

1. Consumption of electricity accounts for only 5% of Vermont’s greenhouse gas (GHG) emissions.<sup>1</sup>

2. **It is the position of the NVDA Wind Study Committee that:**

2.1. Focusing on the generation of electricity is not the most effective way of reducing the state’s GHG emissions

2.2. It is unclear if industrial wind turbines in Vermont can bring about reductions in the region’s GHG emissions.

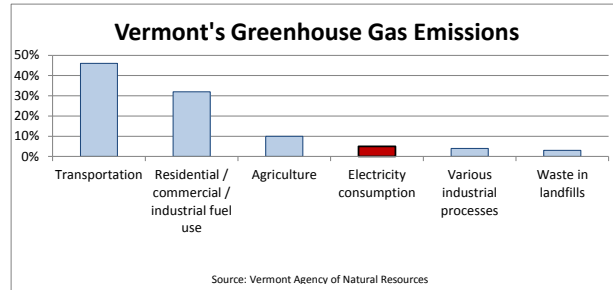
2.3. If the reduction of GHG emissions is a goal, it is clear that significant reductions may be achievable by addressing the state’s larger contributors: transportation and heating.

2.4. The impacts of Vermont turbine operations upon GHG emissions a dependent upon:

2.4.1. The GHG lifecycle costs and benefits of the turbine project under consideration

2.4.2. The energy policies of Vermont and neighboring states

2.5. The analysis of these lifecycle and policy effects is beyond the scope of this report.



3. **Calculating the lifecycle GHG costs or benefits of an industrial wind project is beyond the scope of this report.** Such a calculation would require consideration of at least the following:

3.1. The GHG investment in the turbine equipment

3.2. The site-specific GHG emissions associated with transporting the equipment, preparing the site, erecting the equipment, maintaining the equipment, upgrading the transmission infrastructure, and decommissioning the project at the end of its life

3.3. The loss of the eco services of the land that has been disturbed by the project

3.4. The amount of electricity that the project places on the grid over its lifetime

3.5. The GHG characteristics of the electricity that the wind energy displaces

3.6. The GHG characteristics of the generation plants that provide backup and spinning reserve to the wind project

3.6.1. ISO-NE (the regional grid operator) requires a spinning reserve of 8% of wind turbine capacity and is considering increasing the requirement to 12%.<sup>2</sup>

3.6.2. In New England, spinning reserve is generally provided by gas plants.<sup>3</sup>

3.6.3. When spinning reserve is unavailable, ISO-NE orders wind turbines to shut down.<sup>4</sup>

<sup>1</sup> Vermont Agency of Natural Resources Climate Change Team, [http://www.anr.state.vt.us/anr/climatechange/Vermont\\_Emissions.htm](http://www.anr.state.vt.us/anr/climatechange/Vermont_Emissions.htm) (accessed 16 April 2014).

<sup>2</sup> David Hallquist (Vermont Electric Cooperative), NVDA Wind Study Committee Meeting, Barton Town Offices, 3 April 2013, Question and Answer Session.

<sup>3</sup> David Hallquist.

<sup>4</sup> David Hallquist.

**4. Determining the GHG effects of Vermont energy policies and their interaction with those of other states is beyond the scope of this report.**

- 4.1. “A renewable portfolio standard (RPS) is a regulatory mandate to increase production of energy from renewable sources such as wind, solar, biomass and other alternatives to fossil and nuclear electric generation.”<sup>5</sup>
- 4.2. Vermont is “the only New England state which does not have a mandatory Renewable Portfolio Standard. Instead, Vermont’s Sustainably Priced Energy Enterprise Development (“SPEED”) program creates renewable energy development goals...”<sup>6</sup>
- 4.3. All Vermont’s new utility-scale wind projects (including Sheffield and Lowell) are SPEED projects.<sup>7</sup>
- 4.4. “The goal of the SPEED program is to promote the development of in-state energy sources which use renewable fuels (SPEED resources) to ensure that to the greatest extent possible the economic benefits of these new energy sources flow to the Vermont economy in general and to the rate paying citizens of the state in particular.”<sup>8</sup>
- 4.5. The SPEED program requires Vermont utilities to obtain electricity from SPEED projects and sell it to their customers: 20% of total statewide electric retail sales during year commencing January 1, 2017 must be generated by SPEED resources that constitute new renewable energy.<sup>9</sup>
- 4.6. The treatment of renewable energy credits (RECs) under the SPEED program is controversial:
  - 4.6.1. Vermont utilities can count their purchases of electricity from SPEED projects toward Vermont’s renewable energy goals.<sup>10</sup>
  - 4.6.2. At the same time, SPEED project operators can sell the renewable energy credits (RECs) generated by their projects to out-of-state utilities to meet out-of-state renewable energy goals.<sup>11</sup>
  - 4.6.3. “Vermont’s current activities where it claims SPEED resources are renewable for purposes of counting them in Vermont, while at the same time selling the RECs out of state, run afoul of the FTC requirements and leave Vermont’s programs vulnerable to a costly and embarrassing challenge.”<sup>12</sup>
  - 4.6.4. Vermont’s Public Service Board defines “renewable energy” to be “energy produced using a renewable technology and has all of the RECs attached.”<sup>13</sup>
  - 4.6.5. Since Vermont turbine operators sell their RECs, the PSB cannot consider their electricity “renewable” and the operation of SPEED turbines, therefore, cannot reduce Vermont’s GHG emissions.

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<sup>5</sup> [http://www.nrel.gov/tech\\_deployment/state\\_local\\_activities/basics\\_portfolio\\_standards.html](http://www.nrel.gov/tech_deployment/state_local_activities/basics_portfolio_standards.html) (Accessed 27 April 2014).

<sup>6</sup> Andrew Bobenski (NEPOOL counsel), *Potential Inclusion of Vermont Load in the Definition of ‘GIS Load’*, Memorandum to NEPOOL Budget and Finance Subcommittee, 12 February 2013, [http://www.iso-ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/budgfin\\_comm/budgfin/mtrls/2013/mar272013/4b\\_vt\\_gis\\_load.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/budgfin_comm/budgfin/mtrls/2013/mar272013/4b_vt_gis_load.pdf).

<sup>7</sup> <http://vermontspeed.com/project-status> (accessed 22 April 2014).

<sup>8</sup> <http://vermontspeed.com> (accessed 22 April 2014).

<sup>9</sup> <http://vermontspeed.com> (accessed 22 April 2014).

<sup>10</sup> Bobenski.

<sup>11</sup> Bobenski.

<sup>12</sup> Sandra Levine, Senior Attorney for the Conservation Law Foundation, Letter to the Vermont Public Service Board, 20 December 2012.

<sup>13</sup> Vermont Public Service Board, *Further Analysis and Report on Renewable Energy Requirements*, 15 January 2013.

- 4.7. According to Kevin Jones of the Vermont Law School, the lack of a mandatory RPS, which allows the practice of out-of-state REC sales, has three undesirable effects:<sup>14</sup>
- 4.7.1. Because utilities in other New England states can meet their renewable energy goals by buying Vermont RECs, it replaces their need to develop their own renewable electricity projects, resulting in no net increase in renewables in the region.
  - 4.7.2. While REC sales are credited against utility rates, rates remain higher than they would have been without the SPEED project costs.
  - 4.7.3. It increases Vermont's carbon footprint, since Vermont utilities purchase brown power (fossil fueled energy) not renewable energy.
- 4.8. It is the position of Green Mountain Power that the practice of selling RECs does not provide a disincentive for the development of renewable electricity in other states.<sup>15</sup>

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<sup>14</sup> Kevin Jones (Vermont Law School), NVDA Wind Study Committee Meeting, Barton Town Offices, 4 September 2013, Question and Answer Session.

<sup>15</sup> Robert Dostis (Green Mountain Power), NVDA Wind Study Committee Meeting, Barton Town Offices, 26 September 2013, Question and Answer Session.