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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”

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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 1GPM 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.

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Research Opportunities

Innovation Priorities: Advancing cooling technologies, and applying novel water treatment and waste heat concepts to improve efficiency and reduce water use

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- 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

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Courtesy Heartland Technology Partners

