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Evolution of Political Support for the Energy-Water Nexus

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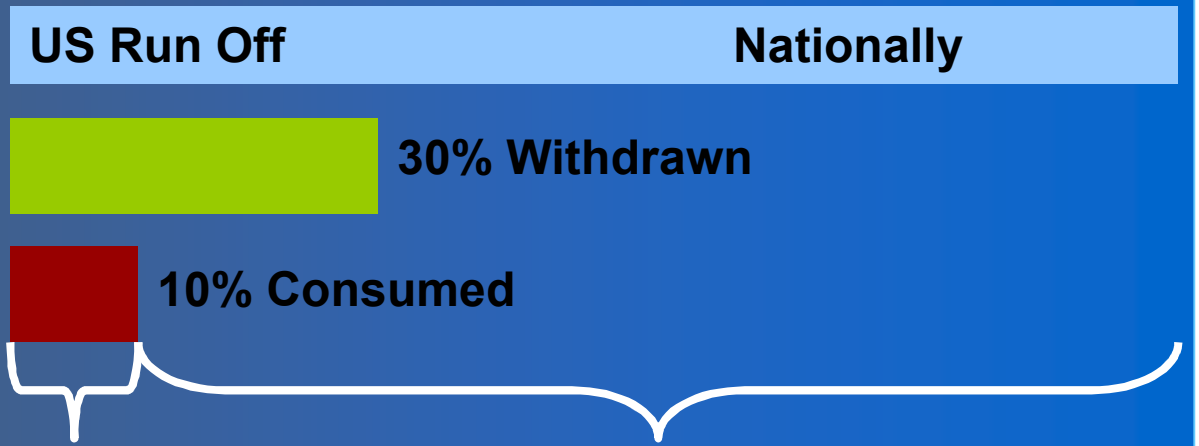
The Energy-Water Nexus

- Energy and Water are intimately interconnected
- The dependency and joint vulnerability is just becoming obvious to the public – therefore, we have little national water policy or political base
- A general policy development framework can help illustrate needs as we look to the past and to the future.

Policy Analysis

- Identification of a problem or deficiency
- Understanding policy goals and objectives
- Assessing the breadth and purpose of existing programs and their success
- Identifying deficiencies
- Proposing alternative actions to meet the deficiencies

Problem: We use all our water supplies for ecosystem services



10% Consumed for:
Agriculture, Energy
Municipal & Industrial
Uses

90% Provides:
Dilution, Transportation,
Recharges Aquifers,
Nutrient Recycling,
Decomposes Wastes,
Regulates Climate,
Maintains Biodiversity

A Strategy for Federal Science and Technology to Support Water Availability and Quality in the United States, Subcommittee on Water Availability and Quality, September 2007

… and demand will increase likely exceeding our supplies.

- **Agriculture** (40% of total withdrawal)
  - Essentially stable water demand
  - Ethanol production will increase chemical loading (NRC, 2007)
- **Energy** (40% of total)
  - Thermoelectric use up 41% by 2030 (EIA, 2007)
- **Municipal / Industrial** (20% of total)
  - 25% Increase in population 390 million / 40 yrs (Census 2007)

USGS Circular 1268, March 2004

Policy Goals: There is no integrated national water policy to expand water supplies or meet the energy-water dependence.

- No national policy has been since the demise of the National Water Counsel in the early 1980's
- The Western Water Counsel (mid-1990's) attempted to lay out integrated policy but little was accepted.
- 20+ Agencies address water issues today
- Each agency has separate missions and policies
- Limited integration occurs through OSTP, monitoring counsels, etc.
- Expanding water supplies to meet future demand is not an overt national goal.

Authorized Federal Water Development Programs

- Department of Interior
- Department of Energy
- Environmental Protection Agency
- U.S. Department of Agriculture
- Department of Defense
- National Science Foundation
- National Institute of Health
- Etc.

Existing Federal Programs

- Department of Interior
  - Act of March 3, 1879 (45 Stat. 394, chapter 182; 43 U.S.C 31) or the USGS Organic Act
  - The Act of June 17, 1902 (43 U.S.C. 391 et seq.) commonly known as the “Reclamation Act of 1902”
  - United States Information and Education Exchange Act of 1948 (22 U.S.C. 1431 et seq.)
  - Foreign Assistance Act for 1961 parts I and II (22 U.S.C. 2151 et seq. and 2351 et seq.)
  - Mutual Education and Cultural Exchange Act of 1961 (22 U.S.C. 2451 et seq.)
  - Colorado River Basin Salinity Control Act (Public Law 93-320) Sec 108
  - Reclamation States Emergency Drought Relief Act of 1991 (43 U.S.C. 2201 et seq.)
  - Reclamation Wastewater and Groundwater Study and Facilities Act of 1992 (43 U.S.C. 390h et seq.; Public Law 102-575)
  - Water Desalination Act of 1996 (42 U.S.C 10301; Public Law 104-298)

Existing Federal Programs

- Department of Energy
  - Atomic Energy Act of 1954 (42 USC 2011 et seq.)
  - Energy Reorganization Act of 1974 (42 USC 5801 et seq.)
  - Federal Nonnuclear Research and Development Act of 1974 (42 USC 5091 et seq.)
  - Department of Energy Organization Act of 1977 (42 USC 7101 et seq.)
  - Energy Policy Act of 1992 (42 USC 13541).
  - Energy Policy Act of 2005 (PL 109-58)

Deficiencies

- "funding for water supply augmentation and conservation …have severely declined since the mid 1970's. … a new commitment will have to be made to water resources research if the nation is to be successful in addressing its water and water management problems over the next 10–15 years." (National Research Council, 2004)

Technology Focus

- National Research Council 2004 – 43 different research needs including technology.
- DOI / SNL Desalination Roadmap 2003
- DOE Report to Congress on Energy and Water Interdependency 2006
- DOE Energy-Water Technology Roadmap
- EPRI 2007 Research Agenda for Thermoelectric Power Generation
- Etc.

OSTP and other organizations have recommended the following actions to meet the deficit.

- Direct Support (subsidize) Infrastructure
- Collect More Information to Know The Resource
- Integrate Planning and Operations
- Fund Research on

Treatment and Efficiency

to Expand the Supply.

How Do We Proceed – some options?

- We need
  - Coordination and partnerships – DOI, EPA, DOE and others
  - Formal Statement of National Policy to expand water supplies
  - Assessment of all existing authorities – first draft of this was undertaken by the Senate Energy and Natural Resources Committee
  - Investment for conservation, characterization, planning and water supply expansion through technology