Water Technology Gaps in the Electric Power Industry

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Drivers

- Increased Regulatory Pressure
  - Effluent Limit Guidelines
  - Water Quality Standards
  - New 316b Rule
- Fixed Resource with Increasing Competing Demands
- Increased Water and Solid Waste Streams Due to Air Regulations

“Water is the new Air”

Water Facts

- Approximately 10 GPM per MW is consumed in a traditional coal plant. With a closed loop cooling cycle, a 500 MW unit would consume 5000 GPM with 80-90% occurring in the cooling tower.
- Water is also used for desulfurization of the flue gas and to produce steam.
- Water is a byproduct of combustion and approximately 1 GPM per MW is created and lost out the stack, which creates opportunities for recovery.
- Soluble constituents in the flue gas such as Halogens (i.e. Chlorine), Mercury, and Selenium are dissolved in the FGD and limit the amount of reuse without treatment.

Research Opportunities

- Water Research Center
  - Will develop and test water treatment and conservation technologies in an actual plant setting.
  - Research Areas:
    - Moisture recovery
    - Cooling tower and advanced cooling systems
    - Zero liquid discharge options
    - Solid waste landfill water management
    - Modeling and best practices
    - Wastewater treatment
    - Carbon technology effects
  - Operational Start: July 2012