

**Testimony to the House Government Reform Committee
Subcommittee on Energy Policy, Natural Resources and
Regulatory Affairs**

**Energy: Maximizing Resources; Meeting Our Needs; Retaining
Jobs**

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Chairman Ose, Congressman Tierney and members of the Committee, let me thank you for the invitation to address the Committee. The subject of your investigation – to maximize resources, meet our energy needs, and retain jobs – is one that concerns the Renewable Energy Policy Project (REPP).

REPP works to develop and support policies that will accelerate the market acceptance of renewable energy. We believe that accelerated acceptance of renewables will provide energy services at or below the cost of relying totally non-renewable technologies, take advantage of many local resources, such as biomass, that are currently underutilized or wasted, and provide a tremendous stimulus to local economies.

The benefits of renewable energy have been the subject of studies for many years. Those studies show convincingly that renewables can provide an important part of the next increment to the nation's supply infrastructure but are unlikely to do so without intervention to remove several barriers that currently block market acceptance. Delivering the benefits of renewable development to the people and localities that need jobs will build the understanding and support that can remove further blocks to renewable development, and so on. Let me summarize the major points of my Testimony:

- REPP is engaged in an ambitious undertaking that will allow localities, states, and the nation as a whole to determine with precision the job creation potential and even the types of jobs created as a result of renewable energy development. We began this work with a detailed survey of current manufacturing, installation, operation, and maintenance practices. Those practices serve as the basis for determining the precise job creation potential related to the development of renewable projects by technology type. REPP also intends to work with states and local agencies to capture as much of the potential offered by renewable development as possible.
- REPP has used the early versions of our work product with the state AFL-CIO in Nevada to determine the job creation potential of the Renewable Portfolio Standard passed into law in 2001. Nevada will require that 15% of electricity sold in the state be provided by renewable energy by 2013. The AFL-CIO strongly supports that initiative in part because of the economic diversification and job

benefits it represents. The REPP analysis allows the AFL-CIO to understand the job benefits, assess the value of those benefits, and perhaps most importantly act to capture as many of those benefits for the local economy as possible. Specifically, the Nevada AFL-CIO and REPP favor the implementation of an RPS that favors training and certification of installers and allows additional incentive for local manufacturing content. We also favor developing a full menu of economic development supports to enable new local businesses to participate in the cluster of economic activities that will be spun-off from the accelerated renewables development in Nevada. Based on this work, we believe there is substantial support for other states to take similar actions to encourage renewable development, and that this will be supported by organized labor and others interested in local economic development.

- From a national perspective, there is overwhelming evidence that renewable energy can provide reliable, safe, affordable energy. A recent analysis by the Energy Information Administration showed that, even with conservative assumptions, a 10% renewable base energy supply would lower the nation's energy bills by \$15 billion per year by 2020 compared to a heavily fossil based supply mix.
- Despite the evidence showing the value of renewable generation, there are several important market barriers that will hinder or stop renewable development unless they are removed. Relying on deregulated wholesale markets and project development through so-called merchant financing will severely hinder renewable development. Sporadic, unpredictable commitment to production tax credits for renewables prevents an orderly development of the industry. Finally, several regulatory barriers unjustly penalize many renewable technologies which produce energy on an intermittent or sporadic basis.
- One way to cut through these impediments is to pass a federal Renewable Portfolio Standard that covered all sellers of electricity in a fair and non-discriminatory manner. Lacking a federal RPS, there are other actions that can be taken to address many if not all of these barriers and allow renewables to be developed at the state and local level to secure our energy needs, make maximum use of resources, and encourage job retention and creation.

- Incentives should be given to encourage states to pass renewable portfolio standards that offer long-term contracts for renewable project development. Production tax credits could be “grand fathered” to match the life of the renewable portfolio standard passed by a state into law. Regulatory reforms to halt the penalties presently assessed against intermittent renewable resources could also be passed. For example, intermittent renewable project development up to the level of maintained “spinning reserves” could be “firmed” by requiring the use of spinning reserves. Again an action of this type could be tied into a package offered to states that pass portfolio standards in order to encourage their development.

REPP JOB ANALYSIS

Renewable energy development can provide substantial local economic development stimulus. REPP has been working on an ambitious effort to establish an accurate, current survey of industry practices in manufacturing, installation, operation and maintenance of all the major types of renewable technologies. That information allows us to calculate with some precision the precise potential job impact of all types of renewable projects, ranging from national portfolio standards to local municipal efforts. That work identifies the potential benefits. REPP is also working to capture as many of those potential benefits for local economies as possible.

Labor Requirements for Renewable Energy Technologies

Technology	Model Project Scale	Person-Years per MW
Solar PV	2-kW systems	35.5
Wind	37.5 MW	4.8
Biomass Co-Firing	100-750 MW	3.8-21.8

For the past six months we have been working with the state AFL-CIO in Nevada. As a result of that effort, organized labor strongly supports the RPS legislation passed by Nevada. We have filed testimony with the Commission in the state, specifically identifying the benefits and are now concerned with how best to capture those benefits.

In part that testimony stated: “The Nevada AFL-CIO supported Senate Bill 382 and the establishment of the Renewable Portfolio Standard (RPS) for the state. At this time, we urge the Commission to adopt rules and regulations that will implement this legislation fairly and expeditiously. These comments first outline the broad reasons for this support and based on those reasons offer comments to the Commission on how the specific regulations implementing the law can preserve the important benefits the RPS offers. We believe the RPS can provide a stable source of reasonably and fairly priced electrical generation for Nevada. The renewable resources developed in response to the RPS will lessen our need for fossil fuels and enhance our national energy security. The renewable resources will provide important environmental benefits to the citizens of Nevada by lessening air pollution and saving water that otherwise would be consumed in thermo-electric generation. Finally, the RPS will provide an important source of economic and job diversification.” (Testimony of the Nevada AFL-CIO to the Public Utilities Commission. Attached)

The Testimony went on to calculate the specific job benefits that could be expected from the RPS: “The renewable technologies capable of meeting the RPS requirement are geographically diverse and modular. We believe that the majority of the RPS requirements will be met with solar, wind, geothermal, and biomass projects. Each technology will provide a different mix of employment. In addition, the job potential for Nevada will depend upon how much of the manufacturing activity locates in Nevada. In order to make an initial estimate of the job creation potential we rely upon recent work done by the Renewable Energy Policy Project to calculate the jobs related to renewable energy production. This survey work is attached as Appendix A to these comments. We believe the survey is useful for the Commission deliberations since it is based upon current industry practices.

In order to make an initial assessment of the job creation potential we had to make a number of assumptions. Those assumptions are presented in detail in the Appendix. Briefly, we assumed an initial retail kWh sales figure for 2003, calculated the required RPS generation for that year and assumed a breakdown for the various generation types to meet those requirements. Sales by technology type were then turned into installed capacity, which is used with the REPP jobs analysis to derive jobs. Jobs are broken

down into a number of skill sets and also divided into broad categories. For these purposes, it is important to recognize that a number of the jobs calculated will be in the manufacturing process which may not be located in Nevada. The installation and on-going O&M jobs are also calculated and those are shown separately. The full calculations shown in Appendix A show that the RPS will create 8,092 FTE jobs in Nevada for the installation and O&M employment. Since the FTE calculation is for the entire ten-year period, on average the installation and O&M will add 809 jobs in Nevada for the period. Those are of course direct jobs and do not count any indirect employment multiplier. If the entire manufacturing process is added to the installation and O&M employment, the total rises to 27,229 for the ten-year or 2,729 on average. Of course, the manufacturing will have to be relocated to Nevada and so it is unrealistic to consider the full employment figure. As will be explained below, the difference between the employment value with and without manufacturing can be used to measure the value and the importance of providing incentives to suppliers to locate employment in Nevada. In calculating the cost offset we use two figures: the avoided unemployment payments and the cost per job from the national survey of incubators as discussed below.” (Testimony)

RENEWABLE MARKET BARRIERS

From a national perspective, a recent Energy Information Analysis of a 10% renewable portfolio standard showed that it would reduce the nation’s energy bill by \$15 billion per year. The specific EIA analysis, which was conservative in the technology assumptions and a number of other features, nevertheless showed overall energy bill declining as a result of the renewable development. With a 10% RPS, renewable energy will displace natural; gas and lower the cost of natural gas for all users. Although the EIA analysis does not go into detail, REPP believes that a renewable led decline in natural gas usage will lead to a reduction in the use of high cost imported liquefied natural gas (LNG). A program to accelerate the penetration of renewable energy will be lower in cost, provide obvious environmental benefits, and increase security.

Despite these benefits, many roadblocks stand in the way of renewable development. The major impediments were listed in the Summary.

- **Merchant Plant Financing:** To date there have been no renewable energy projects developed that relied solely upon merchant plant financing. This type of financing will, by its nature, tend to favor projects that use well know, tested technologies and that minimize capital costs relative to total kWh cost of production. To circumvent that problem, states have gone to Renewable Portfolio Standards that require the sellers of electricity to either develop renewable projects on their own or purchase renewable generation under long term contract from developers. In states where this has happened, such as Texas, renewable projects have been developed quickly and have usually been oversubscribed, that is more projects were offered for development than the RPS required.
- **Uncertain Tax Treatment:** The major tax incentive for renewable technologies has been the production tax credit. Unfortunately, that credit has not been available over a long time frame with certainty. As a result, renewable projects brought on-line have fluctuated wildly. Industries have operated at close to or in excess of full capacity or have seen project development drop dramatically. This makes the industry inefficient and leads to higher project costs.
- **Wind and solar energy** are two renewable technologies that are intermittent in nature, that is production is predictable but somewhat variable depending upon uncontrollable climactic conditions. This intermittency has led to problems with capacity credit for generation and balancing problems. Intermittent resources are often credited with zero capacity which means owners have to purchase redundant capacity, that is 1 KW of solar PV would have to preaches 1 KW of “firm” capacity in order to have firm power. Purchasers of intermittent renewable energy also can face balancing penalties. A purchaser of for example 100 kWh of wind or solar would have to pay a balancing penalty if the actual deliveries of the solar or wind resource were over or under the specified 100 kWh. These balancing penalties are often nonsymmetrical, that is the price paid for energy delivered in excess of the scheduled amount is often much less than the cost assessed for insufficient deliveries.

RENEWABLE MARKET TRANSFORMATION

Federal legislation to implement a national Renewable Portfolio Standard would cut through many of these problems, provided the RPS fairly treated all sellers of electricity and regions of the country. Lacking that standard, there are actions the federal government can take that will encourage states and localities to accelerate the development of renewables. Those actions fall into two categories: those that would encourage state or local action and those that would act to remove present barriers. In my opinion, the following actions would achieve a bit of both that is they would encourage states to act by removing barriers.

Many states are considering adopting Renewable Portfolio Standards. Federal actions to channel tax credits to those states would provide a positive incentive for them to act. In addition, actions to remove the penalties assessed against renewable, intermittent resources would also make the RPS resources more valuable and thereby provide an additional incentive.

Federal action that provided more consistent production tax credit treatment for renewable projects developed in states with an acceptable RPS would reduce the cost of the RPS to those states and channel tax incentives to those states. For example, the production tax credit could be offered to all renewable technologies that qualified under a state RPS and could be offered for a firm timer frame that would either be tied to the state RPS or simply made longer than would be available to other states. The production tax credits could also be transferable to other taxable entities in the state.

Finally, the matrix of federal and state policies that govern the management of complicated power pools and power exchanges operate, most likely unintentionally, against many renewable resources. Interconnected power plants are currently required to maintain reserves against outages. These reserve requirements are system costs, that is they are assessed against all users of the interconnected system, even if the plants they own or have under contract are unlikely to require reserves of the magnitude required. These requirements favor large plants but they also provide an unused or underused resource that could be used to encourage renewable development. An intermittent, renewable resource is often not given any capacity credit in these pools and are therefore required to purchase capacity to be considered firm power. Federal action

to require that “spinning reserve”, that is plants kept running in order to be available at short notice to meet an unexpected outage, could be made available to “firm” renewable resources. Similarly, balancing requirements could be waived for renewable projects within a bandwidth of plus or minus 15% of scheduled power. Again, these actions would be offered as part of a program to encourage individual states to pass renewable portfolio standards. Federal supports of this type can provide powerful incentives to states to lead the way to acceleration of renewable technologies.

REPP experience convinces us that the energy, environmental and job creation benefits of renewables will lead to even greater public support. Federal actions to support aggressive state developments will be of great assistance in this process. Accelerating renewables will provide us with affordable energy, generated in an environmentally responsible manner, in such a way as to enhance security, and provide substantial economic stimulus to state and local economies.