

# PROTECTION . CONTROL . AUTOMATION SOLUTIONS FOR SUBSTATION INTEGRATION



**Casco**  
SYSTEMS

Protection  
Control  
Integration  
Automation  
Cybersecurity

*Engineering Tomorrow's Smart Grid, Today!*



## ENGINEERING SERVICES

- POWER PLANT AUTOMATION
- SUBSTATION INTEGRATION
- ADVANCED CONTROL SYSTEMS
- SCADA AND HMI VISUALIZATION
- DISTURBANCE MONITORING
- REMOTE ACCESS AND HISTORIANS
  
- RELAY APPLICATION ANALYSIS
- PROTECTIVE RELAY SETTINGS
- PROTECTION & CONTROL
  
- ELECTRICAL DESIGN
- CONCEPTUAL DESIGN
- SCOPE DEVELOPMENT
- SPECIFICATION DEVELOPMENT
- INTERCONNECTION CONSULTING
  
- PROJECT MANAGEMENT
- CONSTRUCTION SUPPORT
- COMMISSIONING
- TURN-KEY SYSTEMS



## PROVIDING ENGINEERING RESOURCES YOU NEED TO COMPLETE PROTECTION, CONTROL, AUTOMATION & INTEGRATION PROJECTS

Casco Systems is an engineering and system integration firm focused exclusively on the power generation and delivery markets.

Founded in 2001 to provide Control and Automation Solutions, CASCO has expanded to offer integration, automation, communication, protection and control systems to clients in the electric power industry throughout North America.

Our team of engineers and integration specialists are focused exclusively on providing technology solutions that are reliable, functional and cost effective. We bring an understanding of the demanding requirements necessary in utility grade protection and automation systems to every project, along with the desire to assist clients maximize return on their technology investment.

## TECHNOLOGY CONSULTING FROM EXPERIENCED DOMAIN EXPERTS IN THE POWER TRANSMISSION & GENERATION INDUSTRY

Our team offers experience with a wide variety of platforms typically found in the power generation and transmission industry. In addition our domain knowledge allows us to implement secure and reliable systems in a safe & efficient manner.

We offer experience with the following technology and products:

- Protection & Control (P&C) Engineering
- Protective Relay Setting Development
- Supervisory Control & Data Acquisition (SCADA) Configuration
- Human Machine Interface (HMI) Design
- Remote Terminal Unit (RTU) Programming
- Programmable Logic Controller (PLC) Design & Programming
- Network Design & Configuration
- Cyber Security Systems & Planning

## A TRUSTED PARTNER INVESTED IN YOUR SUCCESS

Casco Systems has built a reputation as a trusted partner to a range of owners, operators and service providers across the industry. Our resources, knowledgebase, commitment to success, and work ethic have allowed us to enjoy decades long relationships with multiple client partners. We look forward to enjoying long term relationships with each client by delivering certainty to each and every project.

## SUBSTATION INTEGRATION SYSTEMS

From simple Remote Terminal Unit installations to fully integrated Advanced Protection & Control Systems, Casco Systems has the experience to ensure a successful project.

We specialize in the protection, automation and integration of utility transmission & distribution substations, including bulk power applications up to 345 kV.

The engineering & integration professionals at Casco Systems have integrated many utility grade substations including development of local Human Machines Interfaces (HMI), SCADA, Data Concentrators & Remote Terminal Units (RTU), Disturbance Monitoring Equipment (DME), Network and Cybersecurity platforms.

Put our experience to work for you!



### ADVANCED SUBSTATION INTEGRATION & AUTOMATION

Our team of engineering and integration professionals has completed projects at many utility bulk power, distribution and interconnection substations across North America. The team's experience includes implementing:

- SEL, GE, ABB, and other protective relays
- SEL-RTAC Real Time Automation Controllers
- SEL-2032 Communication Processor
- Subnet SubSTATION Server
- NovaTech Orion Substation Automation Platform
- Cybectec SMP Gateway
- Siemens RuggedCom Network & Security Platforms
- CIMPLICITY, iFix and Wonderware HMI's
- IEC-61850, DNP3, Modbus, SEL FM and other communication protocols

### EXPERIENCE THAT COUNTS!

Casco Systems specializes in the integration, automation, protection, and optimization of substations and associated equipment. A select sample of the many station projects we have successfully completed is noted below.

#### *Fully Integrated IEC-61850 Substations:*

- ◆ Coopers Mills Rd 345 kV Bulk Power S/S
- ◆ Albion Rd 345 kV Bulk Power S/S
- ◆ Larrabee Rd 345 kV Bulk Power S/S
- ◆ Surowiec 115/345 kV S/S Upgrade
- ◆ Maine Yankee 345 kV S/S Upgrade
- ◆ Raven Farm 115 kV S/S
- ◆ Monmouth 115 kV S/S

#### *Specialty Applications:*

- ◆ Jay Synchronous Condenser Automation
- ◆ Kendal Farm Synchronous Condenser Automation
- ◆ 34.5 & 115 kV Capacitor Bank Automation

#### *Traditional Data Concentrator / RTU Substations:*

- ◆ Winslow S/S SMP Gateway RTU
- ◆ Bull Creek Wind Farm Interconnection S/S
- ◆ Smokey Hills Wind Farm Virtual Metering System
- ◆ Raymond S/S Integration
- ◆ Rangely S/S Integration
- ◆ Edgecomb S/S Integration
- ◆ Kimball Rd S/S Integration
- ◆ Woodstock S/S Integration
- ◆ Perrier S/S Integration
- ◆ Boothbay S/S Integration
- ◆ Bucksport Power Utility Interface





## ADVANCED SUBSTATION PROTECTION & CONTROL PLATFORMS

Our team developed a new integration platform utilizing the IEC-61850 standard for the Maine Power Reliability Program (MPRP). During this multi-year, \$1.4B project Casco Systems developed standards, programs & systems for multiple 345 kV, 115 kV, and 34.5 kV Bulk Power Transmission Substations. Casco was responsible for all substation integration including the Station HMI, RTU, multiple transformer condition monitoring & control IED's, and IEC-61850 GOOSE / MMS Message Configuration. To date Casco Systems has completed seven bulk power IEC-61850 based stations and multiple traditional remote end upgrades.

This platform has advanced features and limits the use of hardwired interconnects and devices, moving all but the most critical tripping and sensing "onto the wire". The end result is an advanced protection and control platform with a much simpler (and lower cost) hardware design. The project included advanced features like equipment monitoring and data logging, fault event record automatic retrieval and storage, breaker & switch operation logging, Cyber Security and remote HMI access.

## SPECIALIZED CONTROL & AUTOMATION PROJECTS

Casco has a tradition of implementing new and innovative solutions to our client's unique challenges. From simple monitoring and control to revolutionary application of cutting edge technology we have the engineering team to tackle your most difficult projects. A select list of previous solutions is noted below, contact Casco Systems to learn how we can help you develop the next great solution!

**Virtual Metering System:** Casco Systems developed an innovative Virtual Metering System (VMS) for a 250 MW wind farm in the mid-West. This system monitors real-time wind farm production and allocates MW & MWH values to offtakers based on variable contractual obligations and transmission access rights. The VMS allows the wind farm flexibility to provide power via one transmission line while presenting metering that reflects the power being provided to specific "offtaker" entities.

Development of the VMS was implemented in a short time frame after the need for such a system was dictated by the interconnecting utility. With no model or design specification to follow, Casco Systems developed the concept, wrote the code, and commissioned the system in under six weeks. This resulted in the project being able to meet its energization date and deliver on schedule.

**Synchronous Condenser Automation:** Casco Systems has developed the automation, control and integration software for multiple synchronous condenser installations. These applications included machine automation, equipment condition monitoring, data acquisition and transmission system voltage regulation.

**Capacitor & Reactor Bank Automation:** Our staff have developed multiple automation systems to operate voltage regulating capacitor and reactor banks. These systems included not only the typical control and protection, but logic to balance equipment utilization and prolong service life.

## HUMAN MACHINE INTERFACE DESIGN

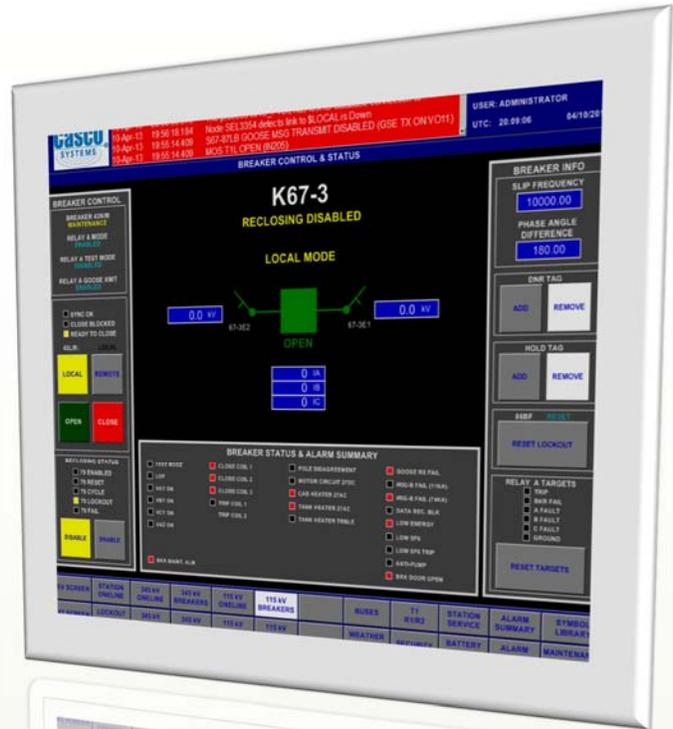
Designed with the user in mind, we have developed a standard approach to station automation that allows Casco to deliver a familiar and consistent user interface across multiple facilities including power plants and substations.

Our platform uses “off the shelf” products and is highly adaptable, allowing full customization to meet the unique requirements of your facility.

A clear, well organized and intuitive user interface is the only way to safely operate a station while minimizing training and engineering support costs.

The Casco engineering team will customize every system to your exact specifications by leveraging our experience with GE CIMPLICITY, WonderWare InTouch, and Proficy iFix software. We have implemented easy to use HMI systems in conjunction with a wide range of control, monitoring, and data acquisition hardware.

**Casco**  
SYSTEMS



simplifying Integration, Protection & Control

- ◆ **ENGINEERING**
- ◆ **PROTECTION**
- ◆ **INTEGRATION**
- ◆ **COMMISSIONING**
- ◆ **TRANSMISSION**
- ◆ **GENERATION**
- ◆ **TURNKEY SYSTEMS**
- ◆ **TECHNICAL SUPPORT**

Casco Systems is committed to helping our clients leverage the latest advances in technology to efficiently and reliably operate today's Smart Grid applications.

Apply our experience on your next project and see why the "Control and Automation Solutions Company" has gained a reputation for excellence.

Contact Kevin Mahoney at 207-712-0590 or by email at [kevin@casco-systems.com](mailto:kevin@casco-systems.com) to discuss how we can help you



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