

Welcome to the Webinar!

- Webinar will be one hour in length with time for questions
- Audio is through your telephone or computer microphone & speakers
- The webinar phone line will be muted during the presentation because we are recording
- Questions can be typed in throughout the webinar and will be answered at the end by the speakers

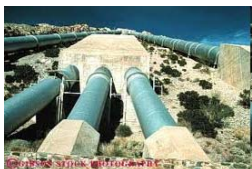
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Webinar Speakers

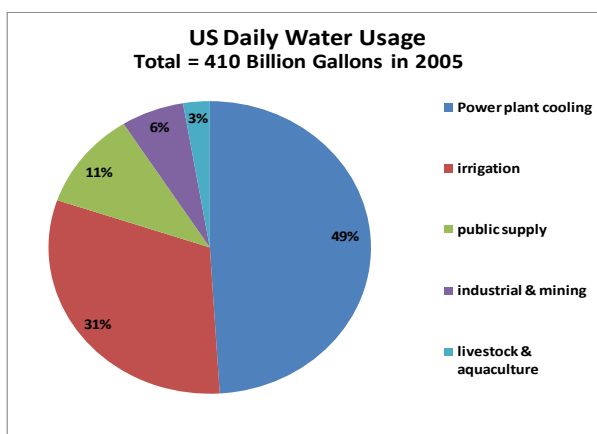
- Mary Ann Dickinson
Alliance for Water Efficiency
- Lorraine White
GEI Consultants, Inc.

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Water and Energy are Linked



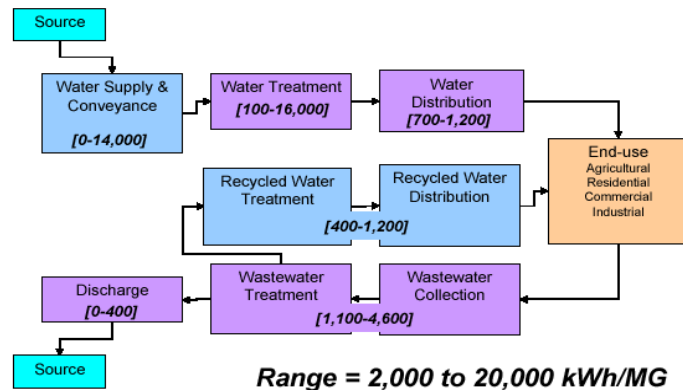
Water is Needed for Energy



Source: US Geological Survey 2005

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Energy is Needed for Water



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Our View

- AWE recognizes the need for collaboration
- Efforts for energy efficient use and water efficient use have historically been separate but parallel efforts
- We are committed to improving joint management of these issues
- Partner in this project is ACEEE (American Council for an Energy-Efficient Economy)

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The First Project



- Joint effort of AWE and ACEEE
- Supported by funding from the Turner Foundation
- Purpose: to identify the major research, program, and policy needs of the water-energy nexus for decision-makers and funders
- Establish the beginning of a national long term energy-water community

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December 9, 2010 Workshop

- 54 individuals from 41 water and energy organizations
- 8 Main Themes identified with recommendations in each
- 5 Priority areas for immediate action
- Blueprint Report published and widely distributed
- Posted at www.a4we.org



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Water-Energy Research Recommendation

Develop a comprehensive database on water embedded in energy and energy embedded in water.

- Recommend consistent and comparable methodology for measuring embedded water and energy
- Develop consistent water & energy factors to drive programs, policies, and technology development & implementation
- Add regional and state-by-state data
- Develop credible national estimates based on the compiled local and regional data
- Develop baseline of total energy use by water and wastewater utilities and water use by electric utilities

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Goals for Research Work Group

- Inventory work already undertaken on embedded water in energy and embedded energy in water
- Inventory and assess current work related to green infrastructure and water-energy efficiency
- Inventory water and energy efficiency studies, research priorities and assessments on water-related energy consumption
- Recommend steps for national and regional research

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Research Work Group Activity

- 42 representatives from 33 organizations, including public utilities, research organizations, universities, government agencies, and advocacy organizations
- 13 Presentations made on water-energy research
- Research collected and summarized in online database
- White Paper published in June, 2013 on research issues and recommendations for future work
- Both documents posted on AWE web site:
<http://www.allianceforwaterefficiency.org/Water-Energy-Research-Group.aspx>

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Research Database

- Catalogued all publicly-available non-confidential research addressing the water sector's impacts on energy resources and the energy sector's impact on water resources
- Over 200 research documents from Internet searches and recommendations from Work Group members
- Includes Primary research only
- 44-page database that provides Paper Title, Author, Organization, date of publication, link, keywords and key findings as well as types and methods of research, types of technologies, and types of findings and recommendations

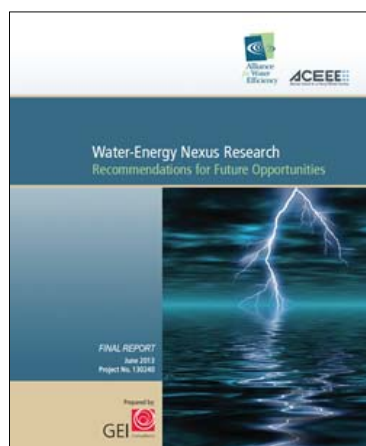
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What Did We Find?

- There are more studies related to the energy used in the water system (E-W) than the water used in the energy sector (W-E)
- Most of the available research for either E-W or W-E has been published within the past 10 years
- Public funding of research is needed to spur additional investigations of alternative sources of energy and water

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Publication of White Paper



- White Paper accompanies research database
- Published in June, 2013
- Posted on AWE's web site
- Discusses research findings in detail
- Provides recommendations for further research

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Recommendations

1. Develop comprehensive studies and associated guidelines to conduct a detailed audit of embedded energy demands for an entire local, regional or national water/wastewater system for purposes to determining system optimization



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Recommendations

2. Assess technical and economic energy efficiency and demand response potential in water and wastewater systems and develop industry accepted guidelines for such studies on individual systems
3. Identify and eliminate regulatory barriers to co-implementation of efficiency programs in the water and energy sectors



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Recommendations

- 4. Develop water AND energy industry-accepted Evaluation, Measurement and Verification (EM&V) protocols for use in efficiency programs
- 5. Develop industry standards, protocols and business models for advanced biogas development programs and net zero facilities at wastewater treatment plants



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Recommendations

- 6. Conduct landscape irrigation equipment efficiency potential studies to support establishment of efficiency standards



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Recommendations

7. Identify rate structures, price constructs, and financing mechanisms that eliminate the financial disincentives of efficiency programs and alternative supplies use in the water sector
8. Evaluate technologies and practices that can reduce the energy demand of desalination and lower its costs
9. Continue investigations into the water energy tradeoffs of differing resource development and management choices that can better inform multi-sectorial integrated resource planning

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Recommendations

10. Develop technologies and protocols that can increase water use efficiency and re-use, support water supply switching, and reduce water quality impacts of power generation facilities and other energy fuels development



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Recommendations

11. Assess potential impacts to water supplies and quality of energy resource development, such as fracturing for natural gas and biofuels development; identify methods, practices and technologies that reduce or eliminate these impacts
12. Develop supply chain and product embedded water-energy evaluations that inform consumers of the energy and water intensity of the products or services they buy

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Recommendations

13. Identify effective methods, forums, practices and other mechanisms for communication and engagement by the research and policy communities to ensure commercialization and adoption of research results and technological developments



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What's Next?

- Recommendations drawn from the observed findings and the identified gaps in research
- Vetted with Water and Energy Research Work Group
- Next Steps: improve awareness, funding, and better integrated management of water and energy resources on a local, regional, and national basis



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“Anyone who can solve the problems of water will be worthy of two Nobel Prizes – one for peace and one for science.”

John F. Kennedy



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In Closing.....

- Got any questions? Type them in!
- A PDF of the presentation as well as the recorded webinar will be posted online
- Research White Paper and Database Summary are posted online at www.a4we.org
- The next webinar will be in October and will address examples of water-energy nexus best practices and programs

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**Thank You for
Attending the
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To promote the efficient and sustainable use of water

www.a4we.org

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