

Overview

Belcan's client designs, builds, and manages bio-digester facilities. These plants convert various types of refuse into methane gas, which in turn is used to generate electricity or fuel natural gas vehicles. Belcan Automation was hired to develop the control system hardware and software for these facilities.

Client Information

- Product: Anaerobic digester plants
 - Industry: Alternative Energy
 - Key Technologies: Rockwell Automation PLC, HMI, and AC Motor Control, Virtual Private Network (VPN) integration for remote monitoring and control
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Background Information

- The client's pilot facility was built, but was not operational.
 - The client was dissatisfied with the results of the original firm that was hired to design and install the process control system
 - The pilot plant was not operating efficiently due to issues with the control system.
 - The control software was difficult to understand and was not well documented
 - Operator interface screens were not easy to understand and not all of the information that was displayed was accurate
 - Parts of the process were not operational
 - The client determined that a partner needed to determine what steps needed to be taken to get the plant up to full operating capacity
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Belcan Automation Approach

- Belcan worked with client's technical staff to gain a complete understanding of how the facility was intended to operate
 - Next Belcan worked with the client's representatives to determine what parts of the plant process were at issue. This information was prioritized and documented.
 - Working with the client, Belcan generated a plan to address the issues that were identified
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Solution

- Based on the information that was gathered by working with the client's representatives, Belcan was able to take a implement a phased approach to address each of the issues that were identified
 - The solution included
 - Rewriting PLC control logic
 - Reconfiguring operator interface screens to convey information in a simple and straightforward manner
 - Creating system diagnostics to aid in troubleshooting
 - Identifying and correct field wiring problems
 - Updating control system schematics
 - All of the above was completed while working closing with the client's technical staff
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Benefits to Client

- In short order, improvements to the pilot plant were made and energy production was started on a consistent basis
 - The client was able to demonstrate the capability of the facility and the process to other potential customers and win new business
 - The client now has a well-documented controls system package that has been used as a baseline for new energy conversion plants it has built
 - Belcan has continued to work with the client to further develop the control system architecture for these facilities, introducing technologies such as remote monitoring and networked control systems with distributed I/O nodes throughout the plant
 - Belcan continued to work with this client on other new energy conversion facilities to provide "one stop shopping" for all controls system needs. Engineering design services, control system panels, and start up service has been provided.
 - By partnering with Belcan for their control system integration needs, the client was able to quickly leverage Belcan's experienced electrical engineering staff
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