



ADVANCED CONTROLS, SIMULATION AND EMISSIONS



CLEAN ENERGY TECHNOLOGIES

ADVANCED CONTROLS

The CANMET Energy Technology Centre-Ottawa (CETC-Ottawa) has an outstanding record as one of the leading developers of advanced controls for the optimization of combustion systems and energy processes. CETC-Ottawa is committed to designing systems that can control an operation as well as or better than “the best available operator”. We customize systems for specific industrial processes to obtain:

- *Reduced costs*
- *Increased productivity*
- *Improved energy efficiency*
- *Reduced emissions*
- *Enhanced process integration and optimization*

Capabilities

The Advanced Controls team consists of a group of scientists and engineers with solid experience in the following areas:

- Economic impact evaluation
- Identification of technical opportunities
- Systems analysis
- Data acquisition
- Instrumentation
- Process optimization
- Data mining and statistical analysis
- Expert systems technology
- Neural networks
- Fuzzy systems
- Multivariable control software design
- Commissioning and acceptance testing
- Consultation and third party assessment

Accomplishments

CETC-Ottawa has developed industrial systems for:

- Ash monitoring and intelligent sootblowing for coal-fired power plants
- NO_x/CO optimization
- Burner diagnostic and optimization
- Parametric emissions monitoring (PEM)
- Process upset prediction
- Scrubber optimization
- Baghouse optimization
- Fuel selection advisory systems

Burnaby Incineration Improvements

– Batch to Continuous PEM

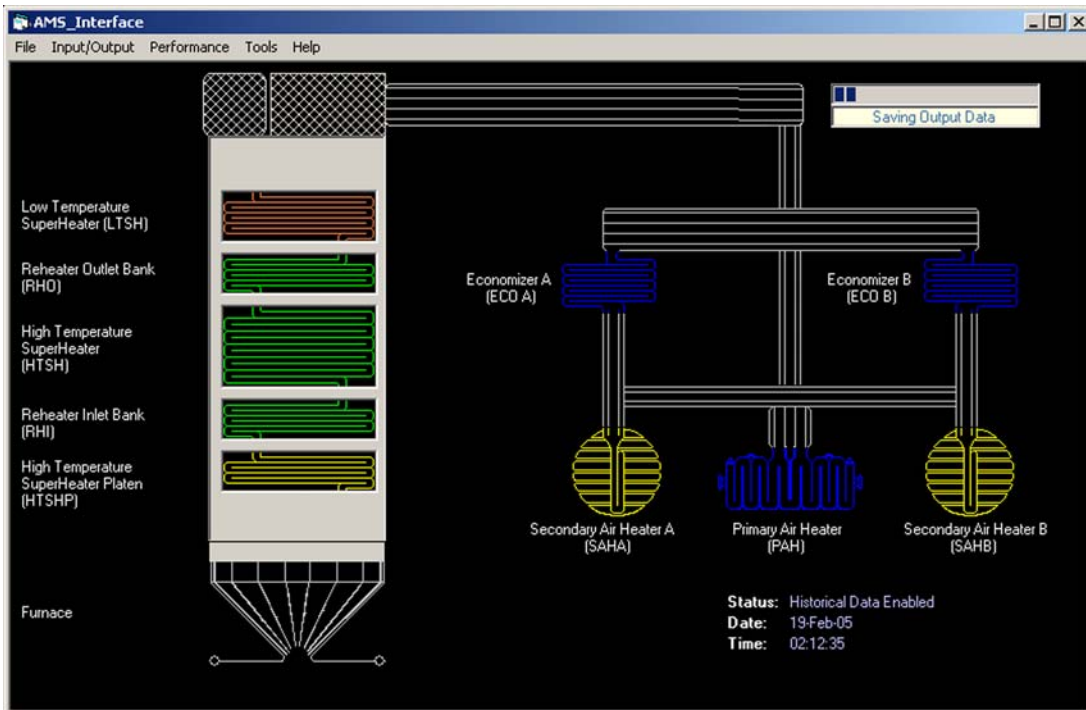
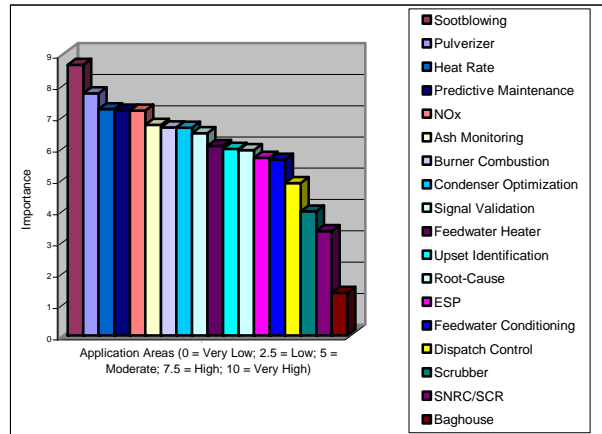
- Advanced SO₂ control (lime savings of 30%)
- Classification of feeder hang-up condition
- NO_x/CO emissions optimization using multivariable controller



Burnaby Incinerator

Canadian Electricity Association
Artificial Intelligence Study
(2000)

- Evaluated AI applications in fossil power plants in terms of projected cost and environmental benefits
- Identified areas for collaborative effort
- Conducted a survey of AI systems in fossil plants
- Recommended short-term and long-term initiatives



Ash Monitoring Expert System – optimized sootblowing of coal-fired utility boilers

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