

Group C Needs Identification

Water Quantity and Quality Problem

Better assessment of resources

- Comprehensive system including data and maps covering energy systems, water resources, ownership, controls or river habitats
- Funding for data gathering/collection and management in accessible form by region or state

Better documentation on water ownership and how much exists

Reduce water intensity of energy producing industries

- Develop technologies for more efficient water use in energy producing industries including renewables
- Identify incentive-based best practices
- Need incentive for energy producing industries to decrease their consumption of water/improve efficiency
- Develop materials and equipment that allow companies to use lower quality water for industrial purposes

Group C Needs Identification Cont'd

Competing Uses of Water and Water Pricing

Identify uses of water vs. value of water

Mechanisms to facilitate redistribution of water

Need to understand the impact of water cost on energy price

Incentives for water agencies to reduce energy consumption in production of water

Must include the agricultural community in solving the problem

Lack of Coordination and Planning

Need coordination and planning of water and energy production & use

- Energy facility siting (5-10 year advance)
- Integrated assessment of interaction between water and energy
- Best practices for legal requirements for coordination and planning
- Conveyance systems for energy and water
- Coordinate any best practices for energy with new best practices for water
- Better coordination among major players in water and energy research (AWWA, EPRI, etc.)

Group C Needs Identification Cont'd

Growing Reliance on Groundwater

Public awareness of importance of maintaining water recharge

Identify and map recharge areas

Land use planning to consider areas of recharge

Identify potential water resources not in use

More technologies for recharge and recovery

Identify potential conservation in various sectors

Need to understand the potential to reduce water consumption in the various sectors

Education of the public of water cycle and groundwater's role in that cycle

Group C Needs Identification, Cont'd

Water Pricing Independent of Intrinsic Value

Need for advancing water conservation technologies for all stakeholders

Inadequate Infrastructure

Regional inventory (current studies exist)

Need a regional or national approach in planning the fix (include energy and water interactions)

Prioritize infrastructure needs based on areas specific to national interest

Prioritize the opportunities to increase water efficiencies (throughout the entire system)

Climate Change Impact on Water Availability and Timing

Understand and project potential impacts of climate change on water supplies

Adaptive management, planning and mitigation

Identify water infrastructure needed under climate change scenarios

Group C Needs Identification cont'd

Source and Receiving Water Protection from Point and Non-point Source Pollution

Need regulatory process to be streamlined so that regulations are implemented and enforced, and in a timely manner

Need an informed public regarding energy-water link and water overall

Need science to establish water quality standards

Group C Solutions, Abbreviated

- 1. Comprehensive info system**
- 2. Strategies for optimizing use of resources**
- 3. Planning and coordination**

Group C Solutions

Comprehensive Information

DOE should develop and maintain a comprehensive information system that includes energy and water data, including but not limited to:

- Existing energy and water database

- Validation of data

- Water ownership

- Confidence levels of data

- Groundwater availability and stream flow

- Super-Fund sites

- Brown Fields

- Impaired Water

- Landfill locations

- Point Source permits

- Power grids

- Source of fuel

- Inventory of produced waters

- etc.

Group C Solutions

DOE should fund case studies/pilot projects for programs that demonstrate multiple benefits

Sector based programs including food, hospital consumer industrial with demonstrated water and energy savings

Cooling tower retrofits

Co-location of power generation/water re-use or treatment

Innovative legal/policy issues

New generation technology involving water efficiency as a driver

Demonstration of new technologies that enhance energy and water efficiency

etc.

Group C Solutions

Strategies for Optimizing Use of Resources

Promote findings of pilot projects

Deployment of technologies coming from pilot projects

Public education and outreach

Integrated regional models

Value priced water including appropriate rate structures

Conservation promoting price structure

Review of water subsidies

Use of produced waters where appropriate

Modernize and implement standards and regulations (i.e. leak detection, water quality, facility siting regulations)

Promote conjunctive use for surface and groundwater

Group C Solutions

Planning and Coordination

Develop a process for working together on regional projects including

- Research community/entities

- Local governments, i.e. Denver

- State and Federal Agencies

- Private water companies

- Energy producer

- Investor owned co-ops and municipal/tribal electric utilities

Develop an integrated assessment that includes prioritization of needs and framework from the assessment

Use integrated assessments in guiding facility siting

Incorporate future supply and demand in water and energy resources under different risk scenarios (drought, flood, earthquake, climate change, population growth)