

Location: Singapore

Process or Facility Systems Controlled

Fire alarm and suppression, security access, CCTV , public address system, power quality and management, HVAC, overall network design, subsystem interfaces and process utilities, which itself consisted of potable water, non-potable water, wastewater, gas delivery, cooling tower and chiller management and fuel gas systems

Control Platform Technologies Used

Siemens PCS7 as a master SCADA system, variety of subsystems including Rockwell and Siemens drives, a Schneider PQMS system, Carrier chillers, Nalco water treatment, a Rockwell gas delivery system, Emerson Leibert CRAC units, Schneider/TAC VAV controllers and Siemens Simocode MCCs controlled by WAGO PLCs

Control System Size

1,700 hard I/O and 20,000 soft I/O brought in via 30 remote I/O panels and network connections to three redundant PLC pairs physically located in two different campus data centers

Project Description

When Norway-based Renewable Energy Corp. (REC) broke ground on a new factory in Singapore in 2008, a systems-integration firm wasn't in the project plan. As the design progressed, key project personnel realized the need for a controls firm's presence to understand and integrate dissimilar building systems. This proved crucial to REC's vision of an integrated infrastructure system for delivery of critical utilities to the wafer, cell and module plants. In late 2008, REC awarded RoviSys Building Technologies a contract for this service.

The RBT project team consisted of area champions assigned to each major subsystem: fire alarm and suppression, security access, CCTV, public address system, power quality and management, HVAC, overall network design, subsystem interfaces and process utilities—which itself consisted of potable water, non-potable water, wastewater, gas delivery, cooling tower and chiller-management and fuel gas systems. Each area champion reported to a project manager who oversaw the entire process.

RoviSys Building Technologies designed or assisted with key components of each subsystem, to operate and function as needed and to communicate on a common network backbone. Project staff ensured all the components were accessible and controllable from a single operator station in the B&I control room. All systems were controllable from one computer in the central control room, with the exception of the security/CCTV system which needed an isolated network. The variety of systems integrated included Rockwell and Siemens drives, a Schneider PQMS system, Carrier chillers, Nalco water treatment, a Rockwell gas delivery system, Emerson Leibert CRAC units and many other custom and well-known brand controllers and systems, all communicating on a fiber backbone to a Siemens SCADA system.

RBT worked closely with Fluor and BLL throughout the campus construction process, guiding much of the instrument installation and managing electrical subcontractors. Successful integration emerged through meticulous design, factory acceptance testing with the customer before deployment and strict commissioning and site acceptance testing practices once the systems were deployed to the site.

The project began in phases in accordance with a detailed risk-assessment plan and change-control practice. Within one year of project award, the SGD \$1 billion (US\$750 million) facility was operational.