South Asia Energy Series on

Electricity Derivatives: Mitigating Power Market Risks with Electricity Derivatives (Session 1)

Organized by USAID's South Asia Regional Energy Hub

Session1: Monday, February 19, 2024 | 2 PM to 4:10 PM India Time

Registration link – click here

1. Concept Note

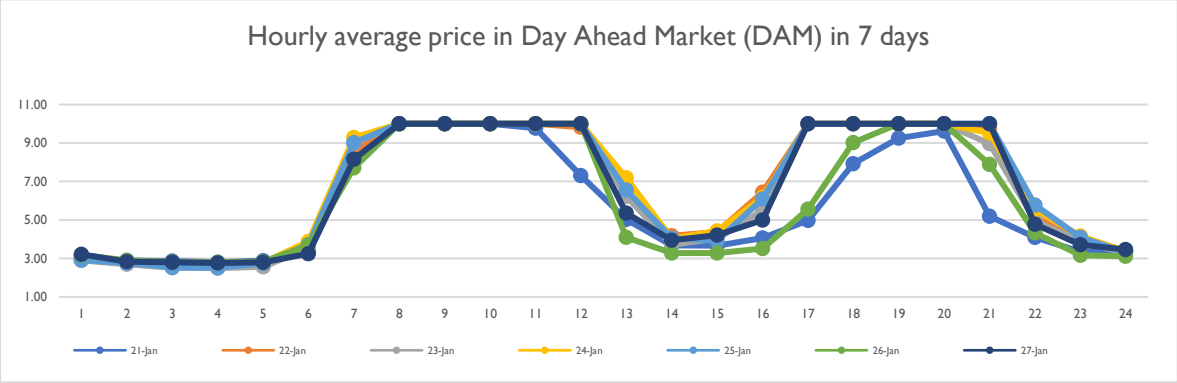
Trading electricity in the short term through power exchanges has recently gained popularity in the South Asia region. India pioneered an open market and instated its first power exchange in 2008, subsequently expanding to operate three exchanges: the Indian Energy Exchange Ltd. (IEX), Hindustan Power Exchange Ltd. (HPX), and Power Exchange India Ltd. (PXIL). Trading via these exchanges constitutes approximately 6-7% of the overall trading volume, and the use of power exchanges is witnessing a significant increase due to the flexibility and convenience offered by this market mechanism in India. The assurance of payment security for sellers, flexibility for buyers, and regulatory recognition of trades are the major factors facilitating the surge in transactions through power exchanges.

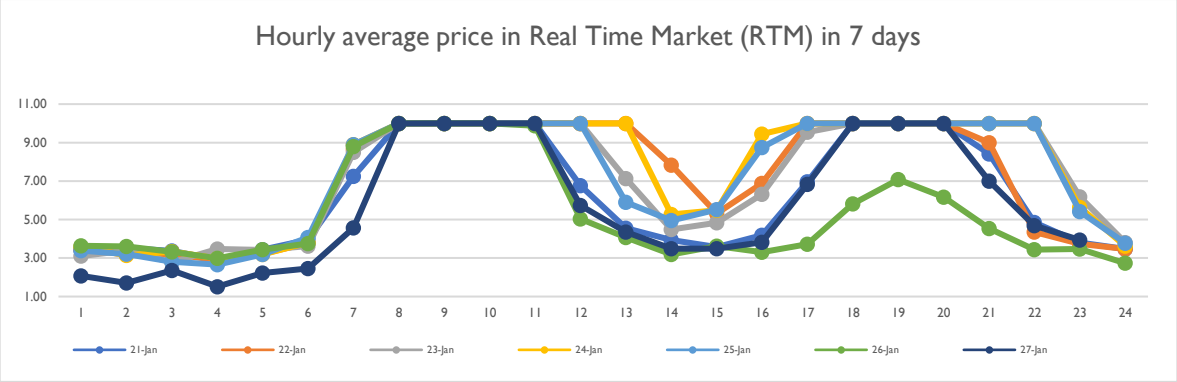
Furthermore, in 2021, the South Asian country Nepal initiated cross-border electricity trading through the Indian power exchange's Day-Ahead Market (DAM) and subsequently expanded its involvement to include electricity sales through this mechanism. In 2022, Bhutan also began importing electricity from India for the lean season in response to increased demand and reduced domestic generation capacity in the country. The exchange-based trades for Cross Border Electricity Trade (CBET) were initially limited to the Day-Ahead Market (DAM) until recently. With the amendment of the "Procedure for Approval and Facilitating Import/Export (Cross Border) of Electricity by the Designated Authority" by Indian authorities in July 2023, trading electricity through the Real-Time Markets (RTM) segment is now allowed and is being utilized by Nepal and Bhutan for CBET.

In the near future, Bangladesh may also explore the utilization of a power exchange-based mechanism for cross-border electricity trading, aiming to optimize trade and costs. Additionally, when Sri Lanka establishes a connection with India, exchange based mechanism could be considered a viable option for facilitating bi-directional trades between the countries.

Nevertheless, engaging in short-term trading, particularly through power exchanges, exposes market participants to price volatility. This volatility arises from fluctuations in market demand and supply positions. Electricity price instability can be attributed to various factors, including change in weather conditions, fluctuations in fuel prices, generator and transmission line

outages, variation in renewable energy generation, and seasonal variations, among others. An illustrative variation of the processes in the DAM and RTM market segments is provided below.





Derivatives are financial instruments employed worldwide to hedge the risks linked with price volatility and speculations. According to the CFA Institute, *a derivative is a security whose price relies on or originates from one or more underlying assets*. A security supported by electricity prices is termed electricity derivatives, serving as a risk mitigation tool to safeguard against electricity price fluctuations. Engaging in electricity derivatives trading, combined with physical delivery, facilitates optimization of trading volatility.

Presently in India, the launch of Electricity Derivative Market has reached an advanced stage of evaluation by the Regulators, though it is functioning effectively in several international markets. Across the globe, various models exist for trading electricity physically and engaging in derivative (financial) transactions, both within the same exchange, as seen in the European Energy Exchange (EEX), which is the largest commodity exchange. Additionally, another model involves distinct power exchanges and commodity derivative exchanges, as observed in the Intercontinental Exchange (IEC) and the Singapore Exchange (SGX).

In India, a distinct model for the physical trading of electricity through power exchanges and the trading of electricity derivatives through the Securities and Exchange Board of India (SEBI) regulated exchanges is under consideration. The electricity market is regulated by the electricity regulator, the Central Electricity Regulatory Commission (CERC), while the

Electricity derivative market will be governed by the financial markets regulator, the Securities and Exchange Board of India (SEBI).

Given the critical role that electricity derivatives play in hedging price risks, it is important to familiarize oneself with the concepts of electricity derivatives, their product features, global practices, and their use in conjunction with the physical delivery of electricity from a short-term trading perspective.

In this context, USAID through its South Asia Regional Energy Hub (referred as "the Hub hereafter) is organising a ***South Asia Energy Series*** on **Electricity Derivatives: Mitigating Power Market Risks with Electricity Derivatives** for regional power sector stakeholders in the South Asian countries. The Hub, is the coordination and communication platform under the USAID's South Asia Regional Energy Partnership (SAREP) Program (https://sarepenergy.net/).

The first session is scheduled for Monday, February 19, 2024. Following this, a series of sessions under the ***South Asia Energy Series*** will be conducted in the upcoming months by the Hub in association with regulators and policy makers, commodity exchanges, and power market participants.

The *South Asia Energy Series* on **Electricity Derivatives** shall cover a range of relevant topics, including:

- Electricity Derivatives for Hedging Power Market Risks
- Sharing of International Experiences on Electricity Derivatives and Use Cases for Power Sector Market Participants
- Fundamental Concepts and exercise on Financial Derivatives and Electricity Derivatives
- Market Products and Procedures of Electricity Derivatives, including a Practical Session on Electricity Derivatives Trading

We extend an invitation to participants from the South Asia region who are interested in gaining insights into electricity derivatives.

The first session aims to offer an overview of electricity derivatives, global experiences, expected products and key features, benefits, the status of the segment, and a pathway for utilizing electricity derivatives in conjunction with the physical delivery of electricity for risk mitigation. The session will be conducted by experts from the **Multi Commodity Exchange of India** (MCX) - India's largest commodity derivatives exchange), and **PTC India** (a prominent power trader in South Asia).

The Energy Series seeks to enhance Energy Trade in the South Asia region and promote market-based trade mechanisms and serves as a supplementary offering, following our concluded "Master Class on Short Term Power Trade through Power Exchanges – 3 Part Series," which provided stakeholders with a comprehensive understanding of power exchange-based short-term power trading. Participants from the South Asia region will gain an in-depth comprehension of Electricity Derivatives and their utilization in managing price volatility risk.

1. Indicative Agenda Session-1: **Electricity Derivatives for Hedging Power Market Risks**

Date	Time (IST)	Details	Speaker
February 19, 2024 (Monday)	14.00 -14.10 pm	• Welcome by Bhumika • Remarks by Monali Zeya, Regional Energy Specialist, USAID • Group photo	USAID / SAREP
		• Introduction and context setting by Pramod Thakur	SAREP
	14.10 -14.20 pm	• Fundamentals of Financial Derivatives	SAREP
	14.20 -15.35 pm	• Introduction to Electricity Derivative Markets • International experience on usage of Electricity Derivatives • Current status of development of Electricity Derivative market in India • Product Features and key benefits • Derivative pricing, trading, clearing and settlement • Procedures and requirements for trading in electricity derivatives	Ruchi Shukla, Head – Energy, MCX
	15.35-16.05 pm	• Electricity Trader's perspective on electricity derivatives • Potential use case of electricity derivatives for generators, discoms/C&I consumers (cases on hedging and speculation)	Rajesh Cherayil, EVP, PTC India
	16.05-16.10 pm	Conclusion and valedictory.	Namrata Mukherjee, DCOP, SAREP

2. Online Registration Links

Event	Schedule	Registration link:
Session-1: Electricity Derivatives for Hedging Power Market risks	February 19, 2024 – 14.00 hrs to 16.10 hrs IST	**Click** here

Note: Invitations and separate links for all the upcoming sessions on Electricity Derivatives will be sent to participants who have registered for Session-1.

3. SPOC(s) for the event:

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