Resource Planning by Western Utilities: Steps Toward Integration of Energy and Water

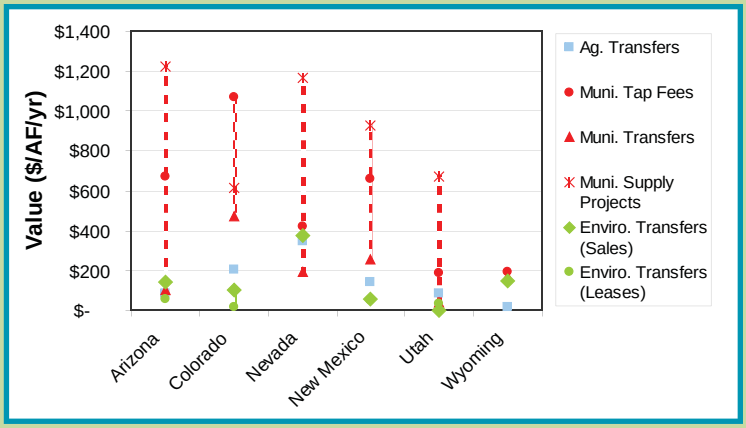
Western Resource Advocates

In the arid southwest, water is invaluable—municipalities, agriculture, power plants, and the environment all rely on this limited resource. The economic value of water varies tremendously, depending on alternate uses, location, and scarcity of the resource, among other factors. As urban populations continue to grow and climate change reduces available supplies, the scarcity and value of water will increase.

Today, most electric utilities and regulators do not adequately integrate water into electric resource planning. In modeling and evaluating resource plans, utilities and regulators should assess the opportunity cost of using water for power generation over the lifetime of the power plant.

In many places, the opportunity cost of using water for new thermoelectric power plants will be lost agricultural revenues. A number of older thermoelectric power plants, however, are located in urban areas. Retiring these plants could make water available for municipal needs—a very high value use. And importantly, reducing water withdrawals has environmental benefits, which are often underestimated by traditional economics.

Value of Water: Examples from Six Western States



The cost of water varies considerably, depending on the location, use, and data source. Of note, traditional economic analyses often underestimate environmental values. Figures reflect the cost of one acre-foot (AF) for one year.

Many western public utility commissions have the legal authority to consider water impacts in evaluating electric utilities' resource plans. Some commissions are already doing so, and some electric utilities are beginning to consider water in their planning efforts.

On the following page, we highlight regulators' and utilities' efforts to integrate water into resource planning. For more information on the connection between water and energy, visit our website at www.westernresourceadvocates.org/water/energy.php.

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Arizona

The Arizona Corporation Commission (ACC) – and Arizona Public Service – are leaders in the West on integrating water into energy planning.

- In 2010, the ACC is undergoing a rulemaking to evaluate how utilities should consider the cost of externalities, including water use, at power plants.
- Earlier this decade, the ACC denied permits for two gas plants, based on water impacts.
- Yet in 2009, the ACC's siting committee approved a wet-cooled solar thermal plant in southwestern Arizona.

Arizona Public Service (APS) reports water use for existing facilities and proposed future resource plans.

Colorado

In 2004, voters in Colorado passed the state's first renewable energy standard, which highlights the water savings of renewables. Since then, the state's Public Utilities Commission (PUC) has taken several important actions:

- It now allows utilities to evaluate and rank competitive bids for renewables based on the cost of the energy and other factors, including water use.
- In its decision on Public Service Company of Colorado's (PSCo) resource plan in 2007, the PUC stated that "Public Service's proposal to address emissions ... and water through their costs being imbedded in generation resource bids is an appropriate first step in factoring externalities in resource planning."

Colorado utilities are also making progress:

- Through a competitive bid process, PSCo recently selected a dry-cooled, 280 MW solar thermal plant in the arid San Luis Valley, in part because of the benefits to water resources.
- Tri-State Generation & Transmission will report water use for all existing and proposed facilities in its new resource planning process.

Nevada

The state's PUC regulations direct utilities to quantify the costs of environmental impacts, including water use. To date, the Nevada PUC has not enforced these regulations, and NV Energy does not report water use in its resource plans.

NV Energy does, however, model the value of water savings in its energy efficiency programs. And in 2009, the Nevada PUC created a Demand Side Management Collaborative that will help coordinate efficiency programs between the three utilities (SNWA, NV Energy, and Southwest Gas).

New Mexico

New Mexico's Public Regulatory Commission (PRC) recognizes the benefits – including water savings – of energy efficiency programs, and requires utilities to choose energy-efficiency programs based, in part, on these benefits. Utilities must also file a report with the PRC that quantifies "non-energy" benefits and freshwater consumption at power plants.

Utah

Utah's utilities must analyze environmental risks in their resource planning, including water availability. The Public Service Commission does not, however, support including a cost or value of externalities (e.g., the value of water consumed) in comparing resource plans.

In its resource planning, Rocky Mountain Power (PacifiCorp) has focused primarily on the impacts of climate change on water resources and hydropower generation.