

Total Energy Study

November 14, 2013 Public Meeting & Webinar

Questions and Answers

In this document, the Public Service Department (PSD) has answered questions posed using the webinar tool, during the November 14th Public Meeting.

Energy Goals and Their Measurement

Q: Does the renewable category include large-scale hydro?

A: Yes, we use the statutory definition of renewable energy.

The Political Landscape for Action

Q: How realistic is it that the Legislature would actually act on any of these policies? Is there leadership (e.g. from the Governor) behind these policies?

A: The Governor supports Vermont's energy and climate goals laid out in statute and in the 2011 Comprehensive Energy Plan (CEP). The Legislature requested that the Total Energy Study (TES) describe and analyze alternative policy pathways to meet Vermont's energy goal. The TES Final Report will be released during the summer of 2014. As yet, there is no definitive pathway.

Fuel Switching

Q: What if the assumption that we will all drive electric vehicles (EV) doesn't pan out?

A: At this point in time and for the foreseeable future, EV technology is Vermont's clearest choice for broad deployment of cars that can be run on renewable resources. That said, one of the criteria we are using to evaluate potential technology pathways is their resilience to changes in technology availability, in this case changes in the availability of appropriate EV models in Vermont.

Q: Please provide an example of renewable electricity for heating?

A: There are a few equipment options for producing heat from electricity, including electric resistance heaters, air-source heat pumps, and ground-source heat pumps. If the electricity feeding this equipment is sourced from renewable generators, one could claim the heat is renewably generated.

Electric Supply and The Grid

Q: So far, "smart meters" principally benefit the utilities, not the rate payers. Can't we accelerate the pace at which, for example, time-of-day tariffs and lower interruptible demand rates are made available?

A: Now that smart meters have been installed for most buildings across Vermont, utilities are reviewing rate designs that could encourage lower consumption and bills. We expect the regulatory conversation around such rate designs to begin within the next year.

Q: Recent "curtailment" events for the wind renewable and the fact that utilities are reaching their caps for net metering would seem to be evidence of headwinds that the CEP policy goals must confront. Are your policy choices adequately addressing the infrastructure limitations that create these constraints?

A: Infrastructure investments to maintain grid reliability and effectively use diverse electricity supply resources are considered in the TES analysis.

Q: What if we are getting a large amount of "renewables" from Canada and then they switch to coal?

A: Vermont purchases the "Hydro Quebec (HQ) system mix" which is more than 95% hydroelectric in origin. HQ has no plans to switch away from large-scale hydroelectric and wind power as their primary sources of electricity. Quebec is participating in California's carbon cap-and-trade system, which would severely limit the ability of HQ to switch to fossil fuel sources.

Natural Gas Supply

Q: Have you looked into the impact if compressed or liquid natural gas becomes a regulated fuel? Do you see this as a positive for the Energy Efficiency Utility (EEU) structure?

A: The Total Energy Study includes various policy options related to unregulated fuels including some that operate within the EEU structure and some that are independent from the EEU structure. Deliverable natural gas (compressed or liquid) does not have the same natural monopoly as pipeline gas, so would be subject to different regulation.

Q: Natural gas is likely to be a low cost fuel for many years, yet it is available only in North Western Vermont. Vermont businesses are likely to be at a significant competitive disadvantage if availability is not expanded. The CEP is very timid on this topic. Your framework seems to dwell more on "how clean it is" than how much we will be locally disadvantaged if their competitors can access it, but we cannot.

A: The TES is an analysis of statewide policy options to meet energy goals. The TES will perform a high-level statewide economic impact analysis of a few promising policy sets. The PSD encourages the public and businesses to continue to raise these issues as the discussion regarding Vermont's energy policy direction unfolds. The TES discusses the importance of identifying the most critical uses for the 10% of Vermont's energy that would not come from renewable sources by 2050; industrial use of natural gas is discussed in this context.

Q: What if an entity is using natural gas to produce electricity? Has your research looked into including high efficient (70%+) natural gas Combined Heat and Power (CHP) as a renewable source?

A: The CEP mentions the possibility of strategically siting small natural gas generators in Vermont and the TES suggests favoring CHP over electric-only generators. However, while such facilities could be highly efficient they would not be renewable.

Policy Evaluation Criteria

Q: How about quality of life being factored into the plan?

A: The TES analysis operates within the current policy principles of Title 30 as well as the policy principles and general Vermont values under which other state agencies operate. These policy

principles include quality of life factors such as equity among economic sectors and between Vermonters, Vermont's working landscape, and Smart Growth, to name a few.

Q: As an up-front section of your Framing Report acknowledges, attributes such as reliability and economic cost effectiveness are legislatively no less important than environmental criteria. Are these criteria being given as much weight as the goals of boosting renewables and controlling greenhouse gases (GHG)?

A: Energy supply and infrastructure reliability are critical to the operation of Vermont's energy systems. Economic cost effectiveness is likewise a fundamental principle upon which the TES analysis operates. The TES strives to find pathways that meet all of the objectives of state energy policy (30 VSA 202a), while also meeting the greenhouse gas and renewable energy goals.

Q: Re costs and benefits, the principal criteria should be the extent to which benefits exceed costs, not just who incurs the costs. Is that question being considered?

A: This spring, the TES quantitative analysis will perform high level statewide economic impact analyses on three policy sets and technology pathways identified to be the most promising. A result of this analysis for each of the three scenarios will be an examination of the total costs and total benefits, as well as their allocation.

Funding & Financing Principles

Q: Have you considered whether there should be an equal balance of incentives for renewables and energy efficiency (e.g. get paid a premium for net-metering, but no compensation for energy efficiency)

A: Incentives for renewables address the supply side of the energy equation. Incentives for energy efficiency address the demand side of the energy equation. The TES is testing numerous policy sets that address both the supply and demand side of our energy systems. In terms of balancing incentives, the goal of the analysis is to find the least cost solutions to meeting our energy goals; it is not necessary to balance incentives among various technology options.

Nearly-Revenue-Neutral Carbon Tax Shift

Q: Where does the \$80-\$100/ton for carbon come from?

A: There is no state, national, or global consensus on the societal cost of carbon emissions. Some potential values include the values used for Federal rulemaking (expressed as a range between \$12 and \$116 per metric ton, and rising over time) and the value derived to estimate the cost of carbon abatement used by some energy efficiency programs administrators across new England, including Vermont (\$100/short ton).

Q: How do you go about deciding what taxes to reduce and understand what the impact of that reduction would be (like what would happen if you reduce gas taxes)?

A: The PSD expects to collaborate with the Vermont Tax Department in order to understand the impacts of potential tax cuts, as well as to ensure that our work is compatible with any ongoing state conversations regarding tax changes.

Q: You mentioned the idea of using carbon tax revenues to reduce gas or diesel tax - wouldn't that cancel the desired effects?

A: The economically efficient objective is to set the price equal to the costs incurred; these costs include both environmental costs and costs to the state's roadways due to vehicle use. The structure of taxes shifted would likely, however, also reflect competitive pressures from neighboring states with different tax structures.

Q: Have we determined who the big carbon emitters are and are there enough big emitters in VT for the carbon tax to be effective? Will the big carbon emitters just leave?

A: The Agency of Natural Resources performs an annual accounting of Vermont's GHG's. The vast majority of the state's carbon emissions result from many diffuse sources, such as homes, small businesses, and vehicles. The largest carbon emitters (both firms and sectors) are identified. If Nearly-Revenue-Neutral Carbon Tax Shift policies were adopted, these organizations would assess how a carbon tax, offset by other reduced taxes, would impact their business. Many businesses are already beginning to include carbon costs in their financial analyses. Regardless, Vermont intends to remain competitive within the New England region, and will work with current and prospective businesses to make Vermont an attractive location for their companies.

Renewable Targets with Carbon Revenue

Q: It would appear that credits for efficiency would be more beneficial for most small businesses and the general public than a carbon tax. What credits do you see as feasible in addition to the vehicle registration fee reduction that you mentioned earlier?

A: In a balanced budget context, new tax credits require some sort of compensating revenue, either from economic growth/activity, or from additional revenue sources. The particular credits or incentives appropriate to a given technology pathway or policy set would depend on the details of energy and tax policy. . A more detailed analysis under the TES will proceed during the spring and summer of 2014.

Total Renewable Energy and Efficiency Standard (TREES)

Q: How would you weigh the efficiency factor in?

A: Both efficiency and renewable investments would be awarded credits. The specific methods for determining the credits are yet to be determined.

Q: How do you account for renewables and efficiency and insure a level playing field yet with an "efficiency first" priority.

A: The key is to apply a cost benefit analysis. Historically efficiency has been the least cost solution. As renewable energy prices come down due to technology advances and a broadening market, some renewable technologies could become equivalent or lower in cost compared to efficiency technologies.

Q: How does the calculation of the ultimate goal of carbon reduction fit?

A: Initial analyses indicate that, if renewable sources are truly renewable (e.g. is biomass harvested for bioenergy is grown and harvested sustainably), then Vermont's 2050 carbon reduction goal can be achieved by meeting our 90% renewable energy goal while also reducing energy consumption through increases in energy efficiency.

Energy Sector-Specific Policies

Q: Please define "sector" when talking of sector-specific policies.

A: In this context sector refers to the energy sectors – electricity (the grid), thermal (heating/cooling for buildings), industrial processes, and transportation (mobility). Within these sectors, different policies might address heavy-duty transportation, or residential buildings, etc.

Q: If you work incrementally one sector at a time, wouldn't that run counter to the cost/benefit allocation criterion as the regulated sector pays more for energy than unregulated ones? Would that create market distortions - for instance delaying investments in better transportation systems even though that sector is responsible for most nonrenewable fuel use and GHG emissions?

A: Good point. Sector-Specific policies would have to be designed to address our total energy picture in order to meet our energy goals.

New England Regional Energy Policy Focus

Q: If you were to go forward with trying to develop regional policies, do we know whether there are states that would be willing to join? How would we gauge?

A: Vermont is already working with other New England states on specific issues. Also, Vermont works with our peers through the National Association of State Energy Offices. So, we have existing relationships in New England states. However, more work is needed to jointly apply a systematic approach to address energy policies and systems across energy sectors.

Q: Don't we need a regional approach for any of these policies to prevent leakage (as well as unfair competition for our businesses) as people avoid energy use here by purchasing high-energy goods and services from other states where they are cheaper?

A: All of the TES policy and pathway analysis reflects the regional context, just as you describe.