

EPRI

ELECTRIC POWER
RESEARCH INSTITUTE

Corrosion Mechanisms In Advanced Cooling Water Systems

*Responding to Wider Interest in
Water Management Tools and
Technologies*

Richard Breckenridge
Sr. Project Manager

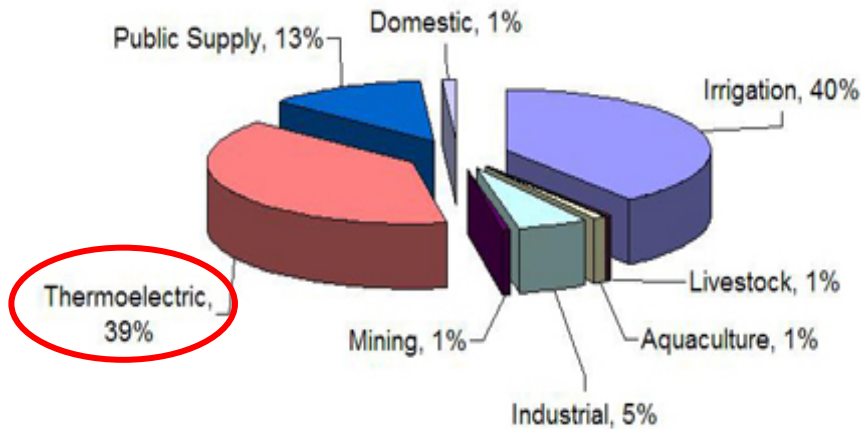
**3rd Annual Air-Cooled Condenser User
Group Meeting**

September 19 - 20, 2011

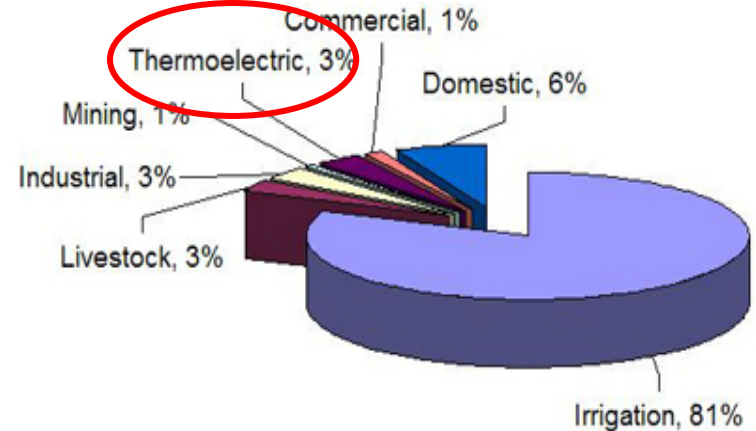
San Francisco, CA

USGS Data Show Significance of Electricity Generators in Freshwater Utilization

U.S. Freshwater Withdrawal (2000)

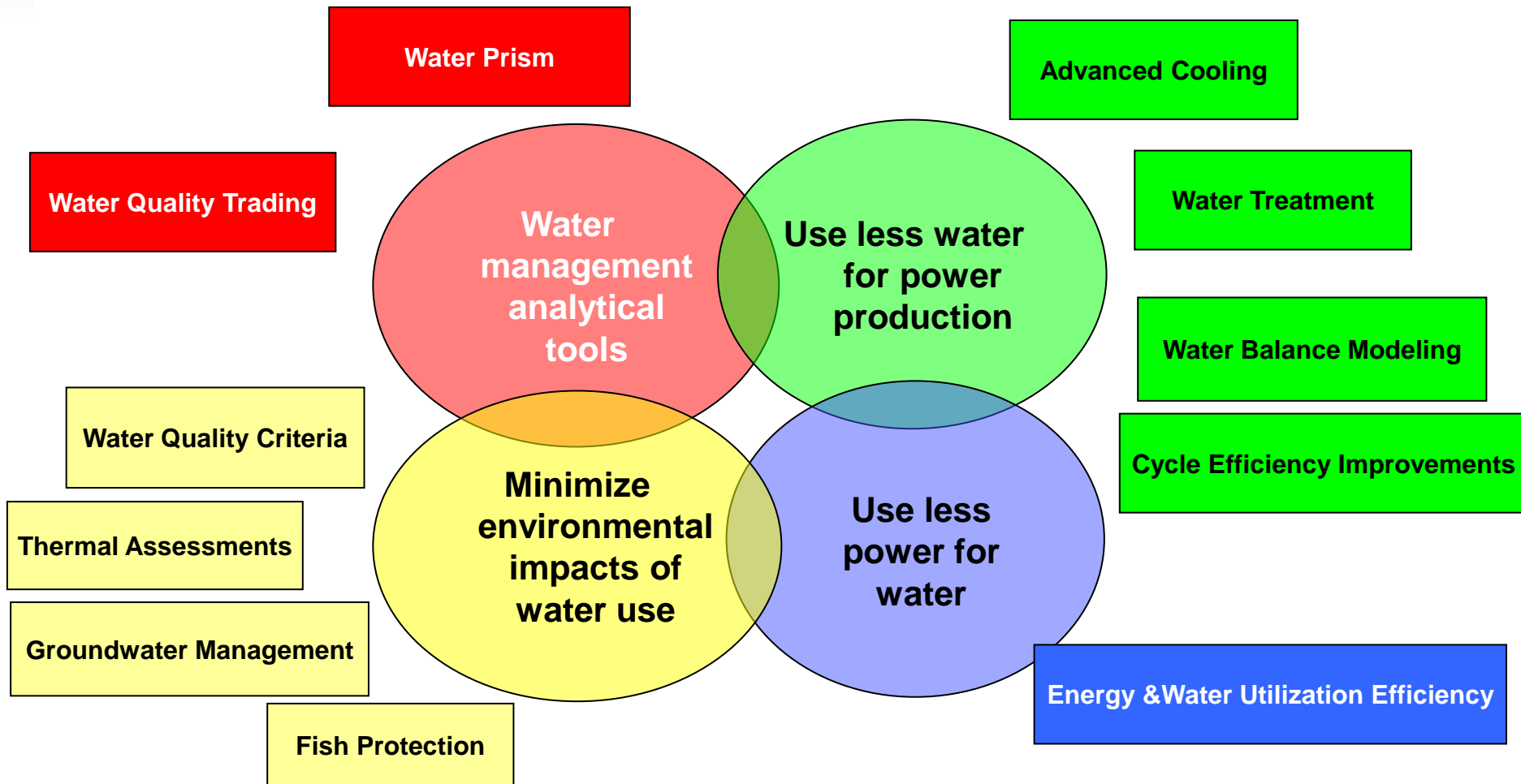


U.S. Freshwater Consumption (1995)



Withdrawal (Availability) Is Major Risk for Electricity Generators Even If Consumption Is Modest Overall

Water Resource Management Strategic Issue: Core Industry Needs & Responsive R&D Thrusts



Corrosion Mechanisms in Air Cooled Condensers

Objectives and Scope

- Research the corrosion mechanisms in the ACC
 - Develop control techniques to manage
 - Mitigate corrosion
- Reduce impact of deposition
- Quantify benefits of advanced technologies

Value

- Improve performance and reduce damage and reduce O&M cost
- Increase component life and reliability



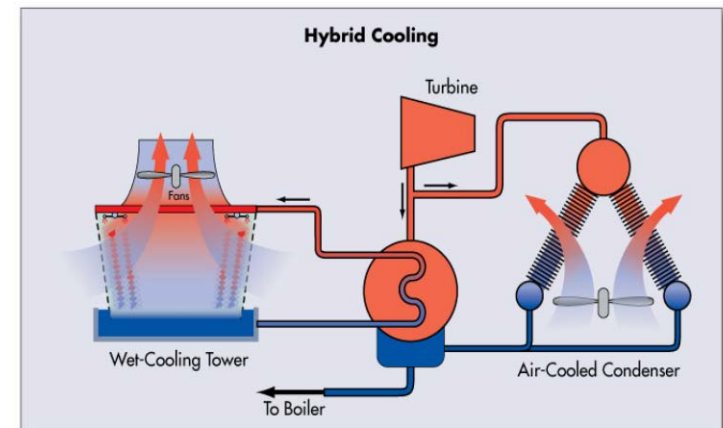
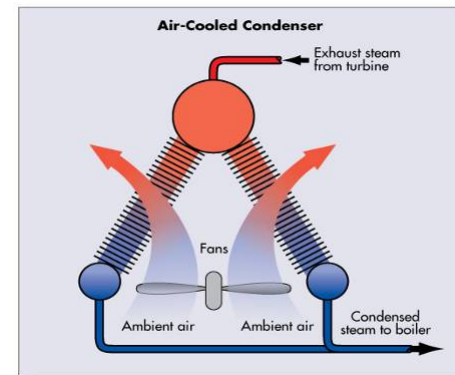
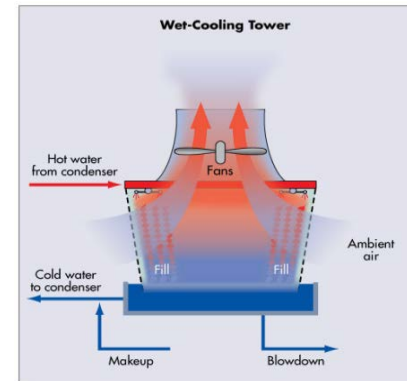
Details and Contact

- Total estimated cost \$450,000
 - Host site \$150,000 – non host site \$75,000
 - TC Funds up to 50% may be used
- Richard Breckenridge**
• rbreckenridge@epri.com 704-595-2792
SPN Number: 1022803

Improved Understanding and Control of Corrosion in ACC's

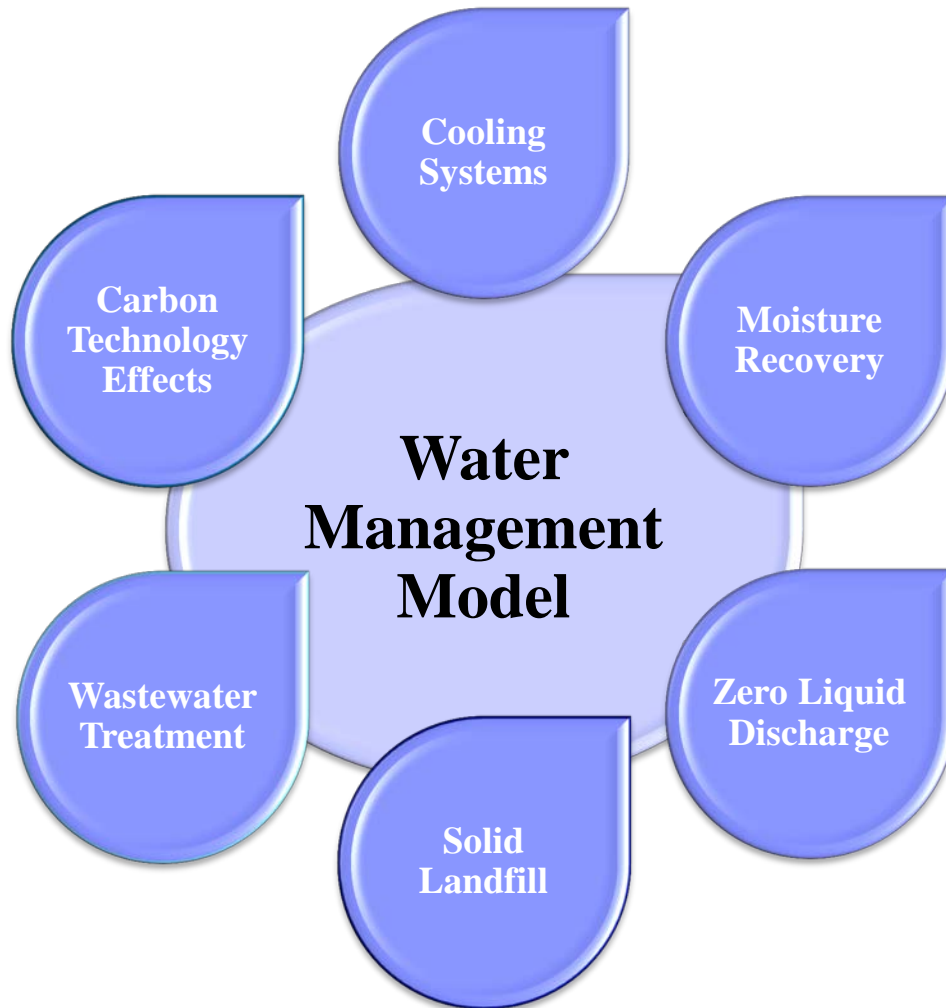
Advanced Cooling Technologies (ACT) Project

- Optimized cooling systems
 - Dry/Wet cooling tower R&D
- Advanced cooling alternatives
 - Hybrid cooling systems
- Other approaches; e.g.,
 - Bottoming cycles
 - Moisture extraction from flue gas
- Understanding water use in CO₂ capture processes
- Co-sponsor 2011 Conference (with ASME)



Multiple Parallel Thrusts

Water Research Center Focus Areas



Center Location: Georgia Power's Plant Bowen

Together...Shaping the Future of Electricity