ALSTOM Grid’s worldwide Transmission Network Management Solution for Reliable Operation of the Smart Grid and Power Energy Efficiency.

ALSTOM Grid’s e-terra platform is your reliable solution to operate control centers in the new energy market environment with increasingly complex electric power grids.

Your Energy Management System (EMS) must be dependable, highly available and flexible to meet the needs of a changing business environment with new industry dynamics, new regulatory rules and new constraints on the existing infrastructure.

With the dynamics of the electric markets and the massive deployment of Distributed Energy Sources including Renewables and Demand Response signals, the Smart grid transformation has a dramatic impacts on the power flows patterns in the Grid. Operating the Grid and ensuring security in such a context is a significant challenge.

On the other hand, your operators are under increasing pressure to optimize operations and assets. Mergers and consolidation of transmission operations also drive the need for flexible integration with your enterprise IT systems.

ALSTOM Grid responds to all these needs today with e-terra platform, the e-terra™ solution for Energy Management Systems.

Adapt your operation to thrive in a changing environment

e-terra platform is designed as a suite of modular and consistent applications, all benefiting from a highly available core technology. Its architecture is flexible to map your business processes, with easy configuration of its standard applications and rapid integration of custom applications for your specific needs.

The SCADA, network security analysis, simulator, and generation management subsystems are ready to accommodate your current and future needs in term of:

- Renewable integration,
- Distributed Energy Resources,
- On-line Stability applications,
- Optimization of Generation fleet,
- Enterprise message bus integration, CIM based modeling, and more.

Providing real time, study and simulated environments, e-terra platform is the ideal solution for real time monitoring and control, operational planning, and historical postmortem analysis, both for network security analysis and generation dispatch. e-terra platform ensure that all studies are performed with the most accurate data: the only dataset collected from the field and continuously monitored by the control room.

Customer Benefits
- Get the most reliable solution from the industry leader
- Match your operational requirements and processes
- Respond to the Smart Grid challenge now
- Improve electric power grid reliability and security
- Deliver grid asset information to the enterprise in real-time
- Integrate Cyber security and Protect your IT asset
- Lower your costs of operation and maintenance
Lower Your Costs of Operation and Maintenance
terra® is designed to provide high performance and availability while lowering operation and maintenance costs.

To achieve the lowest cost of IT assets, terra®’s core technology includes portable software services and is free from on costly proprietary operating systems.

terra® is certified across multi-vendor enterprise servers using standard operating systems like Microsoft® Windows® and Linux®. terra® is a breakthrough in control center computing with its full use of 64-bit technology on Intel® platforms, both at server and operator workstation levels.

In addition, to further reduce your costs by running terra® supports Virtual Machine environment, taking advantage of optimized & highly available computing resources.

Open standards will contribute to lower your IT costs. The Common Information Model (CIM) is fundamentally changing business processes that are shared across interconnected utilities.

Communication protocols and IP network technology make data acquisition more and more efficient and affordable. ALSTOM Grid is at the forefront of the EMS standardization and the convergence of Substation Automation, Market Management and Control Center systems around industry standards such as CIM and IEC 61850.

Finally, an unduplicated record of upward compatibility between product releases is the guarantee to preserve your investment over the years.

Improve Electric Power Grid Reliability And Security

Improving grid security and reliability is a combination of long-term infrastructure investment, advanced analysis applications, and continuous operational improvement.

With terra® you can make intelligent use of modern communication and control technologies to predict and anticipate abnormalities that may lead to costly events within the power grid.

By anticipating problems and preparing for asset failure, accidental faults, weather storms, volatile power trades, transmission congestions, or unexpected variation of the Renewable power production, operators can mitigate losses and damages.

In today’s highly interconnected power environment you need advanced network security applications that are fully integrated with your real-time SCADA database and can manage the most complex network models.

Only terra® is capable to perform advanced network analysis in real-time for the largest interconnected network models, covering steady state network analysis, Dynamic Stability analysis, and synchrophasors (PPhs) measurement-based applications.

Deliver Grid Asset Information To The Whole Enterprise IN REAL-TIME

terra® includes an integrated corporate information system that relies on leading relational database systems. Continuous recording of SCADA measurements is also provided with an integrated SCADA journal for disturbance analysis and reconstruction of events.

Furthermore, you can link your desktop applications to real-time data using the open access API to the terra® database.

terra®’s powerful graphical user interface environment acts as a container for presentation of all data that are relevant to operators, analysts or supervisors. Its use of open web browsing technology, visualization concepts and optimized data transfer enables the comparison and superimposition of data from any sources into a convivial graphical room, with the look-and-feel.

Beyond the Control room, its IT integration capabilities based on a powerful set of Services can position terra® as the cornerstone of your IT integration scheme.

Using tools like the Asset Management SDA Adapter or the CIM-based modeling environment terra®source to cooperate with external systems.

Support deployment of Renewables and Distributed Energy Resources (DER)

Thanks to its Renewable Operation Portal, terra® can monitor and control DER to respond to power balance changes. Using its look-ahead function, terra® can anticipate potential problems in the future, and provide recommendations for remedial actions.

For the Operator, it means improved information on the DER generation, better forecast, reduced uncertainty, optimized generation dispatch and control, and overall improved grid security.

Optimize the Generation fleet

terra® includes advanced and flexible optimization engines to optimize the generation schedules, applicable to various generation and storage resources under multiple types of constraints in various market environments, Thermal, Hydro, combined-cycle and other centralized generating units can be combined with more distributed, aggregated or less predictable sources like Wind, Solar or Demand Response. Various time horizons can be accommodated, from yearly schedules to short term look ahead.

The Story

ALSTOM Grid’s terra® platform is designed as a suite of modular products built on a common core technology.

The core technology provides your control room with a solid foundation for high availability and performance:

- terra®source is the CIM based modeling tool, supplying information to all systems that use a Power System Model
- terra®habitat provides the real-time data and process management services, including the centralized alarm management
- terra®browser provides all graphical user interface services, including intelligent viewers for advanced visualization of grid’s behaviors
- terra®act is the cyber security environment for all your real-time systems in use at the control center
- terra®archive is the enterprise historical information system and data analysis environment
- terra®platform’s core technology is continuously evolving along with software and information technology. ALSTOM Grid offers long-term commitments to upgrade and migration plans, so you always benefit from today’s proven technology.

The Core Technology

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ALSTOM Grid is the worldwide leader for Energy Management Systems. Operators of very large interconnected systems rely on e-terra platform to provide highly reliable transmission operations every day. Electric utilities of every size around the world already trust ALSTOM Grid’s commitment to long-term support of their mission-critical infrastructure with e-terra platform.

e-terra platform’s users are part of a global community, sharing best practices and actively participating in product development and innovative research projects.

ALSTOM GRID e-terra suite expands beyond the Grid control room; it is part of a “market-to-meter” product suite, providing

- Substation systems for acquisition, automation, protection and control
- Distribution management systems for distribution companies
- Market management systems for independent operator
- Generation fleet management systems for market participants
- Telecom system infrastructure designed for power companies

With e-terra platform as a single environment, operators and analysts can perform all of the functions required in today’s control rooms:

- Supervisory control and Wide Area network security monitoring
- Power Balance monitoring and control
- Management of Renewables and other Distributed Energy Resources
- Preparation and scheduling for next hours/days/weeks operations
- Disturbance analysis
- Prediction of events and simulation of alternative operating procedures
- Asset Management & Equipment maintenance prioritization
- Reporting for regulatory compliance

e-terra vision brings an intuitive representation of the grid conditions analysed by the e-terra platform applications. It provides an innovative situational awareness view and a task oriented User Interface.