

Transforming Production Tax Credits

Three reasons to make them a permanent part of U.S. energy policy.

BY GEORGE STERZINGER



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For the past decade, the renewable energy industry and various branches of the federal government have engaged in an ungainly, enormously unproductive

two-step on production tax credits (PTC) for renewable energy projects, and for wind projects in particular. The back-and-forth choreography is sustained by two unchallenged misperceptions about the PTC: That it has no fundamental justification, and that the value of the credit goes totally to developers.

The PTC can be transformed into a keystone of an effective energy environmental policy. However, to achieve this transformation, the misperceptions must be challenged.

Begin with the current PTC. In broad terms, it offers an inflation-adjusted credit against taxes on certain types of income for every kilowatt-hour generated for the initial years of the operating life of a qualified renewable technology. (The details of the PTC vary by technology, but the basic principles hold for all.) The PTC never was permanent. It initially was passed for a period of seven years, and since has been renewed for periods as short as one year.

As every expiration date draws near, critics mount a campaign against both

the PTC and the eligible renewable technologies. The typical critique says there is no legitimate role for government intervention, making the tax credit an unjustified subsidy to developers that serve to prop up a resource the market otherwise would not permit to exist. The renewable energy industry, especially representatives of the wind industry, counters with its own campaign. Typically, the dance ends with a compromise: The credit is renewed, but only for a very short period of time.

The start-and-stop nature of this process has driven inefficiencies into the renewable industry and prevented the development of domestic component suppliers. Project developers cannot build up a stable team of installers because installations have, for periods of a year or more, plummeted. In addition, a strong national development effort could trigger an increase in demand for the many component parts that go into renewable projects, providing at least a potential spur for domestic manufacturing.

This stop-and-start nature of the demand generated by the PTC makes it very hard to justify the kind of investment in new production lines that capturing this potential would require.

Three Reasons Why

The PTC should be made a permanent

part of U.S. energy policy for at least three reasons. First, and foremost, the PTC can provide a critical part of an energy environmental policy to remove carbon emissions from electricity generation and ultimately to stabilize the U.S. share of global emissions. Technologies that remove carbon emissions from the generation of electricity provide a public good that should be paid a public return. The PTC is one effective way to provide this return to developers. This very simple recognition transforms the PTC into a keystone component of an effective climate stabilization policy.

Second, if you look at who receives the benefits, or where the incidence of the tax benefit falls, it appears that many of the benefits of the PTC do not go to developers but flow down to the utilities and consumers in the places where the projects are developed. The PTC represents a federal policy that encourages aggressive individual state actions to meet an important national goal and seems to provide at least some benefits to the consumers of those states. As a result, federal, state, developer, and individual consumer interests will be lined up in a consistent, positive manner.

Finally, a permanent national program of supports for renewable development will create a major new demand for a variety of component parts that can be manufactured domestically. An equivalent set of supports for any firm willing to expand production facilities in order to supply component parts to these new renewable projects should be encouraged.

Carbon Policy

To see how the PTC can function as an integral part of carbon policy requires only one small step: If the stabilization of carbon emissions is determined to be an important public goal, then the removal of carbon from the generation of elec-

tricity should be recognized as an important public benefit. If you have two technologies, both of which can deliver electricity, but one of which can deliver it with no carbon emissions, the carbon-free technology should be provided with a public return that recognizes the public benefit it provides. Any private entity that can deliver the benefit should be allowed to earn a public return.

Calculating this public return is simple: It begins with an initial estimate of the value of a ton of carbon removed from electric generation. The value per ton can be set a number of ways, but the initial estimate is not that critical because it can be adjusted over time as energy developers react to it.

Every renewable kilowatt-hour generated displaces another kilowatt-hour, and that displaced kilowatt-hour will be assumed to have carbon emissions. This amount of avoided carbon determines the public return.

If a value of \$50 per ton carbon is the initial estimate, then the value per kilowatt-hour is simply the number of kilowatt-hours required to displace a ton of carbon divided into the \$50. If that number produces a huge response, far beyond what is needed, the value can be reduced. If the value does not produce the kind of response necessary to hit the carbon reduction target, then the value can be raised.

This type of policy represents a departure from the present consensus on how to reduce carbon emissions from the generation of electricity. At this time, the majority of energy and environmental policy experts favor intervention at the consumer end, and,

in particular, in the price consumers face as the favored method to implement a carbon policy.

These consumer/price-oriented policies rely on a long and potentially weak chain of actions and reactions that eventually could lead to the discovery, development, and commercialization of carbon-free technologies. A cap or tax is set and passed on to the appropriate price. Consumers see that price and react. Other technology developers see that price increase and move to capture the advantage. As new technologies are developed, carbon-free technologies move into the market.

Each of those links is weak and can be broken by market power and price discrimination. A cap is a necessary part of a carbon stabilization policy. However, it is not sufficient in itself. A direct, public return is both a complement to a cap and a more direct link between private initiative and the development of carbon-free technologies.

Closing the Circle

The common perception that PTC benefits simply serve to line the pockets of developers does not square either with economic theory or empirical evidence. A strong case can be made that a large share of the benefits is passed on to the purchasers of the renewable energy through lower prices. A PTC would close the circle because it would encourage the final purchasers—who ultimately provide the contract necessary for project development—to go after renewable projects.

Anecdotal and analytical evidence suggests that many of the benefits of

the PTC are indeed passed on to the consumers in the states that promote development. In states that have called for large-scale development of wind, such as Texas, an RFP typically is issued for a stated amount of wind power. Developers have to compete for this limited number of contracts. According to one developer of projects in Texas, the competition among developers is intense, and most of the benefits of the PTC are passed on either to the local utility or the ultimate consumers of those utilities. Long-term contracts for West Texas projects have been accepted at between \$.025/kWh and \$.03/kWh.

Comparing the long-term contract prices for excellent wind regime projects developed in the European Union and the United States supports the argument that PTC benefits flow to utilities and consumers. West Texas projects typically have capacity factors ranging from 35 to 40 percent. In Northern Ireland several projects have capacity factors slightly better than the Texas projects. The projects use similar technologies and have similar sized individual turbines. The Irish projects tend to be smaller than the West Texas projects, which could make them slightly more expensive.

The Irish projects have been developed under competitive solicitations but without the benefit of a PTC. The long-term prices for these contracts have been roughly Euro 0.05/kWh. (The value of these contracts in U.S. dollars will depend on the exchange rate, but over the past five years that range would have been between \$.045/kWh and \$.06/kWh.) The difference in the »



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delivered cost per kilowatt-hour from very similar developments provides additional evidence that a substantial portion of the PTC benefits actually flow through to the purchasers of the power.

This is an important attribute of the PTC because it makes it a federal policy that can enlist strong local responses to achieve what is a national, indeed international, goal. The PTC will bring a strong response from developers. Since the benefits flow to local consumers and utilities, the PTC will encourage states and local agencies to approach renewable development with enthusiasm. The PTC balances the interests of the major forces necessary to have a successful national policy.

Reindustrialization Through Renewable Energy

Any national energy policy will be both more effective and much more likely to receive broad support if it treats all regions and states fairly. One of the critiques leveled against past proposals to make a national commitment and provide federal supports to renewable development has been that only a handful of states with strong wind or other renewable resources would benefit. One of the best ways to balance a national program that supports project development is to broaden it and encourage the development of a manufacturing industry that complements the large-scale development of new renewable projects.

A series of recent analyses undertaken by the Renewable Energy Policy Project looked at the potential for U.S.

industry to increasingly supply the component parts that make up wind turbines and other commercial renewable technologies. The results are stunning. More than 70,000 firms are active in these types of industries. A national commitment to develop renewable energy would stimulate the demand for all of these components.

The report also looked at which states would be the most likely to receive an economic stimulus as a result of a national program to develop renewable energy. The results were encouraging: 75 percent of the stimulus measured as the creation of new jobs would go precisely to those states that have suffered the greatest loss of manufacturing jobs over the past four years.

A balanced national commitment would offer a public return for carbon-free generation and also provide incentives for manufacturers to expand or add new lines in order to provide the components any major program would require. The Energy Policy Act of 2005 offers several examples that easily could be extended to manufacturing incentives. The U.S. Treasury could provide “full faith and credit” guarantees for loans used to add or expand manufacturing capability. Clean Energy Bonds also could be offered for manufacturing.

Forward March

What is required to move forward on this effort? As a nation, we must recognize that carbon-emissions stabilization is an important public goal or priority. Once that recognition is made, a clear, efficient blend of energy policies that

coordinate state and local efforts and that allow for the most creative infusion of private initiatives can move forward. Simple reforms to make the PTC permanent and to include other financial incentives equivalent to the PTC can provide a keystone to a workable, believable carbon stabilization policy.

One final note. The Energy Policy Act of 2005 contains several novel financial supports for renewable and other advanced technologies that can provide dollar-for-dollar returns to these technologies equal to the PTC, but which have the potential to “cost” the U.S. Treasury much less in terms of either direct expenditures or lost tax revenues. One prime example involves extending “full faith and credit” guarantees to qualifying projects. The full faith and credit will benefit development by lowering the cost of project debt significantly. The “cost” to the Treasury, however, is determined by estimating the risk of project default: no risk of default, no cost.

Any state that protects the recovery of sales revenues from qualifying projects would reduce the risk of default to close to zero and provide a very attractive use of the full faith and credit guarantee. Extending that type of guarantee as a replacement for the PTC could greatly lower the scored cost to the Treasury and still provide the same magnitude of public return to renewable energy developers. ■

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