Distributed Energy Resource Load Profiling and Forecasting
Oracle Utilities Network Management System

The electric distribution grid is changing rapidly. Residential and business customers are taking advantage of decreasing technology costs and favorable government policy to adopt distributed energy resources (DER), including solar photovoltaic (rooftop solar), wind turbines, diesel generators, energy management systems, electric vehicles, and storage. These resources are affecting grid reliability and performance, pointing toward growing risk for utilities oriented only toward traditional distribution. Using Oracle Utilities Network Management System, utilities can easily model DER to better manage load and improve reliability while reducing the need to bring additional generation resources online.

Do you have the visibility to DER that you need?
Empowered by technology innovation and supported by policy, consumers are choosing to adopt DER in record numbers and at a pace far faster than anticipated. As consumers connect DER, they are pushing massive amounts of real-time data back onto the distribution grid. Without effective DER load profiling and forecasting, reliability and service quality are at risk. Are you prepared?

Proactive DER load modeling is key
Oracle Utilities Network Management System (NMS) ensures you can predict, manage, and avoid the reliability and cost risks associated with DER growth and intermittency:
» Mitigate the impact of intermittent renewables on the grid
» Improve the capacity to produce power on demand
» Deliver operational flexibility by shifting output among generation and storage

KEY BENEFITS
• Meet renewable mandates and improve ability to serve customers
• Reduce the capacity for DER intermittency to cause disruption and safety issues
• Defer capital expenditure by reducing the need for additional generation
• Reduce customer minutes of interruption via improved load profiling
• Plan for the cost of utility resources needed to support DER growth

KEY FEATURES
• Load profiling by DER type, location, and condition of use
• Automated monitoring and control of high-volume data field devices
• Internet Protocol-based (IP) communication enables exponential growth of connected grid devices
• Exception-based management of distributed data points
• Priority-driven management that ensures trouble spots and alarms are identified, flagged, and elevated
• Communicates down to the customer device

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Not all DER are the same. Why treat them that way?

Profile DER load impact by location and condition of use

Rooftop solar, wind turbines, fuel, and batteries—each DER asset type is different. So why treat them the same when it comes to modeling their impact on the distribution grid? NMS enables utilities to model the load profile of each and every distributed energy resource, accounting for location, condition of use, and other attributes unique to an asset. For example, when looking at each rooftop solar resource, you can account for clear and cloudy skies, latitude, time of day, day of the year, and direction and pitch of the panels.

By more accurately modeling load profiles and forecasting where and how DER growth will impact the grid, utilities can realize a number of mission-critical benefits, including:

» Reducing the capacity for intermittency to cause disruption and safety issues
» Eliminating the need to bring additional, costly generation resources online
» Minimizing customer minutes of interruption (CMI) via improved load profiling
» Improving resource planning to support DER growth

Profile DER by type, location, and condition of use and then apply load models to applicable assets