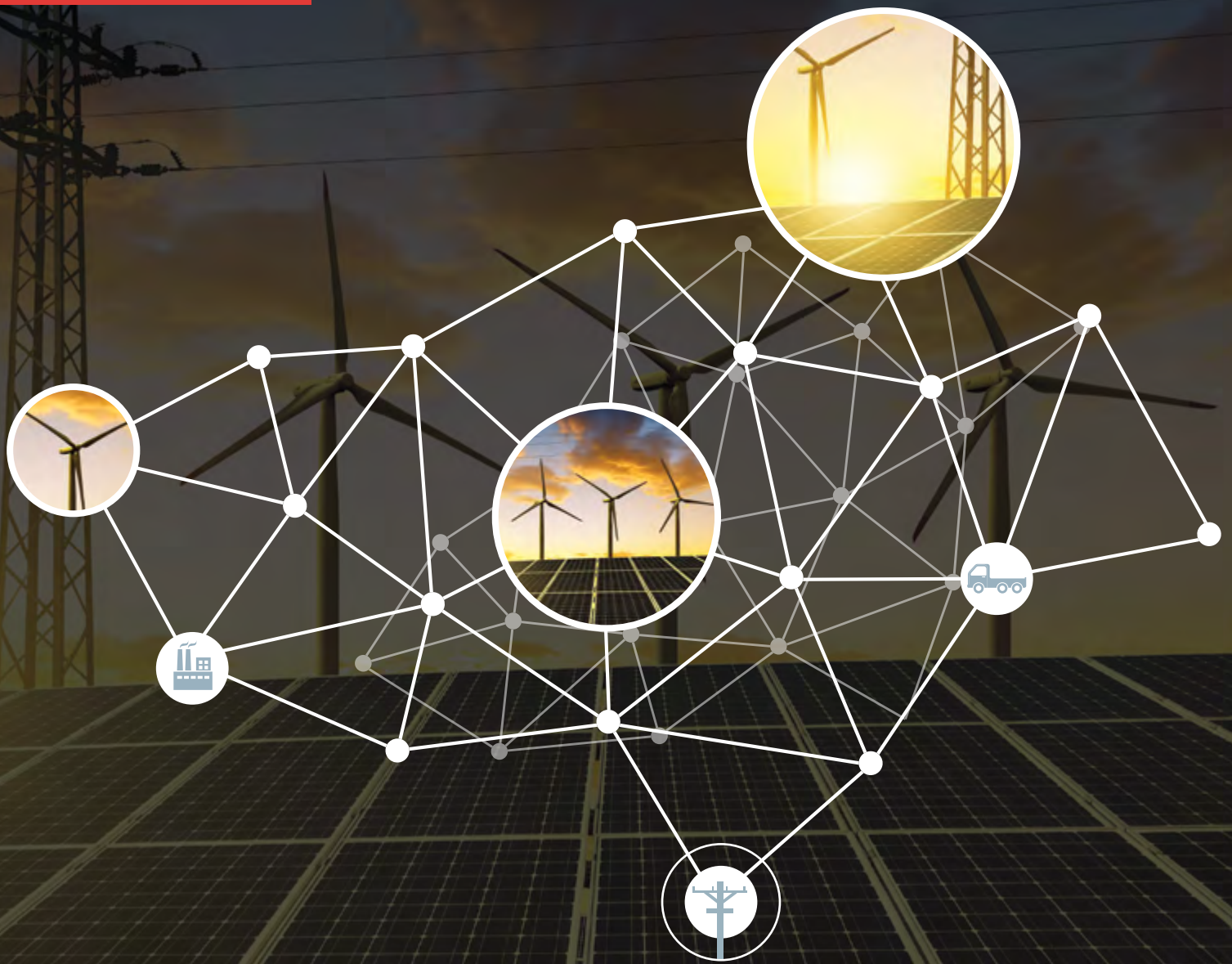


DERMS



mDERMS Application

mPrest

CONNECTING THE DOTS

Distribution power utilities are facing new challenges

Consumers' growing demand for greater energy autonomy, together with the increased use of renewable energy sources, is rapidly transforming the production and distribution of energy. Local regulations and national policy and incentive programs have stimulated, and in some cases even mandated, the implementation of clean energy sources at both the utility and consumer levels. This proliferation of distributed energy resources (DERs) - such as grid and small-scale solar arrays, grid scale and customer scale batteries, thermal storage, CHP and wind turbines – has created a new set of complex challenges related to the efficient and reliable delivery of energy and the management of the grid.

The evolution to a multi-directional electrical grid, where DERs can transfer the energy they generate back to the grid and where utilities have little or no control over these resources, requires new types of smart management and control solutions. Another key challenge facing utilities is the volatile demand driven by renewable energy sources, which place added stress on generation, transmission and distribution assets. Existing solutions, such as Distribution Management Systems (DMS) and Demand Response (DR) programs, were not designed to cope with the complexities resulting from rapid DER growth.

The growth in DERs is also driving new 'Behind the Meter' (BTM) applications and innovative business models, such as 'Locational Marginal Pricing' (LMP), Ancillary Services and 'Virtual Power Plants' (VPPs). As new peer-to-peer energy markets emerge, utilities need flexible management systems that support data-driven and customer-responsive business models.

Functionality includes:

- Connecting, monitoring and controlling millions of DERs and the energy flow to and from the grid
- Analytics, smart prediction and energy flow optimization
 - Smooth out "Duck-Curve" behaviors
 - Take into account transformer and feeder health constraints ensuring that assets operate at safe load and temperature levels and protecting crews from backflows
 - Leverage home and grid scale batteries as well as EV charging (and potential V2G)
 - Smart prediction and dynamic adaptation to time of day usage patterns, changing network topologies and weather conditions
- Optimizing DR systems capitalization
- Plan and prepare the grid for scheduled and unplanned asset downtime (e.g., transformer maintenance event)
- Exploit the flexibility afforded by residential and utility storage solutions for enhanced grid stability

Integrated smart grid system-of-systems application by mPrest

mPrest enables utilities to better meet today's needs without compromising on tomorrow. Our mDERMS application offers enhanced capabilities that revolutionize the way distribution utilities manage their "energy networks".

Using mDERMS, utilities can optimize management of DERs against existing loads and better channel energy to areas of high demand and away from areas of high supply. This alleviates stress on the system, enhances operational efficiencies and improves reliability. Acting as an intelligent grid management system-of-systems, mDERMS also connects and monitors legacy utility processes and assets, such as underground cables and distribution transformers.

mDERMS helps utilities reduce the total investment required to deliver energy to consumers, ensuring the lowest overall energy costs without shifting costs from one group of customers to another.



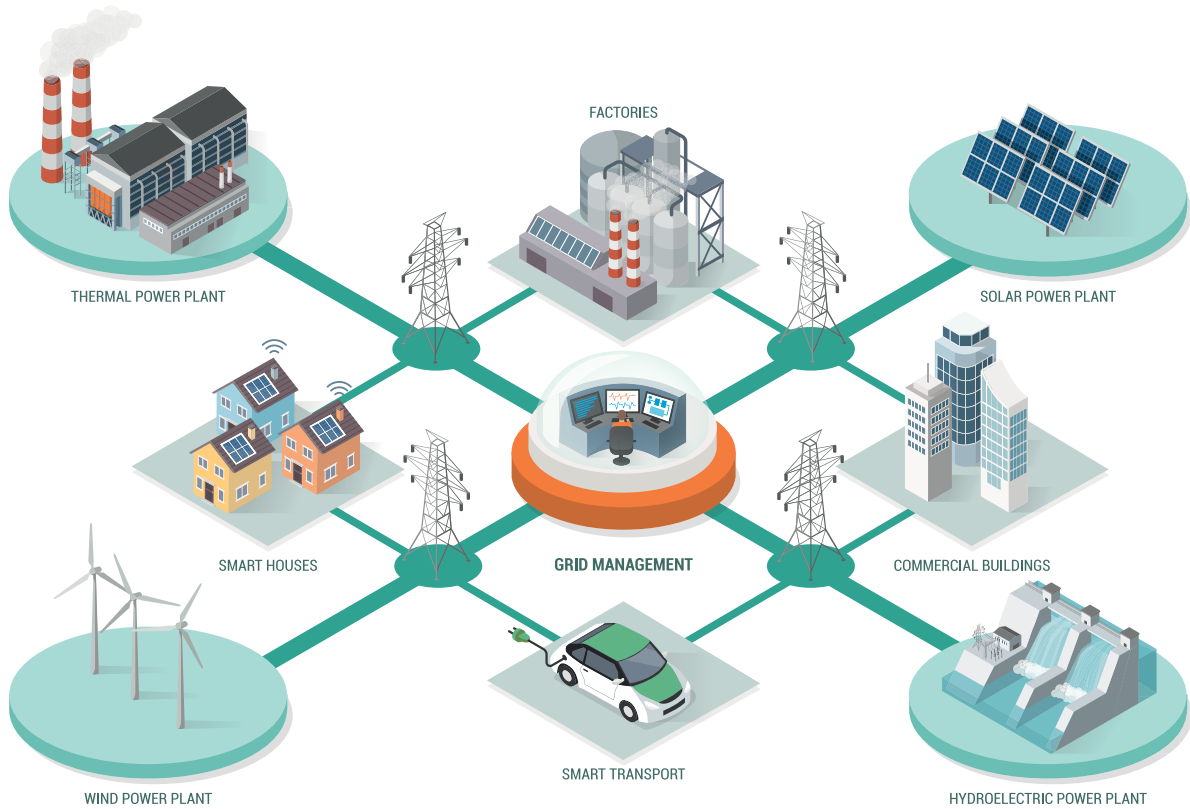
Distribution (Supply Chain)

- Distribution level wind generation
- Utility-owned solar panel arrays
- Utility energy storage
- Low voltage Volt/VAR management systems



Customer (Demand Response)

- Electric Vehicles (EV/PHEV)
- Rooftop solar panels
- Customer thermal and electric storage and smart inverters
- Behind the Meter: HAN, HVAC, etc.



Future-proof support of applications

mPrest offers a best-of-breed DER Management System (mDERMS) for optimal flow of energy to and from the grid. Our unique modular system-of-systems software architecture offers unmatched flexibility and scalability, enabling integration of mDERMS with other systems and applications within the utility, including SCADA enhancement, Asset Health Management, Energy Procurement, Customer Care, Enterprise IT and more.

Integrates with existing infrastructure

Leverages existing DMS & DR programs, SCADA and other systems, avoiding expensive, long and high risk upgrades.

Adaptive to future grid changes

Easily integrates to new and existing DERs as well as back-office applications with minimal vendor intervention.

System of systems for full control

Holistic, integrated IT/OT system for automated situational awareness, decision-making and response.

Additional responsibilities beyond control room

Support new smart grid management functions performed outside the control room, such as marketing, EV charger management, energy experts and demand response automation.

Focus on the customers

In today's competitive market, if customers' expectations are not met or if prices are too high, they can go elsewhere for their energy needs. Featuring advanced optimization and prediction algorithms, mDERMS transforms DERs into powerful tools to create real value for utility customers. By achieving unrivaled operational efficiency, the system reduces energy bills, while enabling utilities to offer innovative business models that benefit consumers, such as energy trading and home energy optimization. Our field proven DERMS application helps keep customers satisfied by viewing the distribution network as an integral part of the new customer value chain:

- Lower energy production AND consumption costs
- Load prediction with fewer outages and disturbances
- Meeting regulatory demands for lower GHG emissions
- Correlating traditional control room applications with new demand-side management applications under one smart grid management system

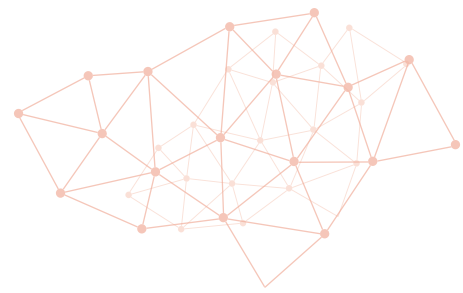
Clear advantages at the operator level

mDERMS integrates and normalizes multiple applications, sensors and data flows while empowering operators with unmatched tools for better management and control. The application is highly flexible and easy to use, enabling the utility to adapt to the rapid addition of new grid assets, both at the customer and utility level.

The mDERMS application demonstrates several key advantages:

- Vendor agnostic
- Simple user configurable business rules
- Minimal vendor intervention
- Automated end-to-end processes

Leveraging field-proven
system of systems
experience, powerful
algorithms and analytics,
mDERMS allows grid
operators to better prepare
today for tomorrow's needs



About mPrest

mPrest is a global provider of mission-critical monitoring, control and big data analytics software. Leveraging the power of the Industrial IoT, mPrest's integrative "system of systems" is a proven catalyst for digital business transformation. Our management solution has been deployed in next-gen IoE (Internet of Energy) applications for power utilities, as well as innovative management applications for water utilities, smart cities, defense and HLS.

By connecting the dots across multiple disciplines, mPrest delivers unified situational awareness, sophisticated analytics, end-to-end IT/OT integration and process management. Featuring unprecedented interoperability and real-time data optimization, mPrest allows organizations to accelerate time-to-market, improve system performance and reduce operational costs.

For more information, visit us at www.mprest.com
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