

Hydro Electric Case Study



Introduction

The New Brunswick Electric Power Commission (NBEPCC) (NB Power) is responsible for supplying electric power in the Province of New Brunswick, Canada. The utility is responsible for the generation, transmission and distribution of power in the province.



Mactaquac Hydro Electric Dam

Problem

The New Brunswick Electric Power Commission has a requirement to monitor and control from one central location, five hydro electric generating stations and one remote intake on the Saint John River. A microwave system is to be used for Master Station to Remote Terminal Unit (RTU) communications. The customer must have a system that can monitor and control: breakers, start/stop generators, raise/lower gates for generator outputs, etc.

Solution

1986

A Supervisory Control and Data Acquisition (SCADA) system was designed, manufactured and installed by Willowglen Systems to perform all of the above monitoring and control functions.

The system consisted of two host computers configured to operate in a dual redundant standby mode. The system has three local color display terminals, one local monochrome display terminal, and one remote color display terminal. The system also has two letter quality printers. A Willowglen Changeover Switch is used to share the peripheral devices between the two redundant host computers.

The SCADA software running on the host computers stores the data received from the field, alerts the operators when power system abnormalities occur, and displays the status of the system continuously.

Six Model 8000 RTUs were installed. These intelligent RTUs were all equipped with the same application software and the same basic hardware configuration. The only difference between the RTUs is that each one has varying amounts of I/O depending on the location. The RTUs perform data acquisition and control functions on: analog inputs, digital inputs, analog outputs, digital outputs, frequency inputs, and 1 millisecond resolution Sequence of Events (SOE) inputs.

1988

A Communication Interface Unit (CIU) with VISTA software was installed. The unit is connected to the host computer to communicate with the RTUs.

2001

NB Power asked Willowglen to perform a major system upgrade. The original host computers were replaced using VISTA host computers and the Model 8000 RTUs were replaced using Model 8016 RTUs.