



TATA POWER-DDL

TATA POWER DELHI DISTRIBUTION LIMITED

A Tata Power and Delhi Government Joint Venture

Distribution Utility Meet 2018

Smart Grid & Regulatory Environment

with you *Non-Stop*

Tata Power-DDL :Smart Grid Solutions

Smart Operation(ADMS) : An Integrated Approach

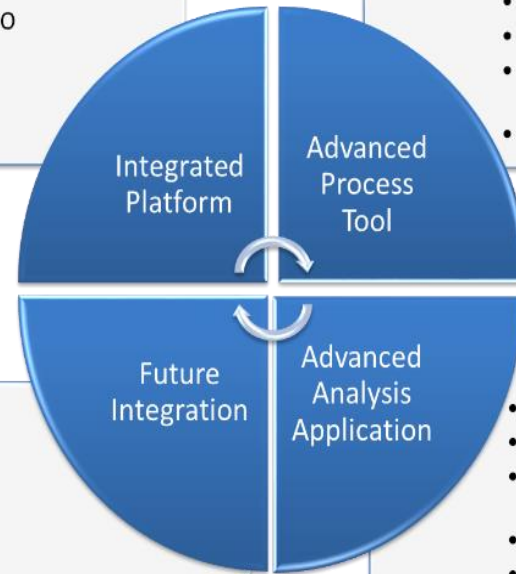
SCADA + Distribution Management System + Distribution Automation + DMS Integrated with GIS

- ✓ One network model providing a single view of all distribution network operations in real-time.
- ✓ Single platform for SCADA/EMS/DMS/OMS solution.
- ✓ SAP for Commercial application , ERP and Call center integrated with ADMS and MDMS

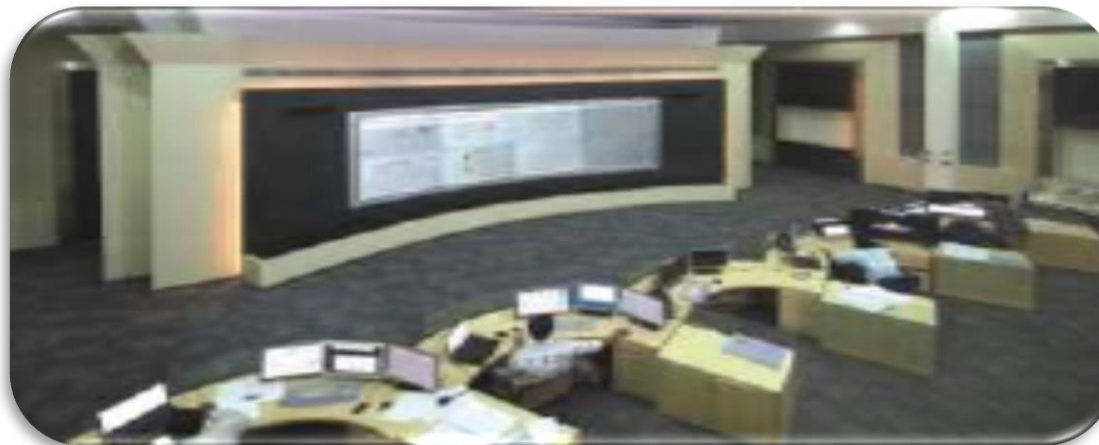
- GIS
- SAP – CRM, PM, BO
- FFA – Mobility
- GSAS and DA

- Outage Management
- Crew Management
- Planned Shutdown
- Fault Location Isolation and Restoration
- Reports

- MDM/ AMI
- ADR
- DER



- Power Network Analysis
- Distribution Power Flow
- Integrated Volt Var Compensation
- Short Circuit Analysis
- Optimal Feeder Reconfiguration



Govt. Schemes Driving Smart Grids



GIS

AMR

Billing & CRM

Energy Audit

Network Analysis

SCADA/DMS

Network Strengthening

Smart Metering

IT Phase - II

ERP

Network Strengthening

Micro-Grid

SCADA/DMS

OMS

Smart Metring System

Electric Vehicles

LED Street Lighting System

RAPDRP(2009)

IPDS

NSGM

National Smart City Mission

Urban Towns

Urban + Semi-Urban Towns

Smart Cities / Urban Towns

Shortlisted Smart Cities



UDAY Driving Smart Metering

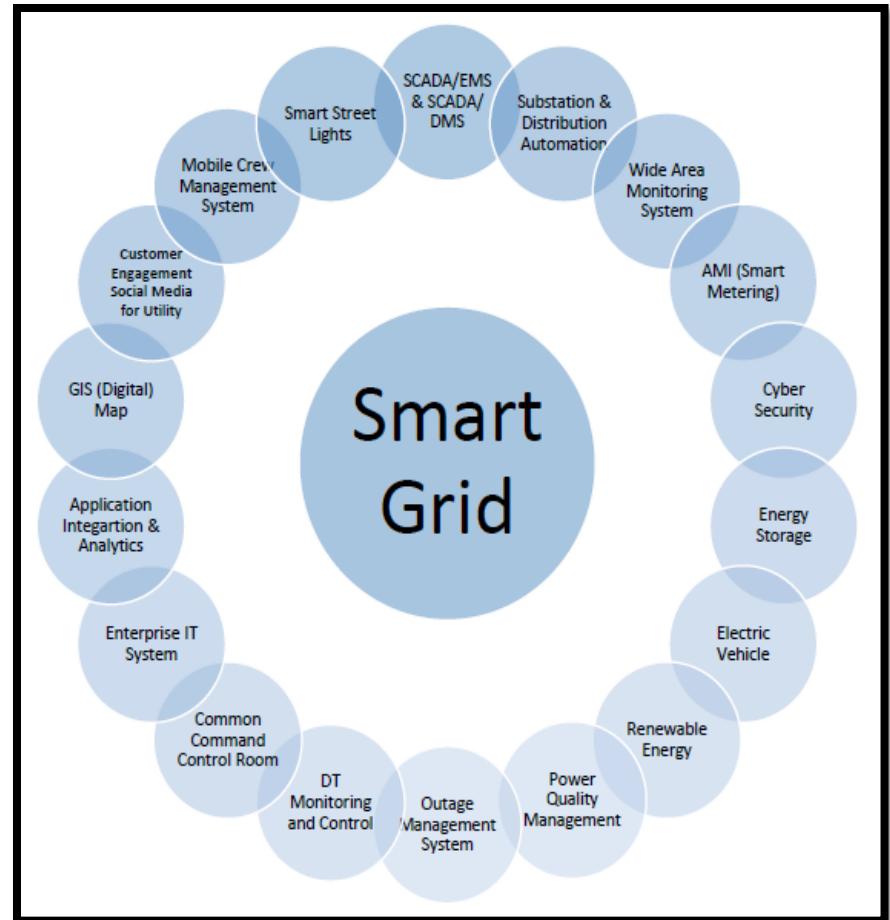
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Impact of Key Proposed Amendments in Electricity Act 2003

Promotion of Smart Grid, Ancillary Support and Grid Security

Key Provisions in the Amendment

- ❖ The amendment provides for upgradation of existing grids to “**Smart Grids**”.
- ❖ Every licensee will have to adhere to directions issued by RLDC to ensure stability of Grid operations, achieve maximum economy & efficiency in power system. Non-compliance shall attract penalty of 1 Crore.
- ❖ The amendment promotes installation of Smart meters, communication system and ancillary support.



Impact of Key Proposed Amendments in Electricity Act 2003

Separating Carriage and Content (Supply) Business

Key Provisions in the Amendment

- ❖ Carriage Owner shall own & maintain the Power Distribution Infrastructure.
- ❖ Power Supply Licensees shall be in the business of retail supply of electricity.
- ❖ The carriage/infrastructure business shall remain regulated while the Supply business shall be open to competition.
- ❖ Multiple Supply Licensees to operate with the Distribution Licensee/Licensees to increase competition in retail power supply.

Challenges for existing Discoms

- ❖ Separation of Infrastructure business and retail supply business.
- ❖ Competition from Supply Licensees in its area of license after implementation of Transfer Scheme.
- ❖ Role & scope of existing Discoms after implementation of Transfer Scheme.

Opportunities for existing Discoms

- ❖ To venture into Power Supply Market in other licensed areas across India.



Key Proposed Amendments in Electricity Act 2003 – Distribution Sector

Obligation to supply 24x7 power, elimination of Surcharge on Open Access & DBT

- ❖ The amendment has made it obligatory for the Distribution/Supply Licensees to supply 24x7 power to its consumers.
- ❖ The amendment aims to promote Open Access by providing a cap on Surcharge in case of Open access to 20% of wheeling charges, which shall be progressively reduced and eliminated within 2 Years.
- ❖ The amendment proposes to adopt Direct Benefit Transfer (DBT) model to subsidize targeted beneficiaries.

Challenges for existing Distribution Business

- ❖ To minimise forced outage, better power management and forecasting**A step for smart grid implementation**
- ❖ Promotion of Open access by reduction/elimination of Surcharge shall lead to migration of high end consumers from Discoms.
- ❖ Introduction of DBT shall proportionately reduce the benefit of overachieving AT&C losses vis-à-vis Regulator's assigned target owing to increase in commercial losses due to DBT.

Impact of Key Proposed Amendments in Electricity Act 2003

Promotion of Renewable Energy based Distributed Decentralized Generation & RPO

Key Provisions in the Amendment

- ❖ The amendment aims to promote Renewable Energy based Distributed decentralized Generation.
- ❖ The amendment exempts requirement of Supply License in case the Electricity is generated from RE sources.
- ❖ Non-compliance of RPO obligation by the Licensees shall attract a penalty of minimum Rs 1 per Unit to Rs 5 per unit to the extent of shortfall of energy to be complied under renewable purchase obligation.

Challenges for existing Distribution Model

- ❖ Growth of multiple Mini-Grids based on cheap Renewable Power coupled with battery storage systems can come up as an alternative to conventional large scale Discoms.

Opportunities

- ❖ These Mini Grids can be smartly integrated with Blockchain based distributed decentralized ledger to have better power management & for expansion of our business.



Ancillary Service market ..A must for Smart grid

- Aims to restore the frequency deviations and relieve congestion through “Regulation Up” or “Regulation Down” using thermal plants
- Participation is allowed for Generators that are Regional Entities and tariff for the full capacity is determined by CERC
- NLDC is Nodal agency and prepare merit order based on VC
- For Regulation Up, FC & VC plus pre-specified mark-up of 50 paisa/kWh is payable from DSM pool to the service providers. The original beneficiaries are reimbursed the fixed charges.

During crisis of low frequency or peak time power is not available

Ancillary Service market ..A must for Smart grid

- To bring private Generators and Intra State Generators also in the ambit of Ancillary service providers
- Introduction of concept of “ Gate closure” such that beneficiaries do not recall power and dedicated quantum is available for Ancillary services.
- To develop a day ahead and intra day market for trading of ancillary power.
- Quantification of available reserves in terms of ramp up/ ramp down rate.

Key issues to address

- Discom readiness for smart grid scenario .
- SERC enforcement for performance standard .
- More agility in regulatory system or there is need for Regional Regulatory mechanism
- Ancillary market Readiness for renewal and storage adoption
- More clarity on EV and Charging infrastructure

Thank You



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