Customer Requirements

A government-owned school building is being retrofitted with a solar energy system as part of a renewable energy rollout scheme. The government department responsible wishes to remotely monitor and log the generation and usage of this energy to establish the ongoing feasibility of the system and to track their return on investment.

The required data logging system must be robust, capable of reading data from smart power meters and solar inverters and facilitate remote monitoring and data collection through a hard-wired internet connection.

There is future prospect of adding gas flow monitoring to the project so the solution must be compatible with various flow sensors.

dataTaker DT82I

1. A cost effective data logger designed with the industrial market in mind

2. Up to 6 analog sensor inputs for voltage (±30V), current or resistance inputs

3. Built-in web and FTP server allows for remote access to logged data, configuration and diagnostics

4. Modbus master and slave functionality allows connection to smart devices and SCADA systems via Serial or TCP/IP

5. Two smart serial ports, capable of interfacing to RS232, RS485 and RS422 sensors and modems

6. Rugged construction provides reliable operation under extreme conditions

7. Includes USB memory stick support for easy data and program transfer

Solar Installation: A grid of solar panels connects to an inverter, which in turn communicates to a dataTaker data logger.

dataTaker Solution

Equipment
dataTaker DT82I Series 3 data logger

Sensors
Solar Inverter with Modbus RS-485
Schneider PowerLogic ION6200 Power Meter
Gas Flow Sensors
Pyranometer (Solar Radiation)

Implementation Notes

The chosen solar inverter and power meter both communicate using the Modbus RTU protocol over a serial RS-485 link. The inverter reports the energy generated by the solar panels and the power meter reports the energy being used at the facility. The *dataTaker DT82I* is the perfect logger for this because it provides multiple Modbus compatible serial ports in addition to its analog and digital channels. The solar inverter and power meter both network to the same RS-485 serial port and report data upon request of the logger. The high accuracy pyranometer is used to help establish the efficiency of the solar panels.

The logger communicates back to the main office is via a hardwired TCP/IP network connection. This is simply a case of plugging the Ethernet cable into the existing secured router/infrastructure and port forwarding. Over this connection, the dataTaker can be configured, monitored and accessed 24 hours per day via its internal web based software (dEX). An automatic daily back up of new data is also accomplished via FTP by the logger with minimum set up requirements and ensures another level of data redundancy.

When gas flow sensors are ultimately fitted to the building, the *DT82I* will accommodate these via its analog or digital counter channels, depending whether the flow sensor outputs a voltage, 4-20mA current signal or digital pulse outputs.