

Day Two, Group B, Needs

Priority Needs

- Ensure adequate supply of water for long-term energy needs, and ensure supply of energy for water
- Decrease demand per unit output for water and energy
- Lower costs
- Balance competing uses between sectors

- Characterize water resource quality, location, productivity wrt needs of energy and industry
- Identify gaps in data/knowledge
- Increase utilization rate of off-spec (impaired) water: Costs (per unit), alternatives, technologies, policies
- Need to create market mechanisms/framework for water trading to encourage energy industry to participate in environmental improvement (e.g., clean up mine drainage in lieu of cooling towers)
- Need to educate; disseminate information to utilities (producers and distributors), water owners, policy makers
- Need to develop technologies to improve water utilization (same output with less water)—efficiency/conservation
- Need new technologies:
 - Improve efficiency/costs of desal technologies, specifically coldwater desal
 - Use impaired waters (saline, AMD)
 - Low-water cooling and generation
- Need international survey of technologies and planning systems
- Engage river basin commissions in planning prices
- Investigate planning tools already in use. Identify gaps in integrated energy/water planning tools and develop appropriate models to integrate energy/water.

Technologies

- Need to improve efficiency of cold water desal technologies.
- Transmission—need to improve conductivity, streamline siting
- Need to survey existing technologies and planning systems—international and interagency

Needs

- Ensure adequate supply of water for long-term projected energy needs and vice versa
- Decrease demand (per unit) for water and energy
- Lower cost
- Balance competing uses

Data

- Need to forecast long-term water quality/characteristics changes and implications on water supply for energy

Data/knowledge/tools

- Need to know where impaired water sources are (saline water) and what are characteristics of that water
- Need to understand sustainability of groundwater use
- Clearinghouse—central location to look at water-based GIS/database for water managers to use. Consistent data. Define terms. Need to develop this—quantity, quality.
- Need provisions for long-term continual data collection to be used by planners—supply, consumption, discharge

Integrated energy/water planning

- Survey planning systems
- Need to develop long-term strategies for drought/flooding preparedness for energy sector

Valuation of water

- Need metrics that can be used to know value of water
- Need to develop a process/tools to understand/support water allocation decisions. Social/mgmt science tools

Energy Production/Efficiency/Conservation

- Need new technologies that produce energy while not impacting water supply—improve it
- Include water conservation in “future-gen” project
- Need technologies that can use impaired water for power production, or new materials that can use saline water
- Need to look at using mine water