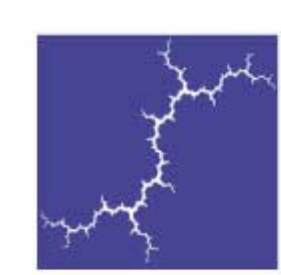

Reply Comments in Docket No. 2004-147

Strategies for Procuring Residential and Small Commercial Standard Offer Supply in Maine

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Reply Comments on Standard Offer Service for Residential and Small Commercial Customers

In reply to the Maine Public Utilities Commission's questions regarding best approaches for the procurement of electricity for residential and small commercial standard offer service, the majority of parties recommended strategies that incorporate portfolio management techniques. There is a simple reason for this consensus. A portfolio management approach to standard offer service is in the ratepayers' best interest, as it decreases customers' exposure to a long list of risks, including, but not limited to:

- Risks due to fluctuating wholesale market prices
- Risks due to future environmental regulations
- Risks due to fuel price and supply fluctuations
- Peak cost risks due to extreme weather
- System reliability and security risks

Below, we discuss these risks and why addressing them through a portfolio management procurement approach that includes renewables and energy efficiency programs is consistent with ratepayers' needs and interests.

Portfolio management reduces price risks caused by fluctuating wholesale markets.

One implication of Maine choosing a portfolio management approach for standard offer service is that it would utilize a different procurement process from the current process, which solicits a single bid contract that expires on a single day. A portfolio approach would utilize a laddering technique, wherein contracts are procured systematically and periodically. There would be a mix of short, medium and long-term contracts and mix of expiration dates. Ratepayers would benefit substantially from such an approach. They would no longer be exposed to the risk of procuring all of their electricity on single, expensive-relative-to-the-average, day. Instead, the customer's bill would reflect a mix of underlying market prices and contract commitments. As a result, the consumers' bills would fluctuate less over time. From a consumer budgeting point of view, this is ideal. Consumers cannot afford to be hit with month-to-month or year-to-year cost surprises on a critical consumer good, such as electricity.

One key strategy that can decrease rate fluctuations is the incorporation of renewables into a portfolio management approach to standard offer service. The recently adopted

Maine bill, at Sec. 2. 35-A MRSA §3212, sub-§4-A, states that: "The commission shall adopt rules establishing standards and procedures for incorporating renewable resources that are constructed after March 1, 2004 into standard-offer service. The rules must provide for the incorporation of such resources if the commission finds that the incorporation will reduce the risk of price volatility, offer an effective hedging strategy and provide a competitively priced supply option. The commission may enter into or require standard-offer providers chosen by a competitive bidding process to enter into contracts with appropriate terms in order to achieve the purposes of this subsection…"

While procuring renewable electricity generation may result in a cost premium, studies have shown that Northeastern states can implement reasonably aggressive renewable portfolio standards at minimal cost to ratepayers. The table below shows that the levelized cost of some renewable generating technologies in New England is comparable to the price of wholesale electricity in the region. Technological advances and economies of scale are contributing to improved performance and lower cost of renewable technologies, and federal incentives such as the Production Tax Credit for wind energy may serve to further diminish the renewable cost premium. The Maine legislation includes language that directs the Maine PUC to incorporate renewable resources into standard offer service if the renewables can provide "a competitively priced supply option." This is an attainable goal.

Illustrative Costs of Selected Generating Technologies in New England (costs for 2009, presented in 2003 constant dollars per MWh)

Technology	Cost
Landfill Gas	$43.9/MWh
Specific Actual Wind Projects	$53.4/MWh
Generic Wind	$64.5/MWh[1]
Gas Combined Cycle	$51.1/MWh

Source: Synapse Energy Economics, "Potential Cost Impacts of a Vermont Renewable Portfolio Standard," October, 2003.

Renewables also reduce the risk of ratepayer price volatility and thereby provide an effective hedging option in a portfolio. This reduction is achieved in several ways. First, renewables decrease price volatility risks associated with future environmental regulations. Second, renewables reduce price risks associated with other fuel supplies, such as natural gas. Third, renewables reduce price risks associated with peak energy use. Each of these helps reduce bill rate fluctuations for consumers, and each is discussed separately below.

[1] The cost figure for specific actual wind projects reflects the production tax credit, while the cost figure for generic wind projects does not.

Renewables reduce price risks due to future environmental regulations.

Compliance with federal and state environmental regulations can be costly. Right now, there is considerable uncertainty about the type and extent of environmental regulations that may be imposed in the near- to long-term future. Currently, utilities and wholesale vendors of electricity already must comply with sulfur dioxide (SO2) and nitrous oxides (NOx) emission requirements. And most groups recognize that some form of regulation of CO2 is highly likely. Several proposals to amend the Clean Air Act to limit air pollution emissions from the electric power industry are being discussed at the national level, the most important being President Bush's Clear Skies Act/Global Climate Change Initiatives. While it is difficult for utilities and standard offer service providers to predict the full impact of future environmental regulations, planning for such uncertainties and hedging against those price risks is both feasible and vital.

To protect themselves against the risk of such future regulations, sellers can diversify by investing in generating assets with a mix of emissions profiles. For example, they might acquire or build wind farms or convert from coal to gas-fired plants, rounding out their portfolio to include more environmental- and regulation-friendly assets. Portfolio management offers regulators, utilities, and standard offer service providers the tools necessary to develop a diverse set of electricity resources that greatly benefit standard offer service customers.

Renewables reduce price risks due to fuel supply and price fluctuations.

Different types of fuels are subject to different supply risks. For instance, while coal is a domestic and abundant fuel, it has been subject to regional labor dispute problems. Such issues can be properly valued and balanced by using a portfolio management technique for standard offer service procurement. Below, we look at the consequence of a recent surge in gas demand.

> "Average U.S. peak electricity prices are expected to rise 48 percent in 2003 from the previous year, mostly the result of a surge in natural gas prices… We do not forecast a return to normal supply- demand balance… before 2008." (UBS 2003)

Increasingly, many regions, including New England, are relying on natural gas to generate electricity. As a result, wholesale electricity prices are directly linked to natural gas prices, which have been highly volatile in recent years relative to other fuels. While the resource base for natural gas remains large, increased production will require massive investments and time. For instance, in Atlantic Canada, major new supply is unlikely to materialize before the end of 2008. It is anticipated that such investments will be linked to higher commodity prices, increased price volatility, and larger trading volumes. Thus, it seems gas price volatility and, hence, electricity price volatility, are here to stay until new gas supplies are commercialized in future years. (Levitan & Associates, Inc. 2003)

In the New England region, gas as a fuel source for electricity has been increasing markedly. In 1999, gas-fired generation represented 16% of all electricity in the region. In 2003, this number increased to 41%. It is expected that use of natural gas to generate electricity will total 49% in New England by 2010. Other than the state of Texas, New England is the most gas-dependent region in North America for power generation. Interestingly, gas-fired units set over 50% of all hourly electricity prices in the New England market.

To minimize exposure to fuel supply disruptions and price increases and keep ratepayer's costs low, a diverse set of fuels and technologies should be considered. Wind power technology is an interesting case. It does not require an expensive or fluctuating price fuel. In addition, wind use has the potential to increase system reliability, despite its intermittent operation. Through simulations, it has been shown that wind turbines add as much to system reliability as their capacity factor multiplied by their installed capacity. For example, a 100 MW wind farm with a 30% capacity factor makes approximately the same contribution to system reliability as a 33 MW combustion turbine with a 10% forced outage rate. (Lazar 1993; Bernow, et al., 1994) Thus, renewables such as wind add value for customers not only in terms of system reliability improvements, but also in the sense they do not require a highly demanded, expensive, and price fluctuating fuel to operate. This is truly valuable from the ratepayer's perspective and pocketbook.

Renewables reduce price risks associated with peak-use demand.

Further increases to the renewable generation fleet can also help reduce costs associated with peak demands. For example, photovoltaics (PV) will generate the most electricity during midday in the summer season - just when electric load and price is highest for most regions. The importance of peak load shaving is well known, but the value of photovoltaics in reducing load in peak electricity demand periods is frequently overlooked. A recent study analyzed the market price of electricity in the PJM region in order to determine the value of generic load reduction. (Marcus and Ruszovan 2002) The estimated value of PV load reduction during the on-peak hours during that summer season was over 27 cents/kWh in the PJM (4.8 times the corresponding market price estimate) and roughly 8.1 cents/kWh during summer mid-peak hours. PV's summer on-peak load reduction value may very well be equal to or exceed the levelized cost of electricity from the panel. This effect is thought to be especially pronounced in unhedged markets. Thus, renewables that operate during peak demand periods are especially powerful at reducing peak prices and increasing reliability.

Portfolio Management reduces both system reliability and security risks.

Electricity reliability is an issue about which ratepayers express great concern, particularly in light of the recent and widespread August 2003 blackout. Not only does reliability have a direct effect on the economy, but it also effects to a great extent ratepayers' daily routine including transportation, lighting, heating and cooling, etc.

Portfolio management offers significant reliability benefits due to its basic diversification principles. Diversification can take the form of varied fuels, technologies and a mix of generation, transmission, demand-side resources, and energy efficiency. On average, with diversification, each resource represents a relatively smaller proportion of the total. Relying on a large number of small resources is inherently more reliable than relying on a portfolio made up of one or a few resources subject to unique risks.

With respect to technology types, certain types of plants can be subject to industry-wide reliability issues simultaneously. For example, after the Three Mile Island nuclear accident, most nuclear power plants in the country were shut down for extended periods for safety upgrades. As such, ratepayers should feel more comfortable knowing that a portfolio management procurement process, which calls for a mix of resource technologies including renewables for electricity, is being utilized.

Consumers will also like the potential cost savings of using a diverse set of technologies and plant sizes; the cost of providing adequate system reserves is affected by the choice and size of the generating resources in that region. Reserves and operating requirements for both loss-of-load and system stability contingencies (for example, installed capacity margins and spinning reserves, respectively) are often driven by the largest single potential outage that could occur on the system, typically a large power plant or transmission line tripping out. Therefore, a portfolio of smaller, more dispersed resources, both supply- and demand-side, has the potential to reduce the cost of reliability for all ratepayers.

Conclusion

In sum, portfolio management for the procurement of standard offer service is a tool that meets consumers' interests and needs. It promises reduced price volatility, lower prices, and a more reliable electricity supply due an across the board reduction in price risk exposure.

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