Can "Green Power Insurance" Boost the Renewable Energy Industry?

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THE NECESSITY OF GREEN POWER INSURANCE

The development of renewable power projects can be hindered by many things. Cost, public opposition, and lack of consumer understanding about the effects of different power generation technologies are just a few. A lesser known restraint, however, is the scarcity of financing options available for the development of renewable generation.

Prior to deregulation, power plants were built according to need and utilities had a captive customer base and were able to charge a regulated rate for electricity. Lending institutions offered reasonable interest rates because there was strong assurance that the investment would be recouped. The market is still principally supplied by facilities that were built with the guarantee that utilities would purchase the power. In a competitive market, however, no such guarantees exist for those building new generation facilities. Absent customer choice, the majority of power producers will construct generating capacity only under favorable financing terms. Green power is still a niche market and generally available at premium prices which limits the number of customers a marketer might acquire.

In the green power market, there is currently a gap between the short-term commitments of green power consumers and the long-term concerns of lenders. Green power marketers are energy service providers who offer a renewable-based electricity product in a restructured electricity market. When choosing a green power marketer product, customers only sign short-term contracts (if they do so at all). Many

marketers do not require a stated commitment. In a newly deregulated marketplace, the very presence of competition precludes customers from locking themselves into a lasting contract. However, the lack of long-term commitments are troublesome to lenders as there are no guarantees that a marketer won't lose customers. From a lender's perspective, financing a renewable project for a green power marketer can be a big risk. A green power marketer has neither a track record nor an established customer base. The lending institution has no guarantee on recouping the investment and so interest rates are substantially higher than the lending terms established for developers of fossil fuel-based plants (who have enough history to guarantee a return). It is in this scenario that green power insurance can play a role.

THE GREEN POWER INSURANCE INITIATIVE

First introduced early in 1999, the Green Power Insurance initiative is a proposal to establish a government subsidized insurance product. The idea was first developed at a green power conference held in Washington D.C. in 1998. Participants in the development of the proposal include the Renewable Energy Alliance, various green power marketers and insurance companies, and the US Department of Energy. The basic premise of the proposal is to require a small amount of federal and matching state funds to support the development of a commercial insurance product. Marketers would be allowed to purchase insurance when they entered into long-term renewable energy development projects.

The initiative requires the buy-in of both insurance companies and state and federal governments. Insurance companies will offer insurance on green generating capacity while state governments will front the cost for developing the insurance. This can be funded through system benefit charges or other means of funding. The initiative calls for matching federal contributions for five years, up to $5 million a year.

Unlike other financial incentives geared towards renewable energy, the contributions anticipated from state and federal levels will not be used to "buy down" the cost of renewable energy. Green power customers have already committed to paying a premium price for renewable electricity. Rather, the money will used to mitigate the risks lending institutions undertake when funding renewable energy development for green power markets (as mentioned earlier, a decline in market price or

the loss of green power customers). Green power insurance is intended to serve as a catalyst for the green power market. Once the market has proven itself, and banks have long-term results on which to base lending, green power insurance will no longer be a critical component to development.

OVERVIEW OF GREEN POWER DEVELOPMENT INITIATIVES IN THE UNITED STATES

Renewable generation has developed rapidly in the past few years in the United States. However, past and current development still accounts for only a minimal amount of all electricity generation. Coal, natural gas, nuclear, and petroleum account for the lion's share of power generation, nearly 85 percent according to 1999 figures. Hydroelectricity, generally not considered a renewable resource in the United States due to the environmental impacts of dams, accounted for approximately 13 percent. Renewable generation was not quite 3 percent. The past two years have proven to be significant ones for wind power development in the United States. Between June 1998 and June 1999, 1,073 MW of new and repowered wind capacity was installed in the United States. The resurgence in wind development is largely attributed to a federal production tax credit that was set to expire in June 1999 (developers raced to finish projects before the deadline). The tax credit deadline has been extended until the end of 2001. However, unless wind power has reached cost competitiveness with traditional forms of energy production by the time the tax credit expires, the wind industry may experience a downturn in growth.

The United States has other renewable programs and initiatives in place, but nothing that will contribute significantly to the renewable energy supply. In 1997, the Million Solar Roofs Initiative was introduced with a target of I million solar roof installations by 2010. Solar power, however, remains the most expensive renewable technology and is currently unable to compete with grid-generated power except in niche markets. Almost 75 percent of the United States photovoltaic equipment output is exported.

In January 2000, the Clinton Administration announced a plan to foster the development of 20,000 MW of geothermal power generation.

The goal of the plan is to have geothermal energy account for roughly 10 percent of Western power needs by 2020. Biomass has also been targeted by the federal government. In August 1999, an executive order was issued to spur the use of bio-based products and bioenergy. The target is to triple the use of biomass, in all forms, by 2010. The previous plans and goals are a step in developing a renewable energy future, but they are also just that—plans and goals. It is not clear how these targets are to be achieved. In the absence of clear policy objectives, green power insurance can provide an incentive for the increased development of renewables.

GREEN POWER INITIATIVES ABROAD

Unlike the United States, other countries have established policies to encourage the development of renewables. Spain, Denmark, and Germany are examples.

Spain

In late 1998, the EU's European Regional Development Fund, in conjunction with the Spanish Institute for the Diversification and Conservation of Energy (IDAE), agreed to an $80-million program to invest in renewable energy projects. The development of wind capacity will account for one-fourth of the program's total investment, but the main goal is to double the number of solar panels in Spain. Additionally, a December 1998 Royal Law set a target for renewable generation to provide at least 12 percent of Spain's electricity demand by 2010.

Denmark

In 1996, Denmark introduced the Energy 21 program, which sets a national objective to reduce carbon emissions by 20 percent below the 1998 level by 2005. The program includes a target for the installation of 1,500 MW of wind capacity by 2005. As of 1998, Denmark has installed roughly 1,467 MW of wind power (12 percent of the country's total electricity consumption). Additional targets of Energy 21 include 5,500 MW of installed wind capacity by 2030, 4,000 of which are expected to be installed offshore.

Denmark has produced two of the leading wind turbine manufacturers in the market, Vestas and NEG Micon, and the country currently

exports over 75 percent of their production.

Germany

In 1998, wind power capacity in Germany exceeded that of the United States for the first time. Germany does not have any specific renewable energy targets, but does have a goal of reducing carbon dioxide emissions by 25 percent relative to 1990 levels by 2005. The most notable program in Germany is the Electricity Feed Law, established in 1991, which requires utilities to accept all electricity generated by renewable sources. Initially, the law fixed the purchase price for electricity at 65 to 90 percent of the end user price, depending on the renewable source (a utility paid 90 percent for wind). In April 1998, however, the law was changed and utilities are no longer required to accept more than 5 percent of their total electricity from renewables. Wind turbine operators in Germany receive investment assistance from the Deutsche Ausgleichsbank through soft loans with average interest rates 1 to 2 percent below capital market rates. The rates are fixed for the duration of the loan.

WHY IS GREEN POWER ESSENTIAL TO UNITED STATE'S ENERGY POLICY?

A strong renewable power industry could enhance our national security. The renewable markets of other countries are developing rapidly, particularly wind-based power generating technology. The United States has a economic interest in ensuring a competitive share of the world renewable market. Additionally, it is becoming increasingly clear that the United States must reduce its dependence on foreign oil imports, particularly as developing countries become more industrialized and demand a greater share of fossil fuels. Investment in the diversification of power generation sources is a prudent move that will contribute to the security of the United States.

Renewable generation is also necessary to offset the substantial contribution the United States makes to total world greenhouse gas emissions. The United States has less than five percent of the world's population and produces approximately 25 percent of the world's gross

domestic product. According to the Energy Information Administration (EIA), the United States also produces roughly 20 percent of the world anthropogenic carbon emissions (emissions caused by human activity). Current projections from the EIA, absent any policy intervention, show United States emissions increasing by 1.2 percent annually between 1995 and 2015. Emissions from 28 industrialized countries are expected to increase at the same rate. Developing countries, which hold approximately 81 percent of the world's population, currently have very low per capita emission rates. However, emissions in these countries are expected to increase significantly. China and India are both countries that use fossil energy to further their economic development. The EIA projects that emissions in developing countries are expected to increase 2.9 percent annually between 1995 and 2015.

In 1998, the North American region produced 1728.26 million metric tons of carbon. The United States produced 1494.60 million metric tons, an increase of more than ten percent compared to 1990 figures. North America was surpassed only by the Far Eastern and Oceanic region, which produced 1834.75 million metric tons in 1998. By comparison, Western Europe produced 996.90 million metric tons and Eastern Europe (including the former USSR) produced 800.03 million metric tons (source: EIA).

FROM INITIATIVE TO IMPLEMENTATION

The green power insurance initiative is just that, an initiative. A formal product has not yet been introduced even though green power market development is essential to the United States' energy policy. Renewable power generation is not only necessary to ensure a sustainable environmental future, but also to ensure the United States' place in an emerging field.

Without green power insurance, or some other means to make financing terms more amenable to renewable power generation, the green power market in the United States will continue to grow slowly. Much of the success in renewable development in other countries, particularly wind power, has been achieved through policy initiatives. Currently, the United States has established some tax incentives for development (most notably the federal wind power production tax credit), and individual states have created Renewable Portfolio Standards. However, these

policy initiatives fall far short of the those created by other countries. Without stronger federal directives, and continued state and federal subsidies, the US green power market will continue to grow slowly, with implications for the nation's national security

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ABOUT THE AUTHOR

Heidi Anderson is a research analyst, energy markets, with Frost &. Sullivan's San Jose, California, office. She has authored, or assisted in preparing, custom projects analyzing selective world power generation facility markets, and in a study of the marketing of bundled energy management solutions. The focus of her research is on renewable energy markets in North America, including renewable energy technologies and manufacturers, green pricing and marketing, and emerging markets and technologies. Articles, and quotes, by her have appeared in a number of technical press and trade journals.

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(For a comprehensive view of the Green Energy Markets please contact Rolf Gatlin at 210.348.1017 or rgatlin@frost.com and reference Frost & Sullivan report #5909-14)