



THERMO SYSTEMS

INDUSTRIAL AUTOMATION & INFORMATION

Energy Planning for Resilient Communities – Best Practices

EBC Annex 73 Symposium

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www.thermosystems.com

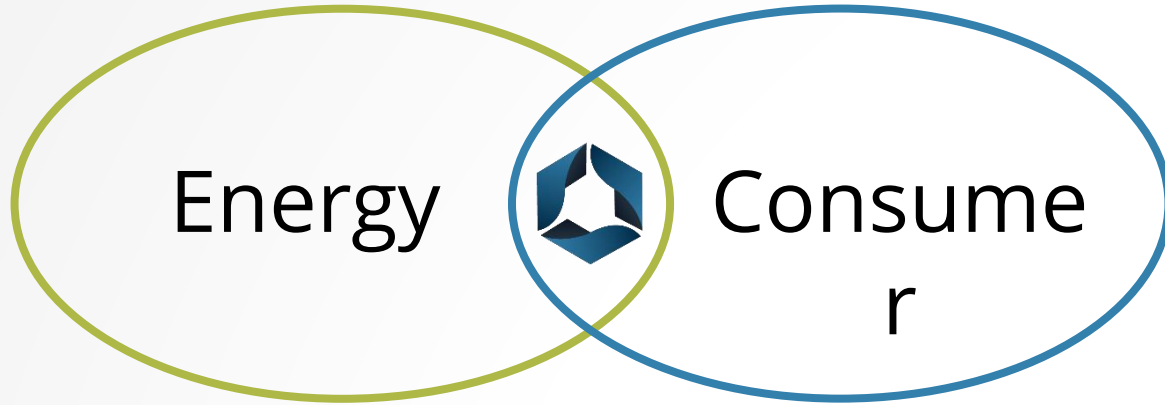
Who We Are

Thermo Systems is a national, full-service control systems integration partner for energy and consumer markets. We excel at managing and delivering turnkey projects to our EPC & AE partners while also specializing in customized direct-to-owner solutions, focusing on industries where we can offer unmatched domain knowledge to deliver the best possible services and technologies for your needs. By investing in our people, we provide a project team with the skill and expertise to overcome your biggest industrial automation and information challenges.

- 100+ employees and growing
- Privately held by founding partners who are active in the day-to-day operation
- New Jersey based LLC founded in 1998
- Offices nationwide



Our Focus Markets



Energy
Utilities/District Energy (CHP,
Microgrids, Steam, CHW), Data
Centers, Power Generation, Mining

Consumer
Life Sciences (Bio, Pharma,
Nutraceuticals), Food & Beverage (F&B),
Consumer Packaged Goods (CPG),
Building Automation Systems (BAS)

IT & CYBERSECURITY ACROSS ALL INDUSTRIES

What We Do

FUNCTIONAL DESIGN

- Site-wide automation and information control systems master planning
- I&C design support services, P&ID, Sequence of Operations (SOO), Project specifications, FEED, architecture standards

DETAILED DESIGN

- Follows GAMP V model
- Control panel design
- Control systems arch.
- SDS/HDS
- Computer sys. design spec.
- Testing Documentation
 - HFAT/SFAT/SAT
 - IQ/OQ/PQ Support

CONSTRUCTION

- Turnkey control systems construction
- Complete systems integration
- Legacy systems migration
- Program/project management and plant/OEM/sub-contractor coordination
- Fabrication, assembly and testing
- Systems integration and programming
- Start up, commissioning and IQ/OQ support
- Turnkey I&C electrical and mechanical installation

SERVICE

- 24/7 on-site and remote support
- Preventative / predictive maintenance
- Calibration services
- Staff augmentation
- Life-cycle support including assessments, modernizations and migrations
- Software & system upgrades
- Remote monitoring
- Calibration & PMs
- Loop tuning
- Startup services

OPTIMIZATION

- Investment-grade energy audits
- Transparent energy reduction algorithms
- Utilize existing plant controls

CYBERSECURITY

- ISA-certified professionals
- Security audit and gap analysis
- Risk management
- Management implementation

Construction, Services, T&M Capabilities

Government & Military Project Highlights

Aberdeen Proving Ground



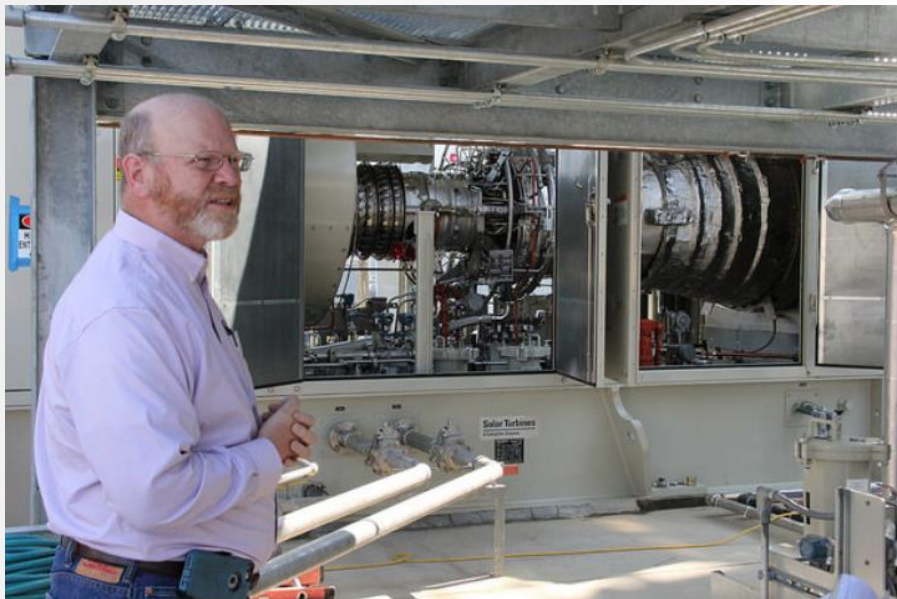
Project Highlights

- The cogeneration plant is the first of its kind on a US Army installation
- Project goals: energy resiliency, environmental stewardship and fiscal responsibility through the construction and maintenance of a natural gas/fuel oil cogeneration plant
- Expected to provide ~50% of site's electricity, *save annually \$4.4 million, 297,469MBtu's of energy, 22,571tons CO₂ emissions reduction*
- Total project cost: **\$36.6MM**
- New Cogeneration SCADA (Rockwell FactoryTalk) and balance-of-plant (BOP) PLC control system (Allen-Bradley ControlLogix Redundant PLC platform) to integrate one (1) 7.5MW T70, one (1) HRSG, one (1) Aqueous Ammonia/SCR, gas compressor & air systems, and electrical distribution

Aberdeen Proving Ground



Aberdeen Proving Ground



Other Project Highlights

FDA White Oak:

Utility microgrid consisting of a 55MW combined heat and power (CHP) plant with expected *annual savings of 48-million kW-hrs of electricity* and reduction of CO₂ emissions by 24,000 metric tons per year.



NIST:

Systems Integration services for NIST's 7.6MW Combined Heat & Power Plant as well as steam system improvements and operational changes for the NIST Central Steam Plant. *Expected to provide \$3.9MM in total energy savings.*



Other Project Highlights

Philadelphia Navy Yard:

Electrical microgrid control system and process cooling water control system for a Full Scale Electric Test Facility, where multiple sources of power can energize a test drive. Major equipment within the facility is cooled with water from the Delaware River through an advanced pumping system.



DC Water:

Combined heat and power (CHP) plant where biogas is processed and used as the primary fuel source of a 14MW plant, which supplies 30% of the average power demand for the 153-acre wastewater treatment plant.

The new CHP plant is an integral part of a thermal hydrolysis and anaerobic digestion system, which is the largest in the world. The process uses high-pressure steam from the CHP plant to increase the rate of biogas production and neutralize contaminants in waste streams.



Locations

Thermo Systems is committed to serving clients locally by staffing offices nationwide:

- Pittsburgh, PA
- West Point, PA
- Indianapolis, IN
- New York, NY
- Henderson, NV
- Long Beach, CA
- San Francisco, CA
- Denver, CO
- Silver Spring, MD
- Houston TX
- Cleveland, OH

East Windsor, NJ (HQ)



We deliver turnkey control systems projects throughout North America.