

# SA Power Networks – Powering South Australia

Flexible Infrastructure for the Development  
of Mission-Critical Applications



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Australian heat can be scorching, and losing power at the height of summer – no air conditioning, no electric fans – can have a significant impact on the community. Aware of the urgency of its service, SA Power Networks is equipped to respond within a heartbeat. Its nerve center is custom software. The heart is the SAP NetWeaver® Application Server component, streaming needed data to field crews, so they can get power pulsing back into homes before high noon.

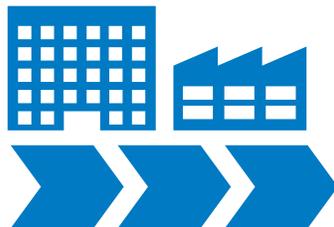
#### **SAP NETWEAVER APPLICATION SERVER – SECURE, FLEXIBLE, AND VERSATILE**

The SAP NetWeaver Application Server (SAP NetWeaver AS) component provides a reliable foundation for application development and is enriched with the interoperability and flexibility of Web services. It supports the ABAP® programming language; Java Platform, Enterprise Edition (Java EE); and open technology platforms for a wide variety of hardware, operating systems, and databases. Supported security standards include HTTPS, the secure sockets layer (SSL) protocol, and the lightweight directory access protocol (LDAP).

Supporting tight integration with SAP® business applications, the SAP NetWeaver technology platform enables organizations to quickly and securely develop sets of custom applications aligned with their specific business models.

#### **ABOUT SA POWER NETWORKS**

SA Power Networks is South Australia's electricity distributor. The company's distribution network comprises thousands of kilometers of power lines and hundreds of substations spread across 180,000 square kilometers. Headquartered in Adelaide, SA Power Networks has some 830,000 customers and employs more than 2,000 staff. Delivering power to homes, public facilities, and businesses, the company focuses on maintaining a reliable power supply for its customers. This focus is sharpened through intelligent switching, preventive maintenance, and efficient emergency response in the event of outages.



# 30

Custom applications built on SAP NetWeaver AS

# When “Mission Critical” Is Not Just a Buzzword

Positioned between energy generators and the end consumer, SA Power Networks distributes electricity over long distances in one of Australia’s most sparsely populated states. The company’s employees need to connect new customers, collect meter data, maintain public lighting, and extend and upgrade a vast power network. Also, SA Power Networks has to ensure it has the requisite capacity to consistently meet customer demands even in the face of adverse environmental and climatic conditions.

## WEB APPLICATION DEVELOPMENT: TALKING ABAP

SA Power Networks was looking for highly specific functionality that was not readily available in the marketplace. “We have all of the business and technical information in our SAP ERP software. SAP NetWeaver Application Server and ABAP made it fairly easy for us to connect our custom applications to the back-end software and extend the standard functionality within the ERP software,” notes Tara Rosenzweig, SAP domain architect at SA Power Networks.

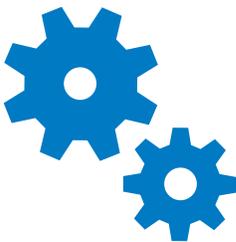
The company makes extensive use of SAP NetWeaver AS and the Web Dynpro development environment, a proprietary user interface technology developed by SAP for Web applications. Using Web Dynpro, SA Power Networks is able to integrate its

custom applications with its existing set of standard SAP business applications as well as with third-party applications.

SA Power Networks employs the SAP NetWeaver technology platform to enhance and complement the standard enterprise resource planning (ERP) business processes. It has been careful as well to use as many standard ERP functions and objects as possible. By using the SAP NetWeaver technology platform, SA Power Networks is able to deliver applications using its existing hardware, security, and support structure. It can also incorporate standard ERP business processes.

Drawing on SAP NetWeaver AS, the company has developed the bulk of some 30 custom applications in-house. In a number of its custom application development projects, SA Power Networks partnered with Think180 Pty. Ltd., a consulting practice based in Adelaide that is highly experienced in SAP software.

“We wrote all of our recent applications in ABAP for two reasons: We have more ABAP developers than Java developers; and ABAP makes it easy for us to create connections to our back-end SAP software,” Rosenzweig explains. “We have the right skills for application development in ABAP, and we know we can rely on SAP support well into the future.”



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Tara Rosenzweig, SAP Domain Architect, SA Power Networks

# Operational Efficiency and Responsiveness

At SA Power Networks, business success is built on streamlined workflows and a commitment to customer service excellence. A set of custom applications is at the heart of the company's process infrastructure. These applications support the company's business units as they continually improve operational efficiency and respond to customer requests.

## STAFF MESSAGING

For SA Power Networks, the ability to respond rapidly to incidents and extremely adverse conditions is business critical, and it is equipped to do so. The company relies on a custom staff messaging application for contacting and sourcing skilled resources at short notice.

This application enables the company's incident controllers to contact staff and contractors and manage their responses. Incident controllers use the application to select a target distribution group and then send an availability request via short message service (SMS) to the mobile phone of each group member. The contacted group members respond to this request by returning an SMS saying "Yes" or "No." Optionally, the staff messaging application can be used to issue information messages that do not require a response.

The company's staff messaging application provides a dashboard for managing requests. This dashboard was implemented using a "power list" framework within Web Dynpro. The dashboard is updated automatically and allows users to drill down to the required level of detail for each request.

## SWITCHING OUTAGE DIARY SYSTEM

In the power industry, switching instructions are provided through programs written as Network Access Control (NAC)-approved documents. These documents help to ensure that the high-voltage network is operated in an efficient and secure manner to provide

a safe environment for workers and the public. Switching instructions must be written to a standard that ensures consistency and provides clear directions to all switching operators.

SA Power Networks relies on its own switching outage diary system (SODS). This application enables switching writers to efficiently create switching programs tuned to the company's specific needs. The switching programs validate asset data and incorporate workflows that seek feedback from other appropriate SA Power Networks groups.

The SODS provides NAC and the network operations center (NOC) with tools to manage workloads efficiently and coordinate planned switching activities in the company's high-voltage network. The application was written in ABAP in the Web Dynpro development environment. It draws on the floor-plan manager functionality also written in ABAP, Silverlight Islands from Microsoft, Web Dynpro's "power list" framework, Adobe Interactive Forms, inbound e-mail processing, and Web services. Asset data for the application is provided by the company's SAP ERP application. Asset management tasks performed via SAP ERP include cleansing and migrating asset data, verifying the suitability of assets for high-voltage operations, inspecting results, and handling defects.

## UNIFIED BUSINESS WORKPLACE

SA Power Networks built an application known to its users as eWorkplace. Based on the HTML version of SAP NetWeaver Business Client software, the application integrates classic transactions in the SAP GUI with Web Dynpro-based applications, as well as Adobe Interactive Forms, business intelligence (BI) reports, and other Web-based content and applications. To employees and managers, the application offers a visually appealing, role-based menu structure. It provides a single point of entry to SAP business applications and Web content. And its intuitive navigation plus menu structure were very well received by the company's users.

# Switch from Java to ABAP

To facilitate its “minor” customer connection process for standard AC power, SA Power Networks developed the registered electricians extranet (REX). This external-facing Web application enables registered electricians and solar panel installers to submit, monitor, book, and cancel requests for low-voltage electrical connections at customer sites.

Originally developed in Java, REX was rewritten in ABAP. The company’s decision to rewrite this application in ABAP was primarily driven by the prospect of tighter integration with its existing standard SAP applications. The internal ABAP skill base at SA Power Networks plus access to the standard ABAP dictionary objects helped to accelerate the project. “We were able to rewrite REX in a fairly short space of time. Having an ABAP version of REX facilitates authorization and user management as well as transport management,” Rosenzweig points out. “Also, the maintenance effort for this application has been reduced because we no longer need to maintain Java connections.”

## REGISTERED ELECTRICIANS EXTRANET

REX is available through an external-facing portal based on the SAP NetWeaver Portal component. Requests can be completed and submitted online and sent directly to retailers. These requests can be monitored as they progress through the different stages of the company’s connection process. Electricians

are automatically notified when a job is ready for booking. Currently, some 800 external electricians use REX on a regular basis.

Each REX request generates a service notification in the SAP software. REX also uses standard work orders and sales orders in the SAP software. Sales orders are automatically generated once the standard AC voltage connection work has been completed. The work order details the operations that are required to be booked and the dependencies between the operations, such as the required start and finish times. Work orders are built using a standard task list to determine the operations needed for each connection request.

Registered electricians can monitor the progress of their requests by logging in to REX or by choosing to receive updates via SMS or e-mail. SMS messages notify customers of any charges they will incur as a result of the connection work.

## INTEGRATION WITH THIRD-PARTY SCHEDULING SOFTWARE

REX is integrated with a third-party scheduling application that provides comprehensive scheduling functionality. This integration serves to optimize the schedule for field crews by minimizing gaps in scheduling and travel time between appointments. Currently, there are two integration points: a request for establishing the available appointment times and a message to confirm the appointment booking time.

# Connecting with Customers

SA Power Networks has deployed a number of custom applications that help the company sharpen its customer focus. These applications serve to provide customers with comprehensive, relevant, and timely information about the supply of electricity to their property. Keeping customers better informed has enabled SA Power Networks to increase customer satisfaction.

## CUSTOMER NOTIFICATION

SA Power Networks relies on its Customer Notification System (CNS) to automatically identify customers who will be affected by a planned interruption to their power supply. The CNS generates a notification slip to be mailed to the customer's address. The CNS thus supports the company in meeting regulatory requirements for the notification on planned power outages. To reduce the need for data entry, CNS is linked to the company's SODS.

## CUSTOMER MESSAGING

Power@MyPlace is a free messaging service that was recently rolled out for SA Power Networks customers. The service delivers SMS or e-mail messages to keep customers informed about planned meter readings and provides important information with regard to power outages they may be experiencing at their property. Customers are free to specify up to five secondary recipients for their messages. Optionally, customers can specify their preferred message receipt times. For example, a customer may not want to be notified between 9:00 p.m. and 7:00 a.m.

This service started with the idea of informing customers by SMS whenever the power supply had to be temporarily shut down at specific addresses. A message would also inform the customer of estimated restoration times. A final message let the customer know when power was restored.

All a customer requires to register for this service is a mobile phone number or an e-mail address and a recent electricity bill. People who move to a new home receive a subscription to this service automatically.

## CUSTOMER COMPLAINTS AND INQUIRIES

The Customer Action and Response (CARE) application assists SA Power Networks employees in managing customer complaints, inquiries, and feedback. It also supports the company in identifying the root cause of issues, focusing on preventive action, and improving business performance.

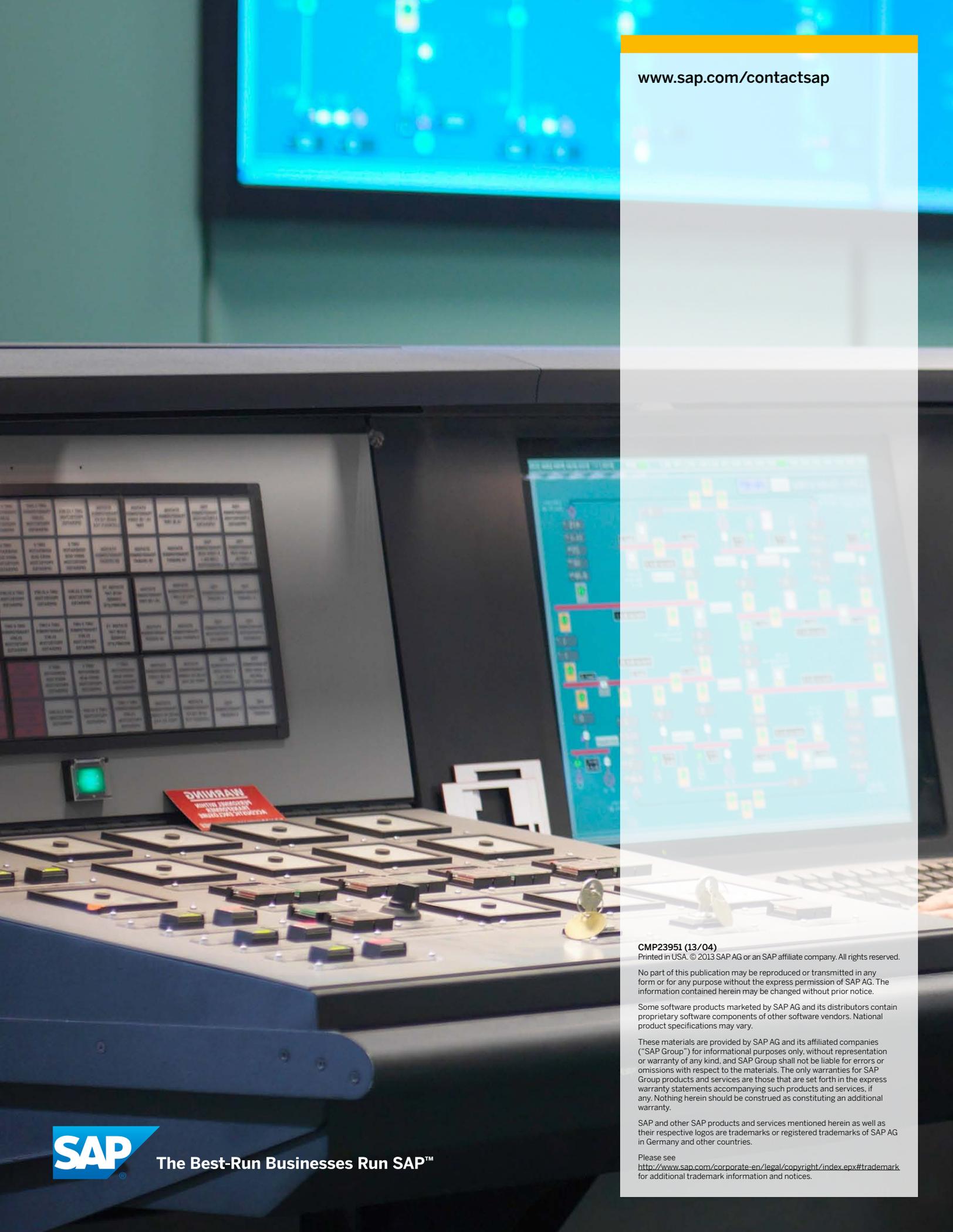
When creating a new CARE record, the customer service employee at SA Power Networks is able to attach files (such as e-mail messages) and link objects (such as notifications and other CARE records). Following its creation, each CARE record is assigned to a case manager. The case manager assigns employee actions or tasks to each record. Whenever a record is acknowledged, closed, or reopened, its originator is notified by e-mail. By default, CARE records are listed by target date in ascending order, with those due next listed first. Records that are within five business days of their target date are highlighted. The background color changes to indicate when a CARE record has passed its target date.

Like the bulk of the company's custom applications, CARE was developed in ABAP based on SAP NetWeaver AS and the Web Dynpro development environment. It uses the SAP NetWeaver Business Warehouse application for reporting.

## LATEST ENHANCEMENTS

SA Power Networks recently leveraged Adobe Interactive Forms and SAP BusinessObjects™ business intelligence solutions to build reporting dashboards for its business users. To extend its reach, the company makes use of popular social media sites for customer-facing communication.

[www.sap.com/contactsap](http://www.sap.com/contactsap)



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