



Incorporating Wind into Resource Portfolios

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Similar to any other business operation, those who produce electricity face risks when determining the investments most likely to produce a product at minimal, reliable costs. Traditional fossil fuel resources may provide cost-effective power in the short-term, but the uncertainties of environmental regulations and available supplies in the long-term create some investment risks. Power generators today seek a broad range or "portfolio" of energy resources to reduce risk.

In today's regulated monopoly structure, electric utilities control power generation, transmission and distribution in their service area. Utilities own some energy resources and contract with other generators for electricity. Utilities typically need the approval of state regulatory commissions to add to their power resource portfolio. Wind energy and other renewable sources have become an attractive option for some utility generators that want to diversify their resource mix.

Wind power is an affordable, cost-competitive renewable energy resource. Because generating electricity with wind is pollution-free and offers an indigenous resource whose supply is constant, wind energy can offset the long-term risks of environmental regulation costs, fuel price volatility and availability of supply associated with traditional energy sources. Wind energy is attractive because it diversifies a resource portfolio, improving overall reliability of the power system. In addition, wind energy offers utilities a flexible investment option -- construction of wind turbines allows incremental supply capacity additions, as opposed to the substantial investment required to build an entire traditional power plant.

Because of anticipated changes in the electric utility industry (regulatory and policy reforms), the management of resource portfolios will likely undergo changes. Although wind energy will face new challenges and opportunities in a restructured marketplace, increased competition will enhance the importance of renewable energy technologies in many ways:

Increased competition can enhance the importance of renewable energy technologies.

- Energy supply risks are likely to increase, making resource diversity more important.
- Power generators will have to meet increasing customer expectations.
- Changes in regulations may undermine the reliability of some power sources.
- Changes in environmental regulation could affect the cost and reliability of fuel-based generation technologies.
- Increased demand for clean fuels could cause price spikes and temporary fuel shortages.
- Increased operating costs and system failures are causing premature shut-down of some nuclear power plants that currently are used for utility bulk power.

A restructured electricity industry, however, also could discourage the inclusion of renewable technologies in resource portfolios. A primary concern is that a newly created competitive environment will encourage generators to choose the cheapest available short-term resource, which favors traditional generation methods. Wind energy's greatest asset -- minimal environmental impact -- provides long-term benefits that may be overlooked.

States could establish minimum portfolio standards to include renewable energy resources.

State actions

The public interest issues associated with electricity generation could result in state or regional requirements for resource portfolio management and distribution. States or regions may establish minimum portfolio standards to include renewable energy resources for environmental or economic development reasons.

State policymakers may implement policies that protect the environment and provide opportunities for renewable energy resources in a restructured market. States may address the effects of electricity generation on air quality by establishing more stringent pollution standards or by imposing new regulations on older,, coal-fired utility plants.

Finally, to create competitive markets, legislators may choose to separate ownership and management of the generation, transmission and distribution of electricity. The specific requirements for separation of these components will greatly influence the inclusion in resource portfolios of renewable energy technologies, like wind.

Portfolio Managers

The system of portfolio management will likely undergo change. Decisions about which resources and fuels to use may shift to electricity brokers (retail agents who buy and sell power) and, ultimately, customer preferences.

Most customers will receive electricity through a remnant of the current utility distribution system -- the entity that constructs and maintains the distribution wires connecting the transmission grid to the customer. Instead of managing a portfolio of the resources the utility owns, the distribution utility might plan a portfolio of resource contracts. Assessing risk will be a continuing challenge for these portfolio managers.

Aggregators

Aggregators entities that gather customers into buying groups -- may emerge in a competitively restructured electricity market. Industry observers expect that both aggregators and brokers will target residential and commercial markets and offer renewable energy-powered or "green" portfolios to attract customers. Market research indicates that commercial customers, in particular, may be attracted to the long-term price stability offered by portfolios that contain a diverse mix of energy resources.

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Disclosure and consumer protection

Consumer protection is a concern in a restructured electric market. False claims about the benefits and costs of resource portfolios is a problem that could disrupt a new system of electricity distribution and marketing. To address this problem, policies requiring information disclosure and licensing could be implemented. Mechanisms to resolve disputes and to ensure electricity service through a system of emergency providers are other issues to be considered by policymakers.

This brief was summarized by Jeff Dale, National Conference of State Legislatures, from a *Wind Energy Series Report* by Jan Hamrin, Hansen, McQuat & Hamrin Inc.

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