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India SMART UTILITY Week 2024

Supporting Ministries



Session : 3RD INDIA - GERMANY SMART ENERGY WORKSHOP
THEME: DEMAND RESPONSE

Suggestion on Demand Response Regulation

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- Need for regulation on Demand Response
- Suggestions for Demand Response Regulations
- Roles and responsibilities of various stakeholders
- Design of DR program
- Incentive for Discoms and Consumers
- DR Aggregators

Need for regulation on Demand Response



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Central Electricity
Regulatory Commission
(Indian Electricity Grid
Code) Regulations,
2023

Central Electricity
Regulatory Commission
(Ancillary Services),
Regulations, 2022

Demand Side
Management
Regulations

Tariff Policy of 2016

Smart Grid Mission
(2017-2021)

Electricity (Rights of
Consumer) Rule, 2020

Guidelines for Resource
Adequacy Planning
Framework for India as
part of Electricity
Amendment Rules, 2022

Currently, there is no DR specific regulation in India. Going forward, DR aggregators can be enabled to provide Demand Response by aggregating distributed resources at lower voltage levels.

Coverage

- Design of DR program
- Roles of discom, aggregator and other stakeholders
- Incentive mechanism
- Consumer participation
- Data privacy and
- Consumer complaints rules

Boundary

- Does not cover ancillary services related to secondary and tertiary reserves
 - Adhere to existing CERC (Ancillary Services) regulations of 2022
- Does not cover demand response services related to Time of Day (ToD) tariff
 - Adhere to existing Electricity (Rights of Consumers) Rules, 2020

Need for Demand Aggregators



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•Demand aggregation involves combining the demand of consumers and their appliances into a unified entity.

Facilitate participation in energy markets through demand bidding

Help collect and analyze data from various sources

Helps in educating consumers about the benefits of demand response

Participate in electricity markets on behalf of the aggregated consumers.

Distribution Licensee

- Shall develop and offer Demand Response programs
- Shall pursue all cost-effective DR resources
- Need not accept DR resources offered by a DRA of capacity less than 50 kW.
- Shall dispatch the DR resources that participate in its programs

DR Aggregator (DRA)

- Describe the type of DR resources it seeks to develop and aggregate
- Identify the DR program(s) offered by Distribution Licensee that it intends to utilize on behalf of its customers.
- Provide the privacy and data security policy
- Provide the agreement to be submitted to each customer explaining the T&C of participating in the DR service
- Shall submit an Annual Report

State Electricity Regulatory Commission

- Develop a mechanism to certify and approve DR aggregator
- Shall maintain, and publish, a list of certified DR Aggregators
- Has right to terminate or revoke the DRA certification
- Shall set a minimum target for distribution licensee
- Shall issue the guidelines related to DR potential assessment, Cost Effectiveness, Monitoring and Verification.

- Commission shall establish DR targets for each Distribution Licensee in the State.
- While setting DR target for the Distribution Licensee, the commission shall consider consumer mix, load profile, maturity of technology.
- DR targets may include the following:
 - Percentage reductions in peak load growth
 - Savings in kW, kWh
 - Savings in peak power purchase cost

International Experience:

European Commission has mandated member states to identify the 10% of hours with the highest expected price and reduce electricity consumption by at least 5% during these hours

Mechanisms to incentive Discoms

Dynamic Pricing

- Introducing a real time price component to the existing tariff structure.
- Dynamic pricing options, including Time of Use (TOU), Critical Peak Pricing (CPP), Critical Peak Rebate (CPR), Real-Time Pricing (RTP), and Variable Peak Pricing (VPP)
- A global review of dynamic pricing pilots indicates the success of such programs relies on customer engagement, the specific pricing option, integration of enabling technology

Performance based Regulations (PBR)

- PBR can link the returns of the Discom with their achievement on operational and financial indicators.

Suggestion for Model Regulation

1. The distribution licensees shall be allowed to recover higher return on equity (ROE) from the consumer tariffs for meeting the DSM targets notified by the commission.
2. The quantum of incremental ROE allowed for the distribution licensees shall be not more than 1% in any control period. This is intended to compensate the perceived loss of return on equity investments of distribution infrastructure, which would have been necessary to accommodate the rising power demand, in the absence of large-scale DR investments.

Reporting

- Annual submission of a detailed report by DRA/Distribution licensee.
- Information on aggregated demand response (DR) resources, their participation in DR programs, and their performance during DR events.

Program Evaluation

- Commission shall evaluate DR programs of the distribution licensee as outlined in the approved DR Plan
- Provide valuable insights to distribution licensee and for the development of its subsequent DR Plan.

Measurement and Verification

- Shall adopt procedures for the M&V of DR resources provided by all DR Program Providers
- Designed in accordance with the EM&V guidelines published by the Commission
- Establish the baseline load against change in load are compared when assessing DR resources for non-dispatchable DR program.
- Guidelines on how to measure the performance of DR resources

THANK YOU

*For discussions/suggestions/queries email: **isuw@isuw.in**
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