number of times the futures contract was in backwardation/contango by more than 4% for the near month contract in the period under review.

•Number of Times the Futures Contract was in Backwardation by more than 4% for the near month contract: 66

•Number of Times the Futures Contract was in Contango by more than 4% for the near month contract: 57

4. Other parameters

- a. **Qualitative and quantitative measure for Hedge effectiveness ratio and basis Risk (Volatility of Basis) along with disclosure of methodology adopted for such calculations.**

Date	hedge effectiveness ratio
17-Jul-25	-0.002
22-Aug-25	0.024
10-Oct-25	0.150
11-Nov-25	0.263
17-Dec-25	0.324
08-Jan-26	-0.521
11-Feb-26	0.354
11-Mar-26	0.281
Average	0.109

The Dollar Offset Method of determining Hedge Effectiveness is one of the quantitative methods used extensively. It involves comparing the ratio of the change in fair value or present value of future expected cash flows of the hedging instrument (NSE Futures) with the change in the fair value or present value of future cash flows of the hedged item (Spot Price) attributable to the hedged risk.

Methodology

To examine the hedge effectiveness ten random dates were chosen with minimum gap between the period as 15 days and maximum being 3 months period. For each of these chosen dates, Spot Price and Futures closing rates were recorded. The change in value of Spot rates as well as Futures closing rates for two consecutive periods was recorded. Hedge effectiveness is the ratio of change in the value of Spot prices to the change in Futures value **Values between 0.80 to 1.25 indicate the hedge effectiveness is good. Values below 80% indicate that the hedge effective is not good. Based on the observations, it can be noticed that overall hedge effectiveness is 0.109.**

Longer period hedge tends to be less effective. It could be due to roll-over and related contango issues or liquidity issues. Second aspect is when there is a disruptive change in the underlying market, hedge effectiveness declines.

Basis risk:

Basis is the difference between the spot price and the futures price at a particular point in time. Basis is usually very small and tends to decrease as futures contract moves towards expiry.

- b. **Details about major physical markets of the commodity vis-à-vis market reach in terms of availability of delivery centers (information to be provided state-wise and UT-wise).**

Not Applicable.

c. Details about major physical markets of the commodity and average Open Interest for each month generated from those regions.

Electricity is a very significant commodity for any nation and is used across the country across industries, domestic & agricultural sectors. The region wise OI data is not available.

d. Details, such as number and target audience, of stakeholders' awareness programs carried out by the exchange.

A total of 62 Commodity IAPs were conducted reaching out to 1987 participants. These participants included General public, faculties of educational institutes corporate employees, FPOs, Police officers and Women.

e. Steps taken / to be undertaken to improve hedging effectiveness of the contracts as well as to improve the performance of illiquid contracts.

NSE is constantly striving to encourage hedgers to participate in the Electricity contracts. We have value chain participants such as Power Finance Corporation Ltd (PFC), ACME Solar, Adani Power, Tata Power, Greenko Group, NTPC, Suzlon Energy, Grid Controller of India, IREDA, etc. as part of our Electricity PAC, who guide us on how to get more participation from physical as well as other market participants.

5. Any other information to be disclosed as deemed important by the exchange or as suggested by the PAC.