

COMPREHENSIVE ENERGY PLAN UPDATE 2015

STAKEHOLDER MEETING #3: ENERGY SUPPLY RESOURCES [MORNING]

JUNE 30, 2015 8:30 - NOON @ THE CAPITOL PLAZA

General Discussion questions for ALL Small Group Breakouts #1

- 1) Given the current assumptions (doubling of bioenergy, aggressive efficiency) 46% of the 2050 electric portfolio remains undetermined.

Of the additional 46% required in 2050, how much should come from in state vs. out of state, and why?

Equivalents to help with the discussion:

1% of energy from solar PV is 65 MW (500 acres)

1% of energy from wind is 37 MW (Sheffield)

1% of energy from large hydro is 11 MW (5% of Highgate converter)

1% of energy from small hydro is 25 MW (15-20% of current)

1% of energy from biomass is 12 MW (25% of McNeill)

1% of energy from methane is 12 MW (2x all current farm digesters)

- 2) Of the total amount of energy required to be supplied by in-state renewables, how should the portfolio pie be sliced by: technology, plant size, location, ownership type, and/or cost?
- 3) Some sectors will be harder to fuel with renewables in 2050 than others. What energy needs (i.e. transportation, home heating) will most likely to be supplied by 90% or greater renewable energy resources (RE electricity or biofuels) and which will likely need greater than 10% reliance on fossil fuels?
- 4) The PSD would like to have a stronger prioritization in the 2015 CEP than in the 2011 version. What should be the highest-priority strategies or recommendations you heard today?

Questions for Energy Supply Small Group Breakout Session #2

Questions for ALL Small Groups Breakout #2 – Each group focused on one energy resource (wind, solar, hydro, etc):

- 1) What is the state of the Nat'l market for _____? What about the Vermont market?
- 2) What are the potential available _____ resources in VT and to be imported into VT?
- 3) What are the in-state siting & permitting challenges to _____?
- 4) What are the benefits of adding more _____ to the Vermont electric portfolio?

- 5) What are the challenges of developing more _____?
- 6) Are there dangers in developing too much _____?
- 7) What strategies should Vermont pursue with respect to development of _____?
- 8) What \opportunities and recommendations with respect to _____ would you suggest?
- 9) The PSD would like to have a stronger prioritization in the 2015 CEP than in the 2011 version. What should be the highest-priority strategies or recommendations you heard today?

Additional Questions for Small Groups Breakout #2

- 1) Solar: What will the effect of the Nat'l tax credit expirations have on the deployment of solar? What should be done about the siting concerns? What about solar thermal? Why has that technology suffered recently and should the State try and support it?
- 2) Wind: Can large wind projects be successfully/economically permitted in Vermont? What are the pros and cons of buying wind power from other parts of the North East (including potential off-shore projects) vs. in-state construction?
- 3) Solid biomass
 - a. State forests produce and Vermont consumers use substantial amounts of woody biomass (e.g., electric power (McNeil and Ryegate), combined heat and power (CHP) plants, and home heating (wood pellets, cord wood). How much power should Vermont target for woody biomass? What considerations should be made when expanding the amount of wood production for energy (either power or heating)?
 - b. Should the state build more biomass heating potential w/o being CHP? (i.e., less efficient)
 - c. How much emphasis should there be on combined heat and power using biomass vs. straight power production with no heat capture?
 - d. As the state seeks to increase the use of renewable fuels, what should be the priority of usage: Electricity? Thermal? Combined heat and power? Conversion to biofuels?
 - e. What should be done to ensure the long-term health of the forested wood supply in the state to meet projected energy needs?
 - f. What are the most effective ways to incentive people to learn about and make sustainable use of Vermont's wood supply?
- 4) Liquid biofuels
 - a. The Total Energy Study identified the uncertain potential of liquid biofuels as a fundamental uncertainty for the state's energy portfolio in the coming decades. How should the 2015 CEP address liquid biofuels? Should it identify particular sectors or end uses where policy should encourage or rely upon these fuels? If so, which sectors or end uses?

- b. Farmers continue to gain experience with renewable fuel production (e.g., biodiesel production and meal for livestock). What role should locally produced liquid biofuels play in the state's energy portfolio? What steps can the state take to encourage more use of renewable fuels such as biodiesel or cellulosic ethanol? Should the state do this? Why or why not?
 - c. How can Vermont address concerns over production of biofuels that could potentially compete with food production?
- 5) Bio- and landfill methane
 - a. Farm methane programs offer economic options for farmers, yet many farms are at a distance from three phase power. Should Vermont continue to promote farm methane digestion? If so, how should the state respond to the high costs for extending three phase power to farms? Who should bear the costs?
- 6) Hydropower
 - a. What steps might be taken to make better use of the state's hydro production capacity?
- 7) Natural gas and petroleum
 - a. How should the 2015 CEP update address the use of natural gas? How should the plan differentiate between policies regarding the use of this fossil fuel and policies regarding construction of pipeline infrastructure that can carry both fossil natural gas and other gaseous fuels such as renewable natural gas?