Testimony of
Virinder Singh
Research Director
Renewable Energy Policy Project

On
The Role of Tax Incentives in Energy Policy

Before the Committee on Finance, United States Senate

July 11, 2001

Chairman Baucus, members of the Committee, thank you for inviting me to today's hearing.

The Renewable Energy Policy Project is a non-profit devoted to educating both the public and key decisionmakers about renewable energy policies, market trends, and technologies. We have produced over 30 reports that discuss the many intersections between renewable energy, changing electricity markets, and environmental quality. Our reports are peer-reviewed, and are the result of our extensive interactions with renewable energy firms, utilities, state and federal government officials, and environmentalists.

Today, I will discuss the implications of renewable energy technologies and markets on the production tax credit. Please note that I am not a tax specialist, so the intricate details of tax policy are not the focus of my testimony. Instead, REPP works on technologies and markets, which are important when thinking about the PTC.

Based on our observations of the energy sector, and on our extensive discussions with utilities and renewable energy firms, I offer seven key observations:

- First, renewable energy is important to the United States
- Second, the PTC has played a pivotal role for renewable energy
- Third, the PTC should be extended
- Fourth, the PTC should be made permanent
- Fifth, the PTC should be expanded to include geothermal and open-loop biomass technologies
- Sixth, support for renewables in the public power sector is also important
- And seventh, other policies beyond the production tax credit are essential to advance renewables.

I will now discuss each of these points in greater detail.

1. Renewable Energy Is Important to the United States

Renewable energy offers many values to Americans, though I will not spend too much time outlining all of these values.

Given the current volatility in the electricity market, it is important to emphasize that fuel-free sources such as wind, solar and geothermal typically have predictable price patterns. This insulates American households from high natural gas prices, much as T-bills can shield investors from wild .com stocks.

Further, renewables offer substantial economic development benefits. Benefits include revenues for rural communities and landowners, as well as new jobs in manufacturing, construction, and installation. One REPP study found that adding 10,000 MW of wind power to the U.S. over 10 years would generate nearly $8 billion in revenues.

And finally, renewables have little to no emissions compared with coal power and even natural gas. From a price stability perspective, this means renewables have low regulatory risk. There is little to no need for pollution control retrofits or other approaches, thereby reducing energy suppliers' worry that environmental policy will shrink their bottom line. Thus, American consumers do not have to worry about passed-on cost increases.

2. The Production Tax Credit Is Important for Renewable Energy

The production tax credit, which currently offers 1.5 cents per kWh (1.7 cents per kWh when adjusted to inflation) to wind, closed-loop biomass facilities and power plants fed by poultry litter, has played an important role in renewable energy development, by supporting the development of wind power.

Texas provides a good example. The state passed a "renewable portfolio standard" requiring 2,000 MW of new renewable energy facilities by 2009. In response, over half of the 2,000-MW mandate will be fulfilled by the end of 2001, 8 years before the deadline for compliance. The renewable portfolio standard is the main reason wind is now prevalent in Texas. But the production tax credit is a primary reason for the rush of wind installations before the end of 2001, which is when the production tax credit ends.

Thus the production tax credit played an important role in the timing of $1 billion of investment in wind power in Texas over a 2.5-year period, from mid 1999 to the end of 2001, though it was the renewable portfolio standard that encouraged wind development in Texas in the first place.

I believe this a crucial story. Texas housed virtually no wind power capacity before the renewable portfolio standard was passed. However, the renewable portfolio standard catalyzed a surge of projects and investments, particularly into west Texas. But wind companies found the production tax credit of such value they sped up their activities beyond most observers' wildest expectations. The renewable portfolio standard and the production tax credit go hand-in-hand.

One key lesson from Texas: The production tax credit is very important to the world of private capital, which is essential for continued renewable energy development. But as my next recommendation states, the potentially short-lived wind "boom" in Texas is not necessarily the best path to the orderly development of the renewable energy industry.

3. The Production Tax Credit Should Be Extended

One significant lesson from the history of renewable energy development is that sharp, policy-driven spikes in investment and business activity are not good for the industry. The most well known example is the case of tax credit for solar water heaters in the 1980s. In this case, a heavy dose of public incentives over a short period of time encouraged rapid, even hasty business development. Ephemeral tax credits did not lead to the earnest expansion of capital and overall industry capability. Instead, when the tax credits ended, so did most of the domestic industry. Policies that encourage only short spurts in sales are not nearly as useful as policies that provide a more predictable investment environment that is not buffeted by volatility.

In a current example, in the U.S. approximately 2,000 MW of wind power is coming on-line nationwide. That means about $2 billion of investments in wind power. As in Texas, the timing of the PTC is the prime reason for the timing of this investment, though not necessarily the top driver for the investment itself.

Based on our discussions with the wind industry and utilities, the surge is so great that wind developers are stretched to their limit. They cannot take on much more business this year, even though opportunities continue to present themselves. In an ideal scenario, the PTC would last past 2001, stimulating an orderly increase of projects that is in accordance with the size of the wind industry today. The problem with short eligibility periods is that, without longevity, it does not encourage the kinds of capital investment in wind-related businesses that are essential for long-term progress. Instead, short-term measures force the existing resources of the wind industry to do a lot in one year, with the possibility of a sharp contraction from which it must recover in the future.

It appears that if the PTC is to contribute to the steady growth on the U.S. renewable energy industry, it must avoid cycles of boom and bust, or at least contribute to smoother cycles so that the nation does not squander the market and technical advances it has pursued for decades, the fruits of which are just now starting to be realized.

4. The Production Tax Credit Should Be Made Permanent

The timing of the production tax credit is crucial to its success, however the Committee chooses to define the goal of the production tax credit.

Based on REPP's interactions with the utility industry, and given the volatility in the U.S. electricity market today, particularly in the West, I expect that many renewable energy projects will progress very slowly for two reasons. First, investors are awaiting the results of overlapping energy policy deliberations. Second, project developers must seek siting permission and access to scarce transmission lines.

This means that a tax credit policy that only applies to projects coming on line within a couple of years will not on its own support as many profitable projects as possible. Instead, extending the PTC beyond at least five years will be essential if it is to be effective, particularly in the West.

Overall, ideally the most stable, predictable PTC is a permanent one, which does not induce market booms and busts but facilitates steady market development.

5. The Production Tax Credit Should Be Expanded to Other Renewables

I believe the PTC can be expanded and meet a number of possible national energy goals. First, I would like to provide a little background on this.

What we are seeing right now is a surge of wind development. As I've already mentioned, this growth is partly due to the federal production tax credit passed in 1992. The cost of wind power is cheaper per kWh than other renewables, assuming good to excellent wind sites. But wind power trends should not eclipse the potential of other technologies.

According to a report published by REPP, price reductions in geothermal, wind, solar and biomass have exceeded most published price expectations over the last 25 years. Steady yet hard-won improvements in the efficiency of these technologies are a big factor for the cost declines.

And according to the Clean Energy Futures study completed by 5 federal labs, under an aggressive policy scenario, wind would grow over 45 times current capacity by 2010. At the same time, geothermal triples and biomass grows by over five times.

There is significant potential for all of these technologies—thus there is little reason that the design of the production tax credit should favor one technology over another at the outset.

Just as important as national potential is regional potential. Different states have different renewable energy endowments. Based upon preliminary studies by REPP, biomass resources dominate the South's renewable resource endowment. Geothermal energy potential is concentrated in the West, which is desperately searching for new supply. And wind power is at its best in the middle of the United States.

Making all of these technologies eligible for the production tax credit means that states throughout the United States can benefit.

A special note is worth mentioning for biomass. The general order of biomass feedstocks, from cheapest to most expensive, is landfill gas, urban wood waste, agricultural processing residues (such as nut hulls), forest clearing residues, agricultural field leftovers, and energy crops. Energy crops are considered "closed loop" and currently qualify for the production tax credit under current law. All other sources are considered "open-loop biomass" and do not qualify for the production tax credit. In order to unleash the use of these resources, then expanding biomass eligibility under the PTC to include "open-loop" biomass is essential.

Among the different biomass technologies, there is growing expectation that co-firing will play a prominent role in future biomass development. Co-firing involves substituting between 5% to 10% of a coal plant's heat input with biomass. While coal plant owners have been slow to adopt co-firing, numerous demonstration projects, such as TVA's Kingston plant in Tennessee and IES

Utilities' Chariton Valley project in Iowa, will help make other utilities more comfortable in developing co-firing. Many renewable energy advocates see co-firing as a way to stimulate a biomass feedstock supply network that will feed other biomass energy technologies. A production tax credit can play an important role in making this relatively cheap opportunity more prominent nationwide.

6. Support for Public Power Is Vital

It is important for the federal government to support the efforts of public power entities, such as rural electric cooperatives, tribal utilities and municipal utilities. Co-ops such as the Kotzebue Electric Association in Alaska, municipal utilities such as those in Sacramento and Los Angeles, and tribes such as the Rosebud Sioux are all developing renewable energy.

Yet based on our discussions with public power officials, the Renewable Energy Production Incentive (REPI), which is based on annual appropriations, has too much uncertainty to nurture sustained investment in renewables. One concept to help public power, advanced by the American Public Power Association, is tradable tax credits, which are credits allocated to public power entities who can then sell them to investor-owned entities, or even transfer them to their customers who choose to buy renewable energy from the public power entity.

Overall, based on the level of interest in renewable energy REPP has observed from public power agencies, there is little reason from a renewable energy development perspective to restrict tax credit benefits to taxpaying entities. Opening opportunities to public power can increase the ability of U.S. tax policy to encourage renewable energy development in the rural United States.

7. Other Policies Are Essential to Advance Renewables

Finally, it is of the essence to remember that the production tax credit by itself will not directly lead to a sudden expansion of renewable energy markets. Instead, a number of other factors have to come into play if renewables are to flourish. These factors include:

- Favorable technology developments through continued research and development, which lower cost and meet customer needs,
- Renewable portfolio standards at the federal and/or state level, whereby energy suppliers are required to draw upon renewables for a portion of their supply,
- System benefits funds, which entail a small surcharge on consumers' monthly bills to support renewables, as well as energy efficiency and low-income energy supply,
- Transmission policies that open access to existing and new transmission lines to renewable energy facilities, and
- Distribution grid policies, at both the federal and state level, which encourage small-scale power technologies that improve service and reduce the need for expensive transmission.

Thank you for the opportunity to speak on these timely issues that affect our nation's future.