



Energy & Water Nexus: Where Do We Go From Here?

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What is Ahead for the Energy/Water Nexus?

- Macro trends and risks for the energy/water nexus
 - EPA & State regulations – as a driver for retirements and for regulation of water diversions and discharges
 - Climate change...disasters and droughts happen, risk variability increasing
 - Reliability as a cap or obstacle to solutions
 - Looking for opportunities and synergies for improving energy/water relationship
- Regional and sector approaches to forecasting and managing the energy/water nexus
 - Holistic management by generation operators
 - Need for regulatory flexibility
 - Role of permitting and forecasting in managing energy/water issues
- Hydropower and its unique role in the energy/water nexus
 - Historic and future role in energy supply mix
 - Significant underused capability
 - Technology, R&D and new development underway
- Regulatory regimes & environmental concerns
 - Water shortage/availability is a significant economic and political issue
 - The move to retirement, repowering and new technology has started
 - Need to balance certainty in standards; flexibility in compliance; and commitment to resource protection

Issues & Themes From Today's Discussions

- Reliability affects ability to adapt through generation and technology mix
- New paradigm of supply, quality and characteristics of water driven by climate change
- Temperature impacts
- Trade-Offs:
 - Increase in consumptive use versus withdrawal impacts and benefits to water cycle
 - Reliability impacts versus environmental benefits
- Trends in water use in the energy sector
 - Drive to closed cooling systems
 - Regional uses (fracking)
 - Electric use by water users and water systems
 - New diversions and generation technology
- Flexibility of Regulatory Regimes
 - Impacts on Eastern riparian and Western appropriate rights regimes
 - Role of Compacts/States & EPA in water usage in generation technologies
- The Politics of the Energy/Water Nexus
 - Climate change, generation retirements and water availability are “hot button” political issues
 - Level of information on energy/water nexus, technology opportunities and strategies

Questions to Consider?

- Is the energy/water nexus an international, national, regional or watershed issue?
- Where will the solutions come from?
 - Engineering/technology solutions?
 - Conservation?
 - Regulatory overlay?
 - Markets role?

Who and What Will Drive the Solutions?

- Technology providers?
- Generation sector?
- Public power and water systems?
- States?
 - Regulation
 - Siting
- Federal Agencies?
 - EPA
 - FERC
 - DOE
 - USGS/Interior
- Litigation?

What signals are needed to drive the solutions?

- ◉ Recognition of risk
- ◉ Regulatory requirements
- ◉ Siting reviews (by regulators or market operators)
- ◉ Costs/market signals
- ◉ Policies, funding & public opinion

Steps You Can Take?

- Report back to colleagues
- Find opportunities to engage
- Keep informed