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India Smart Grid Forum

DISTRIBUTION UTILITY MEET
DUM 2023

SESSION- 7: RISE OF THE "PROSUMER" AND PROSUMER ENGAGEMENT STRATEGIES FOR NET ZERO POWER SYSTEMS

Peer-to-Peer (P2P) Transactions of Green Energy, highlights of the Project in NPCL

Presented By

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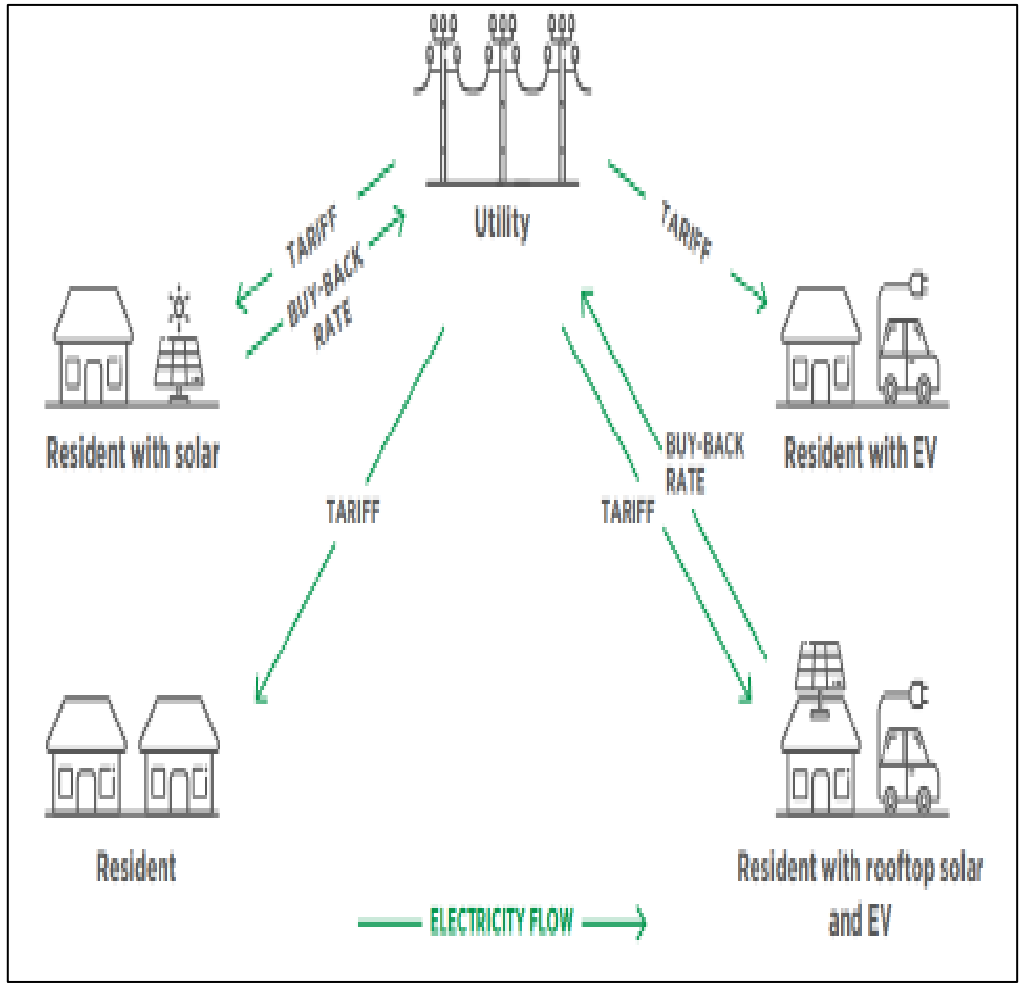
INTRODUCTION

- Introduction of the Topic:

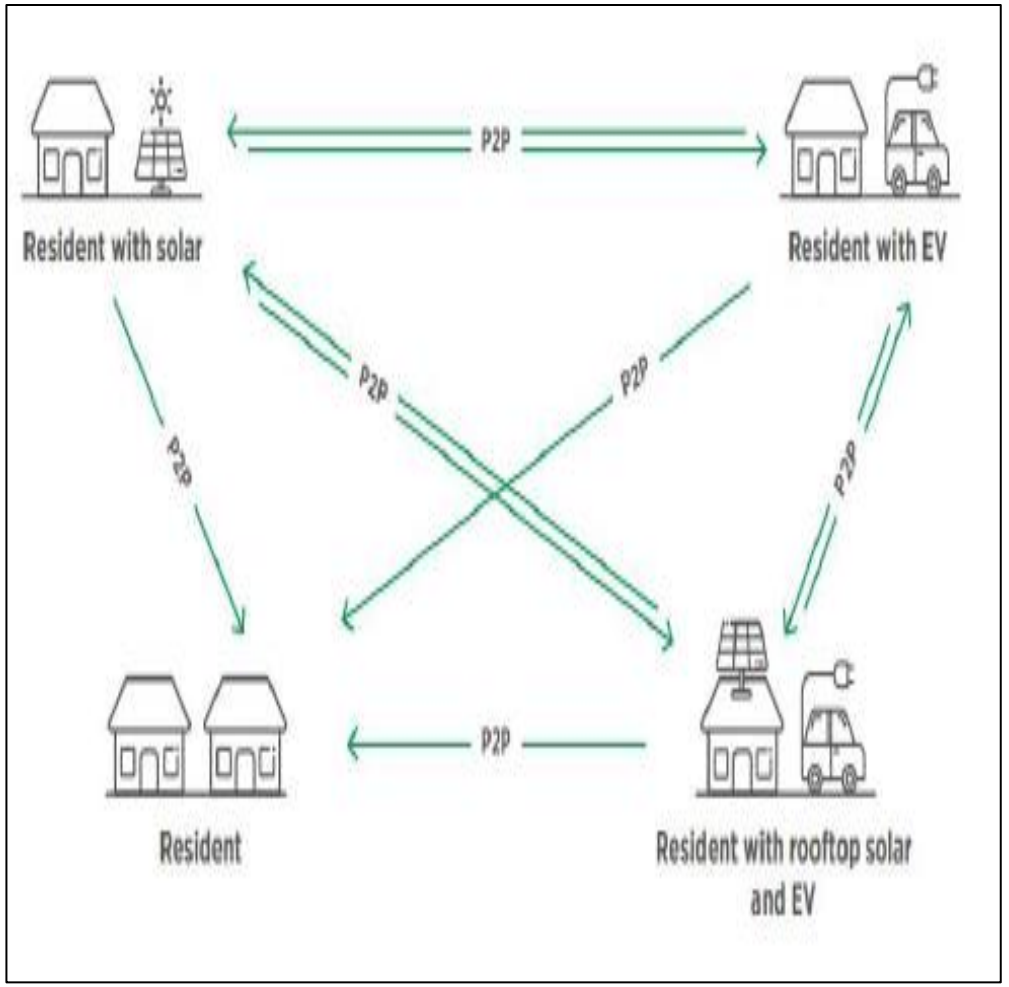
Implementation of P2P Energy Trading using Blockchain technology for NOIDA POWER COMPANY LIMITED in accordance with the provisions of the Guidelines issued by Hon'ble UPERC dated April 5, 2023.

PEER-TO-PEER TRADING – AN INNOVATIVE APPROACH

Traditional Trading Model



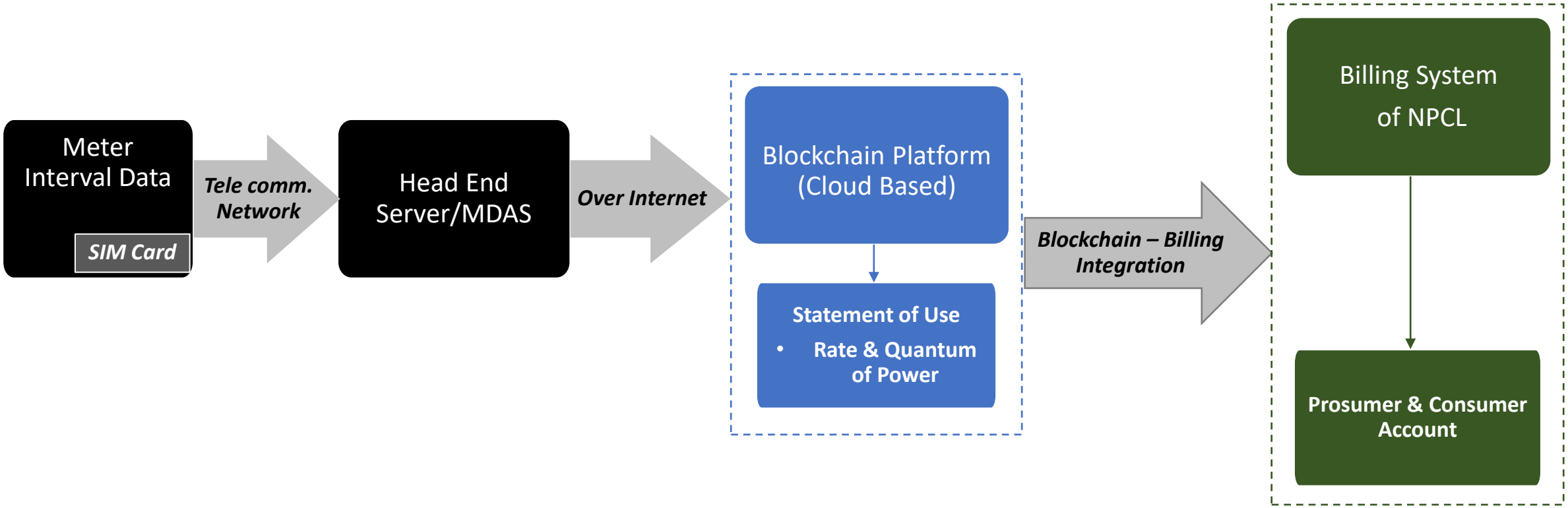
Peer to Peer (P2P) Electricity Trading Model



Key Enabling Factors

1. Distributed RES
2. Digitalisation
3. Conducive regulatory framework

SYSTEM INTEGRATION AND INFORMATION FLOW



BENEFITS TO STAKEHOLDERS

Prosumer/ Producer

- Additional revenue stream
- Incentive to increase RTPV installation
- Over the grid trading
- Better return for excess energy as compared to supplying it to grid

Consumer

- Lower costs
- Promotion of renewable energy
- Participation in demand response measures
- Improved energy access for consumers in mini grid setups

Aggregator

- Fees for hosting the platform
- Additional revenue stream

DISCOM

- Demand Side Management and off setting RPO obligations
- Fees for usage of electricity network
- New Revenue Stream as Discom can work as Aggregator
- Changing from centralized system to decentralized system

Approach and Methodology–Hon'ble UPERC Guidelines Implementation (1/3)

EOI Published and Responses received from 8 Entities. RfP process work is in progress. Implementation kick start is targeted in current Financial Year

Smart Meter Integration

- In order to initiate P2P trade between the participants it is crucial that the blockchain platform is able to ingest their meter data periodically. This will be accomplished through the API based integration of blockchain and NPCL head end system (HES)
- Blockchain Platform includes API integration for:
  - Posting meter reading data to the blockchain platform and
  - Retrieving transaction data from the blockchain platform (e.g. into a billing system)

Trading Algorithms

- In coordination and consultation with NPCL, Vendor will define, implement and test mentioned rule sets as per guidelines for different rate categories.

Approach and Methodology–Hon'ble UPERC Guidelines Implementation (2/3)

Billing Integration

- Vendor will provide support for integration of the billing system used by NPCL to retrieve all transaction data relevant to the project participants in a suitable format
- NPCL shall enhance the existing billing system upon making necessary changes in the billing system in coordination with vendor to incorporate the P2P trading details for the participating consumers.

Testing

- Each requirement or user case generated from the project will be tested against their corresponding acceptance criteria

End User Training

- Throughout the development and implementation of the project, vendor will generate documentation of all work performed; along with instructional documentation such as: user manuals and work instructions
- NPCL, Vendor will generate Standard Operating Procedure (SOP) documents and instructional content such as tutorial videos that will sufficiently educate the end users for their day to day use of the P2P trading platform

Approach and Methodology–Hon'ble UPERC Guidelines Implementation (3/3)

Maintenance and Support

- Vendor will be responsible for the maintenance and support of the platform
- Continuous support will be provided to all actors within the platform i.e. end users and administrators to facilitate their seamless interaction with the platform

Reporting

- **Platform automated reporting:** Seamlessly managed, monitored and visualized through the blockchain platform user interface, providing access for prosumers, consumers and admins through appropriate security credentials in order to monitor performance of individual participants and of the project as a whole in terms of usage, trade and transactions

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THANK YOU

For discussions/suggestions/queries email: ***dum@indiasmartgrid.org***

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Links/References (If any)