



Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

May 3, 2005

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, AZ 85007

RE: Docket No. RE-00000C-05-0030 (In the Matter of the Notice of Proposed Rule Amendment for the Environmental Portfolio Standard Rules)

On behalf of the Union of Concerned Scientists, enclosed please find comments on the Arizona Corporation Commission draft rule amendments to the Environmental Portfolio Standard (EPS) Rules. We look forward to working with the Commission staff and other interested stakeholders in continuing efforts to strengthen the EPS and to ensure the long-term viability of renewable energy resources in Arizona and the surrounding region.

Thank you for the opportunity to provide comments in this proceeding.

Sincerely,

Steve Clemmer
Clean Energy Program Research Director
Union of Concerned Scientists

**BEFORE THE
ARIZONA CORPORATION COMMISSION**

**COMMENTS OF
THE UNION OF CONCERNED SCIENTISTS**

**ON THE COMMISSION'S DRAFT RULE AMENDMENTS TO THE
ENVIRONMENTAL PORTFOLIO STANDARD
DOCKET NO. RE-00000C-05-0030**

**IN THE MATTER OF THE NOTICE OF PROPOSED RULE AMENDMENT FOR THE
ENVIRONMENTAL PORTFOLIO STANDARD RULES**

MAY 3, 2005

Introduction

Thank you for the opportunity to offer comments on behalf of the Union of Concerned Scientists (UCS) on the Arizona Corporation Commission's draft rule amendments to the Environmental Portfolio Standard Rules. UCS is a nonprofit organization of more than 60,000 citizens and scientists working for practical environmental solutions. Our clean energy program focuses on encouraging the development of clean and renewable energy resources, such as solar, wind, geothermal and biomass energy, and on improving energy efficiency. UCS has been a leading analyst of and advocate for renewable energy standards at the state and federal levels, playing an active role in discussions of renewable standard adoption and implementation before legislatures and commissions in most of the 19 states that have enacted standards, including Arizona.

We applaud the Commission's intent to increase and strengthen the Arizona renewable standard, and the considerable effort that the Commission staff put into the January 2005 report on proposed changes to the EPS. On February 17, 2005, UCS submitted comments to the Commission on these proposed changes. Specifically, the Commission should be commended for changing in the draft rule the method for distributing EPS funds so that they may only be used to pay for the above market costs of renewable energy and for including a requirement for filing annual implementation plans and compliance reports. This change will strengthen the effectiveness of the EPS, and lead to additional renewable energy development.

However, UCS continues to have some concerns with the proposed EPS rule changes. The following reiterates many of the concerns described in our February 17, 2005 comments, and provides recommendations for addressing them.

Adopt higher targets and accelerate the schedule

We believe that sufficient low cost resources are available in Arizona and the surrounding region to achieve higher overall targets and an accelerated schedule for the standard than currently proposed by the Commission. We recommend increasing the new renewable generation share of total electricity sales by 1 percent per year, reaching at least 10 percent by 2015 and 20 percent

by 2025. These targets should represent the actual renewable generation achieved, after the effects of any extra credit multipliers are removed. Increasing the overall targets will deliver additional economic, environmental, and energy diversity benefits to Arizona. If the overall targets are increased, we also recommend lowering the solar electric and distributed renewable energy set-aside percentages of total renewable generation to achieve the same level of solar and distributed electricity recommended by Commission staff under the current proposal.

Allow out-of-state renewable generation to qualify if delivered to Arizona

We strongly support Arizona's interest in developing renewable energy facilities in the state and capturing the associated economic development benefits that would result from the manufacturing, construction, and operation and maintenance of these facilities. However, only allowing in-state resources to qualify for the standard would risk violating the Commerce Clause of the U.S. Constitution and could increase the near-term cost of meeting the requirement.

To address this concern, we recommend allowing new out-of-state renewable generation to qualify for the standard and requiring that there is an annual average matching of renewable generation delivered to Arizona customers either contractually or physically to Arizona's transmission and distribution system. Including a delivery requirement will ensure that any out-of-state renewable generation will displace generation from coal or natural gas plants in Arizona or that would have otherwise been imported into the state, thereby providing economic and environmental benefits to Arizona consumers. It will also provide an incentive to locate projects in or near the state to avoid or minimize delivery costs. Allowing out-of-state renewable generation to qualify will also give Arizona electricity providers greater flexibility in meeting the requirement, while lowering costs to consumers.

Require electricity providers to offer long-term contracts

We applaud the Commission's proposal to eliminate the standard's expiration date to encourage the development of long-term contracts and to include a requirement for electricity providers to sign power purchase agreements resulting from bids or RFPs with third-party developers. UCS believes that long-term contracts, when prudently procured, are the most appropriate way to comply with the bulk of a company's renewable requirements. Many renewable-fueled generation technologies have higher capital costs and lower operating costs than traditional generation resources. Because of this cost structure, longer-term contractual commitments from credit-worthy buyers are a critical driver in reducing the average electricity costs of many renewable technologies and attracting financing. For example, for a generic wind power project with typical project assumptions, moving from a 20-year contract term to a 10-year contract term could increase revenue requirements by 29 percent. Given the substantial impact contract term has on renewable energy's all-in generation costs, policies that support longer contract terms are a key instrument for effectively and economically meeting state renewable energy targets.

Investors appear to require commitments for renewable attributes, or both attributes and energy, of at least five years for landfill methane generators, and 10 years or longer for more capital-intensive resource types such as wind or solar. In testimony before the California Public Utilities Commission (CPUC), UCS and other parties testified that companies should be required to sign

15 to 20 year contracts for renewable energy purchases, in order for renewable energy projects to be cost-effectively financed and minimize price risk to ratepayers. The CPUC examined the testimony submitted by UCS and others on this issue in its RPS rulemaking, and ruled:

Consistent with the SDGE&/TURN proposal, the utilities should seek bids for 10, 15, and 20-year products. The proposals of SCE and PG&E to seek shorter-term (five-year and one-year) products do not appear likely to promote development of new renewable resources.¹

While the Commission recognizes the value of long-term contracts and includes a requirement for power purchase agreements for meeting at least part of a supplier/provider's obligation, it does not include a specific requirement on contract length. We believe including a requirement on contract length of 15 to 20 years is important for creating market certainty for renewable energy suppliers, especially those considering investing in new EPS-eligible generating facilities. This market certainty would send a signal to build and enable long-term project financing at favorable rates, directly resulting in more renewable energy development and lower compliance costs. Long-term contracts are required to meet all or part of renewable energy standard obligations in California, Connecticut, and New Mexico and have been the preferred approach for meeting renewable requirements in Texas, Minnesota, Iowa, and Wisconsin.

We also suggest that the Commission consider raising the minimum PPA set-aside percentage, particularly in the early years. The current proposal includes a minimum PPA set-aside of 10 percent in 2006, increasing 10 percent per year to 40 percent in 2010 and thereafter. Arguably, most renewable energy developers will need long-term PPAs in the early years of the standard as the market for renewable energy technologies is developing. Thus, we would recommend raising the minimum PPA set-aside to at least 50 percent in the early years. As the market and technologies become more mature, the Commission could re-evaluate and raise or lower the minimum PPA set-aside percentage to ensure the standard is met at the lowest cost.

At a minimum, in order to have an effective standard, the Commission must require suppliers/providers to examine the costs and benefits of long-term procurement of renewable energy certificates (RECs) to minimize long-run costs, including conducting RFPs, and to allow them to enter into long-term contracts when prudently procured.

The risks of a supplier/provider "getting stuck" with excess procurement costs when entering into long-term arrangements with renewable generators are mitigated by two factors: prudently incurred compliance costs can be passed on to consumers, and RECs are a fungible commodity. If a company has incorrectly predicted its compliance requirements with the standard, the RECs can be reassigned or sold to another obligated entity in need or to a green power marketer. The uncertainty associated with determining exactly how many certificates a company will need to comply with the standard in a future year should not be an impediment to requiring REC purchases for at least some significant portion of the renewable obligation through forward contracts.

¹ CPUC Decision 03-06-071, June 19, 2003 at 58, Rulemaking 01-10-024.

Adopt meaningful penalties for non-compliance or alternative compliance payments and strengthen reporting requirements

The staff proposal does not include an explicit penalty mechanism for non-compliance. We believe it is important to include a penalty mechanism specifically for the EPS that is set at an appropriate level to ensure effective compliance with the standard. This would also ensure that renewable energy resources are actually developed and brought on-line, providing the important environmental and economic benefits intended by adopting the rule. We recommend that the Commission consider adopting a penalty mechanism that is similar to Texas or an alternative compliance fee like Massachusetts, Connecticut, Rhode Island, and Pennsylvania. These states Texas has a non-compliance penalty equal to \$50 per megawatt hour (MWh) (with an annual adjustment for inflation based on the GDP implicit price deflator) or 200 percent of the average market value of credits for that compliance period.² The other states have an alternative compliance payment ranging from \$45-55/MWh.³ If utilities are engaging in prudent long-term procurement practices, alternative compliance payments should rarely, if ever, be required. Any such funds should be added to state funding of additional renewable energy generation.

We commend the Commission's decision to require utilities to file annual implementation plans and compliance reports. These reports will increase the Commission's ability to efficiently and effectively administer the EPS, and provide greater assurance that the requirements will be met on time. However, the proposed rule changes do not establish a process for the Commission to review and approve the implementation and compliance reports. We recommend that the Commission review and approve these reports so that it can set the proper cost recovery rates for any above market costs that are prudently incurred from meeting the standard, and take action against any affected utilities in non-compliance.

We also recommend that the Commission specify the information that an affected utility will need to include in its compliance report. At a minimum, the compliance report for each reporting year should include: kWh of actual energy obtained from eligible resources, applicable extra credit multipliers, kWh of energy obtained from eligible resources normalized for a full year of production, and kW of generation capacity, each disaggregated by technology type, and shall set forth, with supporting analyses, the market cost of comparable conventional generation as defined by the Commission (see below)..

Define “above-market costs” and “market cost of comparable conventional generation”

UCS strongly supports the Commission's decision to use EPS funds only to “pay for the above market costs of renewable electricity purchased or the above-market costs of renewable generation that exceed the market cost of comparable conventional generation.” However, the proposed language does not specify what happens if the funds are not sufficient to meet the EPS targets. We recommend that the Commission include language clarifying that the utilities shall be required to meet the targets regardless of the overall funding levels and allowing utilities to recover any additional prudently incurred costs that are approved by the Commission.

² For more information, see Public Utility Commission of Texas Substantive Rules, section 25.173(o)(2);

³ For example, see www.state.ma.us/doer/rps/225cmr.pdf.

In addition, the proposed EPS changes do not define how the “market cost of comparable conventional generation” will be calculated. When calculating above market costs, we recommend that the Commission require electricity providers to include the value that renewable energy provides as a hedge against future natural gas price increases, the risks of future environmental regulations, particularly the risk of future limits on carbon emissions, and the benefits that distributed renewable energy technologies can provide in reducing transmission and distribution costs.

A recent study by the Lawrence Berkeley Laboratory found that the value renewable energy can provide as a hedge against future gas price increases is worth 0.4-0.6 cents per kilowatt-hour, assuming a highly efficient gas-fired power plant.⁴ This value should be included in the calculation of above market costs when comparing “the cost of fixed-price renewable generation to the *hedged* or *guaranteed* cost of natural gas-fired generation, rather than to *projected* costs based on *uncertain* gas price forecasts,” according to LBL.

On December 16, 2004 the California Public Utilities Commission (CPUC) continued the trend of California and other states demonstrating leadership on addressing global warming by requiring the state’s electric utilities to account for the future cost of reducing carbon emissions in choosing energy sources.⁵ In voting to approve the 10-year resource plans of the state’s three largest utilities, the Commission effectively requires utilities to invest in conservation, improving energy efficiency, and developing renewable energy sources before relying on dirtier fossil sources of energy. The CPUC will now require the utilities to account for carbon and other heat-trapping gases when considering purchases from fossil fuel plants, and considers cleaner sources more cost-effective if they prevent carbon dioxide emissions at a net present value cost of less than \$8 per ton.⁶ This value is not intended to represent an environmental externality—an assessment of or proxy for environmental damage of emissions—but the value of hedging against actual higher compliance costs in the future.

Including these values would add approximately 0.8 c/kWh to the cost of an average coal plant, 0.4 c/kWh for an average natural gas plant, and 0.3 c/kWh for a new efficient combined cycle natural gas plant. New fossil-fueled power plants generally cannot obtain financing for construction without long-term commitments with utilities; thus, this “adder” is likely to be included in the utilities’ analysis of any new power plants built to serve the majority of California load.

⁴ Mark Bolinger, Ryan Wiser, and William Golove, *Accounting for Fuel Price Risk When Comparing Renewable to Gas-Fired Generation: The Role of Forward Natural Gas Prices*, LBNL-54751, January 2004; and Ryan Wiser, Mark Bolinger, and Matt St. Clair, *Easing the Natural Gas Crisis: Reducing Natural Gas Prices through Increased Deployment of Renewable Energy and Energy Efficiency*, LBNL-56756, January, 2005, available at <http://eetd.lbl.gov/EA/EMP>

⁵ CPUC Decision 04-12-048, December 20, 2004, Rulemaking 04-04-003
http://www.cpuc.ca.gov/WORD_PDF/FINAL_DECISION/43224.PDF

⁶ On April 7, 2005, the CPUC adopted the final imputed costs for CO₂ emissions to be used by the utilities as the “greenhouse gas adder” in long-term planning and procurement: a net present value of \$8 per ton CO₂, based on a cost stream of \$5 per ton CO₂ in the near term, \$12.50 per ton CO₂ by 2008, and \$17.50 per ton CO₂ by 2013 (CPUC Decision 05-04-024, Conclusion of Law 7).

Documents UCS filed with the CPUC demonstrated the likelihood of greenhouse gas regulations and the impact on consumers of further ignoring the risk.⁷ Consumer and environmental groups, as well as two of the utilities whose resource plans were under consideration, supported this approach. Pacific Gas and Electric, Southern California Edison, and San Diego Gas and Electric now join PacifiCorp, in Washington state, and Idaho Power Company, utilities that already voluntarily factor the cost of carbon regulations into their long-term planning activities.

Make modifications to the definition of eligible renewable energy sources and technologies

We commend the Commission's proposal to limit the amount of hydropower that is eligible to meet the standard to include small, new facilities and incremental generation at existing dams that meet certain environmental criteria. However, we believe the definition could be improved by only allowing projects that are certified by the Low Impact Hydropower Institute (LIHI) to qualify. LIHI standards were developed by a broad range of stakeholders to represent a method of distinguishing environmentally sound hydropower that is far superior to using size-based criteria.⁸ The Pennsylvania Alternative Energy Portfolio Standard recently included LIHI certification in its eligibility standards.

We also recommend that the Commission modify the biomass definition to exclude the eligibility of municipal solid waste. The incineration of municipal solid waste for electric generation uses a non-renewable resource that releases toxic air emissions and poses significant risks to public health. It should not benefit from the incentives for development under the EPS.

Finally, we recommend explicitly allowing co-firing of eligible biomass resources in existing coal or natural gas plants to be eligible for meeting the standard.

Limit banking of excess renewable energy generation or credits

Credit banking of eligible renewable generation (or credits) that is in excess of a utility's annual requirement can provide some important flexibility in meeting the standard from year-to-year. It can help even out natural variations in energy output from intermittent resources or from circumstances that are impossible to control (e.g. extreme weather events), provide electricity suppliers with additional methods for ensuring they are in full compliance, and promote early resource development. However, the Commission's proposal would effectively allow unlimited banking of excess generation or credits, which could create problems in meeting the targets over time. There are at least two ways to allow banking while ensuring that the targets are met over time. First, the rules could specify that credits issued in a given year have to be used within a designated period of time, such as two or three years. Second, the number of credits available in a given year could be limited to some percentage above the designated targets. We recommend, however, that banking be restricted to a reasonably short period of time, to ensure that the renewable generation targets are met in a timely fashion.

⁷ The documents filed by UCS can be downloaded at http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=1600

⁸ For more information about the Low Impact Hydropower Institute and certification criteria see <http://www.lowimpacthydro.org/>.

Conclusion

UCS appreciates the Commission's support for strengthening Arizona's renewable energy standard. If implemented effectively, this policy will put Arizona among the upper tier of states that are committed to renewable energy development as a means to achieve a cleaner, more sustainable energy future. We thank you for the opportunity to comment, and encourage the Commission to consider the recommendations proposed above.

Respectfully submitted,

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