Citect provides remote monitoring and control systems for power distribution and generation that increase efficiency and reduce downtime for any size power generation plant and transmission network.

Bayswater Power Station

Client: Macquarie Generation  
Location: NSW, Australia  
Equipment: 4 x 660 MW Toshiba turbine generators

Citect was engaged by Macquarie Generation to provide an improved and flexible HMI for the station plant systems at Bayswater Power Station. The system was designed to consolidate the previously isolated station plant components such as the ash and dust, coal handling plant, water plant, and other station plant systems. The new CitectSCADA HMI system augmented the existing plant control room man machine interfaces with the intention of full replacement in the long term.

The CitectSCADA HMI system now provides connectivity to all station plant as well as the provision of full monitoring and control facilities on workstations in the plant control rooms. The system records plant operational status data to assist sequence of events determination and investigations following plant disturbances. It also provides plant condition monitoring that assists in the asset management requirements of the site.

The CitectSCADA system consists of twenty servers and operator workstations, collecting and displaying data from 73 Schneider and Allen-Bradley PLCs. The CitectSCADA project communicates to over 20,000 data points.

See Bayswater case study for more details.

Mt Piper Power Station

Client: Delta Electricity  
Location: NSW, Australia  
Equipment: 2 x 660 MW Toshiba turbine generators

The control system controlling the balance of plant includes monitoring and control of two single furnace twin drum boilers with steam pressure of 16,550 kPa and steam temperature of 540 degrees Celsius. The plant supplies a transmission voltage of 330kV, and consumes 14,000 metric tonnes of coal per day at full capacity.

The CitectSCADA system consists of nineteen servers and operator workstations, collecting and displaying data from 65 Siemens, Schneider and Allen-Bradley PLCs.

Citect control systems are also installed at Delta Electricity’s other power stations at Vales Point and Munmorah, also in the Hunter Valley region.

Kauai Power Plant

Client: Kauai Power Partners, LP  
Location: Lihue, HI, USA  
Equipment: 26 MW GE turbine generator

Installed in 2002, this project was a 26 MW combustion turbine power plant. Woodward controls on the CT and generator, GE PLC on balance of plant (BOP). Woodward set the tone by supplying Citect, so BOP followed. A single CitectSCADA system was successfully used as operator interface for both systems. One of the main benefits is single window control for the operators.

See Kauai case study for more details.
Pratt & Whitney Power Systems

Client: Pratt & Whitney
Location: USA
Equipment: FT8 single engine 25 MW Power Pac, or FT8 50 MW Twin Pac

In order to reduce their customers’ long-term operating costs, Pratt & Whitney need to provide systems that allow fully unmanned operations with remote control and diagnostics capabilities.

Pratt & Whitney chose CitectSCADA for the remote monitoring and control functionality in their systems, ensuring that they provide reliability and high performance on the remote monitoring stations. They upgraded to a networked architecture with fully redundant CitectSCADA Servers on each site and local CitectSCADA Servers on each turbine for communications.

This new architecture reduces the risk of failure due to the redundant control system, maximizing their customer’s return on investment and minimizing risk of unplanned downtime.

See Pratt & Whitney Power Systems case study for more details.

Bell Bay Power Station

Client: Duke Energy
Location: NSW, Australia
Equipment: 2 x 120 MW generators

A new CitectSCADA control system was provided when Bell Bay Power Station was converted from oil to natural gas. A 5000 data point CitectSCADA project monitors and controls the Burner Management System, Burner Automation System and Balance of Plant.

Control hardware chosen was Moore/Siemens APACs and QUADLOG. Connectivity to CitectSCADA through Moore MBI Card and Moore API, sampling at 20 milliseconds.

See Pratt & Whitney Power Systems case study for more details.

Smith Mountain Dam

Client: American Electric Power
Location: Roanoke, VA, USA
Equipment: 5 x generators (various power capacities, 70 – 160 MW)

AEP owns and operates more than 80 generating stations in the United States, with a capacity of more than 38,000 megawatts.

The objective of the project was to provide more detailed alarm information to operators via Ethernet network, to improve existing SCADA system, and replace aging alarm management system. There are over 500 alarms in a centralized SCADA system capable of logging alarms accurately relative to the alarm and the specific alarm sequences.

See Smith Mountain Dam case study for more details.

Mt Keith Power Station

Client: WMC Energy Group
Location: Mt Keith, Leinster, KNS, WA, Kambalda
Equipment: 4 x 40 MW Gas Turbines

CitectSCADA interfaced to various controllers for gas turbine automation.
Cholla Power Plant
Client: Arizona Public Service and Pacific Corp
Location: Joseph City, AZ, USA
Equipment: 4 x Coal-fired generators (995 MW)

In a remote location, but with an abundant supply low-sulfur coal is the Cholla Power Plant. Power generated by the plant is fed into the APS transmission grid to a large portion of Arizona.

Disparate controllers are integrated together in the CitectSCADA control system, replacing outdated and maintenance intensive Honeywell controllers. Redundant fiber optic Ethernet networks are used with redundant CitectSCADA servers, to provide a reliable, failsafe control system.

Texas Gas Pipeline
Client: Williams
Location: Owensboro, KY, USA
Equipment: Gas turbines

Williams has substantially reduced operating costs for their Texas Gas Transmission pipeline by installing a Citect HMI/SCADA system to monitor the operation of the entire Pipeline. Engineers and managers are able to quickly monitor detailed real time information from each of the 26 compressor stations along the pipeline from any location – the central offices, field stations and remotely over the internet. With the new system, Williams has been able to lower operating costs by consolidating monitoring and control functions and implementing condition based maintenance programs.

The Texas Gas pipeline system, comprising 6,200 miles of pipe and 26 compressor stations through 7 states, uses CitectSCADA to monitor 68,480 control points at a central 24/365 operations center. The new system operating over a WAN has proven highly reliable and delivers impressive performance.

See Williams Texas Gas Transmission case study for more details.

Fuxin Power Plant
Client: Fuxin Power Corp.
Location: Fuxin, China
Equipment: 3 x gas turbines

Main control functions of this system include:
- Combustion Air System
- Feed Water Control System
- Boiler Water Circulation System
- Furnace Draft System
- Combustion Fuels Control
- Total Head Main Steam Pressure Control of Six Boilers
- DEH Control of Three Turbines

The Fuxin Power Plant control system is configured with interlocks to safely control start-up and shutdown of the six 220 ton boilers and the three 100 MW turbines. To trace and analyze failures, the RTP 2200 Hybrid Control Systems are configured with SOE (Sequence of Events) capability, providing one millisecond resolution. When status of an SOE digital input changes, an interrupt is sent to the RTP 2200 controller. The input and its time-stamp is recorded in a buffer by the controller. CitectSCADA software retrieves and records all SOE information for analysis.
Meadow Lake Power Station
Client: SaskPower
Location: Meadow Lake, SK Canada
Equipment: Gas turbines (43 MW)

Weipa Power Station
Client: Comalco
Location: QLD, Australia
Equipment: 6 x oil-fired turbine generators (350 MW)

CitectSCADA provided communications to the Bailey DCS system.

SaskPower is the principal supplier of electricity in Saskatchewan. SaskPower maintains more than 150,000 kilometers of power lines and available capacity is approximately 3,100 megawatts (MW). This includes 2,880 MW of supply generated by SaskPower’s own facilities - three coal-fired stations, seven hydro stations and four natural gas stations - and the 25-year power purchase agreement with the Meridian cogeneration facility at Lloydminster.

Meadow Lake Peaking Power Station was commissioned in 1984. SaskPower recently upgraded their CitectSCADA application to the latest version in 2002.

Valley Power Peaker Plant
Client: Edison Mission Energy
Location: VIC, Australia
Equipment: 6 x 50 MW dual turbine generators

The CitectSCADA system monitors and controls common plant items, water injection, gas supply, demineralized water and air supply, diesel supply, and protection relays (including 19 DNP devices). The control system integrates individual CitectSCADA projects from each generator set together.

Company Overview
Citect is the largest independent supplier of industrial automation software in the world. We have been providing engineering services and software to the industrial automation market for over 30 years. We specialize in innovative, reliable, cost effective products to maximize the efficiency of customer operations. Our organization is focused on delivering value through technological excellence and superior customer service.

Citect Professional Services
Citect’s software products are backed by experienced professionals who provide implementation, systems integration, training and post-sales support. Citect professional services are available in Australia, Americas, Europe, South Africa and Asia.

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