

# NEW YORK REGIONAL ENERGY-WATER WORKSHOP

## Introduction

Economic growth and an increasing 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 for 39% of all freshwater withdrawals in the U.S. and 57% of all freshwater withdrawals in New York (USGS 2004). Competition for water resources among power generators and residential, commercial, industrial, and agricultural users is increasing. Water shortages have already occurred during droughts in New York and are a chronic problem in some western states where there is a severe drought underway and population growth is increasing rapidly.

Historically, energy and water issues in the U. S. 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.

In order to address these issues in a meaningful way, it is necessary to solidify stakeholder (agriculture, power and water utilities, state and local governments, energy-intensive industries, environmental agencies and NGOs, etc.) understanding and acceptance of the importance and inter-connectedness of energy and water issues. At the federal level, the Department of Energy (DOE) national laboratories with participation by the Electric Power Research Institute (EPRI) have established the Energy-Water Nexus Initiative 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 Colorado, New Mexico and Pennsylvania to explore regional and national energy-water issues. Each regional workshop identified its own unique set of issues and challenges, defined by regional characteristics of population, climate, water availability, and energy supply and demand. Taking these regional characteristics under consideration, local stakeholders sought to define a path toward regional solutions and to identify further research to address the issues.

The New York Regional Energy-Water Workshop was the fourth workshop conducted to gather information on regional energy-water issues by drawing on the experience and expertise of local stakeholders, and to identify potential solutions and needed research.

## Goals and Objectives

The goals of the New York Regional Energy-Water Workshop were to identify, with stakeholder participation, the most pressing energy-water issues in southeastern New York, to explore the links between the regional supply and demand for energy and water, and to identify how integrated planning and research can help guarantee that future New Yorkers will have access to plentiful, clean and safe water and energy.

This workshop represented an initial step toward addressing regional energy-water issues by gathering a group of stakeholders involved in the energy-water issues facing southeastern New York to exchange information and experience, to focus on the future and to promote collaboration. Future meetings are planned to develop and implement a multi-year research, technology development, and outreach program with the input and participation of the New York stakeholders.

The specific objectives for the initial Workshop were to:

- Develop a list 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.;
- Identify initial potential programs and research to improve water and energy production, allocation, efficiency and management in New York.

The theme of the Workshop that carried throughout the day was that a secure and economically healthy future for New Yorkers depends on how we plan today to ensure both abundant clean water and reliable available energy for us and for our descendants.

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 a growing population creates increasing demand for both fresh water and energy. New power generation facilities, which require cooling, will be required to meet the growing power demand. While “dry cooling” technologies can reduce the water requirements for power generation, they are less energy-efficient and more expensive than “wet cooling.” Furthermore, power generators using dry cooling are vulnerable to forced reduction of 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 the issues, consider solutions and work to create 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 saltwater incursions into wetlands and aquifers. A wide array of innovative solutions to

reduce energy and water requirements have been proposed in prior workshops, 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 options and techniques suggested by stakeholders that apply to New York and search for new solutions for the region.