

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking into Policies to  
Promote a Partnership Framework between Energy  
Investor Owned Utilities and the Water Sector to  
Promote Water-Energy Nexus Programs.

Rulemaking 13-12-011  
(Filed December 19, 2013)

**COMMENTS OF THE UTILITY CONSUMERS' ACTION NETWORK (UCAN) ON THE ASSIGNED  
COMMISSIONER'S PRELIMINARY SCOPING MEMORANDUM AND RULING REQUESTING  
COMMENTS ON THE SCOPE AND SCHEDULE**

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**I. UCAN'S PRELIMINARY SCOPING MEMORANDUM RECOMMENDATIONS**

UCAN was one of the original responsive parties that supported and offered our comments to the ORA, (then DRA), proposal asking the Commission to open this water-energy nexus rulemaking. We were appreciative that the Order instituting Rulemaking (OIR) quoted UCAN and the issues, ideas and proposals we put forward, and we commend the Commission on its work to date in this rulemaking.

The Utility Consumers' Action Network (UCAN) hereby requests and recommends that the Commission add a panel discussion to the August 13, 2014 workshop. This panel should include people with environmental and legal expertise on water issues to inform both the Commission and the Navigant team<sup>1</sup> of the unique issues associated with water and how those issues can affect the avoided cost and cost effectiveness calculation methodologies being

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<sup>1</sup> Navigant is the consulting firm working with the Commission to develop a methodology to determine how much energy is embedded in water.

developed for this rulemaking. This panel discussion should be held at the next workshop on August 13, 2014, well in advance of the preparation of the Navigant report.

To date in this rulemaking, there have been several presentation workshops that while informative and helpful, have not really allowed for much interactive communication among the energy and water sector parties. In this rulemaking it is important that the water and energy sector parties understand the unique issues facing each sector to help inform the rulemaking and any ultimate Commission decision.

UCAN is fortunate enough to employ two experts for this rulemaking, a water and land use Law Professor in San Diego, and an Energy Economist who is familiar with the avoided cost calculations and the cost effectiveness tests as applied to the energy sector. UCAN's experts have had few opportunities to exchange, debate and coordinate views between those in the energy sector, who understand avoided costs and the cost effectiveness framework as applied to energy programs, and those in the water sector who understand water resources and the impacts of water rights law and environmental law on those resources, but may not understand how to fit them into the cost effectiveness framework for analysis. A panel discussion offers such an opportunity for parties in both sectors to engage each other in the exchange of ideas.

UCAN has had the luxury of our own internal panel discussion and debate and reached certain conclusions about various water-related factors that need to be talked about, including externalities, such as environmental costs. These externalities may or may not be capable of estimation in the avoided cost calculations, but may at least present as constraints on the full or partial use of certain water resources. Water rights associated with each resource can present as costs or constraints on use of the resource. Wet and dry years can mean we need to treat avoided costs as a range of costs (high and low) depending on whether it is a wet or dry year. All these issues and whether there are quantitative or qualitative ways to incorporate them into our avoided cost or cost effectiveness framework can and should be addressed in a panel discussion. If we can define how water resources differ from energy resources, and improve the associated avoided cost estimates for water resources, we will improve the cost effectiveness framework overall and ultimately make better water-energy program decisions.

The workshop and report on the overall cost effectiveness framework is scheduled for October 14, 2014. A panel discussion at the August 13, 2014 workshop is the next and last workshop opportunity to offer the panel discussion and work through these water-related issues so that Navigant can incorporate them into the final avoided costs and cost effectiveness framework for the October report.

## **II. UCAN SUPPORTS THE SCOPE AND POLICY OBJECTIVES OF THIS RULEMAKING**

UCAN is supportive of the broadened policy objectives noted in the amended scoping memo of promoting water conservation and stewardship and thereby promoting water and energy efficiency and conservation. As was noted in the scoping memo:

“The general thrust of the preliminary scope was that we should develop a tool for determining how much energy is embedded in water, and whether water utilities or energy utilities and their ratepayers or a combination of both benefit from reduced water use, and how much they benefit. With a tool in place, the rulemaking contemplated that we would also address sources of program funding and provide general direction for energy efficiency program administrators and water utilities.

Consistent with the guidance in the rulemaking I have largely adopted the preliminary scope here. . . .”<sup>2</sup>

The Commission has previously addressed issues relating to the water-energy nexus. Most pertinent to this scoping memorandum, in Decision (D.) 12-05-015, the Commission directed staff to develop a comprehensive cost effectiveness framework that would allow for the evaluation of joint water-energy efficiency projects and programs. Commission Staff created a work plan to address water-energy nexus issues. The cost effectiveness framework tracks the comparable framework used by the energy sector for evaluating demand response and other projects on a benefit/cost basis. For the water-energy nexus project, however, it was necessary to add the development of avoided costs for water resources comparable to the avoided costs for energy resources, e.g., avoided water capacity costs and the avoided energy costs embedded in water.

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<sup>2</sup> Preliminary scoping memo, pg 6.

While UCAN commends the work to date, we believe a panel discussion on water issues, would help the parties gain an understanding of the unique issues about the water sector that relates to this rulemaking, and how these differences can affect the cost calculation methodology being developed by Navigant. Furthermore, UCAN believes that such a panel discussion could help the parties understand that the analysis for the cost calculations and methodology needs to also address the environmental costs or benefits and legal issues associated with various water conservation strategies and the inherent difference between the addition of marginal (avoided) water capacity versus marginal (avoided) energy capacity.

**III. LEGAL, ENVIRONMENTAL AND STORAGE CONSTRAINTS ON THE WATER SUPPLY DIRECTLY AFFECT COST CALCULATIONS FOR WATER SAVINGS AND THE EMBEDDED ENERGY IN WATER AND THE RULEMAKING WOULD BENEFIT FROM A PANEL DISCUSSION ON THESE ISSUES.**

An integral part of the comprehensive water-energy framework that needs to be addressed by this rulemaking is the consideration of environmental costs and benefits as they affect the avoided cost calculations for water savings, and the calculations of the embedded energy in water.

There are several specific issues related to water that need to be examined and considered when trying to accurately calculate how much water is available at any given time and how much embedded energy is in water. To that end the Commission needs to develop the avoided costs and cost effectiveness calculation tool, with the appropriate weight and consideration given to how legal and environmental constraints (laws and regulations), as well as nature (wet vs. dry years) affects the water supply, the cost of supplying that water to customers, and how much energy it will take to transport, store and treat water. The tool being developed by Navigant needs to reflect the reliability impacts of changes in weather and climate on marginal capacity, and also needs to take into account the marginal costs associated with the legal uncertainties associated with the rights to use a water source. As noted by the California Department of Water Resources, the challenges facing the supply, acquisition and storage of water in the near future are enormous:

“Climate change is having a profound impact on California water resources, as evidenced by changes in snowpack, sea level, and river flows. These changes are expected to continue in the future and more of our precipitation will likely fall as rain instead of snow. This potential change in weather patterns will exacerbate flood risks and add additional challenges for water supply reliability.

The mountain snowpack provides as much as a third of California's water supply by accumulating snow during our wet winters and releasing it slowly when we need it during our dry springs and summers. Warmer temperatures will cause what snow we do get to melt faster and earlier, making it more difficult to store and use. By 2050, scientists project a loss of at least 25 percent of the Sierra snowpack. This loss of snowpack means less water will be available for Californians to use.

Climate change is also expected to result in more variable weather patterns throughout California. More variability can lead to longer and more severe droughts. In addition, the sea level will continue to rise threatening the sustainability of the Sacramento-San Joaquin Delta, the heart of the California water supply system and the source of water for 25 million Californians and millions of acres of prime farmland.”<sup>3</sup>

Regardless of whether some or all of these legal and environmental factors are capable of quantification, they do affect the availability of water in the State and so UCAN thinks it is essential to have this panel discussion regarding these issues, and when examining water conservation program alternatives, determine whether these issues need to be addressed qualitatively or quantitatively.

#### **IV. CALCULATING THE COSTS OF LEGAL, ENVIRONMENTAL, AND WATER STORAGE CONSTRAINTS**

Legal, environmental and storage issues related to water resources manifest as constraints on the use of the resource such that part or all of the resource cannot be used under certain conditions. The rulemaking will benefit from a panel discussion, e.g., hearing from California water experts regarding how these issues are currently handled in practice and hearing from those versed in methods as to whether there is a simple way to incorporate these water practices into the cost effectiveness framework as actual costs or constraints on the use of

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<sup>3</sup> <http://www.water.ca.gov/climatechange/>

resources. Essentially, we need a way to convert common practice into methodology that is simple to implement and yet produces reliable results.

The Navigant model seems to make certain assumptions about marginal capacity costs which may not reflect the true nature of water. Unlike a combined cycle gas plant, the capacity of a water source may vary widely from the actual amount of water that can be produced over time. This is the result of many factors including, but not limited to, environmental constraints, climate change, and water rights, all of which the Navigant model does not adequately address.

In many cases, water sources have been developed, later to be curtailed by a determination that environmental uses of water for in stream flows or species protection are necessary. The Navigant model needs to address the uncertainty that a new marginal source could be developed which may later have to be curtailed. The Navigant model fails to address the varying probability of curtailment based on source. For example, it would appear that it is much more likely that marginal supplies that rely on ground water<sup>4</sup> or Colorado River<sup>5</sup> water are much more likely to be curtailed than marginal supplies that rely on reclaimed water or sea water.

We need to understand the environmental constraints on certain water resources and to add environmental costs as a component to Navigant energy and water avoided cost calculations. UCAN believes that it is essential to understand the impacts that environmental considerations will have on the cost of marginal water capacity. For example, the protection of endangered species and their habitats can have a dramatic effect on the availability of lower cost marginal water capacity. Certain endangered species may be harmed by the continued use of certain California water resources which would make acquisition of the water resource more expensive. Conversely, should water conservation efforts help reduce the environmental impacts on endangered species, it could be considered a benefit.

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<sup>4</sup> See <http://blogs.kqed.org/science/2014/04/22/california-edging-closer-to-regulating-groundwater-for-the-first-time/> Last visited July 8, 2014

<sup>5</sup> See <http://www.socalwater.org/issues/colorado-river> Last visited July 8, 2014.

Typically, in the energy sector, at least currently, environmental benefits from energy savings usually means greenhouse gases (GHG). But in the water sector, there are some environmental costs and benefits that derive from water conservation efforts that cause water resources to differ from energy resources.

#### **A. Legal and Ownership Issues Constrain Availability**

Ownership of water rights is also an issue that differentiates between the water and energy sectors. Water rights can also be viewed as either a constraint on the use of the water resource or carry with those rights a cost to use the resource. California has never developed a coherent water rights doctrine, and water rights vary by source. Surface water is subject to prior appropriation and permits. Federal supplies are subject to federal contracts. Ground water is subject to riparian rights where the basin has not been adjudicated and no one knows who owns the rights to storm water runoff and ocean water. With ground water we have the tragedy of the commons, i.e., subject to over-use due to the absence of assigned property rights. Some rights are transferable and others are not. Where water rights are transferable, prices can vary based on market demand and wheeling costs. There is also little or no control over what transmission companies can charge to wheel water.

Within the scope of this proceeding, water rights should be investigated to ensure that the cost effectiveness calculations are not skewed as a result of ignoring this critical issue.

#### **B. Inherent Differences in Storage and Transmission**

Water and energy storage are inherently different in many ways, but in other ways may be mutually collaborative. The scope of this proceeding needs to explore these differences and incorporate the collaborative opportunities in addressing the marginal cost and benefits.

With some exceptions, such as hydroelectric, pump storage and batteries, energy is generally considered to be non-storable. The Navigant model appears to recognize this fact and considers the major marginal cost to be the cost of added production. With water, the economics appear to be reversed. That is, the major marginal cost, with some exceptions such



as desalination, appears to be the cost of storage such as dams and aquifer storage and the cost of transmission through canals that run the length of the state.

Navigant has noted in a workshop that they are not considering transport and storage for energy or water in their cost calculation methodology. Unlike energy, which for the most part cannot be stored and where the costs of energy transmission are relatively stable, the costs of moving and storing water can vary drastically when talking about one water source versus another. These inherent differences, and their economic impacts, need to be addressed in a panel discussion to determine how, or if, they should be addressed in the Navigant model.

### **C. Constraints on Water Resources Affect Cost**

The legal, environmental and storage constraints need to be considered when developing the cost calculation methodology. Avoided costs can be calculated recognizing that the resource may be constrained, in all or in part, at certain times of the year or year round because of environmental concerns. The share of these avoided cost-based benefits that are attributable to each sector can then be used to determine the share of these program and equipment costs that should be funded by energy companies and water suppliers. The most efficient and equitable basis for allocating program costs among water and energy program participants is “benefits received,” where benefits are defined as the avoided costs that accrue to each sector. Essentially, if the avoided costs for both sectors exceed program costs, the program should be undertaken and costs should be shared in the same proportion as the avoided costs accrued to each sector. If the benefits do not exceed these program and equipment costs, the usual rule is not to fund the program. But refining the program to improve the benefits or reduce the costs is also a consideration. This is why the determination of these additional water-related costs and constraints can be so valuable in the determination of the cost effectiveness of water-energy nexus programs. Finding ways to relieve constraints, increase avoided costs or reduce program costs can improve cost effectiveness and make a marginal program desirable.

The focus of both the water and energy sectors, working together, should ultimately be on defining joint programs, refining them where necessary, determining the sharing mechanism

for program and making sure that the avoided cost calculations accurately reflect the priorities, constraints and costs of their respective sectors.

UCAN understands that evaluation models are not expected to model reality in all its infinite detail but represent an abstraction of that reality which is used as a screening tool that offers a way of sifting through projects to set priorities among, in this case, competing water-energy nexus projects. The screening tool being developed needs to be simple enough to be usable and reliable enough to give reasonable answers. Not every legal or environmental constraint can be monetized in terms of the avoided cost calculations, but establishing constraints on resources, once understood, will help in the overall development of the cost effectiveness framework. The framework may, in fact, need to involve a blend of quantitative cost calculations and qualitative legal and environmental constraints when completed. The panel discussion can hopefully address what can and cannot be quantified and what needs to be included in the cost effectiveness framework, even if the factor is qualitative.

## **V. UCAN'S RECOMMENDATIONS**

UCAN proposes that a panel discussion be added to the August 13<sup>th</sup> workshop specifically related to the legal, environmental, transport and storage issues associated with water resources. There are many parties in this rulemaking that have unique water and energy experience and the Commission would be well served to hear from them.

It is critical that the Commission promote communication between experts, consultants and other participants in the water and energy sectors if we want to achieve real success, especially with the broadened scope to address water conservation given the current drought conditions in California.

Respectfully submitted,

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