ABB ABILITY™ NETWORK MANAGER™ X

Advanced Distribution Management System
Operational confidence.
The continued rise in renewable distributed generation and the prosumer has made the distribution grid more complex to operate.
ABB Ability Network Manager X

Network Manager X is a real-time system for managing operations in a distribution control center. It provides monitoring and control, network analysis, network optimization and outage management capabilities in an integrated software platform, developed to meet the evolving needs of distribution operators.
A key component of the distribution control room

Network Manager X enables the efficient management of sub-transmission, medium- and low-voltage distribution networks in a single, unified environment.
The Network Manager X difference

A single, common user interface for SCADA, EMS, DMS, OMS, DERMS and data engineering

Advanced data engineering tools ensure higher data quality with easier data migration and integration

Advanced switching management supports complex automatic switching for planned and unplanned events

A full suite of network applications including distribution state estimation, FLISR, DERMS and contingency analysis
### Key benefits

- **A common working environment** provides a seamless workflow for control room staff.
- **A single network model** that is easy to maintain.
- **Integrated analytics solution** provides insight to all levels of the organization.
- **Maintains grid reliability and performance** for significantly reduced voltage excursions and higher network stability.
- **Integrated DERMS** provides insights to DER events for monitoring and control of assets downstream of the substation and behind the meter.
- **Realize lower operational costs**.
- **Significantly increase network hosting capacity for DERs** to achieve regulatory targets for renewable generation, with minimal network investments.
# Major functions

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<th>Solution</th>
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<td>SCADA</td>
<td>Distribution SCADA</td>
<td>• Real-time monitoring and control for distribution network</td>
<td>• Field proven, high-availability, cyber-secure supervisory control and data acquisition platform</td>
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|                                  | Outage management system   | • Trouble call management and outage prediction                          | • Improved crew efficiencies during outages  
• Reduced CAIDI [customer average interruption duration index] and SAIDI [system average interruption duration index] |
|                                  | Outage management system   | • Crew and referral management                                           |                                                                                                                                          |
|                                  | State estimation           | • Determination of real-time power flow and voltage operating conditions  | • Improve situational awareness of the non-observable network  
• Enable the operator to mitigate capacity and voltage violations that are not observable via SCADA telemetry to improve reliability |
|                                  | State estimation           | • Study future network conditions using forecasted load, generation schedules, and planned switching  
• Study high penetration DER including smart inverter regulation and ghost load affects | • Improved efficiency by utilizing the full operational range of assets  
• Maximize DER penetration  
• Improved contingency planning |
|                                  | Volt-VAR optimization (VVO)| • Creates the optimized capacitor and regulator controls to minimize losses and/or reduce demand, either in automated (close loop) or manual mode | • Reduced demand can off-set capital investments  
• Reduced demand can reduce carbon footprint |
|                                  | Short circuit analysis     | • Computes phased based available short circuit current at every node on a distribution circuit | • Determines if switching operations give rise to network configurations that produce excessive short circuit current  
• Assists in determining protection coordination |
|                                  | Short circuit analysis     | • Determines the optimal open point between feeders to reduce losses      | • Improves power delivery efficiency  
• Improves capacity utilization of distribution assets |
|                                  | Load flow analysis         | • Study future network conditions using forecasted load, generation schedules, and planned switching  
• Study high penetration DER including smart inverter regulation and ghost load affects | • Improved efficiency by utilizing the full operational range of assets  
• Maximize DER penetration  
• Improved contingency planning |
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• Improves capacity utilization of distribution assets |
|                                  | Loss reduction by feeder reconfiguration (LRFR) | • Determines the optimal open point between feeders to reduce losses | • Improved decision making throughout the company based upon access to up to date data |
|                                  | ADMS analytics             | • ADMS analytics dashboards and reports for internal and external publication (e.g., KPI, web, graphs, reports, etc.) intelligence available to the company | • Improved decision making throughout the company based upon access to up to date data |
| Distributed energy resource management solution (DERMS) | DER management | • Efficiently manage the entire lifecycle of DERs from registration, optimization and their control to achieve the safe, secure and efficient operation of the electric distribution network | • Significantly reduced voltage excursions  
• Lower device operations & maintenance costs  
• Increased hosting capacity for DERs on the network |