Model Regulations

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National Smart Grid Mission
Ministry of Power
Government of India

Overview

India is at an early stage of creating a Smart Grid, a modern electric grid network that uses information and communication technologies to enable real-time, two-way exchange of information and electricity between generation supply and demand resources. A Smart Grid not only benefits utilities by making their systems more efficient, reliable and secure, but it also empowers consumers to monitor and manage their energy use.

An effective regulatory framework is thus required to strike a balance between the costs, benefits and social impact of Smart Grid deployment, and spur investments in related technologies and projects.

Model Regulatory Framework

The U.S.-India bilateral Partnership to Advance Clean Energy – Deployment Technical Assistance (PACE-D TA) Program provided support to the Ministry of Power (MOP) to develop model Smart Grid regulations. The regulations, applicable to all generating companies, transmission licensees, distribution licensees and consumers in a state and connected to the state grid, were developed under the guidance of the technical committee constituted by the MOP. The Smart Grid Regulations were submitted to the Forum of Regulators (FOR) in 2014 and were formally adopted by the FOR in June 2015.

The key objective of these regulations is to enable integration of various Smart Grid technologies such as Automated Metering Infrastructure, Demand Response, Distribution Management, Peak Load Management, and Outage Management, amongst others. The model Smart Grid regulations will help utilities to improve efficiency in their generation, transmission and distribution operations, and improve consumer service levels.

The model Smart Grid regulations have now paved the way for State Electricity Regulatory Commissions (SERCs) to adopt them with changes to suit state-specific requirements. SERCs of Tripura, Karnataka, Madhya Pradesh and Haryana have already finalized Smart Grid Regulations and are considering new investments under the regulatory framework adopted.

Key Guidelines

Constitution of Smart Grid Cell, its Roles and Responsibilities

The licensees need to set up a Smart Grid Cell within three months of notification of the Smart Grid regulations. A dedicated pool of resources will facilitate better coordination, implementation and monitoring of Smart Grid programmes.

Baseline Study and Development of Data

The licensees need to undertake baseline study to identify the targets and final outcomes for its Smart Grid programmes. The baseline study will help the licensees to effectively assess the progress of Smart Grid projects and design further programmes accordingly.

Formulation of Smart Grid Plan, Programmes, and Projects

The licensees need to submit an integrated Multi-Year Smart Grid Plan along with Multi-Year Tariff Petition or Annual Revenue Requirement Petition. They will also need to develop detailed project report providing details of project cost-benefit analysis, delivery strategy, implementation

mechanism, capacity building plan and consumer engagement plan among others. Such a plan will help the licensees to effectively design and monitor their Smart Grid programmes and get the buy-in of stakeholders.

Approval of Smart Grid Plan, Programme, and Project Document

The Commission will approve a Smart Grid Programme or Project only if it conforms to the objectives set in the regulations. It may also specify financial incentives/dis-incentives to participating licensees and consumers. An effective approval process can ensure successful implementation of Smart Grid programmes and projects. Similarly, incentives can encourage active participation of all stakeholders in such programmes and projects.

Execution of Smart Grid Programmes and Projects

The licensees need to normally adopt the system standards as per regulations notified by the Central Electricity Authority and if those are not established, they need to follow the standards specified by the Commission. Similarly, for network, communication, products, interoperability and cyber security, the standards as provided by the Bureau of Indian Standards or such appropriate authority shall be adopted. The licensees will also need to ensure that customer data protection and privacy. Standards will help ensure interoperability, long term viability and low cost via economies of scale.

Mechanism for Cost Recovery

The licensees need to identify the net incremental costs related with planning, design and implementation of Smart Grid programmes and also propose methodologies to recover the same. This could be either through tariff or any other mechanism. Since Smart-grid investments are capital intensive, such a guideline will help licensees to explore innovative ways to recover additional costs.

Smart Grid Programme and Project Completion Report

The licensees need to prepare and submit a detailed completion report to the Commission stating the expenses, achievements and challenges relating to the Smart Grid project. These reports can help in the design and implementation of future Smart Grid programmes and projects.

Monitoring, Evaluation, Measurement and Verification of Smart Grid Programme and Project

All Smart Grid programmes and projects will be monitored and evaluated based on methodology identified by the Commission. The licensees will also need to prepare and submit an evaluation report providing details of the lessons learnt and way forward. Effective monitoring and evaluation of Smart Grid programs can ensure timely tracking of performance and review of results.

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