

NEW YORK REGIONAL ENERGY-WATER WORKSHOP

BACKGROUND AND OBJECTIVES

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Introduction

Economic growth and a growing population are dependent on a sustainable supply of both energy and water. These two critical resources are inextricably linked—the production of energy requires large volumes of water while the treatment and distribution of water is equally dependent upon readily available, low-cost energy. Cooling water for thermo-electric power plants now accounts nationally for 38% of all water withdrawals in the U.S. Competition for water resources among power generators, residential, commercial, industrial, and agricultural users is increasing. Water shortages have already occurred during droughts in the eastern states and are a chronic problem in some western states where the population growth rate is increasing.

Historically, energy and water issues have been examined separately. This has led, for example, to planning for future electricity requirements with the assumption that there is ample water for energy production. Water resource planning tends to concentrate on domestic potable water supply and wastewater treatment, assuming that electricity will be available to the increasing population when needed. Clearly joint planning is needed and where water is constraining, solutions must be found to prevent adverse economic consequences.

The Energy-Water Nexus Initiative

In order to address these issues in a meaningful way, it will be important to solidify stakeholder (agriculture, power and water utilities, state and local governments, energy-intensive industries, environmental agencies and NGO's, etc.) understanding and acceptance of the importance and inter-connectedness of water and energy issues. The Energy-Water Nexus Initiative was established by the Department of Energy (DOE) national laboratories with participation by the Electric Power Research Institute (EPRI) to address the energy security challenge of providing both abundant clean fresh water and adequate energy growth to sustain U.S. economic health and security. The goal of the Initiative is to develop and carry out a multi-year program encompassing the necessary research, technology development and outreach required to meet this challenge over the next several decades.

In support of the Initiative, regional workshops have been held in New Mexico and Pennsylvania to explore regional and national energy and water issues. The goal of the New York Workshop is to examine our most pressing regional energy and water issues,

explore the links between the supply and demand for energy and water, and identify how stakeholder planning and research can guarantee that future New Yorkers will have access to plentiful, clean and safe water and energy. Each Workshop brings its own unique set of issues and challenges, defined by regional characteristics of population, climate, water availability, and energy supply and demand. Taking these characteristics under consideration, each Workshop seeks to define a path toward regional solutions to the issues.

As an example, The New Mexico Regional Water for Energy Workshop provided a forum to bring together representatives from public and private entities in New Mexico to discuss how to address the water and energy sustainability issues facing the state. Participants included representatives from electric utilities, environmental groups and state and national regulatory agencies. Over the two-day workshop, a variety of energy and water issues were discussed and it was recognized that New Mexico is behind where it needs to be in understanding the state of its water resources and future demands. Needs for scientific research and public education were identified and a goal to achieve zero net fresh water withdrawals for power generation by 2010 was adopted in principle. Subsequent meetings have built on this foundation, leading to the definition of a multi-year research and outreach program.

New York Issues

Energy-water issues are by necessity regional in nature, and a region's continued economic health and economic security depends on a sustainable supply of both energy and water. As an example, in the New York metropolitan area increasing population creates increasing demand for both fresh water and energy. New power generation facilities, which require cooling, will be required to meet growing power demand. While “dry cooling” technologies can reduce power generation water requirements, they are expensive and less energy efficient than “wet cooling.” Furthermore, power generators using dry cooling are vulnerable to being forced to reduce power during the warmest days of the year, when electricity demand and the risk of blackouts are the highest! Both water quantity and quality are coming increasingly under pressure. The New York City metropolitan area relies on upstate surface water and on Long Island aquifers for its water supply. Both sources are vulnerable to drought and environmental degradation.

New York has many unique water and energy issues and local stakeholders need to identify problems and solutions and push for an Integrated Energy-Water Plan for New York. Issues range from the immediate concerns of electric system reliability and environmental impacts of electric generation and petroleum refineries and terminals, to the possible long-term effects of global warming on water availability and salt-water incursions into wetlands and aquifers. A wide array of innovative solutions are available to reduce energy and water requirements, from cost-effective energy conservation to innovative cooling technologies for power generators to shortage-sharing protocols and market mechanisms for risk management and conflict resolution. A targeted research and development program can examine these options and search for new solutions.

Objectives of the Workshop

This workshop is an initial step toward gathering a group of stakeholders involved in the issues to exchange information and experience and to promote collaboration. Our objectives for the initial Workshop are to:

- Develop an understanding of present and future water and energy issues facing New Yorkers;
- Identify water and energy problems, questions, operations and decisions that can be improved with better decision tools, technology, regulations, etc.;
- Define initial future steps to improve water and energy production, allocation and management in New York.

Future meetings will then be held to develop and implement a multi-year research, technology development, and outreach program with the input and participation of the New York stakeholders. A secure and economically healthy future for New Yorkers depends on how we plan today to ensure both abundant clean water and reliable energy for us and for our descendants!