

Report to the Vermont Legislature on SPEED and Renewable Portfolio Standards

Public Service Department

December 15, 2014

The Vermont Public Service Department submits this report to the Legislature in response to the requirement of Act 99 of 2014 that the PSD “commence and complete a study and produce a report on:

(1) the environmental and economic benefits and costs of requiring contracts with renewable energy plants commencing construction on and after the effective date of this section to attach environmental attributes, including any associated tradable renewable energy credits, in order to count toward the 2017 SPEED goal; and

(2) the environmental and economic benefits and costs of Vermont’s adopting a renewable portfolio standard.”

This report is also required to “include the Department’s recommendation on whether contracts with renewable energy plants commencing construction on and after the effective date of this section should attach environmental attributes in order to count toward the 2017 SPEED goal.”

Based on the analysis in this report, the Department concludes that requiring retirement of all SPEED projects commencing construction after April 1, 2014 is not the most cost-effective manner in which to achieve Vermont’s energy goals. However, the Department does believe there is an opportunity to transition from the SPEED program to new renewable energy policy that would drive innovation, offer economic benefits and advance Vermont’s leadership on renewable energy.

Electric utility portfolio standards, targets, and goals have been utilized in more than 30 states in order to advance public policies. Each is designed in order to meet the policy objectives of the state. Over the last decade, Vermont has used the voluntary target-based Sustainably Priced Energy Enterprise Development (SPEED) program to advance a policy interest in the development of renewable energy electric generators in Vermont or neighboring states. In order for a resource to qualify for the SPEED targets, a utility must purchase the power from a renewable generator, but need not retain ownership of tradable renewable energy credits. In this way, Vermont’s policy focused on the economic impacts of generator construction and operation (including long-term stably priced contracts) and the economic benefit that accrued to the state by selling the rights to call the energy produced “renewable” to utilities in states with different policy objectives. The SPEED program has facilitated the development of

renewable energy projects in Vermont, but is distinctly different from the renewable energy programs in use in the other states in New England.

Attaching RECs to the 2017 SPEED goal

Utility contracts for power from an independent producer commonly include the transfer of ownership for environmental attributes, including tradable renewable energy credits (“RECs”), from the plant owner to the contracting utility. Contracts for energy from RE plants constructed pursuant to the SPEED programs, such as Standard Offer plants, already include the RECs being transferred to the utility purchasing the power. When a utility owns a facility directly, it owns the environmental attributes from that production unless they are sold. The economics and environmental impact of a generator, and who may claim ownership of that impact, is determined by what happens with the RECs after the utility acquires them. To that end, the Department has analyzed the environmental and economic impacts of utility retirement of all RECs associated with projects commencing construction on and after the effective date of this section of Act 99 (April 1, 2014) and used to meet the 2017 SPEED goal.

In order to calculate these impacts, the Department first identified the projected annual output from SPEED projects online as of April 1, 2014; this total is 870 GWh or about 15% of annual retail sales. In order to achieve the 2017 SPEED goal, utilities would need SPEED resources totaling approximately 1,127 GWh, assuming that 2017 utility sales are equal to 2013 sales (which the Department believes is a reasonable assumption for this purpose). The difference between the goal and the 2013 actual outputs represents the number of RECs associated with plants coming online after January 1, 2014 that would need to be retained and retired under this analysis. It is likely to be an overestimate, as some plants that will come online in 2014 may have begun construction before Act 99 was signed¹.

Assuming REC market prices in the range of \$55/MWh, compatible with recent prices, the economic cost to Vermont ratepayers of meeting the 2017 SPEED goal while retiring RECs for any projects commencing construction after April 1, 2014, would be approximately \$14.1 million per year in 2017 and later years. The fact that the 2017 goal is established for all utilities as a whole, rather than by utility, makes utility-specific cost attribution impossible.

Retaining 257 GWh worth of renewable energy credits from SPEED contracts would have the impact of reducing the environmental impact attributable to Vermont’s electric consumption. When environmental attributes, such as RECs, are not associated with a MWh of energy sold to a customer, the GHG emissions associated with that MWh are those of the ISO-NE “residual mix.” The residual mix is the collected average of all the sources of energy for which no environmental attributes are claimed. It largely consists of the attributes of natural gas, oil, nuclear, and coal power. Retiring post-April 1, 2014 plant RECs would require retirement of 257 GWh of RECs, avoiding emissions from the same quantity of the residual mix. Using the 2013 residual mix as a proxy for the mix in 2017 and later years, approximately 68,700 tons of greenhouse gas emissions would be avoided in 2017 and each subsequent

¹ Note that the Department has assumed a definition of “commencing construction” that means physical construction activity on the site of the plant. Therefore a plant which began or completed permitting activities prior to April 1, 2014, but which had not broken ground, would not count as having commenced construction.

year. Net cost of emission reductions for Vermont ratepayers would be approximately \$205 per ton. The Department believes more cost-effective policy approaches are available to advance our renewable energy and carbon emission reduction goals.

Given the estimated economic costs and environmental benefits of requiring retirement of RECs associated with plants commencing construction after April 1, 2014, and the opportunity to achieve greater benefits via a different approach, the Department does not recommend requiring such retirement.

Analyzing a Renewable Portfolio Standard

The Public Service Board has completed two studies regarding possible Renewable Portfolio Standards (RPS) for Vermont over the last 4 years. The costs and benefits of each RPS design considered by the PSB are detailed in their reports (available at the links in the footnote:²). Each of the Board's reports has highlighted the need to identify the policy purpose intended to be met with an RPS policy, and to design an RPS to meet those objectives. Possible RPS objectives include:³

- Reduce dependence on fossil fuels and nuclear power
- Increase long-term rate stability and reduce the risk of fluctuating energy prices and fuel supply shortages
- Decrease reliance on centralized power plants
- Preserve existing clean energy generation
- Slow global warming
- Improve air quality
- Improve water quality, reduce water use, and/or protect fish habitat
- Preserve traditional land use patterns, natural resource areas, and the appearance of the Vermont landscape
- Maximize the number of VT organizations and residents who can deploy and benefit from distributed clean energy installations
- Provide economic benefits to particular industries or sectors of the economy
- Maximize the economic benefits of renewable energy development for the state
- Advance emerging technologies
- Minimize administrative costs
- Build public support for renewable energy
- Make the state a visible leader in renewable energy

² "Study on Renewable Electricity Requirements Prepared by the Vermont Public Service Board Pursuant to Section 13a of Public Act 159," October 3, 2011.

<http://psb.vermont.gov/sites/psb/files/publications/Reports%20to%20legislature/RPSreport2011/Study%20on%20Renewable%20Electricity%20Requirements%20-%20Final.pdf>

"Further Analysis and Report on Renewable Energy Requirements," January 15, 2013.

<http://psb.vermont.gov/sites/psb/files/publications/Reports%20to%20legislature/RPSreport2013/Further%20Analysis%20and%20Report%20on%20Renewable%20Energy.pdf>

³ This list summarizes Section G of Appendix 2 of the PSB's 2011 RPS report, linked above.

In addition to these objectives, one of the most pressing economic objectives in Vermont that could be addressed using an RPS or RPS-like policy is achieving greater harmony with RPS structures used in other New England states.

As policy-makers consider a successor renewable energy program to replace SPEED, it is critical to take into account the economic and environmental context and the progress that Vermont has already made to acquire renewable electricity. Recognizing that roughly half of Vermont greenhouse gas emissions are due to transportation, and approximately another 1/3 are due to fuels used for heat and industrial processes, a comprehensive examination of opportunities in the energy sector to make progress more broadly is also critical. Both of these sectors also lag electricity in terms of the fraction of energy provided by renewable sources. Although there is significant work still to be done, electricity remains Vermont's cleanest energy source. A successor renewable energy program should maintain and improve the environmental characteristics of our electricity portfolio, but where possible should also facilitate action to increase use of renewables and lower greenhouse gas emissions in other sectors. One way to do this would be to encourage development and deployment of innovative energy technologies that reduce our dependence on fossil fuels.

Principles for New Renewable Energy Policy

Once the Legislative session begins early in 2015, the Department intends to propose a program to replace the current SPEED program. The new program will seek to advance Vermont's goals while achieving greater harmony with renewable energy policies in the New England region. It will help grow the amount of renewable electricity utilized in Vermont for Vermont ratepayers as well as support cost effective efforts to transition to renewable energy in other sectors. A particular focus will be to encourage continued growth in community-scale distributed generation projects that support jobs in the growing clean energy industry sector. In addition, the new program will be designed to provide a significant net economic benefit to Vermonters, and do so in a way that is a net positive for ratepayers generally.

The emergence of advanced energy technologies, the growth in distributed generation combined with declines in its cost, and the changing nature of the electric utility industry make this an appropriate time to reconsider Vermont's renewable energy programs. The Department is focused on policies that achieve the maximum progress possible toward the Comprehensive Energy Plan goal of 90% renewable energy by 2050, and do so in the most cost-effective manner for ratepayers.

We look forward to a detailed and robust conversation regarding policy options with legislators and the public in the coming session.