

Facultative Matters[®]



Contents

Electricity Sales	2
Financial Incentives	2
Renewable Energy Certificates	3
Summary	3

Wind and Solar Energy Time Element— More Than Meets the Eye

by T. Michael Maloney, Gen Re, Chicago

The growth trend of wind and solar energy facilities continues on an upward trajectory, fueled by a mix of favorable political, social and economic policies. Industries that enjoy the benefits of these favorable conditions typically see a rapid evolution of ideas to improve technology, reduce costs and increase efficiency of their operations. Wind turbine and solar energy technologies are following this path, evolving daily to create a dynamic and challenging opportunity for the insurance community.

A great deal of information is readily available to understand the physical and operational characteristics of wind and solar technologies. Armed with this information, it is a short leap to understand the hazards associated with property damage from first-party coverage perils.

But what about the resultant time element exposures? At first glance, the picture appears relatively simple and similar to the metaphorical widget manufacturer. The “widgets” of wind and solar energy risks are kilowatt-hours (kWh) of electricity. When the wind blows or the sun shines, electricity is made and sold. If not, no sale, right? This is correct for a portion of the revenue; however, this is not the complete picture.

About this Newsletter

Created for our clients, our *Facultative Matters* publication series addresses emerging issues and exposures affecting property and casualty underwriters in facultative reinsurance. To speak further with Gen Re about your risk transfer needs, please contact your Facultative or Treaty representative.



The time element exposure of most wind and solar energy risks is more complex than just the sale of kWh of electricity.

The time element exposure of most wind and solar energy risks is more complex than just the sale of kWh of electricity. There are three main types of time element exposure associated with these risks:

- > Electricity Sales
- > Financial Incentives
- > Renewable Energy Certificate (REC) Sales

What follows is a closer look at each of these revenue sources. This article focuses on the characteristics of the U.S. market. Similar characteristics can be found in other countries, but additional investigation will be needed to clarify and underwrite the time element exposures.

Electricity Sales

The largest contributor to revenue is sale of electricity. The terms of sale for utility-scale wind risks and most non-residential solar risks are governed by a contract called a Power Purchase Agreement (PPA).

The PPA defines the performance requirements of both the seller and buyer of electricity. It is typically written for terms of 15 to 25 years and includes detailed information on payment schedules, rates for electricity sold and contingencies in the event either party to the contract fails to perform their obligations. There are often additional rate provisions that address inflation over the contract term, efficiency decreases or events of force majeure that may temporarily relieve either the seller or buyer from their obligations if the cause is deemed outside of their control.

Sound complicated? It can be, but there are a few things you can do.

✓ Get Familiar with PPA Contracts.

The PPA is the key document that determines claims payments for the main revenue stream, so it makes sense to obtain and read the document. There are similarities across PPAs so the first few will require front-to-back reading. Once familiar with the contract, you should be able to concentrate on a handful of the key provisions that have the greatest impact on time element exposures covered by the policy.

✓ Expect Exposure Changes over

Time. The PPA often includes inflation provisions, efficiency scales or other conditions that amend the electricity payments over time. This creates the need to verify the time element exposure each year to ensure appropriate coverage and underwriting.

✓ Clarify the Energy and Capacity

Payments. Energy payments are derived from contractually set rates paid per kWh sold. This is the most straightforward portion of the revenue with a direct correlation between time and kWh of energy sold. Capacity payments are also contractually defined; however, they are for reliable energy production over a defined period of time. This is often described as meeting a minimum percentage of total facility rated output over 12 months. If the minimum is satisfied, the full amount of capacity payment is earned. If the minimum is not met, the PPA outlines in detail the impact on reduced capacity payments.

Financial Incentives

There are substantial investment and production incentives available for wind and solar energy risks. Federal, state and local incentives may combine to create a package of financial benefits that are critical to the profitability of a risk. Solar PV (photovoltaic) cell installations are currently dependent on financial incentives for their economic survival, though all of these technologies rely to some extent on incentives to compete with fossil fuel electric generation technologies.

Incentives are a smaller portion of the revenue stream compared with electricity sales. Unlike the energy payments from a PPA, incentives do not come with a long-term contract nor guarantee. Following are a few points of interest regarding these incentives.

Incentives vary by location. The U.S. Federal incentives are consistent across all states. However, state and local incentive plans can vary significantly. For wind and solar companies seeking sites for new installations, the state and local incentives play a big role in feasibility studies.

Incentives may vary by type of payout.

Incentives may be offered as rebates or tax credits. Rebates are most often lump-sum cash payments based on a percentage of the capital investment made in a qualifying facility. Tax credits are typically a percentage of investment with a dollar cap. Once the tax credit amount is determined, it is a direct reduction of taxable income. In some situations, these incentives can be accounted for over multiple years, subject to IRS tax code laws.

Incentives are subject to change in law and first-come, first-served distribution. Most incentive laws, including Federal, have expiration dates. Some state rebate programs are funded with a set amount of money, and when that has been distributed to qualifying projects, the program is over unless it is refunded. Both of these issues add some pressure to the planning, financing, permitting and construction phases of project development.

The long-term goal of the wind and solar energy industries is to reduce manufacturing costs and improve efficiencies to allow financial survival without incentives. These industries and the U.S. government are committing capital toward this goal, but we are still a distance away. In the meantime, incentives are an integral part of the revenue stream of these risks, and as a result, a time element exposure to address in our underwriting process.

Renewable Energy Certificates

Renewable Energy Certificates (RECs) represent a small portion of an insured's revenue stream, typically only a few percentage points. As a result, the impact of this exposure on the underwriting analysis is nominal. RECs are, however, a meaningful part of the forces that drive the overall renewable energy market.

An REC is a tangible, numbered document with a value that represents the environmental benefits created via renewable energy sources. The number of RECs created by an insured is directly related to the number of kWh of energy produced.

The REC revenue stream is de-linked from electricity sales or incentives. There is a developing supply-and-demand commodity market in place in the U.S., complete with brokerage operations that also offer tracking and accounting services to buyers and sellers.

There are two markets for RECs: the compliance market and the voluntary market. The compliance market is driven by state policies. As of this writing, 24 states plus the District of Columbia have a Renewable Portfolio Standard (RPS), which is a policy that requires electricity providers to obtain a minimum amount of their power from renewable energy sources by a specified date. Electricity providers in these states can comply either by producing renewable energy from owned facilities or through the purchase of RECs. For example, RECs produced by a wind farm in Iowa may end up being sold to a public utility in New Jersey. The New Jersey utility would then "retire" the REC, which has a one-time value that disappears when the REC is used.

The voluntary market is comprised of businesses, government entities and others, such as universities. These buyers purchase RECs because they derive a franchise or social value by being ecologically friendly. They can claim with proof that they are consuming significant or 100% "green" energy. They are willing to pay a premium for their energy consumption in return for these benefits.

A couple of additional points of interest for the underwriting of this exposure:

REC ownership may be transferred by contract. For example, as part of a lending agreement the financier may require that RECs are automatically given to them as part of the deal. The energy facility may be producing RECs, but the insurable interest transfers with the certificates to the financier.

REC "value" is not fixed. Pricing of RECs is driven by an open supply and demand market. Energy producers may enter REC sales contracts that will set the price for a period of time within defined parameters, or they may opt to trade them at market prices. The insurable exposure is difficult to pin down.

REC servicing by contract. An energy producer may contract with a third party for various REC services that may include brokerage, tracking sales and retirement of certificates, handling accounting issues and advising on market conditions. The exposure and claims handling become more complicated as the number of contracts and different interests increase on a given risk.

Summary

Time element for wind and solar risks is more complex than might be thought at first glance. The exposure from year to year may change significantly depending on the mix of revenue sources, the state where the risk is located and the contracts, laws and policies that govern the revenue. Underwriting renewable energy time element exposures is best performed with quality risk information that examines each part of the revenue stream. In addition, an annual re-evaluation of the exposure is a recommended practice to provide the insured with adequate coverage, give the insurance carrier the proper exposure to rate and allow the company to do accurate line-setting.

Gen Re is a market for renewable energy risks, including those with time element exposures. We have a team of global resources who specialize in electric generation risks, both construction and operational. If you would like additional information on this topic or would like to discuss a risk opportunity, contact your local underwriter or representative. We will put our team of resources together to help with your needs. ■



Mike Maloney is a Vice President and Senior Consulting Underwriter in Gen Re's Chicago office where he handles referrals for Global Property Facultative.

He is a member of Gen Re's Electric Power Generation industry unit which specializes in the underwriting of electrical energy construction and operational risks. Mike has been with Gen Re for over 30 years, working in Columbus, Los Angeles, San Francisco and Chicago. He may be reached at +1 312 207 5357 or mmaloney@genre.com.

Resources

Here are some online resources for more information on wind and solar energy time element exposures:

- > **State-by-State Incentive Plans**—www.dsireusa.org
- > **Information on Renewable Energy Certificates**—www.green-e.org
- > **U.S. Department of Energy Green Power Network**—<http://apps3.eere.energy.gov/greenpower>
- > **U.S. EPA**—www.epa.gov/cleanenergy
- > **National Renewable Energy Laboratory**—www.nrel.gov

Here are some recent Gen Re Research publications:

- > **UM/UIM Updated Law Survey for Second Quarter 2011**—*E-News Auto*, July 2011
- > **Emerging Exposures and New Wordings—Are Your Forms Keeping Up?**—*Policy Wording Matters*, June 2011
- > **Workers' Compensation—Managing Through Tough Times (and Not Just Living Through Them)**—*Gen Re Viewpoint*, June 2011
- > **First Medicare Reimbursement Test—No Insurer Bad Faith Found**—*E-News Multiline*, June 2011
- > **New Construction Defect Laws Emerge in South Carolina and Hawaii**—*E-News GL/Umbrella*, June 2011
- > **Supply Chain Insurance—Can It Be an Attractive Insurance Product?**—*Insurance Issues*, June 2011
- > **Medical Professional Liability and Emerging Issues**—*MPL News*, June 2011
- > **Where Personal and Commercial Lines Meet—Liability and Coverage Developments**—*Casualty Matters*, May 2011
- > **Emerging Issues in Workers' Compensation**—*Insurance Issues*, May 2011
- > **UM/UIM Updated Law Survey**—*E-News Auto*, May 2011
- > **Has Pandora's Box Been Opened?—Stuxnet Computer Malware and Beyond**—*Insurance Issues*, April 2011
- > **Wisconsin Revamps UM/UIM Laws—Now What?**—*E-News Auto*, April 2011
- > **Transparency**—April 2011
- > **Valued Policy Laws**—April 2011

Other Facultative Matters Articles

- > **Solar Issues Send Up Flares**—April 2011
- > **Solar Thermal Power Generation**—March 2010
- > **Risk Differentiation for High-Tech Occupancies**—July 2009
- > **Historic Property Rehabilitation Tax-Credit Incentive Insurance**—March 2009
- > **Future Liabilities From New Energy Technologies**—March 2009



The difference is...the quality of the promise.

© 2011 General Re Corporation, Stamford, CT

This information was compiled by Gen Re and is intended to provide background information to our clients, as well as to our professional staff. The information is time sensitive and may need to be revised and updated periodically. It is not intended to be legal advice. You should consult with your own legal counsel before relying on it.

FM201108-23