

TOXECON Retrofit for Mercury and Multi-Pollutant Control Technology

Project Presentation



Clean Coal Power Initiative - Round 1 -

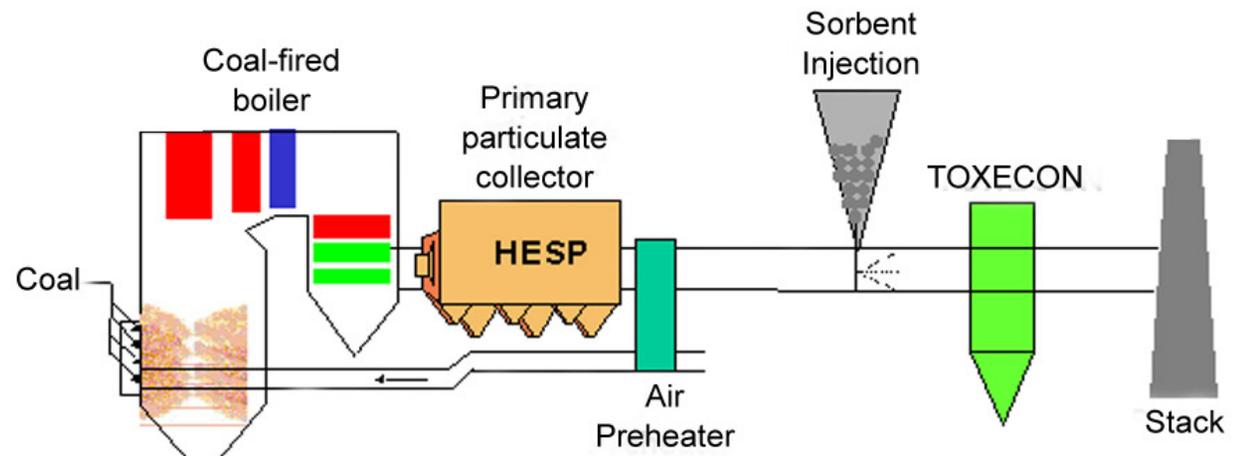
Full-Scale Demonstration of
TOXECON Mercury and Multi-
Pollutant Control Technology

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Wisconsin Electric Power Company

- An integrated emission control approach installed on combined flue gas units 7, 8, and 9
- Maximizes use of coal combustion by-products
- Provides timely compliance with mercury regulations
- Total project cost: \$53 million
(DOE share: \$24.9 million)



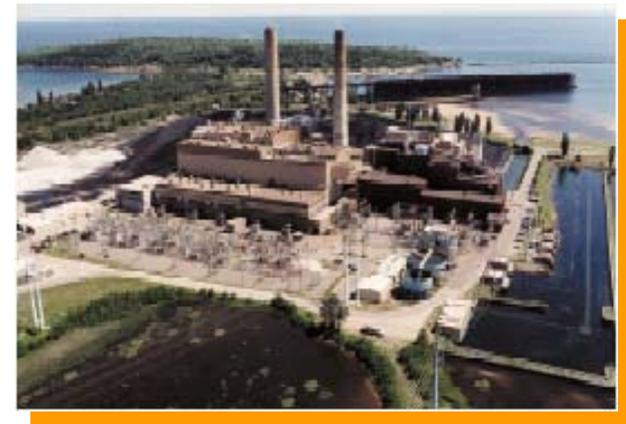
Background

- **Wisconsin Electric Power Company (We Energies) will demonstrate TOXECON process on combined flue gas stream of Units 7, 8, and 9 (270 MWe total) burning low-sulfur Powder River Basin (PRB) subbituminous coal. TOXECON is an EPRI patented technology**
- **Project Location: Presque Isle Power Plant, Marquette, MI**



Background

- **Team members include:**
 - Wisconsin Electric Power Company (Milwaukee, WI)
 - ADA Environmental Solutions (Littleton, CO)
 - Management support; design and specifications for Hg control; and monitoring
 - Cummins and Barnard (Ann Arbor, MI)
 - Architect and engineering services and construction management
 - Wheelabrator Air Pollution Control, Inc., (Pittsburgh, PA)
 - Baghouse design and installation support
 - EPRI, TOXECON (Palo Alto, CA)
 - Developer and technical advisor



270 MWe Presque Isle Power Plant



Unique Technology Aspects

- TOXECON is an integrated process that controls mercury (Hg), NO_x, SO₂ and particulate matter
- TOXECON injects sorbents, including activated carbon for Hg control (90% reduction) and others for NO_x and SO₂ control, into a pulse jet-baghouse installed downstream of the existing particulate control device
- The unique configuration allows separate treatment/disposal of ash collected in primary control device maximizing use of coal combustion by-products
- Multi-pollutant control strategy will help achieve more stringent pollution controls by reducing NO_x, and SO₂ beyond current requirements



Project Schedule

- **Start**
 - 2004
- **NEPA Process**
 - EA complete 2003
- **Design**
 - Complete in 2005
- **Construction**
 - Complete in 2005
- **Testing**
 - 2006 to 2008
- **Completion**
 - 2009



Conclusions

- **Primary project benefit is potential to develop low-cost option for cleaning of plant air emissions, especially Hg**
- **This project, when completed in 2009, is expected to capture 80 pounds per year of Hg, reducing emissions by 90% at the Presque Isle Power Plant**
- **Successful implementation of TOXECON will help power generating industry to achieve timely compliance with Hg regulations**
- **Projected removal rates for other constituents include**
 - 70% SO₂ removal
 - 30% NO_x removal trim control
 - PM_{2.5} and PM₁₀ removal improvements



Conclusions (continued)

- Technology may prove to be primary Hg control choice for plants burning western coals with cold side ESPs (68 GW), bituminous coals with cold side ESP's (81 GW) and only choice for units burning any coal-type with hot-side ESPs (18 GW)
- Using TOXECON to control NO_x, SO₂ and particulate matter further enhances its attractiveness for improved environmental control

