

WEC CFFS COMMITTEE ROUNDTABLE

WATER/ENERGY – SUSTAINABLE TOGETHER?

February 5, 2009 Dubai, United Arab Emirates

Water for Energy Production: Policy Options

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Where To Begin?

- Improve End-Use Water Efficiency
- Improve End-Use Energy Efficiency

Improve Generating Plant Efficiency

- Pulverized Coal
- Gas Turbines
- IGCC

Deploy Renewables That Do Not Use Water

- Wind
- Solar Photovoltaics
- Geothermal hot water (binary) systems that are air-cooled
- Run of river hydro
- Ocean energy systems

Biofuel Development

- Utilize residues in place of feed stocks requiring irrigation

Increase Water Storage Capabilities

Improve management of water utilization systems, i.e., “conjunctive use” – “groundwater and surface water are managed jointly.”

Water Desalinization - Utilize Brackish Water:

- Groundwater
- Sea water
- Water produced along with convention oil & gas
- Utilize Degraded Water from Oil & Gas Production

Co-Site Energy & Water Treatment Facilities

- Waste heat from generating plants can be used in desalinization
- Biogas from waste water treatment for power generation
- Waste heat from power to regasify LNG – regasification to provide cooling for power plant

Summary of Major National Needs and Issues Identified in Regional Workshops

Better resources planning and management

- Integrated regional energy and water resource planning and decision support tools
- Infrastructure and regulatory and policy changes for improved energy/water use efficiency
- Improved water supply and demand characterization, monitoring, and modeling

Summary of Major National Needs and Issues Identified in Regional Workshops (Cont'd)

Improved water and energy use efficiency

- Improved water efficiency in thermoelectric power generation
- Improved biofuels/biomass water use efficiency
- Reduced water intensity for emerging energy resources

Summary of Major National Needs and Issues Identified in Regional Workshops (Cont'd)

Development of alternative water resources and supplies

- Oil and gas produced water treatment for use
- Energy efficiency in the treatment and use of non-traditional water

Consequences of Growing Electric Power and Water Demands

- Increasing pressure on power sector to use less water
- Increasing pressure on water sector to use less electricity
- More intensive management of water resources
- Greater integration between water and energy planning

Consequences of Growing Electric Power and Water Demands (Cont'd)

- More watershed/regional planning
- Business as usual will not support sustainability
- Need for new science and technology to support new planning and management requirements

Final Thoughts

- Consideration of the impact that water policies and regulations have on energy supplies and demands, and the impact energy policies and regulations have on water demands and availability.
- Collaboration on energy and water resource planning is needed among federal, regional, and state agencies as well as with industry and other stakeholders.

Final Thoughts

- System-level evaluations can be used to assess the impact of current or proposed natural resource policies and regulations and improve future energy development and water availability.

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