HARYANA ELECTRICITY REGULATORY COMMISSION
Bays No. 33-36, sector-4, Panchkula-134113,

Notification

The 25th May, 2016

Regulation No. HERC/ 33 /2016:- In exercise of the powers conferred by section 181(2) (zp) of the Electricity Act, 2003, (Act 36 of 2003) and further read with all other powers enabling it in this behalf, the Haryana Electricity Regulatory Commission hereby makes the following Regulations:-

CHAPTER – 1
GENERAL

1. Short title and commencement

(1) These Regulations may be called the Haryana Electricity Regulatory Commission (Smart Grid), Regulations, 2016.

(2) These regulations shall come into force from the date of their publication in the Haryana Government Gazette.

(3) These Regulations shall extend to and applicable to all Generating Companies, Transmission Licensees, Distribution Licensees and consumers in the State of Haryana and connected to the Haryana State grid.

2. Definitions

(1) In these Regulations, unless the context otherwise requires :

(a) **"Act"** means The Electricity Act, 2003 and amendments thereto;

(b) **"Advanced Metering Infrastructure (AMI)"** including smart meters means the infrastructure required to enable the Distribution Licensee to accurately collect, monitor and analyse real-time consumption data at consumers end, communicate price signals to consumers and where permitted control load;

(c) **"Aggregator"** is an entity registered with the Distribution Licensee(s) to provide aggregation of one or more of the services like demand response services under the demand response mechanism, Distributed Generation, Energy Storage etc. within a control area;

(d) **"Commission"** means The Haryana Electricity Regulatory Commission

(e) **"Cyber Security"** means protecting information, equipment, devices, computer, computer resource, network, programmes, data, communication device and information stored therein from unauthorised or unintended access, use, disclosure, disruption, modification or destruction;

(f) **"Electric Energy Storage"** means a set of technologies capable of storing electricity generated at one point of time and releasing the same at a later point of time to feed electricity into grid. Electric storage technologies may store energy as potential, kinetic, chemical, or thermal energy, and include various types of batteries, flywheels, electrochemical, capacitors, compressed air storage, thermal storage devices and pumped hydroelectric power and able to generate electricity;

(g) **"Interoperability"** means the measure of ease of integration between two systems or software components to achieve a functional goal;

(h) **"Key Performance Indicator (KPI)"** is a type of performance measurement to evaluate its success, or to evaluate the outcome of a particular activity in which it is engaged;

(i) **"Microgrid"** is an intelligent electricity distribution system that interconnects loads, distributed energy resources and storage within clearly defined electrical boundaries to act as a single controllable entity with respect to the main grid. A microgrid uses information, communications and control technologies to operate the system's distributed supply and demand resources in a controlled and coordinated way either while connected to the main grid or while islanded. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island-mode.

(j) **"Smart Grid"** is an electricity network that can cost-efficiently integrate the behaviour and actions of all users connected to it – generators, consumers and those that do both – in order to ensure economically efficient, sustainable power systems with low losses and high levels of quality and security of supply and safety.

(k) **"Wide Area Measurement Systems (WAMS)"** is advanced measurement technology, information tools, and operational infrastructure that facilitate the understanding and management of the increasingly complex behaviour exhibited by large power systems to enhance the system operator's "situational awareness" for safe and reliable grid operation;

(2) All other words and expressions used herein and not specifically defined in these Regulations but defined in the Act shall have the meaning assigned to them in the Act. The other expressions used herein but not specifically defined in these Regulations or in the Act but defined in the Haryana Electricity Reform Act, 1997 (Act 10 of 1998) shall have the meanings assigned to them in the Haryana Electricity Reform Act, 1997 (Act 10 of 1998) or any law passed by the Parliament / Assembly / any other Regulations including the Central Electricity Regulatory Commission (CERC), provided that such definitions are not inconsistent with the provisions of the Electricity Act, 2003;

CHAPTER II
SMART GRID OBJECTIVES AND GUIDELINES

3. Smart Grid Objectives

(1) The objectives of these regulations are to enable integration of various smart grid technologies and measures to bring about economy, efficiency improvement in generation, transmission and distribution licensee operations, manage the transmission and distribution networks effectively, enhance network security, integrate renewable and clean energy into the grid and micro grids.

(2) The objectives also include enhancing network visibility and access, promoting optimal asset utilization, improving consumer service levels thereby allowing for participation in operations of transmission licensees, distribution licensees through greater technology adoption across the value chain in the electricity sector and particularly in the transmission and distribution segments.

4. Guidelines on Smart Grid process

(1) The Commission may from time to time issue guidelines for the generating company, transmission licensee, distribution licensee in execution of the activities including but not limited to,

a. Formulation of Smart Grid programmes
b. Implementation of Smart Grid programmes
c. Cost Effectiveness Assessment of Smart Grid programmes
d. Monitoring and Reporting of Smart Grid Plans and programmes
e. Essential requisites for Smart Grid programmes
f. Customer engagement and participation
g. Customer data protection
h. Training and capacity building
i. Methodology for setting Smart Grid plans and funding levels
j. Database development framework and information system requirements

(2) Issuance of such guidelines shall not be a pre-requisite for preparation and submission of the Smart Grid plan by the generating company, transmission licensee, distribution licensee

CHAPTER III
SMART GRID CELL

5. Constitution of Smart Grid Cell, its roles & responsibilities

(1) Every transmission licensee, distribution licensee shall, constitute Smart Grid Cell within three months of notification of these regulations

(2) The Smart Grid Cell so constituted shall have the authority and necessary resources so as to execute the functions assigned to it under these Regulations

(3) The Smart Grid Cell shall be responsible for:

a. Baseline study and development of data

b. Formulation of Smart Grid plans, programmes, projects,

c. Design and development of Smart Grid projects including cost benefit analysis, plans for implementation, monitoring and reporting and for measurement & verification

d. Seeking necessary approvals to Smart Grid plans, programmes, projects

e. Implementation of Smart Grid programmes

f. Any other additional function that may be assigned by the Commission from time to time

(4) The transmission licensee, distribution licensee may combine activities related to energy efficiency, demand side management and Smart Grid implementation within the same cell.

CHAPTER IV

SMART GRID PROCESS

6. Baseline study and development of database

(1) Transmission licensee, distribution licensee shall undertake baseline study to identify the targets and final outcomes for Smart Grid project programmes. The transmission licensee, distribution licensee shall also build the necessary database.

(2) Transmission licensee, distribution licensee shall undertake study to estimate potential for employment of specific efficiency technologies and applications, establish key performance indicators and determine existing baseline technical conditions.

(3) On the basis of the results of baseline study, the transmission licensee, distribution licensee shall develop Smart Grid programme for its area of supply.

7. Formulation of Smart Grid Plan, Programmes, Projects

(1) The transmission licensee, distribution licensee shall submit an integrated Multi-Year Smart Grid Plan for their respective Licence areas along-with Multi-Year Tariff Petition or ARR Petition, for approval of the Commission.

(2) All Smart Grid projects requiring investments of more than Rupees 10 Crores shall be submitted to the Commission for prior approval of investments:

Provided that investments of less than Rupees 10 Crores shall not require prior approval of the Commission if it is part of Multi-Year Smart Grid Plan of the licensee approved by the Commission:

(3) The proposal for Smart Grid projects shall include

(i) Detailed Project Report

(ii) Customer engagement and participation plan as applicable

(iii) Training and capacity building plan and

(iv) Any other information that may be stipulated by the Commission from time to time:

Provided that the detailed project report would include inter alia description of the project, objective and rationale for the project, technical feasibility study, projected financial implications, target stakeholders, detailed cost benefit analysis detailing all costs qualitative and quantitative in nature, assessment of the project, in line with the cost effectiveness guidelines issued by the Commission, proposed mechanism for recovery of costs, delivery strategy, implementation mechanism, implementation schedule, performance incentives, if any, monitoring and evaluation plan, plan for increasing awareness among the stakeholders.

(4) (i) The tariff design may include the following:-

a) Critical Peak Pricing (CPP): High costs of supply are usually observed for a few days during a year, directly connected with extreme low or high temperatures. CPP charges consumers significantly high prices under predetermined trigger conditions for these days. This type of rate is thus an additive one and can be combined with any other (usually TOU) tariff.

b) Real-Time Pricing (RTP) Tariffs: RTP tariff, according to which load consumption is charged on an hourly or half-hourly or fifteen minute basis and mirror wholesale prices/cost trends to the consumers. In the day-ahead RTP tariff, consumers are informed 24 hours in advance about the estimated prices so they are able to plan their next day electricity usage or, sometimes hedge these prices with other financial instruments, where permitted.

ii) A list of indicative components of Smart Grid Projects is appended as Schedule-X.

8. Approval of Smart Grid Plan, Programme, Project Document

(1) The Commission shall approve a Smart Grid programme project if it is in line with the Objectives set out in Section 3 of these Regulations.

(2) The Commission may take assistance and advice of such experts as it may deem necessary for examining the proposal submitted by the transmission licensee, distribution licensee.

(3) The Commission while according approval to the proposals may identify costs, if any, relating to the programme, project and decide the methodology, procedure, process for recovery of such costs.

(4) The Commission may provide incentive / dis-incentive mechanism for the transmission licensee, distribution licensee linked to the execution, implementation and performance during the life of the project. The Commission may also specify financial incentives/dis-incentives to participating consumers to encourage active and effective participation in the Smart Grid programmes.

(5) The Commission may modify the proposal as deemed fit in order to ensure its consistency with overall objectives.

9. Execution of Smart Grid Programmes/Projects

(1) The transmission licensee, distribution licensee shall undertake execution of the project/programme in line with the approval given by the Commission and other directions issued by the Commission from time to time.

(2) The transmission licensee, distribution licensee shall normally adopt the system standards as per Regulations notified by the Central Electricity Authority (CEA). In case no standards or regulations are notified by the CEA, the appropriate standards, regulations notified by the Commission shall be applicable. In respect of network, communication, products, interoperability and cyber security, the standards as provided by BIS or such appropriate authority shall be adopted. Where these standards are not yet in place, relevant IEC/IEEE/ANSI Standards shall be followed in that order.

(3) The Regulations relating to Standards of Performance as notified by the Commission shall apply. Assessment of performance of the Smart Grid projects shall be carried out for incentivizing/penalizing performance of transmission licensee, distribution licensee. The Commission may specify and require implementation of additional standards of performance to maximize the benefits and ensure compliance of the Smart Grid performance standards proposed.

(4) Transmission licensee, distribution licensee and other agencies responsible for implementation of the Smart Grid programmes, projects shall ensure that

protection of consumer data and consumer privacy is accorded the highest levels of priority.

10. Mechanism for Cost Recovery

(1) Transmission licensee, distribution licensee shall identify the net incremental costs, if any, associated with planning, design and implementation of programmes

(2) Transmission licensee, distribution licensee may propose methodology for recovery of net incremental costs through tariff or any other mechanism

(3) In order to qualify for cost recovery, each programme must be

(i) Got approved prior to implementation as per provision under Regulations 7(2) and

(ii) Implemented in accordance with the approved programme plan

CHAPTER V
SMART GRID PROJECT EVALUATION

11. Smart Grid Programme, Project Completion Report

(1) The transmission licensee, distribution licensee will prepare and submit a Detailed Programme, Project Completion Report to the Commission within one month of completion of such programme.

(2) The Report shall cover the programme, project expenses, physical achievements, constraints and difficulties faced, and deviations, if any.

(3) Transmission licensee, distribution licensee shall place the completion report in public domain through its website(s).

12. Monitoring, Evaluation, Measurement and Verification of execution and performance of the Smart Grid Programme/Project

(1) The Smart Grid programme, project shall be monitored and evaluated based on appropriate methodology including Key Performance Indicators as decided by the Commission using suitable measurement and verification protocols identified for each of the individual programmes, projects by the Commission.

(2) Transmission licensee, distribution licensee shall also submit an evaluation report to the Commission, which inter alia will include outcomes, benefits, lessons learnt and way forward.

CHAPTER VI
MISCELLANEOUS

13. Power to amend

The Commission may, at any time add, vary, alter, modify or amend any provisions of these Regulations.

14. Removal of difficulties

If any difficulty arises in giving effect to any of the provisions of these Regulations, the Commission may, by general or specific order, make such provisions not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty.

15. Powers to give directions

The Commission may, from time to time, issue orders and directions in regard to the implementation of the Regulations and procedures to be followed.

16. Powers to relax

The Commission may by general or special order, for reasons to be recorded in writing and after giving an opportunity of hearing to the parties likely to be affected, may relax any of the provisions of these Regulations.

17. Dispute resolution

All disputes arising under these Regulations shall be decided by the Commission based on an application made by the person aggrieved in accordance with the Haryana Electricity Regulatory Commission (Conduct of Business) Regulations, 2004 as amended from time to time.

By the order of the Commission

Secretary
Haryana Electricity Regulatory Commission

SCHEDULE – X

A LIST OF INDICATIVE COMPONENTS OF SMART GRID PROJECTS

1. Automated Metering Infrastructure (AMI)
2. Demand Response
3. Micro-Grids
4. Distribution SCADA/Distribution Management
5. Distributed Generation
6. Peak Load Management
7. Outage Management
8. Asset Management
9. Wide Area Measurement Systems
10. Energy Storage Projects
11. Grid Integration of Renewables
12. Electric Vehicle including Grid to Vehicle (G2V) and Vehicle to Grid (V2G) Interactions
13. Smart Grid Data collection and analysis
14. Tariff Mechanism including interruptible and dynamic tariffs, time of use, critical peak pricing, real time pricing etc