

SITE PICTURE



Project Overview

Market Segment: Power

Application: Solar Power Industry

Country: Czech Republic

Contact to go further

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Solution breakdown & downloads

Main services:

Delivery of Monitoring Solution and Host

Software including Remote RTU Configuration

Main products & systems:

ClearSCADA Host Software

SCADAPack 300E Smart RTUs

Energy 21

Reducing Labour Costs and Increasing Investor Confidence with Real-Time Monitoring of Photovoltaic Energy Network

I. CUSTOMER ENVIRONMENT

Energy 21 was established in 2007 as an investment company focused specifically on the renewable energy sector in the Czech Republic and around the world. The company designs, develops, builds and operates solar power plants. One of its recent projects included 27 photovoltaic energy sites that stretched from West to East across approximately 500 kilometres of the Czech Republic, with a total generated capacity of 60MW.

With a multi-site project that was being constructed quickly over a great distance, Energy 21 had several monitoring requirements unique to their situation:

- A **standard solution** that would allow for **fast integration** of the system;
- **Real-time monitoring, power-failure alarm notification** and **online access** for remote trouble-shooting by service staff without a central control room;
- **Reliable real-time wireless data transmission** and the ability to process data effectively for efficiency analysis and investor reports.

II. SOLUTION IMPLEMENTATION

SCADA Servis Ltd., a supplier of SCADA systems for industrial automation and telemetry applications, was selected to provide the SCADA solution based on ClearSCADA Host software.

The first phase of the installation took one year due mainly to the construction of the actual solar sites with the monitoring portion lasting approximately four months.

With 27 photovoltaic sites, Energy 21 needed a standard solution that could be easily implemented at each site. The combination of SCADAPack 300E Smart RTUs and the ClearSCADA software platform provided a standard, integrated solution.

SCADA Servis used over 50 SCADAPack350E and SCADAPack330E RTUs to transmit data including the status of 120 inverters, individual strings attached to them, solar radiation, generated power, key high voltage components and circuit breakers, plus the individual current, voltage and frequency readings from individual power meters. RTUs were programmed with IP addresses before shipping so that once installed by workers onsite they could be configured remotely by SCADA Servis. Alarm notification for mobile service technicians was implemented using ClearSCADA's alarm service and SMS alarm re-direction.

Useful links

http://www.greenscada.com/index_en.aspx

Special Thanks To:

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With over 50,000 data information points and a new value recorded every 15 seconds, Energy 21 required a high degree of data integrity, availability and security. The SCADAPack RTUs were connected to ClearSCADA, using DNP3 protocol and GPRS communication. ClearSCADA handled all supervisory and control tasks such as data collection, analysis, reporting and graphic visualisation. In the event of an unstable GPRS system, the SCADAPack's DNP3 buffer was used as local data storage until the time that transmission capability returned.

The ClearSCADA Host software server and the MS SQL Data server were installed at the corporate data centre to enable IT personnel access. Field technicians and development personnel gain remote and online system access using ClearSCADA's two integrated clients, ViewX: a full-feature development and display environment, and WebX: a web-based monitoring and operation environment. WebX allowed service technicians to troubleshoot devices from remote locations with ViewX providing real-time information for efficiency analysis and system monitoring.

III. RESULTS / ACHIEVEMENT

Once the complete system had been configured, Energy 21 realised all of their initial requirements plus several other benefits they had not requested.

The standard, integrated solution made for a **fast deployment** on a mass scale that is **easily transferable** to future installations. The RTUs and ClearSCADA were powered and connected by installation crews and then configured remotely by SCADA Service Ltd., making for **significantly reduced labour costs**. Service technicians have online access to the system for remote error diagnosis that has resulted in **reduced labour costs** particularly during off hours and weekends. The local storage buffers in the SCADAPack RTUs ensured real-time, error-free data regardless of the stability of the GPRS network and continual access to data online made **real-time efficiency analysis** an effortless and achievable goal.

Comprehensive data collection and analysis tools permitted the creation of **daily investor reports** and longer-ranging bank reports. The inherent, robust design of the SCADAPack RTUs allowed for operation in **unheated, outdoor locations**. Finally, the on-going ease of use with ClearSCADA's **object-based configuration and templates** combined with its open protocol philosophy easily accommodates future expansion and development plans.