SUSTAINABLE TRANSFORMATION OF UTILITIES

World Utility Summit 2023

POSTER BOOKLET

World Utility Summit 2023
THE THEME

The theme of the World Utility Summit, (WUS) is “Sustainable Transformation of Utilities”. 

This summit would bring in thought leaders across the globe to deliberate the preparedness of utilities to deal with the transformational changes. Regulators, technology providers, consultants, government bodies and utility leaders are expected to share their views on the various challenging and exciting scenarios and help shape the roadmap of the future utilities.
SUMMIT TRACKS:

■ Accelerating Digital Journey of Energy Ecosystem

Utilities get their revenues primarily via billing the customers for their demand and energy usage. New energy ecosystem, with multiple options for consumers to meet their electricity demand, will pose stiff competition to the utilities. Earlier for paying electricity bills a long que has to be made but in today’s era the process has been digitized. With the use of smart meters, every process is digitized and simple. The questions arise in what manner digitization of energy ecosystem will affect the consumers?

■ Best Practices in Asset Management

Proper asset management allows company to effectively provide their service to the nation. Any breakdown in this process brings the potential for catastrophic failure in the nation infrastructure. Proper asset management allows you to:

• Enhance the life of assets through proper maintenance
• Allows you to respond efficient during emergency situation
• Reduce operating cost in long term.

The four main pillar of the asset management are:

• Evaluate your system’s asset
• Assess your current service level
• Identify your most critical component
• Map out your life cycle cost
• Develop maintenance plan

■ Enhancing the Utility System Resiliency

In this environment, the utilities, Government and others stakeholders needs to take longer and deeper look at building resilience to limit and mitigate the risk to customers. Protecting them from risk that threaten life, property and economic activities that can be costly. We would like to suggest important pillars in the effort to improve our Nations grid resilience.

• Smartening the Grid
• Hardening the Grid
• Distributed Generation
• Building resilience on demand
Distribution Utilities of Future: Advanced Technologies for Business Transformation

The Indian power sector is evolving at a fast pace and has undergone some major transformations in recent past aimed at improving grid efficiency, security, stability, and consumer experience. However, the distribution utilities remain the weakest link in power sector value chain. The deployment of advanced technologies such as smart-grids can reduce pilferage, enhance consumer participation, and realize more revenues through losses reduction, lower energy costs, and eliminate manual intervention. Further, the combination of advanced technologies, innovative market models and consumer engagement strategies can support solutions like grid interactive buildings and enable consumers to support the distribution utilities in managing the demand supply balance. Together, such technologies and solutions have the potential to transform the distribution utilities and accelerate the use of clean energy resources in power grids.

Sustainable Practices towards Net Zero Utilities

In current scenario, Energy and Utilities executives are working towards sustainable practices. Almost half of the energy and utilities respondents have committed to a net zero goal. The major driving factors for sustainable utilities are upcoming government policies favorable to consumers and industry, increasing consumer and shareholder demand, and Decreasing cost of renewable energy. The important question arises how the Utilities are building a sustainable future.

New Energies (Common track with eTECHnxt)

The Indian renewable energy sector is the fourth most attractive renewable energy market in the world. As of May 2022, India’s installed renewable energy capacity stood at 159.94 GW which is 39.70 % of the overall installed power capacity. People everywhere are looking for new energy ideas to help them make energy smart decisions for the future. We believe in renewable Energy and changing the attitude and practices about the way people generate and use energy. Central to this is the discovery and development of alternative energy sources. This track will cover the latest developments in technologies, novel business ideas, grid dynamics, learnings from pilot demonstrations and working considerations associated with these technologies. The topic will emphasis on Green Hydrogen, Electrification of Transportation, Nuclear & Biomass.
BRPL drives the EV revolution in the National Capital

Facilitates installation of over 1600 EV charging points @ over 650 locations in South and West Delhi

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Charging Category</th>
<th>No. of Charging points</th>
<th>Number of locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Public</td>
<td>486</td>
<td>165</td>
</tr>
<tr>
<td>2</td>
<td>Private</td>
<td>913</td>
<td>369</td>
</tr>
<tr>
<td>3</td>
<td>Captive</td>
<td>221</td>
<td>132</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1602</td>
<td>666</td>
</tr>
</tbody>
</table>

*Till January 31, 2023

BENEFITS:
- Lowest prices
- Subsidy under Delhi EV policy
- Single window platform
- Easy to apply

Driving towards converting BRPL's vehicle fleet to EVs by 2030

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
Date: 20-21 February 2023
BSES to become one of the greenest discoms in the country

- Over 50% (or 3300 MW) of long-term power portfolio to become Green by FY 2023-24
- Will reduce ~7 million tonnes of CO2 annually
- Sun to be the biggest contributor, followed by Water, Wind, Hybrid & Waste

<table>
<thead>
<tr>
<th>Source</th>
<th>Solar</th>
<th>Hydro</th>
<th>Wind</th>
<th>Hybrid</th>
<th>WTE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MW</td>
<td>1391</td>
<td>1015</td>
<td>650</td>
<td>210</td>
<td>40</td>
<td>3306</td>
</tr>
<tr>
<td>% of Total Portfolio</td>
<td>22%</td>
<td>16%</td>
<td>10%</td>
<td>3%</td>
<td>1%</td>
<td>52%</td>
</tr>
</tbody>
</table>

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
Date: 20-21 February 2023
Shaping the future of sustainable Delhi through rooftop solar

Over 4000 (Over 105 MWp) rooftop Solar Net metering connections energized

<table>
<thead>
<tr>
<th>Easy to apply at</th>
<th>Call</th>
<th>Email</th>
<th>MNRE national solar portal at</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://solar.bsesdelhi.com">https://solar.bsesdelhi.com</a></td>
<td>19123 (Ext: 8)</td>
<td><a href="mailto:netmetering.brpl@relianceada.com">netmetering.brpl@relianceada.com</a>, <a href="mailto:netmetering.brpl@gmail.com">netmetering.brpl@gmail.com</a></td>
<td><a href="http://www.solarrooftop.gov.in">www.solarrooftop.gov.in</a></td>
</tr>
</tbody>
</table>

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
Date: 20-21 February 2023
Adding flexibility in the distribution grid

Figure: From left, Battery enclosure, PCS / Inverter and ACDB / EMS enclosure

- Type of installation: Customized separate enclosures for battery bank, PCS (inverter) and ACDB incl. EMS (energy management system)
- Main application: Peak shaving, energy time-shifting arbitrage
- Secondary application: Reactive power support and power factor improvement
- Project duration: 4000 cycles or 10 years, whichever is earlier
- Lithium iron phosphate battery (LFP)
- Installed at 6, 11KV/415 distribution transformer substation

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
Date: 20-21 February 2023
BRPL commissions first-of-its-kind urban microgrid system in Delhi

100 kWp Solar PV + 466 kWh Battery Energy Storage System (BESS)

- Microgrid is a part of the Indo-German Solar Partnership Project (IGSEP)
- Estimated to reduce ~ 115 tonnes of CO2 annually
- Capable of operating in parallel with Grid supply & charging / discharging of BSES on demand through Solar or Grid supply
- Production of about 1.5 lakh units of clean energy per annum

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
Date: 20 -21 February 2023
Greening Delhi: Planted over 1,00,000 trees in south and west Delhi

BRPL is doing its bit for the environment and the rising pollution – one tree at a time!

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
Date: 20-21 February 2023
Powering Opportunities for a Sustainable Future

ROBUST & RESILIENT NETWORK FOR DELIVERING 24X7 POWER SUPPLY

Leveraging captive Optical Fiber backbone for enabling Faster Restoration

DIGITAL TRANSFORMATION
- Faster restoration with futuristic technologies
- Industry 4.0, Sensor based IoT devices, Augmented/Mixed reality, Drone, Digital Twins
- Amplifying impact through Advanced Analytics
  - Predictive maintenance, Predicting HT Cable Faults, Social sentiment analysis, Revenue Protection
- High-touch Customer Experience for a No-touch World
  - Voice bot, Chatbot, WhatsApp bot, Social media, Website, Mobile app, Digital Services including Payments
  - Agile way of working & edge-based decision making
  - Workforce Automation through Workforce Management App, Business Process Automation through RPA

DECARBONIZATION
- Transforming our Sub-stations/buildings to Green buildings
- Battery Energy Storage System (BESS)
- Co-creating EV ready network & supporting transformation to Electric cooking

DISASTER MANAGEMENT
- Reinforcing robustness & Resilience of Network coupled with dynamic workforce

DECENTRALIZATION
- Block chain technologies for Demand Side Management solutions & Peer to Peer (P2P) energy management
- Microgrid with Floating Solar & Battery Storage system

WUS 2023
Dhaka Power Distribution Company Ltd. (DPDC)
World Utility Summit 2023
Dhaka Power Distribution Company Ltd. (DPDC)

Stepped Ahead Towards Smart Power Distribution Utility

- AMI
- Smart Grid
- GIS Mapping
- ERP
- Call Center
- 4IR Technology

Dhaka Power Distribution Company Ltd. (DPDC)

(Dependable Power - Delighted Customer)

Venue: India Exposition Mart, Knowledge Park II
Greater Noida, Delhi NCR, India
Date: 20-21 February 2023
Energy Efficiency Services Limited (EESL)
**SUSTAINABLE PRACTICES towards NET ZERO UTILITIES**

Unnat Jyoti by Affordable LEDs for All (UJALA)
- 36.85 crore LED bulbs installed across India
- 72.18 lakh LED Tube lights
- 23.59 lakh Energy efficient fans

Super-Efficient Air-Conditioning Programme
- 3,146 Super-Efficient ACs Deployed
- Delivers the cost of cooling reduced by 50%

National E-Mobility Programme
- 1,657 and 1,450 EVs deployed
- 190 clients benefitted
- Savings up to 40%

Atal Jyoti Yojna (AJAY)
- 2.72 lakh Base LED street lights in urban areas
- Solar LED Lights in rural areas

Decentralized Solar Power Plant Programme
- 17.5 MW Solar Power Plants commissioned

Building Energy Efficiency Programme (BEFP)
- 747 buildings
- 30-50% Energy saving potential

Agriculture Demand Side Management (AgDSM) Programme
- 30% reduction in energy consumption

EV Charging Infrastructure
- 643 Public Charging Stations (PCS) deployed
- 108 units in rural and semi-urban areas

Trigeneration
- 800 kWe energy efficiency project
- 100 kWe PV system

Under the Programme
- BEE 5-star energy efficient agricultural pumps are supplied

**Annual Conference**
- 15th Edition
- WUS 2023
- World Utility Summit
- 20-21 February 2023
Electrical Research and Development Association (ERDA)
Gujarat Energy Transmission Corporation Limited (GETCO)
World Utility Summit 2023
Utility Poster Session

Accelerating Digital Journey of Energy Ecosystem

Technology Transition for Digitalization

- Driving Factors for Accelerating Digitalization
  - To reduce life cycle (O&M as well as R&M) cost
  - To improve O&M efficiency
  - To extend asset life
  - To reduce asset footprints
  - To build intelligent and flexible substations
  - To minimize costs of renting skilled resources

Motivation for Digitalization
- Large footprints of control room and cable trenches
- High level of physical complexity and components
- Tons of cabling and thousands of terminations
- Cluttered wiring, huge resistance requirement
- Safety concerns due to direct interface with control cubicles
- Conversion of old aged asset is the biggest challenge

GETCO Journey Towards Digitalization

Digital Bay Pilot Projects

- Unique Features
  - Full digital substations - Sevaliya
  - All substations functionality through PO network
  - Communication Backbone - Backbone with zero recovery time
  - Electromagnetic interference mechanism for sample value - Interface - first time
  - Traffic management and filtering
  - Cyber Security

Benefits
- Cyber security and asset management
- Improved O&M efficiency
- Reduced O&M costs
- Enhanced safety
- Improved reliability and availability

Gujarat Energy Transmission Corporation Ltd.
20-21 February 2023

ieema
ELECRAMA
Powering the Future of Energy
18-22 February, 2023

IEEE
Advancing Technology for Humanity
IEEE PES
Power & Energy Society®
The Gujarat Power Research & Development Cell (GPRD)
World Utility Summit 2023
Utility Poster Session

GUJARAT POWER
RESEARCH & DEVELOPMENT CELL
GUJARAT URJA VIKAAS NIGAM LTD

AIR BREAK SWITCH WITH EARTH BLADE
(WITH FRP MOUNTING CHANNEL)

AIR BREAK SWITCH WITH EARTH BLADE (WITH FRP MOUNTING CHANNEL) is a combination of the 11 KV AB Switch, Flexible Earthing Blade, FRP Base Channel.

Gujarat Power Research & Development Cell has developed “AIR BREAK SWITCH WITH EARTH BLADE (WITH FRP MOUNTING CHANNEL)”, a unique concept with the enhanced design to face the inevitable safety issues faced by the DISCOMs.

Benefits to the Power Distribution Companies
- Easy mounting
- Line staff’s Electrical accidents shall get reduced
- Increase in ease and safety of the operation
- Increase the confidence of the DISCOM’s technical staff during maintenance activities

Features of ABEB
- Safety to line staff
- Cost-Effective Solution
- Mechanically rugged design
- Reduce Power Interruption
- Address the back power issues of the distributed feeder line
- Minimization of the fault restoration time
- Improved aesthetics

The AIR BREAK SWITCH WITH EARTH BLADE (WITH FRP MOUNTING CHANNEL) is a unique concept, having the capability to reduce the electrical accident. It is performing best and satisfactorily in the field.

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
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IEEMA
your link to electricity

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Power & Energy Society®
GeoUrja®

GeoUrja® is a user-friendly software platform developed for GPS survey of the Electrical Network and Consumers’ locations by using a Smart Mobile device. The software-based application enables the capture of essential network elements such as the geographical position of electrical assets namely Transformers, HT & LT Poles & Lines, Cable route & Switching devices etc. The application also allows dynamic updation, addition, modification in the electrical network.

The Enterprise solution “GeoUrja®” platform is aimed to cover complete asset information, data modeling, integration and analysis for providing a supportive system for better management decisions and improvised consumer services.

FEATURES

EASY SURVEY MOBILE APPLICATION
- Network information with HT and LT network over the satellite image
- Consumer basic detail
- Quick search and navigation option for consumer and electrical assets
- Current location base overhead/underground network information
- Asset QR tagging and information
- Live location based network view

DASHBOARD
- Developed on an open-source platform and uses GIS cloud technology
- Electrical network statistical information with consumers details
- Network asset attribute view and edit functionality with geographical and vector-based map
- Electrical network analysis with power flow study like voltage regulation, loss calculation, low voltage, reactive energy etc.
- Network planning with multiple network views over geographical view
- Integration with ERP and billing system through API services

SAMPARK
- Designed for the Customer Care Center
- Integrated platform for places and locations search with consumer details
- Quick information of electrical network and power connectivity

GUJARAT POWER PORTAL
- Integrated single platform for existing systems elements such as Information of Feeder Circuit Breakers, RMUs, Meter Modems, Switches, etc. are carried out and plotted on GIS Power Network
- The real-time power supply status of the Consumers and ongoing network outage information entails to access power reliability
- DISCOM Boundaries: DISCOM wise, Circle wise, Division wise, Subdivision wise, Geographical view
- Revenue Boundaries: District wise, Taluka wise, Village wise
- Digital layers of Roads, Rivers & Rail Network

GEOURJA LIVE
- Unique & Innovative dashboard
- Live power supply status of feeders & consumers
- Real-time power supply status of consumers
- Ongoing network outage information
- Easy to manage the power flow of the network
- Feeder circuit breakers, RMUs, meter modems, switches, etc. plotted at single platform

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Utility Poster Session

GUJRAT POWER RESEARCH & DEVELOPMENT CELL
GUJRAT URJA VIKAS NIGAM LTD

SPECIALY DESIGNED MEDIUM VOLTAGE COVERED CONDUCTOR

SD_MVCC

There are issues like frequent line tripping, snapping of conductors, fast deterioration of the bare conductor, safety hazards, maintaining power reliability, etc., for the bare conductor overhead distribution network passing through dense plantations in a coastal area. There are other issues like environmental clearance in the forest areas and Right Of Way (ROW).

Guartr Power Research & Development (GPRD) Cell has designed, developed & installed a Specially Designed Medium Voltage Covered Conductor to address the specific issues of power reliability and safety of FGDL in the coastal belt having dense plantation of coconut trees—hence, a unique concept to address the issues like reducing faults and interruptions caused by tree contacts and enhancing the reliability, reducing animal faults, protecting the aluminium conductor from corrosion, reducing maintenance cost of tree trimming, greater compactness of distribution network.

The SD Medium Voltage Covered Conductor comprises of triple街道式 design in the bare conductor as per the International standard IEC 61508-1. The three layers of MVCC are a semi-conducting sheath to equalize the electric field stress, an impregnated XLPE insulation without carbon black compound and finally, a hard abrasion-resistant outer protective layer of HDPE with UV stabilizer, weather & heat resistant. The SD_MVCC is preferably used with its standard accessories as per International standard EN 50387-2 and installation as per standard EN 50387-3. The various accessories used are Insulation Pinching connectors (IPC), Tension Clamp, Hulla- Conductor Fitting, Arc Protection Device (APD) and Earth parking devices.

Features of SD_MVCC & applications

- Protects the conductor from corrosion
- Enhanced electrical safety
- Longer life-cycle compared to the bare conductor
- No requirement to change the network configuration
- Cheaper alternative to underground cables and A/C cables
- Addresses the power reliability issues
- No interruption while touching tree branches
- Ideal and safer solution for installations over river / lake/ forest / road slums / congested residential areas and in polluted areas
- Addresses ROW issues with reduced in between phase clearance.
- Useful to use in the forest area also
- Protects Animal and Bird safety from the live wires

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GUJARAT POWER RESEARCH & DEVELOPMENT CELL
GUJARAT URJA VIKAS NIGAM LTD

ONLINE TESTING SET

The ONLINE TESTING SET comprises standard HT TVM, CTs, PTs and switching device. The OLTS is competent to test the entire Metering Set comprising of CTPT unit, TVM and Control cable in on-load condition without interrupting the Power supply.

Features of OLTS
- Onsite testing of a Metering Set of HT Consumer installation
- Testing the CTPT unit, TVM and Control Cable during actual loading
- No need to interrupt the power supply of HT Consumer
- A Testing Set up on the Wheel
- The actual technical loss of a feeder section can be measured
- Promising large scale testing in minimum time

Benefits to the Power Distribution Companies
- Huge revenue leakage, due to hidden error of CTs and PTs can be eliminated
- Economically & technologically viable option
- A cost-effective solution
- DISCOMs can do it, without the help of a third party or outsource

The OLTS is a novel concept and it performing best and satisfactorily in the field

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Utility Poster Session

WATCHDOG TRANSFORMER
ONE SOLUTION FOR MANY ISSUES

The WatchDog Transformer (WDT) is a combination of the present Distribution Transformer (DT) and WatchDog Device (WDD)

Benefits to the Power Distribution Companies
- Cost-effective, reliable & quality Power supply for the valued Customer
- By using WDT, DISCOMs may avoid feeder segregation in case of mixed load feeders of Agricultural Pump Sets & Domestic connections

Features of WDT
- 3 Phase and 1 Phase Power Supply Scheduling in Agriculture Sector
- Overload, Short Circuit & Leakage Protection
- Over, Under & Unbalance System Voltages monitoring
- Load Connect & Disconnect: locally & remotely
- Remote Monitoring of Electrical & Health Parameters

The WatchDog Transformer is a novel concept, it is having the capability to revolutionize the Power Sector

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
Date: 20-21 February 2023
IntelliSmart Infrastructure Pvt. Ltd. is India’s leading smart metering and digital solutions provider, established with the core purpose of becoming the most preferred partner of the utilities.

Our organizational culture is built on the intrinsic values of integrity, respect, innovation and sustainability, which influence our everyday endeavours and collective practices.

We aim to create a difference in power distribution with digital interventions while shouldering the responsibility of the mass-scale rollout of smart meters under RDSS.

With smart meter infrastructure, consumer data management and AI/ML-based analysis, we seek to create value for the discoms by enabling them to develop additional revenue sources.

IntelliSmart is one of the first AMISPs to have achieved CMMI-SVC v2.0 ML3 certification.
Jaipur Vidyut Vitaran Nigam Limited (JVVNL)
World Utility Summit 2023
Utility Poster Session
Best Practises in JDVVNL
Veena Pareek Executive Engineer, JDVVNL

Power distribution is most crucial and weak link in power sector yet smarter practices make it better. Best practices adopted by Jd vnvnl to meet low AT&C LOSSES and more consumer satisfaction in last decades are very appealing as diagram 1 shows:

- Smarter Electricity System
- Present
- Future

The practical implementation of Audit and efficient power supply maintenance with consumer satisfaction is clear target of Disco in form of IPDS, Din dayal gramin vidhutikara, RDSS, DSM etc projects.

<table>
<thead>
<tr>
<th>S no</th>
<th>Particulars</th>
<th>Progress done with adoption of good practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Implementation of IT application in Metering.</td>
<td>1. Tally 19A/27 under Ph.I up to Dec 22 and 1373865 under Ph-II up to March-25 smart meters are proposed to be installed. 2. Standard Billing Documents (SBD) with MDM Version 4 are sent from nodal agency (NEC) on 20.08.2022 3. AR/HR Smart metering Project 4. Total 10027 Smart Meters installed up to FY 2023-24 under IPDS in JDVVNL.</td>
</tr>
<tr>
<td>2.</td>
<td>Billing &amp; Collection (BMC) activities (AMR/HRM/Drama, RSM) (based installation)</td>
<td>All 31500 feeders of 11 KV are metered and on 841.2370 are installed and if drawn work under creation having TATS for each complaint category. Has a start of the ar/rdh cell centre &amp; Multi lingual bill &amp; Various payment options and alerts by sms.</td>
</tr>
<tr>
<td>3.</td>
<td>MIS based periodic reporting of unit wise business parameters</td>
<td>Input energy, draw system augmentation plan and their execution, no of tripping on transformers and substation month wise, feeder wise ATR/ATR losses etc are calculated and monitored with meetings and MPR formats.</td>
</tr>
<tr>
<td>4.</td>
<td>Implementation of IT application in network management activities (SCADA, DMM, OAM, etc.)</td>
<td>SCADA cell is created separately for implementation of KUSUM - C project of solar panel and solar pump set. Load and demand also measures are taken for load shaving by power controller cell successfully. SCADA is also very effectively working.</td>
</tr>
<tr>
<td>5.</td>
<td>Best practices and strategies for distribution loss reduction</td>
<td>Energy Audit for FY 2020-21 and Q1 and Q2 quarters of this year done as per BEE regulations. Director's report is also an indicative of progress.</td>
</tr>
<tr>
<td>6.</td>
<td>Consumer satisfaction and staff safety and training</td>
<td>Online and off-line grievance portal and time bound rectification is integral part of JDVVNL. Time to time training given to staff for use of safety equipments purchased with assistance of hazard loss O&amp;M activities.</td>
</tr>
</tbody>
</table>

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Muscat Electricity Distribution Company (MEDC)
GIS Technology for the Asset Management
Yousuf Mohammed Al Mahrooqi
Muskat Electricity Distribution Company (MEDC)
Sultanate of Oman

The urbanization in the Muscat governorate is growing rapidly, making a huge impact in different sectors. Electricity distribution is one of the most critical sectors which is being impacted by this growth of urbanization because it deals directly with more than 450,000 customers by delivering and supplying the power safely and swiftly. The asset maintenance strategy in the Muscat Electricity Distribution Company (MEDC) faced a critical challenge of building a strong strategy based on accurate data of maintenance activities on the field. It is important to have a smart workflow of the processes to collect, analyze and make a solid decision. This poster aims to present the complete smart solution where the location intelligence was to drive the maintenance activities to quit the paper-based environment and apply the new GIS technologies for the operations field. All maintenance and operation inspections are relying on GIS technologies by utilizing various functions of mobile applications and web-based apps for reporting and analyzing. This transformation enhances the quality of inspection work to ensure the safety of the MEDC network which ultimately ensures the reliability and sustainability of the power and customer satisfaction.

The results are impacting the building of the maintenance strategy where the data of the inspections documented digitally and transformed to information where the power of the data visualization comes in the core of the process. The interactive Dashboard is the main tool to visualize the data intuitively and interactively where the managers figure out effectively the critical zones and end up with solid decisions for preventive maintenance which keep Muscat Electricity Distribution Company (MEDC) supplying power to the customer sustainably.

It is worth mentioning that one of the best asset management practices in MEDC is the peak load management. Where MEDC recognizing the peak load process by using the GIS technology. This process is recording the highest amount of energy that a consumer draws from the substations in the summer. The ability to perform peak load management in distribution systems has several benefits for utilities, including reduced demand charges and improved reliability, efficiency, and utilization of the network infrastructure. The peak load before GIS was measured using a traditional way like papers and a couple of formulas for calculations. But GIS made it more accessible by offering smart form tools by the engineers on site. The forms capture the LV feeders and the TX load. The result summary in a dashboard and present a live indication about the progress at field and the overall load curve. Moreover, in a strategic plan, MEDC attempts to expand this new data as a realistic laboratory to support the company vision of implementing an advanced distribution management system (ADMS).

Venue: India Exposition Mart, Knowledge Park II,
Greater Noida, Delhi NCR, India
Date: 20 - 21 February 2023
Madhya Pradesh Paschim Kshetra Vidyut Vitran Company Ltd. (MPPKVVCL)
MADHYA PRADHARSH PASCHIM KSHETRA VIDYUT VITRAN COMPANY LTD, INDORE

Deployment of Smart Metering in West Discom Indore to improve Operational Efficiency and Consumer Satisfaction

**Advanced Metering Infrastructure (AMI):** The main objective of AMI is to establish two-way communications between smart energy meter and smart grid system (MGIS) and couple remote reading, monitoring & control of energy meters and electrical network meters to serve as repository of record for all raw, validated and edited data. The Advanced Metering Infrastructure helps utility to manage their resource and business process efficiently.

**Component of Advanced Metering Infrastructure:**
- Smart Meter
- Communication Infrastructure
- Real-Time Data System
- Meter Data Management
- Mobile App
- Cloud Infrastructure

**MPWCCVR:** has realized the importance of Smart Meters in their territory and already implemented one of the largest Smart Metering Projects for 1.2 Lakh consumers of Indore city over RF-Copy or Unilinked frequency band 655-657MHz. Further on the basis of success of earlier Phase I Project, Discom has awarded contract to install 7.5 Lakh (Consumers in 13 Different AMR/W and rest of which around 2.2 Lakh Smart Meters has already been installed and installation of balance consumers are in progress.

**Project Benefits DISCOM Perspective**
- Average Improvement Per Bill after installation of Smart Meter is around Rs. 310 Per Month with expected payback period is around 20 Months.
- For Smart Metering Area, Billing Efficiency has been increased by 17.5%. Collection Efficiency increased by 13.9%, AT&C losses reduced by 27.0% and CRPU has been increased by 17%.
- Remote Disconnect/reconnection of 24 Lakh Consumer,meter recovery of 220 Crore AMR/WC up to 3-12-22 due to which saving of Manpower has been Rs. 16.80 Cr.
- Total 14055 cases identified against Dealers reported, leading to additional billing of Rs. 17.04 Crore. 2278 cases booked against theft.
- 50 BWP increase in (2020-21 Consecutive) sanctioned load on the basis of recorded MD which is around 15% of total load of Smart Metering Consumers, monthly fixed charges of around Rs. 94.22 Lacs slashed.
- FT Penalty (2%-3%) imposed on around 91 K Bells of NM Annuating Rs. 102.63 Lacs.
- 752 No. Consumers converted from Domestic to NDS/BP, monthly fixed charges of approx Rs. 9.52 Lacs slashed.
- Account & timely availability of billing data (99%), provided billing data of 67.97 Lakh bills through AMR/WC provided reading even in Lockdown and Curfews of Covid-19 Pandemic.
- Arranged Consumer dials has been reduced by 30% after installation of Smart Meter.
- 80% of old electronic meters removed due to Smart meters has been realized in rural areas after

**Project Benefits Consumers Perspective**
- Time free Bills due to no manual intervention.
- MPWZ has provided incentive to 2 Lakh Small Scale units for maintaining P.F. < 0.85.
- Development of Mobile App for consumers wherein Smart Metering Consumer can check the consumption during the day week , month or year and monitor the same.
- Option is choice - Prepayment.
- Trouble for receivables integration.
- Billing related complaints reduced by 85%.

**Project Benefits Government Perspective**
- Reduction in working capital loan to the DISCOM.
- Improvement in Financial Health of DISCOM.
- Increased Consumer Satisfaction.
- Due to availability of Meter Data - Subsidy can be addressed to the genuine consumers. Rs. 70 per consumer was subsidy passed to Smart Metering consumers as compared to Non Smart Metering Consumers.

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15th Edition ELECRAMA Powering the Future of Energy
18-22 February, 2023

IEEE
Advancing Technology for Humanity
IEEE Power & Energy Society®
National Power Training Institute (NPTI)
NATIONAL POWER TRAINING INSTITUTE
(Ministry of Power, Government of India)

WELCOMES YOU ALL AT
WORLD UTILITY SUMMIT 2023

ABOUT NPTI

National Power Training Institute (NPTI), an ISO 9001:2015 & ISO 14001:2015 organization under Ministry of Power, Govt. of India is a National Apex body for Training and Human Resources Development in Power Sector and the world’s leading integrated Power Training Institute, with its Corporate Office at Faridabad. NPTI operates on a Pan-India basis through its eleven (11) institutes. Apart from highly skilled and competent trainers and state-of-art laboratories, NPTI has Hi-Tech real time simulators of various power plant capacities, which includes thermal (Supercritical, Subcritical), multifunctional, CCGT, Hydro, SCADA & Smart Grid Operations and Dispatcher Training Simulator at its various institutes.

Having trained more than 3,76,350 Power Professionals in training programs over the last 5 decades, NPTI is the only Institute of its kind in the world with such a wide geographical spread and covering a wide gamut of training programs in Renewable Energy & Power Sector.

GLIMPSES OF NPTI

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REC Limited
Alternative Model for Rural Power Distribution: Focus on Sustenance

- 100% rural electrification needed push and support from Central Government in the form of RGGVY, DDUGJY & SAUBHAGYA, due to the lesser demanding and lesser remunerative nature of rural consumers.
- Electricity has not ensured regular power supply, as the social vs market incentives still remain mis-aligned for the DISCOMs.
- Across States, DISCOMs are witnessing interest from private enterprises for parallel licensing in their urban areas, due to their better commercial suitability.
- With right incentive structure of the stakeholders so involved, the efficiency and service delivery can be improved in rural areas.
- An “atmanirbhar” or a self-dependent approach of a self-reliant co-operative model may be better from rural service delivery standpoint.

**Motivation**
- Urban grid can be managed on commercial principles, however rural grid may be better managed by a community i.e., rural electricity cooperative societies (RECS), particularly for billing and collection.
- RECS can source the power from grid as well as Solar plants installed under PM-KUSUM scheme or other subsidized Govt. schemes.
- RECS can have single point metering at DTR level, with Smart-Prepaid meter having net meter functionality.
- RECS can maintain EV charging stations to utilize the available solar power in captive or can be traded with neighboring RECS or to DISCOM, for optimal power scheduling.
- RECS can be engaged in financing of electric autos and other commercial electric equipment to promote small industry and improve the overall economic status of the area.

**Proposal**
- Can reduce recurring Tariff subsidy burden by better targeting of capital investment subsidy and also be politically prudent for State Governments.
- Can support clean energy transition by putting thrust on Solar and E-Vehicles, while also promoting rural employment and economy.
- Can create an ecosystem of competitive Urban market, with Rural consumers responsible for quality of their own service delivery.

**Benefits**

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India
Date: 20 - 21 February 2023
Sterlite Power Transmission Limited
INTRODUCTION

India has set an ambitious target for renewable energy (RE) capacity addition of 175 GW by 2022 and 500 GW by 2030. Resource rich locations RE energy are concentrated in a few pockets around the country. Hence, transmission network planning becomes critical to enable RE transfer to major load centres. This paper discusses strategy for development of network models for transmission planning and extent to which network is to be modelled.

CASE STUDY

![Figure 1 SLD showing HVAC transmission scheme for bulk RE evacuation](image1)

![Figure 2 SLD showing Hybrid (HVAC+HVDC) transmission scheme for bulk RE evacuation](image2)

CONCLUSION

From the analysis carried out the planned and existing transmission network on 765kV and 400kV is adequate to meet the demand for future growth. Under N-1 contingency of 765kV lines, the network is adequate, however a few lines which over-loaded based on SIL are well within their thermal limits. Capex estimates favour HVAC scheme as it would not exceed 70% the cost of Hybrid transmission scheme. However, Hybrid transmission scheme is far more advantageous that it outweighs the cost incurred.

**Venue:** India Exposition Mart, Knowledge Park II, Greater Noida, Delhi NCR, India  
**Date:** 20 - 21 February 2023
Tata Power Delhi Distribution Limited
World Utility Summit 2023
Utility Poster Session

TATA POWER DELHI DISTRIBUTION LTD
Steering the Power Sector on Technology, Process & Platform

- Distributing electricity in North & North West Delhi
- Saving a populace of 70 Lakh
- Peak Load of 2229 MW
- Network Length 18,774 km
- AT&C Loss FY 2022 6.8%

Accelerating Digital Journey of Energy Ecosystem

First ever large scale IOT-based Distribution Automation in India

Digital Substation Implementation for a Secure and Reliable Data Transmission

Collaboration for South Asia’s Largest Grid-Scale Energy Storage System in India

IElectrix-Shakti – Clean Energy transition through Integrated Local Energy Systems (Energy Islands)

Advanced Technologies for Business Transformation

- Advanced Distribution Management System (ADMS)
- Geographic Information System (GIS)
- Advanced Metering Infrastructure (AMI)
- SCADA controlled Grid Stations
- Automated Meter Reading (AMR)
- GSM based Street Light system
- In-House R&D Unit - Smart Grid Lab
- New-age Digitally Integrated Solutions
- Automated Demand Response (ADR)
- Green Energy Solutions
- 1st Indian Discom to get CERT-In Empanelment
- 24x7 Integrated Helpline

Venue: India Exposition Mart, Knowledge Park II, Greater Noida, India
Date: 20 - 21 February 2023
Tata Power
Mumbai
World Utility Summit 2023
Utility Poster Session

Venue: India Exposition Mart, Knowledge Part II, Greater Noida, Delhi NCR, India
Date: 20-21 February 2023
TP Central Odisha Distribution Limited (TPCODL)
TPCØDL
Tata Power and Odisha Government Joint Venture

Distribution Utilities of Future:
Advanced Technologies for Business Transformation

Composite Insulated Cross Arm (CICA)
Low cost solution for 11kV & 33kV line poles to eliminate premature faults on distribution lines. New design provides higher phase to earth clearances - No more bird faults & Creepage distance - No Insulator Flashover.

Centralised Power System Control Centre
115 remotely (through SCADA) operated PSS, 77 unmanned PSS.

Rebar Lacing Poles (RLP)
Light weight and low cost cyclone resilient poles that can withstand wind speed of upto 300km/hr. First Time in India

Smart Meters for error-free billing
2% instant rebate on pre-paid recharges. 22,000 meters already installed.

Line Voltage Regulator Transformer (LVRT)
Low Cost Solution for 11 kV distribution lines extended over long distances in large Rural Areas - LVRT boost the voltage up to 35% First Time in India

Reliable Low-Cost Automation Solution for 33/11kV Primary Sub-Station
4 PSS successfully Piloted in Rural Areas where full fledged automation is not feasible.

Marconite based highly productive earth excavation tool
“A cost effective & highly productive excavation tool used for difficult to reach places”. “Marconite’ is used as earth enhancement compound in this device which enhances earthing life span upto 25 years”
‘Consumer Engagement & Innovative Services’

<table>
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<tr>
<th>Service Description</th>
<th>Details</th>
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<tbody>
<tr>
<td>A one-stop solution for all customer needs</td>
<td>Bill delivery over whatsapp. Over 2.9 lakh+ registration done till date</td>
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<tr>
<td>16 Physical + 1 Mobile Customer Care Centres across TPCODL with Self-help kiosks, Queue management and Feedback tab</td>
<td>TPCODL Mitra App. One stop application for bill payment, bill delivery, new connection, complaint management</td>
</tr>
<tr>
<td>Camps in rural regions for processing New Connection applications</td>
<td>Digital avenues Leading to payment through digital mode by 3.1 Lakhs customers</td>
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<tr>
<td>A customer loyalty initiative to encourage digital payments-Pay &amp; Win Scheme</td>
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Building Utilities of the future

<table>
<thead>
<tr>
<th>Utility Description</th>
<th>Details</th>
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<tbody>
<tr>
<td>Complaint management App for line man at section engineers at 500 Bidyut Seva Kendras</td>
<td>Over 1000 Fuse Call Centres (Bidyut Seva Kendras) in rural areas to enhance rural connect</td>
</tr>
<tr>
<td>Adarsh Gram Panchayat-A model GP in each sub-division with benchmark standards in ATSC, BE &amp; CE 54 Model GPs have been adopted till date</td>
<td>580+ Gaon Chala Camps for door step services in rural regions. RWA camps to address consumer concerns in Residential Welfare Societies</td>
</tr>
<tr>
<td>OCR based meter reading &amp; spot billing implemented across all divisions with success rate of over 95%</td>
<td>App for consumer convenience for self meter reading &amp; bill generation. Nearly 500 scans being done per month</td>
</tr>
</tbody>
</table>
TPC ODL
Tata Power and Odisha Government Joint Venture

BEST PRACTICES IN ASSET MANAGEMENT

Asset management planning helps organizations in reducing asset downtime, boosting the effectiveness of asset, and lowering work costs. Purchase requisition is raised for the asset required which is approved under CAPEX budget and further Purchase order is provided to vendor after successfully bidding.

Asset acquisition occurs after vendor provides required asset as per the Purchase order provided. Store team invites owner department to inspect and clear the intake of asset into the company warehouse. Goods receipt is done based on the inspection.

Asset retirement is the removal of an asset or part of an asset from the asset register. Key objective of Asset operation is to maximize return on production assets. Once Asset is clear of inspection, it is issued to project team for commissioning at field. Post operation, finance team capitalizes with cap note approval.

Maintaining asset to perform in ideal condition helps organizations achieve their targets. All types of maintenance is dealt through Fiori mobile application.

Material Movement Cycle

Material Movement Usage

Very Easy to use application which also runs on Mobile.

Material planning Process optimized through SAP Material Reservation.

Live stock of material is accessible.

Time and energy saved in travelling for paper based approval process.

Store to consumption - total movement of material is traceable.
ABOUT WUS 2023

World Utility Summit was conceptualised to provide a wider forum for utilities to deliberate together on changes that will come, probable ideas and solutions to deal with continuous changes. World Utility Summit is scheduled in 2023 with theme Sustainable Transformation of Utilities. The electricity ecosystem is undergoing an unprecedented transformation with the proliferation of renewables, distributed generation of resources and electric vehicles on one side and consumer activism and regulatory pressures on other. These developments can help utilities to embrace the complexities of the network and to prepare to drive decisions based on probabilities and real-time data.

- Accelerating Digital Journey of Energy Ecosystem
- Best Practices in Asset Management
- Enhancing The Utility System Resiliency
- Distribution Utilities of Future: Advanced Technologies For Business Transformation
- Sustainable Practices Towards Net Zero Utilities
- New Energies (Common Track With eTEChnext)
IEEMA is the first ISO certified industry association in India, with 950+ member organizations encompassing the complete value chain in power generation, transmission and distribution equipment. Its membership base ranges from public sector enterprises, multinational companies to small, medium and large companies. IEEMA members have contributed to more than 90% of the power equipment installed in India. Know more @ www.ieema.org

IEEE, an association dedicated to advancing innovation and technological excellence for the benefit of humanity, is the world’s largest technical professional society. It is designed to serve professionals involved in all aspects of the electrical, electronic, and computing fields and related areas of science and technology that underlie modern civilization. Know more @ http://www.ieee.org/

The Power & Energy Society (PES) provides the world’s largest forum for sharing the latest in technological developments in the electric power industry, for developing standards that guide the development and construction of equipment and systems, and for educating members of the industry and the general public. Members of the Power & Energy Society are leaders in this field, and they — and their employers — derive substantial benefits from involvement with this unique and outstanding association. Know more @ www.ieee-pes.org