



# MATEP Cogeneration Facility



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## Project Specifics

- Supplies power, steam and chilled to three of Harvard's professional schools and six affiliated teaching hospitals
- Upgrade to facility designed to meet current and future utility demands
- Two 12.5MW Alstom dual fuel combustion turbine generators
- Two 120 KPPH heat recovery steam generators
- Two Coen duct burners
- Two Toromont Gas Compressors
- Two Fuel Tech Emissions Reduction Systems

## Challenges

- Plant in operation 24/7/365
- Communication interfaces to CTG, HRSG, duct burner, gas compressors, Emissions systems
- Dual Balance of Plant (BOP) systems to coordinate various sub systems
- Coordination of lead/lag equipment that exist on separate systems
- Startup while existing steam/chiller plant in operation



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## Project Requirements

- Engineer the control strategy
- Design & program the Human Machine Interface
- Program the process control PLCs
- Control panel design assembly & factory acceptance testing in TVC's UL508A shop
- Design the communications networks
- Design & program the HMI to collect critical process data & produce various reports
- Installation supervision
- System start-up & system acceptance testing
- Instrument and final control element provision and testing
- Operator training
- Operations and maintenance manuals
- Preventive maintenance & ongoing 24/7/365 support (as required)



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## Solutions

- Designed, fabricated and delivered by TVC Systems
- Wonderware InTouch SCADA and View
- OSI PI Data Collection
- Allen Bradley hot standby ControlLogix controllers
- Ethernet, ControlNet, DH+ and Modbus communication networks
- Allen-Bradley Flex Remote I/O

## Results

- Provision of a single intuitive and centralized control system interface
- Process automation decreases manual operations to be performed by plant personnel
- Automated data collection & reporting
- Monitoring and reporting of energy usage for full facility



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## System Architecture



