



SIEMENS ENERGY SECTOR

TOOLS FROM SAP HELP ENERGY EXPERTS DEVELOP A POWERFUL NEW SOLUTION

QUICK FACTS

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Ulrich Schneider, Development Project Manager, Energy Sector, Siemens AG

Company

- Name: Siemens AG, Energy Sector, Fossil Power Generation Division: Instrumentation, Controls, and Electrical Business Unit
- Location: Karlsruhe, Germany
- Industry: Industrial machinery and components
- Products and services: Control, IT, and instrumentation systems, electrical equipment, and related lifetime service for the power-generation industry
- Revenue: €20.3 billion (Energy Sector)
- Employees: Approximately 71,000 (Energy Sector)
- Web site: www.siemens.com/sppa

Challenges and Opportunities

- Help power-generation companies run their plants more efficiently and cost-effectively
- Enhance customers' visibility into costs and performance across all plants
- Close the gap between plant systems and enterprise applications

Objectives

- Develop and market a solution that delivers consolidated technical and business data to support key tasks
- Leverage the latest development tools and standards to create a solution capable of integrating a wide range of information sources

SAP® Solution and Services

SAP NetWeaver® Composition Environment (SAP NetWeaver CE) offering

Implementation Highlights

- Creation of user-friendly graphical interfaces with the Web Dynpro development environment
- Use of a framework for developing code via a model-driven approach

Why SAP

- Tight integration with SAP® back-end applications and the SAP NetWeaver Portal component
- Support for open standards and service-oriented architecture, enabling integration with third-party solutions
- Access to new Eclipse development environment and Java Platform, Enterprise Edition 5

Benefits

- Integration of power-plant systems with non-SAP and SAP software via open Web services
- Significant increase in developer productivity due to model-based approach
- Increase in product quality with ability to implement more customer benefits in the same development time
- Considerably lower cost of integration and faster installation for end customers
- Creation of an end-to-end solution geared to power-plant operators' real-world needs
- Tried and trusted foundation for future software development projects

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SAP Customer Success Story
Industrial machinery and components



“We upgraded SAP NetWeaver CE in order to tap into improved features, including the new versions of Eclipse and Java EE. These enhancements give us a lot of additional options, simplify many tasks, and reduce time to market.”

Ulrich Schneider, Development Project Manager, Energy Sector, Siemens AG

When the Instrumentation, Controls, and Electrical business unit of Siemens Energy Sector set out to create innovative software for power-plant operators, it needed the right development tools. The SAP NetWeaver® Composition Environment (SAP NetWeaver CE) offering provided the answer. This standards-based solution has enabled the rapid development of an end-to-end suite of applications that bridge the gap between power-generation companies' disparate systems environments. And that means lower integration costs for end customers plus enhanced visibility and efficiency at the individual plant and fleet (portfolio of power plants) level.

Based in Karlsruhe, Germany, the Instrumentation, Controls, and Electrical business unit is the world's market leader in power-plant automation. Its portfolio covers the entire range of power-plant needs, from control systems, diagnostics, and maintenance to individual power plant and fleetwide management. Siemens Energy Sector offers comprehensive IT solutions to the power-generation industry by leveraging the

power-plant knowledge of the only instrumentation and controls provider that builds and operates power plants.

360-Degree Insight – The Key to Success

Siemens Energy Sector delivers cutting-edge products for the oil and gas industry as well as for power generation, transmission, and distribution. These products include Energy Management Suite (EMS) SPPA-M3000, a state-of-the-art software solution designed to help power-generation companies around the globe master real-world challenges.

These industries have to run their facilities as efficiently and cost-effectively as possible – while ensuring high standards of safety, availability, and eco-friendliness. To deliver on all counts, they need rapid, reliable insight into relevant data across their plant fleets. But visibility is often hampered by disconnects between technical systems and enterprise asset management solutions. As a result, gathering and

disseminating information takes considerable time and effort – and there is little transparency into fleetwide costs and runtime performance.

Closing the gap between plant and back-end systems is not easy. Typically, if power-plant operators want to link heterogeneous technical systems to enterprise applications, they have to develop a large number of custom interfaces. This approach not only makes it difficult to implement end-to-end solutions; it is also prohibitively expensive and time consuming.

SAP NetWeaver CE – The Right Tools for the Job

Energy Management Suite solves these problems by tightly integrating disparate systems at a price Siemens' customers can afford. To develop the solution, Siemens Energy Sector deployed SAP NetWeaver CE. Building on the Eclipse open-source software framework, this state-of-the-art composition environment can be customized quickly to help developers complete their projects – boosting the capability of developers to rapidly create new business processes. SAP NetWeaver CE includes a full-fledged development infrastructure that greatly simplifies the building, deployment, and life-cycle management of composite applications. Moreover, the composition environment is fully compatible with the latest Java Platform, Enterprise Edition (Java EE) 5, for enhanced performance.



“Our business-performance monitoring functionality provides a tailored, role-based view of megawatts generated and associated costs. In the past, this information had to be aggregated manually – which could take weeks.”

Thomas Dürr, Product Manager for Energy Management Suite, Energy Sector, Siemens AG

Accelerating Development and Increasing Productivity

Prior to the project, Siemens Energy Sector was working with an earlier version of SAP NetWeaver CE. To tool up for the ambitious Energy Management Suite development effort, IT specialists decided to move to the latest release. “We upgraded SAP NetWeaver CE in order to tap into improved features, including the new versions of Eclipse and Java EE,” states Ulrich Schneider, development project manager for Siemens Energy Sector. “These enhancements give us a lot of additional options, simplify many tasks, and reduce time to market.”

And the upgrade has paid dividends: The model-based approach supported by SAP NetWeaver CE enables Siemens’ developers to work significantly faster than with conventional coding. “By allowing us to model applications and

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providing the framework for generating code, SAP NetWeaver CE greatly increases our product quality. And it allows us to implement more customer benefits in the same development time,” says Schneider.

Built-In Support for Open Standards

Another plus is that SAP NetWeaver CE enables the integration of non-SAP and SAP® solutions, including the SAP NetWeaver Portal component. “Many of our customers use SAP software,” says Schneider. “Energy Management Suite has to mesh with solutions from multiple vendors. So we need a development environment that supports open standards and service-oriented architecture as well as tight integration with back-end SAP applications. SAP NetWeaver CE delivers all of this – plus the comprehensive tool kit our developers need.”

Developers have leveraged SAP NetWeaver CE to create open standards-based composite applications that link SAP and non-SAP enterprise asset management solutions with

Microsoft .NET systems used to run power plants. These composite applications have to consume services within the plant environment and expose their own Web services for consumption by other solutions. This was achieved by generating models in SAP NetWeaver

CE that can be used with Microsoft .NET and with services created using the SAP Composite Application Framework (SAP CAF) tool.

End-to-End Workflow and a Familiar User Interface

One of the Energy Management Suite modules developed in this way is an electronic shift log, which records all relevant data from plant shifts. It replaces traditional paper-based documentation with a single, end-to-end workflow – enhancing visibility and streamlining planning. Built using SAP NetWeaver CE, the shift log uses data from technical systems and back-end enterprise asset management software. It not only stores its own data, it also initiates plant maintenance requests and fault alerts in the power-generation company’s plant-maintenance software. Siemens Energy Sector experts created the business objects and database support for the composite application using the model-driven approach supported by SAP CAF.

The electronic log provides employees with role-based access to information via an intuitive user interface. “Developing an interface that would allow staff to quickly and easily navigate through complex current and historical data was a real challenge,” says Schneider. “But the Web Dynpro development environment included with SAP NetWeaver CE enabled us to achieve our goals.” And that’s good news for end users, as Thomas Dürr, product manager for EMS at Siemens Energy Sector, explains.

“Although it is not actually an integral part of an SAP solution, our portal-based shift log has the familiar look and feel of SAP applications – so staff require very little training.”

Bridging the Gap Between Disparate Systems

Energy Management Suite modules leverage open standards and service-oriented architecture to deliver greater transparency in a number of ways. “One module integrates master data from plant control systems and enterprise asset management solutions. This allows the current status of technical equipment to be displayed on the same screen as plant maintenance tasks,” explains Dürr.

Energy Management Suite also supports decision makers. Sophisticated monitoring software consolidates data from plant systems with information on costs from back-end applications, enabling senior managers to keep tabs on key technical and commercial figures across their entire fleet in near-real time – something that was formerly impossible. Dürr cites one example of this approach: “Our business-performance monitoring functionality provides a tailored, role-based view of megawatts generated and associated costs. In the past, this information had to be aggregated manually – which could take weeks.”

Time and Cost Savings for Plant Operators

Using development tools from SAP, Siemens Energy Sector has created a cutting-edge product geared to the

needs of today’s power-generation companies. Energy Management Suite delivers the flexibility needed to weave together heterogeneous systems and processes – and that is due in no small measure to the support for open standards and service-oriented architecture provided by SAP NetWeaver CE. The Web services implemented via the composition environment have not only resulted in a tightly integrated, end-to-end solution. They also make for much faster installation than approaches based on application programming interfaces – saving end customers considerable time and money.

Power-plant operators have been quick to recognize the benefits of Energy Management Suite, which has been deployed across the globe – and the results speak for themselves. “Some customers are telling us that they have been able to generate an additional 50 megawatts a year thanks to central monitoring,” says Dürr.

More Benefits to Come

And power-generation companies are not the only winners. Going forward, Siemens Energy Sector will continue to leverage its new composition environment to quickly and efficiently develop new functionality. “We’re continuing to use SAP NetWeaver CE to build new applications for the suite,” says Schneider. “And we’ll soon be launching a new module that allows customers to create and monitor maintenance strategies using information from technical systems and back-end software.”

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