

Energy Policy for the Twenty First Century

PRC Chairman Jason Marks

The tremendous growth in prosperity and quality of life enjoyed by Western civilization over the last 150 years would not have been possible without fossil fuels. But today, our use of coal, oil, and gas presents more risks than opportunities. We would be foolish to risk our prosperity and way of life on the *hope* that gasoline prices will retreat under \$3.00/gallon and stay there, on the *hype* that North America has abundant supplies of natural gas that can come to market at half of today's commodity price, on the *fantasy* that we're on the threshold of long term peace in the middle east, or on the *gamble* that scientists are wrong and carbon emissions don't have an adverse effect on climate.

Renewable Energy: Solar, Wind, Biomass, and Geothermal

Fortunately, at the same time that fossil fuels are posing significant cost and environmental concerns, renewable technologies are developing to the point where they are "ready for prime time." Today, New Mexico benefits from 400 megawatts of installed wind energy capacity, enough to power 200,000 homes when wind conditions are optimum, and solar and biomass projects are on the way. These sources of green power are attractively priced, with the wind farms coming in around three cents per kwh and the biomass at a little over six cents. Since wholesale power from natural gas fired plants has been running at six to ten cents and higher the past two years, some New Mexico electric consumers have actually saved money because of the availability of wind power.

Solar power is still relatively expensive, at around 15 cents per kwh using thermal technologies and even higher using photovoltaics, but its availability tracks peak electricity demand much better than wind. We have enough sun in New Mexico to supply the entire country's electricity needs several times over without interfering with existing land use, and several companies

are interested in building solar plants here using new, lower cost technologies. If these companies are successful, we could see solar electricity under 10 cents per kwh, possibly with thermal storage to allow generation into the night. Over time, a renewable grid could even address our gasoline addiction - the cost to operate a battery-powered car at highway speeds, charged overnight at 10 cents per kwh, is equivalent to gasoline at less than \$2.00/gallon.

During my first term on the PRC, I have successfully fought for an increase in our state's Renewable Portfolio Standard (RPS), beating back utility attempts to count things other than real renewables towards our requirements. As a result, we now have a law that requires a true 10% of our electricity from investor-owned utilities to come from renewables by 2011, increasing to 15% by 2015, and 20% by 2020. When utilities found too many reasons not to move forward with serious plans to develop our state's solar resources, I drafted and passed rules taking that decision out of their hands. The PRC's diversity rules, which we passed in 2007, require the utilities to meet 20% of the RPS from solar power beginning in 2011, and also set aggressive targets for customer-owned distributed solar generation. PNM and other utilities are now engaged in procuring a large-scale solar generation station for New Mexico and are putting forward plans to increase their support for customer-owned renewable generation.

Energy Efficiency

The least cost "source" for electricity to meet the needs of our growing population and economy is energy efficiency. Significant energy efficiency savings, possibly as much as 20% of total use, are achievable at costs less than 4 cents per kwh. This is a lot cheaper than building and fueling new conventional power plants. I have supported efforts to promote energy efficiency programs to utility customers, and

through building and appliance standards. I have also used my position to ensure that the utility-based energy efficiency programs required by state law are cost-effective and fair to ratepayers.

Advanced Coal and Nuclear

Coal is America's most abundant and least cost fossil fuel resource, but it's also one of the worst sources of greenhouse gas emissions. A conventional coal plant releases twice the carbon-dioxide as a natural gas fired plant to produce the same amount of electricity, and coal also releases other pollutants, such as mercury and sulfur-dioxide. In the past few years, there's been a lot of interest in commercializing advanced coal technologies that could make use of our coal in a more environmentally benign manner by capturing the carbon-dioxide and other pollutants before they are released into the atmosphere. The main group of technologies that is being worked on involves gasifying the coal and separating out the CO₂ prior to combustion (by shifting the syngas to hydrogen). There are also experiments underway to determine whether it's feasible to capture large amounts of CO₂ from the flue stacks of conventional coal plants. In either approach, the captured CO₂ would then be sequestered (permanently stored) in underground formations. The drawbacks to all this are two-fold: First of all, there's a lot of technological uncertainty in pulling together all the pieces on a large scale into a plant that performs at the reliability level we expect for our electric supply. Secondly, it's looking like it may cost up to 10 cents per kwh for electricity from one of these plants, defeating any advantage versus nuclear. In early 2007, when it was still looking like clean coal could be built for five or six cents per kwh, I supported legislation with reasonable incentives for utilities to build coal plants capable of capturing and sequestering CO₂.

Nuclear is also appearing to be an increasingly expensive option for our future power needs, with recent estimates placing

costs at nine or 10 cents per kwh for new nukes. (But the capital costs have been mostly paid off for our existing fleet of nuclear plants, making them some of the cheapest power sources we have.) The huge financial commitment required to move forward with a nuclear plant, along with uncertainties about final costs and construction times, is keeping many utilities, including PNM, on the sidelines for now. While nuclear safety is no longer a deal-breaker like it was in the Three-Mile Island days, we are still waiting on a permanent and safe solution to problem of storing reactor waste. In addition, reserves of suitable uranium ore are finite, and getting around that limitation through breeder reactors creates new risks of nuclear proliferation. To me, however, the financial risks are paramount, and suggest that while nuclear needs to be on the table as a potential solution in some regions of the country, it's not our best option today in New Mexico.

Summary

Energy infrastructure has a long life cycle, the resources we commission today will be in service 30 years from now. If we don't invest now in a portfolio of alternatives, we run a major risk of forcing our children's generation into economic or environmental crises by our own fossil fuel dependence.

We need to keep consumer impacts to a minimum as we accomplish this transition. I oppose building new conventional coal plants to produce electricity for New Mexico, but expect that we will wait at least a decade before taking on the huge financial commitment of taking our existing coal plants out of service. We need to maximize our investments in energy efficiency, and we need to make prudent investments in renewable energy technologies to allow us to reach our goal of 20% renewable energy by 2020, with a significant portion of this coming from solar.

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