SIEMENS

SUSTAINABILITY NEEDS INTELLIGENCE

Transforming energy distribution **for a better tomorrow**

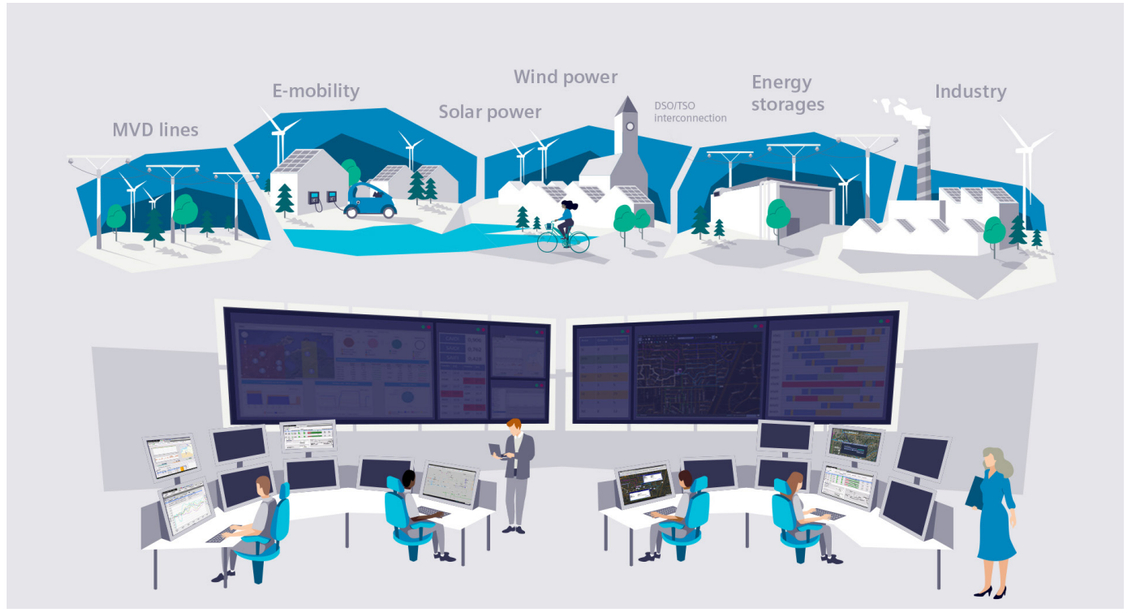
Spectrum Power™ ADMS enables you to leverage smarter power distribution management, including the integration of a large number of renewable sources. **siemens.com/adms**

THE ENERGY TRANSITION

A more sustainable tomorrow **starts today**

The energy transition is here to stay, and the only viable way forward to a more sustainable world. Playing the leading role in this transition are distributed energy sources (DERs) and storage systems. In fact, 80% of all new power generation comes from renewables – and the distribution of this energy needs to be managed.

This is where Spectrum Power™ ADMS comes in. It supports operators in making informed decisions and optimizing operations to effectively reduce costs. It visualizes processes in distribution grids at all times, lets you control a wide range of grid assets, and enables you to take efficient countermeasures before critical situations ever arise. The ultimate goal being a better future – for the world and your utility.



EMBRACE THE ENERGY TRANSITION

Navigating power distribution complexity. **For the benefit of all.**

Spectrum Power™ ADMS moves beyond traditional grid operation, helping to actively manage, orchestrate, and optimize distribution systems. Leveraging the value of data from IoE, providing in-depth situational awareness and 2D/3D visualization, empowers power grid operators to make the right decision at the right moment – supporting stable and reliable power supply, fostering the grid integration of renewables, and boosting the efficiency of the grid.

Spectrum Power™ ADMS is a modular system with applications servicing the grid management needs of DSOs:

- Integrated DER management; monitoring, forecasting, optimization, and control for the secure integration of distributed generation
- Integrated outage management, prediction from SCADA events, smart meters, and customer calls
- Full support of balanced and unbalanced networks in single- and three-phase distribution networks
- Seamless IT integration and easy extension in response to regulatory changes
- Modern user interaction, with maximum focus on usability and functionality

BENEFITS

What you get with **Spectrum Power™ ADMS**

Profitability
Benefit from better interaction with ancillary services using a standard-based data model (CIM) and data exchange with TSOs.

Resilience
Enhance situational awareness thanks to the intuitive, efficient system, while minimizing outages and restoring the grid fast.

High quality
Count on high supply reliability and voltage quality at all times.

Renewables
Rely on secure control of capacitor banks, loads, generators, and battery storage.

New business
Boost your revenues thanks to an openness to new business cases at the grid edge.

Compliance
Implement regulatory requirement changes in time and at lower cost due to a highly flexible solution.

Security
Gain peace of mind knowing that you have high cybersecurity to in line with NERC/BDEW, IEC 62443 and ,IEC 62531.

Situational awareness
Leverage the innovative Spectrum Power™ HUD (heads-up display) with maximum focus on usability and functionality.

Savings
Maximize grid utilization, with efficient outage management and easy interoperability, for low CAPEX and OPEX.

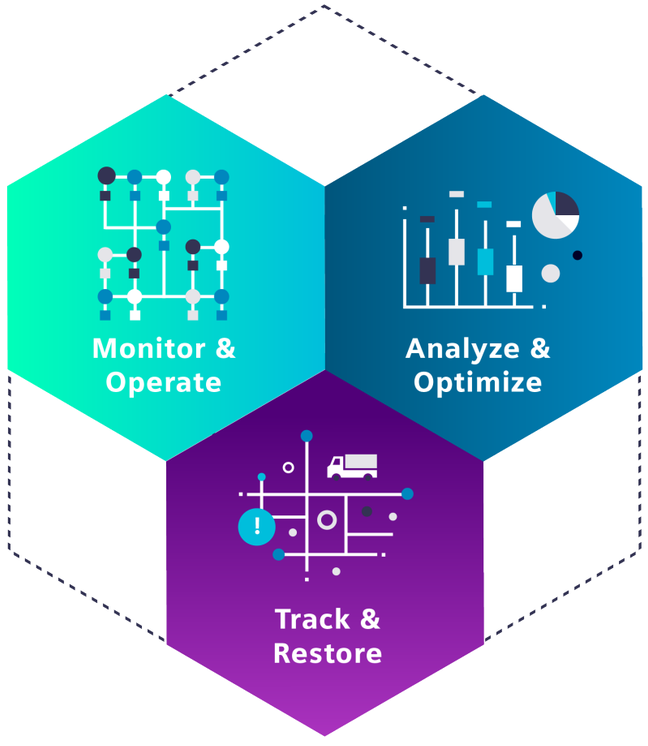
SPECTRUM POWER™ ADMS APPLICATIONS

More energy sources, more data, **more intelligence**

Spectrum Power™ ADMS is a modular system that features applications to service all DSO grid management needs.

Spectrum Power™ ADMS covers integrated DER management as well as monitoring, forecasting, optimization, and control for the secure integration of distributed generation. This is complemented by integrated outage management, along with prediction from SCADA events, smart meters, and customer calls. To name just a few of the benefits. You have full support for balanced and unbalanced networks in single- and three-phase distribution networks. And all this from a modern user interface with a maximum focus on usability and functionality.

The comprehensive set of modular applications from Siemens addresses the current and future needs of utilities – enabling reliable energy system management and highly available power supply today and tomorrow.



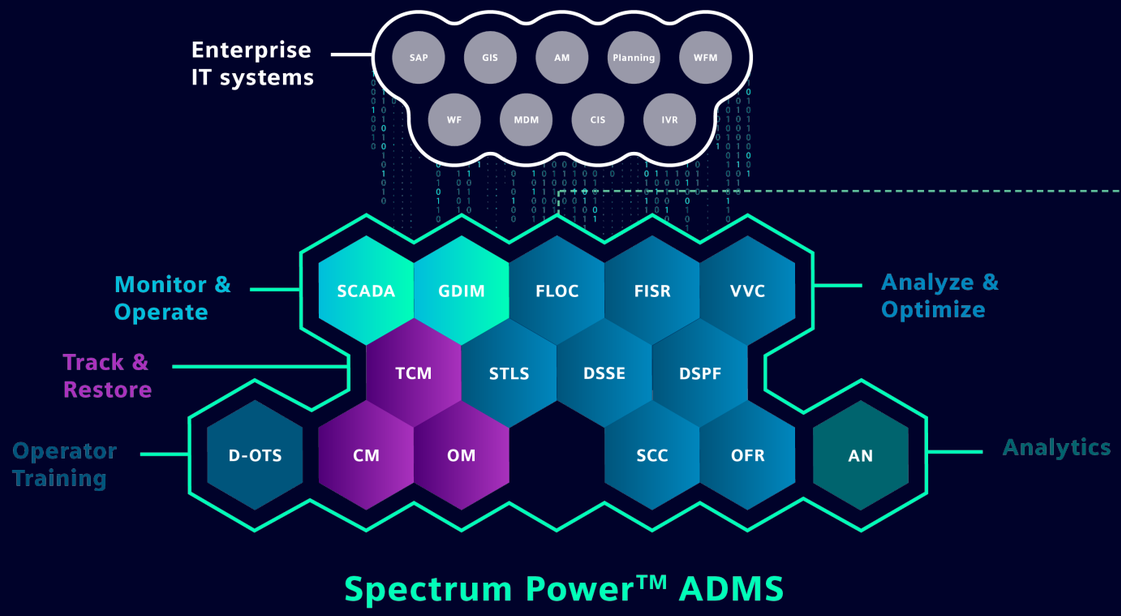
IT/OT LANDSCAPE

The digital power shift is on

Spectrum Power™ ADMS is designed to make ever-increasing grid complexity manageable thanks to streamlined and connected processes.

Spectrum Power™ ADMS helps DSOs to overcome data silos by integrating and managing a range of modular Siemens applications from a single grid management software system. The OT applications can be integrated seamlessly and easily into your emerging and existing IT landscape – giving you the freedom to choose just the applications you need, whenever you need them, while saving costs, resources, and effort.

The network applications combine with modern Web-based user interfaces to allow for the best situational awareness. These applications can also be easily extended with standard technologies. You can start on a small scale and grow as your needs grow, as well as flexibly react to changing regulatory requirements. The main challenges of the energy transition are turned into opportunities thanks to best-in-class descriptive, predictive, and prescriptive analytics.



MONITOR & OPERATE

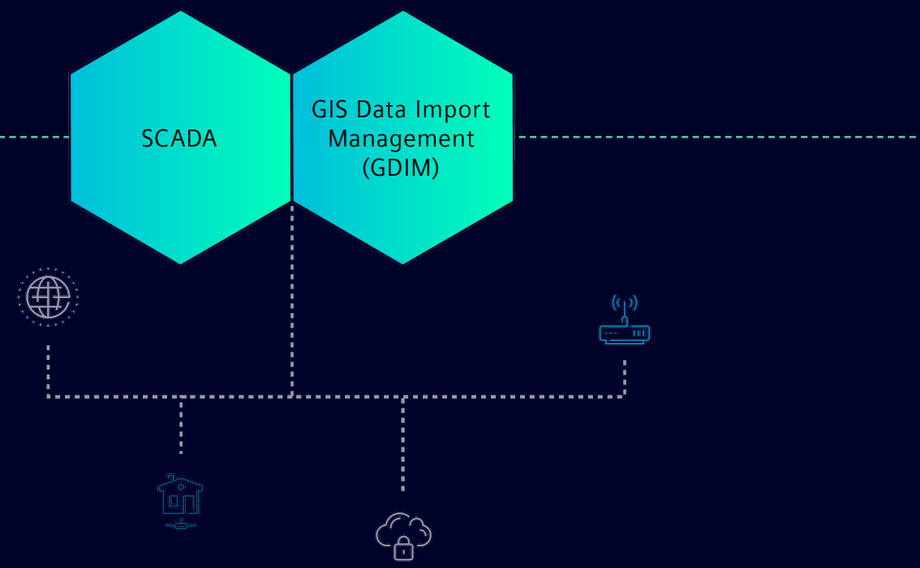
Increase operational efficiency with SCADA

Thanks to SCADA functionality, Spectrum Power™ ADMS gives you everything you need for monitoring, alarming, measuring, calculating, or controlling power systems. Extended SCADA functions are improved by advanced topologic coloring and extended tracing, including for outages and trouble calls (single- and three-phase distribution networks), and by leveraging online-editable temporary network elements, easy switching procedure management, and flexible load shedding.

Better situational awareness and reaction times

- SCADA enables full support for single- and three-phase distribution networks
- 2D/3D geospatial/schematic user interface
- Integrated substation/feeder auto displays
- GIS as distribution network definition source master

In this way, you have a complete overview of and control over your network.



ANALYZE & OPTIMIZE

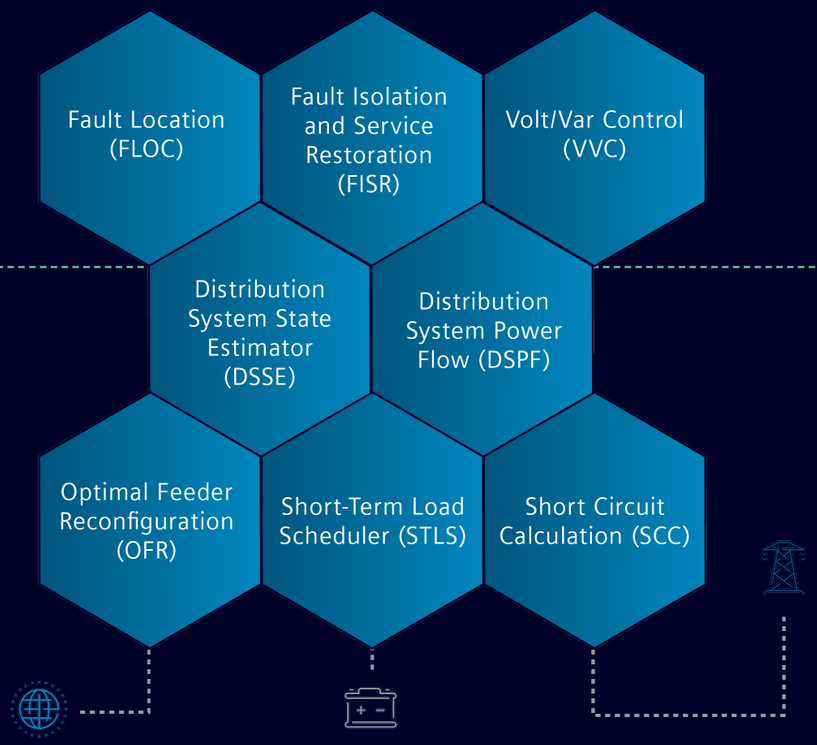
Reduce network loading, **increase network efficiency**

Spectrum Power™ ADMS provides a suite of Distribution Network Applications (DNA) to analyze the complete network and optimally use its assets. Automated Fault Analysis, Network Analysis, Load Forecast – these applications are used in real time to support the operator in assessing the state of the entire network, in improving the normal operation of the network through control optimization, and in resolving abnormal network conditions such as network faults or limit violations.

Higher efficiency and reliability

- Real-time assessment of network status for instant identification of equipment overloads, voltage limit violations, losses, loops, parallels, etc.
- Ability to evaluate and optimally select network control actions
- Improved fault location process, including coordination with field crews, and accelerated restoration of service
- Improved field crew safety and reduced service interruptions

Reduce network loading at peak times and increase network efficiency and reliability.



TRACK & RESTORE

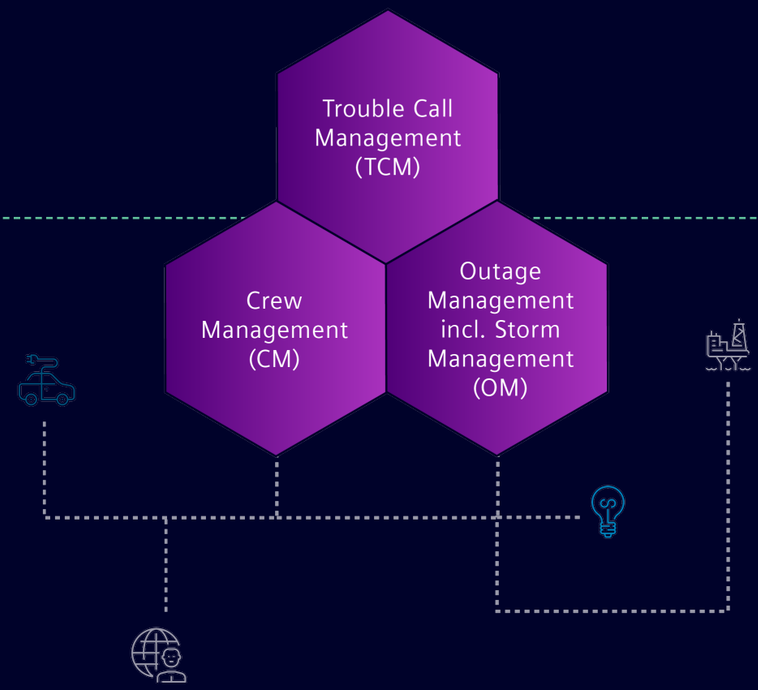
Proactively and safely guide operators **when needed most**

To reduce fault location and service interruption time, Spectrum Power™ ADMS outage management provides a number of functionalities: merging outage information from all available sources; identifying the nature of the outage, including fault locations and affected customers; dispatching crews to restore service; and developing all switching procedures.

Faster detection and resolution of outages

- Real-time update of probable fault location
- Internal and external data for outage prediction and resolution
- Optimal crew proposal
- Automatic calculation of performance indicators
- Visualization of outages, crews, and calls on maps

Proactively and safely guide operators when needed most, for instance during storms and outage restoration activities.



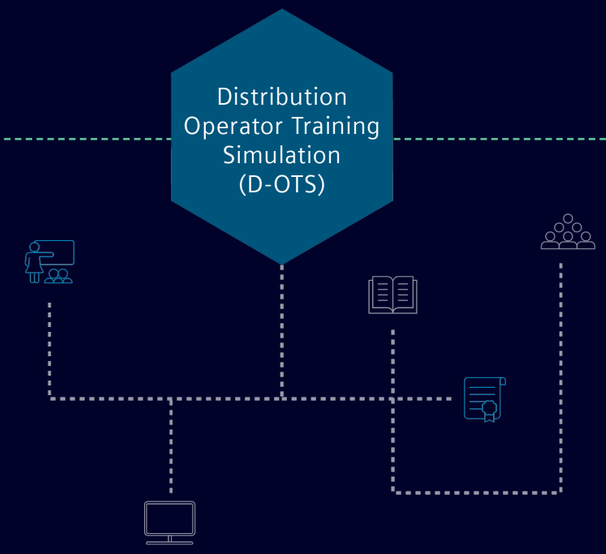
OPERATOR TRAINING

Be prepared for critical grid situations

The Spectrum Power™ Distribution System Operator Training Simulator (D-OTS) provides tools to set up training sessions for distribution operators and dispatchers in an offline environment under near real-life circumstances. It can be used to train grid operators in a variety of system operations:

- Daily system operation
- Emergency situation
- System restoration

Training scenarios can be derived from the archive, such as from real emergency scenarios in the past, or newly designed by the trainer, stored to repeatedly test the same scenario with the same or a different group of people.



ANALYTICS

The future lies in data analytics

By using data analytics on network and SCADA data, it is possible to create additional value with already existing data and to pave the way for further optimizations in asset management, network planning, and maintenance.

- Identification of imbalanced feeders in the network to improve network stability and prevent reduced lifetime of assets
- Identification of sensors with anomalies that indicate misconfigurations or suboptimal condition of ventilator and SF6 systems
- Improvement in asset management procedures with load, asset network importance, and other KPIs from SCADA
- Combine SCADA data with weather data to improve load forecasts

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