

Renewable Energy Services



Provecta provides an extensive range of process automation, system integration and control system services across the renewable energy sector with projects covering Hydro Electric, Wind, Photovoltaic Solar, Solar Thermal and Biomass power generation plants with projects in both Australia and the USA. With the wide range and scale of renewable solutions, Provecta works with clients to review options and develop cost effective solutions to meet their unique requirements.

Our experience in power plant operations, investigations, design and control system implementation uniquely positions us to ensure control projects meet customer requirements and allows us to drive projects to deliver the required benefits.

Provecta works on both greenfield and brownfield sites to identify, design and implement appropriate control solutions. We work with clients to improve process outcomes by identifying potential plant and control system improvements, as well as maintaining and upgrading installed control systems to optimise plant performance.

Hydro Electric Power Generation

Provecta has completed numerous projects in the hydro-electric power generation sector including complete control system upgrades, remote monitoring solutions, centralised

control facilities, remote telemetry solutions, SCADA upgrades and communications solutions design.

Provecta has designed, implemented and commissioned complete control system upgrades on a variety of plant, including pumped storage schemes and conventional hydro plants. Solutions implemented by Provecta include PLC upgrades, instrumentation upgrades, SCADA systems, and Remote Telemetry Unit (RTU) systems for remote monitoring and control of plant. Provecta undertake Hydro Governor Integration, performance testing and commissioning, as well as designing and implementing modifications to improve performance and to also meet AEMO requirements.

Our experience with hydro plants provides Provecta with the practical knowledge to provide operational advice and undertake investigations into both plant and control system operations.

Provecta's experience covers a variety of hydro plant types including Pumped Storage (both underslung pump and reversible designs), Pelton Wheel, Kaplan and Francis Turbines ranging in size of 350kW to 300MW.

Wind Farms

Provecta implements and maintains SCADA systems for the control and monitoring of commercial Wind Farms. Solutions



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that have been implemented to meet customer's requirements for remote monitoring and alarming.

Services are also provided by Provecta for the integration of Wind Farm control systems with distribution/transmission authorities.

Large Scale Solar Photovoltaic and Battery Storage

With rapidly reducing costs, Large Scale Solar Photovoltaic and Battery Storage systems are being increasingly installed by both utilities and larger consumers. Integration of the solar and battery systems to a customer's existing electrical grid to optimise savings while still meeting utility requirements for grid connection requires not only a unique understanding of both the operation of the solar generation plant and battery systems, but also the utility connection agreement. Provecta's experience includes grid connection agreements and allows us to develop and advise on appropriate control solutions to optimise energy output while maintaining compliance with the grid connection requirements.

Provecta designs, implements and commissions complete control solutions for photovoltaic and battery plants to manage compliance with grid connection agreements. Solutions for metering and monitoring of power quality can also be provided through the Provecta Energy Solutions branch.

Gatton CSS

The University of Queensland (UQ) has a 3.275MW photovoltaic (PV) installation and a 680kWh energy storage platform at its Gatton Campus which were provided as part of the Solar Flagships project. The combined effects of the PV installation, energy storage system and the other energy sources and loads at the UQ Gatton Campus are required to be managed so that the requirements of the distribution utility connection agreement are satisfied, power generation is flexible and able to be optimised under various conditions, and to allow research access and capability.

Provecta designed configured and commissioned the Central Supervisory Control System (CSS) which provides this management function.

Provecta was part of the team that received a High Commendation engineering award for the UQ Gatton 3.3MW Solar Project in the category for Innovation, Research and Development at the Australian Engineering Excellence Awards (Qld division)

Large Scale Solar Thermal

Provecta provided control system integration services for the first large scale concentrate thermal solar plant installed in Australia (at Liddell Power Station). Provecta works with both the plant supplier and customer to develop appropriate control solution and to integrate the solar thermal plant to the clients existing operations.

Provecta's expertise has also been sought to provide expert advice on control solutions for a large scale concentrating solar thermal plant in the USA. Provecta has reviewed the operation of the plant and provided advice on improving the performance of the controls to improve overall plant performance.

Services

Provecta's range of services in the renewable energy sector include:

- Concept designs
- Project scope development
- Specification development
- Design basis manuals and technical standards
- Design of communications networks
- Information Security design, implementation, review and management.
- Field interface design
- Database development
- Project Management
- Factory Acceptance Testing
- SCADA system design
- Control System (PLC, DCS) design
- Control System Implementation
- Remote Monitoring Solutions
- Plant and Control System Commissioning
- Documentation and Drawings
- Owner's Engineer Services
- Independent Engineering Reviews
- Control System Asset Management
- Operational Advice and Management

Should you wish to discuss any aspects of project management where **Provecta** will be able to assist you, please contact:



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