



# RE RTC Procurement Planning at Scale

# Background



## Why Round-The-Clock (RTC) RE ?

- ✓ Addressing Intermittency.
- ✓ Energy Security.
- ✓ Grid Stability.
- ✓ RPO Obligation.
- ✓ Onus of Power management/forecasting & scheduling is on Developer.

# Background

## Guidelines

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- ✓ Guidelines for procurement of Firm and Dispatchable RE Power (RTC Power, Peak Power, load following delivery power).  
[Gazette Notifications No. 23/03/2023-R&R dt. 09.06.2023 and its amendment dt. 17.11.2023]

## Successful Tenders

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- ✓ SECI's RTC-I bid for 400 MW successfully concluded on 08.05.2020.
- ✓ REMCL's RTC-I bid for 900 MW successfully completed on 05.04.2023.
- ✓ SJVN's FDRE bid for 1500 MW successfully concluded in Nov'23.
- ✓ REMCL's RTC-II bid for 700 MW successfully completed on 30.01.2024.
- ✓ SECI's FDRE-IV bid for 695 MW successfully completed on 25.07.2024.

# Different Power Requisition

- ✓ Firm Power: The procurement process should ensure that the power supply is firm, meaning it is available at all times (24/7). This often involves energy storage technologies like batteries or backup systems to provide continuous power, even when renewable energy sources are not generating
- ✓ Dispatchable Power: The purchased power must be flexible, allowing for quick adjustments based on the grid's needs. Dispatchable power can be ramped up or down to follow demand curves or fill in supply gaps.

# Different Power Requisition under the Guidelines

- ✓ **RTC (Round-The-Clock) Power:** Buyers should procure renewable energy that delivers continuous electricity throughout the day, either through hybrid energy systems (e.g., solar, wind, biomass) or through energy storage systems.
- ✓ **Peak Power:** Require suppliers to deliver energy during peak demand periods, ensuring that renewable sources can provide power during the most critical and high-demand hours.
- ✓ **Load Following Delivery Power:** Procurement of energy that can "follow" the load, meaning the supply adjusts dynamically based on real-time demand fluctuations. This is critical for balancing renewable energy with consumption patterns.



# Technology Requirements

- ✓ **Energy Storage Integration:** To ensure dispatchability and firm delivery, the procurement should require integration of energy storage systems, such as batteries, pumped hydro, or thermal storage, to store excess energy and release it when renewable generation is low.
- ✓ **Hybrid Solutions:** To ensure RTC power, contracts may require suppliers to use hybrid systems that combine multiple renewable sources (solar, wind, hydro, etc.) with energy storage to guarantee availability.



# Availability Guarantees

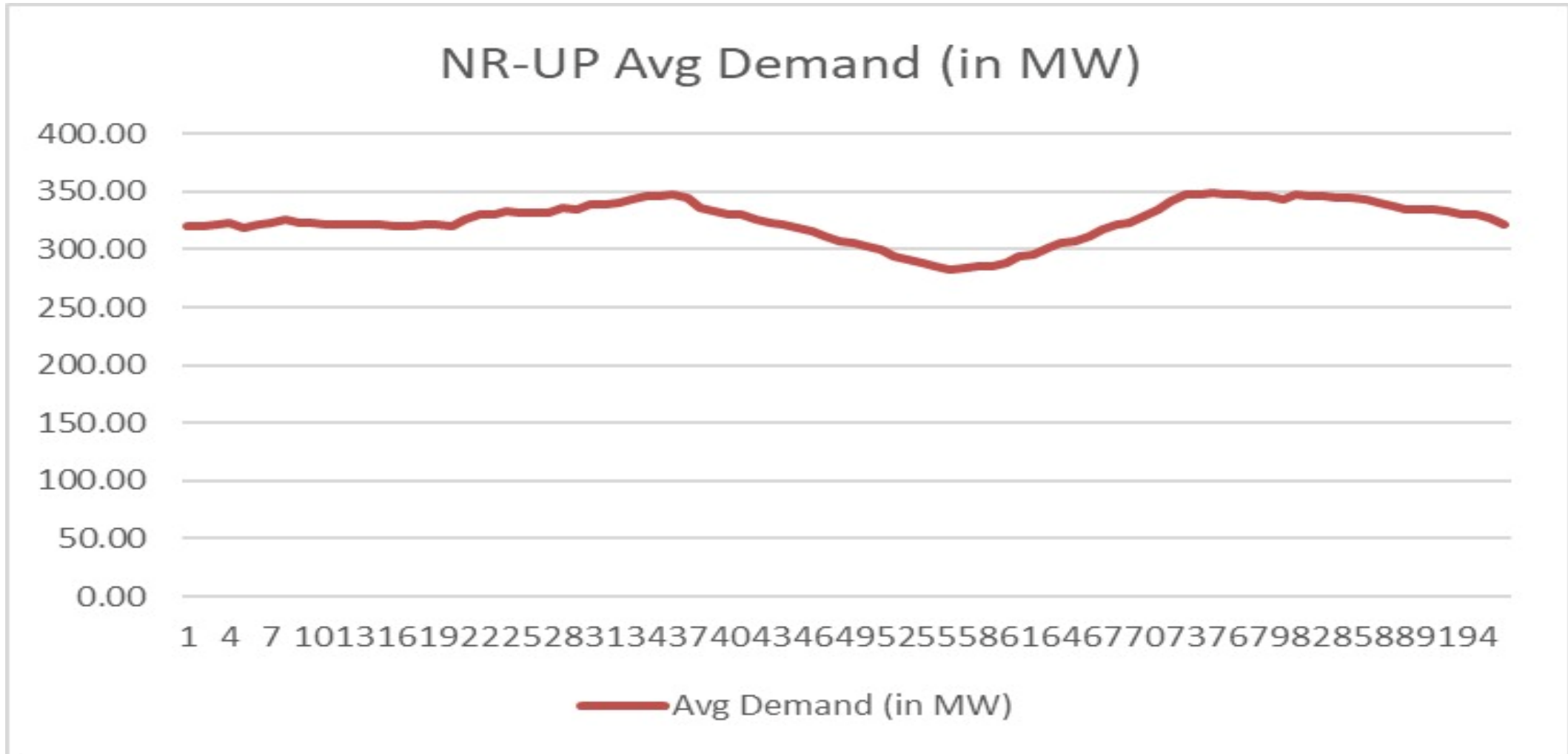
- ✓ Minimum Availability/Demand Fullfillment Ratio: To ensure availability of minimum 90%.
- ✓ Penalties for Non-Compliance: Financial penalties or reduced payments for suppliers who fail to meet the agreed-upon levels of firm and dispatchable power availability @ 150 % of the applicable tariff.
- ✓ Reduced off-take: Supplier shall be paid for the reduced off-take by the utility subject to sale of power on Exchange as a price taker.

# Rewards of Procuring RE RTC Power

- ✓ To address issues of intermittent and unpredictable nature of Standalone RE (solar, wind) power.
- ✓ To address the issue of under utilization of transmission corridor.
- ✓ To leverage integration of multiple Generating sources viz Solar, Wind, Hydro and Battery Storage systems/Pumped Storage Project (PSP).
- ✓ Viable solution for achieving IRs Net Zero Carbon Mission by 2030.
- ✓ No fuel price risk.



# Typical Load Profile



# Key features of the REMCL RTC-I tender

## Supply Conditions

75% annual availability for the first four contract years.

85% annual availability for the rest of the contract years.

50% time block (15 min) wise availability for the entire contract period.

Flexibility to supply energy upto 15% from alternative green source.

Free to change RTC configuration till 6 months of execution of PPA.

# Other features of the REMCL RTC-I tender

## Damage Charges

Damage charges @ 200% of applicable tariff.

Damage charges applicable for shortfall in annual or time blockwise availability

Maximum of the damages calculated for annual or time block wise availability

# Discovered Tariff under REMCL RTC-II

Through e-Reverse Auction

| SN. | Renewable Power Developer                   | Quantum (MW) | Levelized Tariff for 25 years (Rs./Kwh) |
|-----|---------------------------------------------|--------------|-----------------------------------------|
| 1.  | M/s Torrent Power Limited                   | 100          | 4.25                                    |
| 2.  | M/s Renew Solar Power Private Limited       | 200          | 4.37                                    |
| 3.  | M/s TEQ Green Power XIII Private Limited    | 100          | 4.37                                    |
| 4.  | M/s NTPC Renewable Energy Ltd.              | 200          | 4.37                                    |
| 5.  | M/s ACME Cleantech Solution Private Limited | 100          | 4.37                                    |



Thank you