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RE: Docket No. RE-00000C-00-0377

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This letter is in support of the proposals by Chairman Spitzer and Commissioner Mundell to increase funding for energy efficiency and evaluate increasing the percentage of electricity derived from renewable energy resources. **Based on current economics the Arizona Corporation Commission could reduce costs to consumers and reduce upward pressure on natural gas prices while limiting air emissions and future environmental impacts by instituting an aggressive energy efficiency goal of 1 percent savings per year and by creating a renewable portfolio standard (RPS) of at least 10 percent.**

Before the advent of deregulation Arizona's utilities operated Demand Side Management (DSM) programs to reduce energy use where cost-effective. In 2002, a study of energy efficiency potential was completed by the Southwest Energy Efficiency Project (SWEET). This study was the first comprehensive evaluation of energy efficiency potential in the state of Arizona. Since publication, the study has been widely distributed to the utility community and was the basis of last year's energy efficiency law targeting state facilities. The report, *The New Mother Lode: The Potential for More Efficient Electric Use in the Southwest*, projects that by pursuing a high efficiency scenario, using currently available technology, the state could reduce total electricity consumption by 18 percent by 2010 and 34 percent by 2020 at a savings of \$10.5 billion from 2003-2020 and with a benefit/cost ratio of approximately 4.2:1. For comparison, expenditures for past utility, commission-approved DSM programs were only required to pass a cost effectiveness test of 1:1.

The potential savings outlined in the SWEET report are verified in programs operating in other states. In the January 31, 2003 report *Energy Efficiency: Investing in Connecticut's Future* from the Energy Conservation Management Board to the Connecticut legislature it states that in 2002 Connecticut residents and businesses saved 246,000,000 kWh as a result of their efficiency program. The program cost \$87 million in 2002 and will result in documented lifetime savings of \$373 million in avoided energy costs and a return on investment of 4.3. Closer to home Nevada Power and Sierra Pacific Power spent \$11 million in 2003 on a comprehensive set of energy efficiency programs for residential, small commercial and industrial customers. The projected lifetime savings for these measures are over \$100 million. Bar none, energy efficiency is the least cost resource available to meet Arizona's growing energy needs.

Arizona utilities have experience in energy efficiency from their work in the 1990's. Since that time there has been growth in the number of energy efficient products and industrial systems, greater knowledge of market barriers and market transformation strategies, improvements in building design and construction techniques, and more sophisticated codes and building commissioning methodologies. Directing utilities to resume and expand services offered to all sectors will reduce energy use and slow the state's annual load growth, avoid emissions from new power plants needed to meet load growth, reduce water use since each kWh of electricity produced using gas technology uses an approximately 1/3 of a gallon of water (*New Mother Lode, Page 3-23*), reduce carbon dioxide emissions which is the main contributor to global warming, provide cost savings for residential, commercial and industrial customers and create net new jobs since energy efficiency is a more labor-intensive "industry" than power production.

The goal of reducing energy use by 1 percent per year represents a balance between the very small efficiency programs currently operated by the regulated utilities and the 2.3 percent per year "high-efficiency scenario" savings potential documented in the SWEEP study. This proposal of 1 percent savings annually would require an expenditure of \$60-70 million per year. Most energy efficiency projects are shelved due to sticker shock when one only looks at first costs. If however, energy efficiency is viewed using a life cycle basis, then the rate of return of four dollars for every single dollar spent clearly demonstrates the benefits to electric consumers.

In the early 1990's the Commission created a solar, then an environmental portfolio standard (EPS), to increase electricity generated from renewable energy resources. This progressive policy placed Arizona in the lead supporting the use of cleaner technology. Since that time other states in the West and throughout the country have developed similar policies. The New Mexico RPS requires 10 percent renewables by 2011, Nevada, 15 percent by 2013, Texas 2,000 MW by 2009, and California 20 percent by 2017.

Support for greater reliance on renewables also exists in Congress. This year a majority of U.S. Senators voiced their support for a national Renewable Electricity Standard of 10 percent by 2020. In addition, in its 1996 report to the Environmental Protection Agency, the Grand Canyon Visibility Transport Commission (GCVTC) created the goal that 10 percent of the region's electricity should be produced by renewable energy by 2005 and 20 percent by 2015. The GCVTC, which included Arizona state, industrial and tribal partners, recognized the fact that renewable energy resource development was a meaningful method to reduce regional haze emissions.

Arizona's current EPS has been effective in spurring interest in and development of renewables, predominately solar energy. It is important that the Commission maintain the current standard to provide market certainty, which is critical to the solar and renewable energy industry. **However, the Commission can build on its success and institute an additional RPS of at least 10 percent by 2012 and at least 15 percent by 2020, which would utilize technologies which are cost competitive with new fossil fuel generation.**

In August 2003 new wind maps were published which assessed the state's wind resource. This utility-supported assessment documents the potential resource (average wind speed and

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density) and helps dispel the widely held myth that Arizona does not have a substantial wind resource. As presented at the Commission's Wind Workshops on November 6, and in the attached summary, the new maps document the potential of 2,600 MW of class 4 and better wind resource. Wind resources of this caliber are being developed throughout the country for less than the cost of combined cycle gas turbine technology. The state also possesses approximately 20,000 MW of class 3 wind resource, which is projected by the National Renewable Energy Laboratory, to be cost-competitive with traditional power sources near the end of this decade.

Although costs to develop any wind resource will vary based on financing, wind resource, transmission and ancillary services, purchase contracts, and land and development costs, several facts are undisputable. Electricity generated from wind energy uses virtually no water (when compared with power production from conventional sources), creates no air emissions and no waste products to manage, adds diversity to the power generation mix, reduces fuel price risks, creates a fixed energy price and provides jobs and tax dollars in needy rural areas of our state.

In addition to the aforementioned benefits, the development of renewable energy and energy efficiency "resources" will have a positive impact on Arizona's natural gas situation. Physical and regulatory pipeline constraints and low national reserves have created a volatile market for natural gas. Recent price increases in natural gas affect not only gas consumers but electric consumers due to fuel adjustment pass-through provisions.

Last month the American Council for an Energy-Efficient Economy (ACEEE) released the report *Impact of Energy Efficiency and Renewable Energy on Natural Gas Markets*. The summary conclusion reads in part

"In just 12 months, nationwide efforts to expand energy efficiency and renewable energy could reduce wholesale natural gas prices by 20% and save consumers \$15 billion/year in retail gas and electric power costs.....The analysis also shows that reducing energy consumption and increasing renewable energy generation in just one state or region could result in dramatic wholesale natural gas price reductions on the order of 5 to 7 percent in the region."

In summary, with a modest surcharge on electricity rates Arizona can reap tremendous monetary savings and environmental benefits by investing in energy efficiency. Wind energy and other renewable technologies are increasingly being used throughout the region because they are cost competitive, they diversify resources, and reduce environmental impacts and water use. I applaud the Commission for its interest in these issues and efforts to improve Arizona's electricity future by developing a least-cost resource portfolio using energy efficiency and renewable energy.

Sincerely,



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Principal

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Arizona Corporation Commission
Wind Workshop Summary
Prepared by the Ormond Group

On November 6, 2003 the Arizona Corporation Commission held two educational workshops on wind energy. A panel of experts, from the U.S. Department of Energy's Wind Powering America Program and the National Renewable Energy Laboratory, provided the following information:

- Arizona is estimated to have 2,600 MW of class 4+ wind resource and over 20,000 MW of class 3.
- Installed wind energy costs dropped from 40 cents per kWh in 1979 to 3-5 cents per kWh (unsubsidized) in 2004 for wind sites in class 4+ resource areas.
- As of January 2003 there were 29,140 MW of installed capacity in the world. Europe has installed 21,319 MW and North America 5,018 MW.
- The drivers for development of wind energy are: declining wind costs, natural gas fuel price uncertainty, federal and state policies, local economic development benefits, green power demand and energy security concerns.
- Significant factors which affect the installed cost of wind projects include: the size of the plant (larger plants are significantly less expensive per kWh), cost of financing (public financing is less costly than private financing) and availability of the production tax credit (currently 1.8 cents per kWh produced).
- Wind energy costs are stable over the lifetime of the plant.
- Wind is typically sited in remote areas requiring transmission. The cost of 25 to 50 miles of transmission may add only 10% to the total wind plant cost and in general, transmission costs make up less than 10% of customers' electricity bills.
- System operating cost impacts for wind's variability were calculated in by five major utilities to range from a high of \$5.5 per MWh to a low of \$1.85 per MWh.
- The environmental benefits of wind energy include no emissions of SO_x, NO_x, particulates, mercury or greenhouse gases during operation, virtually no water use and no wastes products.
- The primary local economic benefits of wind development include: land lease payments of two to three percent of gross revenue or average \$2500-4000 per MW per year, one to two jobs per MW during construction and two to five permanent operating and maintenance jobs per 50-100 MW and local property tax revenues of about \$500,000 per year for a 100 MW facility.
- In decision CO1-295, the Colorado Public Utilities Commission directed Xcel Energy to negotiate for a wind plant based on the economics alone. The decision states "After a careful analysis of the economics of the wind bid [Lamar Project], we find that it is justified on purely economic grounds, without weighing other benefits of wind generation that could be considered under the IRP rules." http://www.dora.state.co.us/puc/decisions/2001/C01-0295_99A-549E_PHASEII.pdf
- The list of companies that are adding wind include: GE Power Systems Division, Shell Oil, British Petroleum, AEP, TU Electric, FPL, PacifiCorp, Xcel, EDF, MidAmerican, PNM, BPA, Basin Electric, LADWP, Great River and Lamar Municipal Utility.

Workshop panelists included Dr. Earl Duque, Associate Professor, Northern Arizona University, Larry Flowers, Team Leader, National Renewable Energy Laboratory, Ron Lehr, Attorney and former Chairman Colorado Public Utilities Commission, Dale Osborn, President, Distributed Generation Systems, Inc. and Ed DeMeo, President, Renewable Energy Consulting Services. The workshop was facilitated by Amanda Ormond, Principal, Ormond Group.