



Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

February 17, 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 staff recommendations on changes to the Environmental Portfolio Standard 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 STAFF'S ENVIRONMENTAL PORTFOLIO STANDARD REPORT
DOCKET NO. RE-00000C-05-0030**

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

February 17, 2005

Introduction

Thank you for the opportunity to offer comments on behalf of the Union of Concerned Scientists (UCS) on the Arizona Corporation Commission staff's recommended changes to the Environmental Portfolio Standard Rules. UCS is a nonprofit organization of more than 60,000 citizens and scientists working for practical environmental solutions. For more than two decades, UCS has combined rigorous analysis with committed advocacy to reduce the environmental impacts and risks of energy production and use. 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. Numerous experts have acknowledged that state renewable standards are one of the primary drivers for new renewable energy development, as nearly three-quarters of U.S. wind development since 1998 has occurred in states with renewable standards. UCS has played an active role in discussions of renewable standard adoption and implementation before legislatures and commissions in most of the 18 states that have enacted standards, including Arizona.

We applaud the staff's recommendation to increase and strengthen the Arizona renewable standard, and the considerable effort that went in to the proposed rule changes. Arizona's current standard is one of the lowest in the country. UCS believes that a higher standard would provide significant economic, environmental, and energy diversity benefits to Arizona, given the abundance of renewable resources in the state and surrounding region and the state's heavy reliance on fossil fuels and nuclear power to generate electricity. By increasing its standard, Arizona would join six other states (Connecticut, Minnesota, Nevada, New Jersey, New Mexico, and Pennsylvania) that have recently increased or accelerated their standards.

However, UCS does have some concerns with the Staff's proposed changes. The following describes these concerns and our 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, while delivering additional economic, environmental, and energy diversity benefits to the state. 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 would represent the actual renewable generation achieved, after the effects of any extra credit multipliers are removed.

We also recommend adjusting the solar share of total renewable generation to achieve the same level of solar electricity recommended by the staff. We also strongly agree with the Staff's proposal to eliminate the expiration date of the standard to facilitate the development of long-term contracts. This would also allow the standard to self-sunset when the incremental cost of meeting the standard falls to zero.

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. In addition, renewable resource assessments have shown that Arizona has excellent solar resources, as well as a significant wind potential and more modest geothermal and bioenergy potential. 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. Finally, most out-of-state renewable generation will likely be used to meet renewable standards in neighboring states, including California, Colorado, Nevada, and New Mexico. This should encourage the development of in-state resources to meet Arizona's standard.

Require electricity providers to offer long-term contracts

We applaud the staff's recommendations 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 Commission staff 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.

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

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

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.

Adopt meaningful penalties for non-compliance and 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, Pennsylvania, and other state renewable energy standard programs. These states have 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 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 also recommend that the Commission require utilities to file regular reports and plans that provide a detailed explanation of how they are implementing and complying with the standard. The Commission will also need to review and approve these plans so that it can set the proper cost recovery rates for any above market costs that are incurred from meeting the standard.

Only use funds to cover above market costs

While we support Commission staff's overall proposal to increase funding levels, we believe that these funds should only be used to cover the above markets of procuring renewable generation instead of new natural gas or coal generation and that electricity providers should be required to meet the renewable targets regardless of funding levels. 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.³ This value should be included in the

² For more information, see Public Utility Commission of Texas Substantive Rules, section 25.173(o)(2); and www.state.ma.us/doer/rps/225cmr.pdf

³ 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*

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.⁴ 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 cost of less than \$8-\$25 per ton. 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 2.5 c/kWh to the cost of an average coal plant, 0.4 c/kWh to 1.3 c/kWh for an average natural gas plant, and 0.3 c/kWh to 0.9 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.

UCS advocated for the greenhouse gas hedge value at the CPUC by introducing analysis into the formal record, and also called for increased use of renewable energy in the utility resource plans. UCS requested the CPUC direct the utilities to prepare more integrated and complete resource plans that include a more robust analysis of renewable resource options to meet the State’s Renewables Portfolio Standard goals. The final CPUC carbon hedging decision generally agreed with UCS, and the issues will be further developed at the CPUC in 2005.

Documents UCS filed with the CPUC demonstrated the likelihood of greenhouse gas regulations and the impact on consumers of further ignoring the risk.⁵ 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.

Deployment of Renewable Energy and Energy Efficiency, LBNL-56756, January, 2005, available at <http://eetd.lbl.gov/EA/EMP>

⁴CPUC Decision 04-12-048, December 20, 2004, Rulemaking 04-04-003
http://www.cpuc.ca.gov/WORD_PDF/FINAL_DECISION/43224.PDF

⁵ The documents filed by UCS can be downloaded at
http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=1600

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

We strongly agree with Staff that nuclear power is not a renewable energy technology and should not be included in the EPS. We also recommend making changes to the definitions of eligible hydro and biomass energy generation.

The staff recommends allowing small new hydropower generation to qualify for the standard, but does not define what qualifies as “small.” While we believe hydropower is a renewable energy source, both large and small projects can have significant adverse environmental impacts if not designed appropriately. In addition, hydropower is largely a mature low cost technology that does not generally need support under a renewable standard and the opportunities for developing new sites are limited. However, there are some opportunities for expanding hydro generation in an environmentally friendly manner that could be worthy of support under the standard. We recommend allowing incremental generation from existing hydro 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.⁶ The Pennsylvania Alternative Energy Portfolio Standard recently included LIHI certification in its eligibility standards.

In addition, we recommend that the Commission consider using the following language from LIHI for defining eligible hydro generation:

"New" hydropower facilities-- existing dams that added or increased power generation capacity after August of 1998: any dam existing in August of 1998 (whether or not used for generating electricity at that time) that added or increased power generation capacity that began generating or will begin generating electricity after August of 1998 (whether by addition of generating equipment, efficiency upgrades to existing equipment, or other means), provided the added or increased capacity:

(i) was created by modifications or additions to the existing facility (that is, modifications or additions to the existing dam, and/or if applicable, existing powerhouse) and did not require or include any new dam or other diversion structure; and

(ii) the added or increased capacity did not include or require a change in water flow through the facility that worsened conditions for fish, wildlife, or water quality (for example, operations did not change from run-of-river to peaking); and

(iii) the existing dam had not been recommended for removal or decommissioning by resource agencies, or recommended for removal or decommissioning by a broad representation of interested persons and organizations in the local and/or regional community prior to the added or increased capacity. Exceptions to this rule will be considered but only upon a showing that the added or increased capacity resulted in specific measures to improve fish, wildlife, or water quality protection at the existing dam.

⁶ For more information about the Low Impact Hydropower Institute and certification criteria see <http://www.lowimpacthydro.org/>.

We also recommend that the Commission modify the biomass definition. As currently drafted, the biomass definition is too expansive and could result in unsustainable and hazardous fuels – such as municipal solid waste and contaminated waste wood qualifying for the EPS. We recommend that the Commission replace the current definition using the following language:

“Biomass – The Term ‘biomass’ means—

(A) organic material from a plant that is planted for the purpose of being used to produce energy; and

(B) nonhazardous, lignocellulosic or hemicellulosic matter or agricultural animal waste material that is segregated from other waste materials and is derived from—

(i) the following forest-related resources—

(I) harvesting and mill residue;

(II) precommercial thinnings;

(III) slash; and

(IV) brush;

(ii) an agricultural crop, crop byproduct or residue resource;

(iii) miscellaneous waste such as waste pallet, crate, dunnage, and landscape or right-of-way-tree trimmings;

but not including—

(I) incineration of municipal solid waste;

(II) recyclable postconsumer waste paper;

(III) painted, treated, or pressurized wood;

(IV) wood contaminated with plastic or metals; or

(V) tires;

(iv) animal waste; and

(v) black liquor provided that it is converted to electricity in new or retrofitted generators that use advanced gasification technologies.”

We also recommend explicitly allowing cofiring of eligible biomass resources in existing coal or natural gas plants to be eligible for meeting the standard.

Conclusion

UCS appreciates the Commission Staff’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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