Comprehensive Energy Plan Regional Forum #2: Northern Vermont

June 2, 2021, 4-6 p.m.

Link to join: https://us02web.zoom.us/j/6050832511
To join by phone, dial 929-205-6099. Webinar ID: 605 083 2511#
(No participant ID or password is required)

Welcome! The meeting will get started shortly.
Regional Forums: Purpose

The PSD is convening four regional forums across Vermont to get input from regional and municipal energy planners regarding regionally and locally important energy planning issues and challenges and to hear recommended strategies for addressing these issues and challenges in the 2022 Comprehensive Energy Plan.
Introduction of Facilitation Team

• Cindy Cook, Adamant Accord
  - Overview of Etiquette for PSD Online Public Engagement
  - Review of Forum Agenda
Forum Etiquette and Zoom Logistics

- CEP public meeting etiquette guidelines available here: https://publicservice.vermont.gov/content/2022-plan
- Please remain muted with video off during presentations.
- Participants will have multiple opportunities to ask questions. Please type your questions in the chat or use the “raise your hand” function during Q&A. Callers will be invited to press *6 to unmute during Q&A to ask their question during the Q&A.
Agenda

4:00 Welcome and Introductions, PSD
4:10 Review Agenda, Forum Etiquette Guidelines and Zoom Logistics, Facilitator
4:15 Overview of the Comprehensive Energy Plan Development Process, PSD
4:30 Responses to Informational Questions re the CEP Process, Facilitator and PSD
4:35 Regional Planning Commission Presentation(s) re the Regional Enhanced Energy Plans, RPCs
5:10 Responses to Informational Questions re the RPC Presentations
5:15 Municipalities’ Input
5:45 Public Comments
5:55 Next Steps and Future Opportunities for Input
6:00 Adjourn
Introduction to Vermont Comprehensive Energy Plan – 2022 Update Process
Vermont Energy Policy

Title 30, Section 202a:

• To ensure, to the greatest extent practicable, that Vermont can meet its energy service needs:
  – In a manner that is **adequate, reliable, secure, and sustainable**
  – Ensuring **affordability** and encouraging the state’s **economic vitality**
  – Using energy resources **efficiently** and managing demands **cost effectively**
  – In a manner that will **achieve greenhouse gas reductions requirements**
### Comprehensive Energy Plan - Two Plans

<table>
<thead>
<tr>
<th>Comprehensive Energy Plan</th>
<th>Electric Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>(30 V.S.A. § 202b)</td>
<td>(30 V.S.A. § 202)</td>
</tr>
<tr>
<td>• Comprehensive 20-year analysis and projections of the use, supply, cost, environmental effects all energy sources used in VT</td>
<td>• 20-yr assessment of electric demand, supply, strategies</td>
</tr>
</tbody>
</table>

- CEP Required Every 6 years – next due **January 2022**
Comprehensive Energy Plan – Requirements

- Must include standards and recommendations for Act 174 enhanced energy planning
- Must be consistent with GHG reduction requirements, GWSA Climate Action Plan, relevant goals of Title 24, Section 4302
2016 Comprehensive Energy Plan

- Last CEP published in January 2016
- 90% renewable (all sectors) by 2050
- Over 300 recommendations
2022 CEP Starting Points

- 90% renewable by 2050 as a starting point
- 10 V.S.A. 578 Requirements – GHG Emissions reductions equal to:
  - Not less than 26% relative to 2005 emissions by 2025 (Paris Accord)
  - Not less than 40% from 1990 emissions by 2030 (2016 CEP)
  - Not less than 80% from 1990 emissions by 2050 (2016 CEP)
Energy Plan & Climate Plan

Climate Action Plan
- Climate Adaptation
- Non-Energy GHG Emissions: Agriculture, Waste, etc.
- Sequestration
- GHG Inventory Review

Overlap
- GHG Reduction Targets
- Energy Sector Analysis incl. policy & technology scenarios & pathways
- Public Engagement Efforts
- Equity

Comprehensive Energy Plan
- Renewable Energy Development
- Electric Plan including Reliability
- Energy System Planning: Adequacy, security, sustainability, Affordability, Economic vitality
- Standards for Local Planning (Act 174)
2022 CEP Vision

• Focus on a strategic plan that identifies
  – Tradeoffs among policies
  – Milestones for identifying success and need for modification in policies
  – Uncertainties that could affect policy success

• Includes
  – Act 174 standards & recommendations
  – Climate and Renewable Energy Pathways
  – Electric Plan
  – State Agency Energy Plan
2022 CEP Modeling

- Scenario analysis
  - Working with ANR, NESCAUM, Stockholm Environment Institute using Low Emissions Analysis Platform (LEAP)
  - Reference, Do Nothing” case plus policy and technology scenarios
- Energy modeling for CEP, non-energy sectors already planned
  - LEAP is scenario-based modeling tool that can track consumption, production, and resources in all sectors
  - Plan to regionalize results after initial modeling effort is complete
  - Local and regional air pollutants in addition to GHG
2022 CEP Tentative Timeline (as of 5.24.21)

Dec. 2020
- Issue Public Involvement Plan
- Modeling RFI

May
- Stakeholder Engagement around modeling starts – through July
- Topical Stakeholder Groups
- Regional Forum

June
- Final Modeling Complete

Aug
- Draft CEP published

Sept/Oct
- Written Comments
- Public Hearings

Sept–Nov
- Final CEP Published

Jan 2022

Coordination with Stakeholder Engagement / Timing of Climate Council
Questions?

- Type your questions in the chat, “raise your hand” to be unmuted and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.
Regional Energy Planning Presentations

• Northeastern Vermont Development Association
• Lamoille County Planning Commission
• Northwest Regional Planning Commission
CEP Considerations from the NEK Perspective

June 2, 2021
Key Goals from 2018 plan...

- Affordable alternatives to fossil fuels will be available.
- Reduce single-occupancy vehicle trips/gas-powered vehicles.
- Maximize net-metering capacity.
- Integrate efficiency and weatherization into the energy portfolio.
- Weatherize 25% of the region’s housing stock by 2020.
- Broad public participation, assessment of local needs, AND consideration of environmental & aesthetic impacts.
- Promote closed-loop food system to reduce carbon footprint.
• NEK is net-exporter, and we have adopted a policy on siting:
  • Won’t support a project that simply replaces one renewable resource with another.
  • Expect project developers to work with utilities to shift generation away from hours when generation exceeds load within the SHEI.

• Beneficial electrification – work with service providers to promote fuel switching.
• Install charging stations in areas where people can shop and work
• Partnerships with EEUs for residential and commercial.
• Continue to advocate for better telecommunications.
Transportation considerations

Lingering concerns over

• Range anxiety
• Terrain
• Cost

Travel to work distances, private primary jobs

<table>
<thead>
<tr>
<th>Distance</th>
<th>NEK</th>
<th>VT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10 miles</td>
<td>18%</td>
<td>12%</td>
</tr>
<tr>
<td>10 to 24 miles</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>25 to 50 miles</td>
<td>26%</td>
<td>25%</td>
</tr>
<tr>
<td>50+ miles</td>
<td>40%</td>
<td>51%</td>
</tr>
</tbody>
</table>
Transportation considerations, (cont’d.)

• Fixed-line transit is used, but doesn’t go everywhere

• Strategies should coincide with building out telecommunications infrastructure
  
  • Teleworking
  • Telehealth
  • Commerce
  • Charging infrastructure

• Site prioritization – Plan recommendations predate VTrans guidance
Thermal Considerations

• Reliability of data a concern
• Energy burden rates highest in NEK
• Older building stock – typically concentrated in centers of development
• NEK Housing Symposium on net positive housing
  • Northern Forest Center project in St. J
• HEAT Squad in NEK since 2018
  (127 audits in 2020 alone)
• Strengthen ties to commercial industrial
Ambitious, but technology is catching up

Pandemic has shown that we can work in a different way – and our VMT baseline may no longer be relevant

Alternatives to fixed-line transit must be taken into consideration when evaluating enhanced standards

Focus on load management, storage, and beneficial electrification
Regional Energy Planning Presentations

- Northeastern Vermont Development Association
- Lamoille County Planning Commission
- Northwest Regional Planning Commission
Lamoille County Energy Plan

Meghan Rodier, Regional Planner
Lamoille County Planning Commission
June 2, 2021

Two Broad State Energy Goals

#1
Reduce overall consumption

#2
Transition to Renewables

Today
- 25% Renewables
- 75% Non-renewables

2050
- 33% less
- 90% Renewables
- 10% Non-renewables
Lamoille County Energy Plan Goals

**Energy Plan Policies**
- Encourage efficient use of energy and conservation
- Support development of renewable energy generation (solar, small-scale wind, hydro, biomass, and geothermal)
- Locate energy generation facilities at “preferred locations” near existing infrastructure and built environments
- Foster convenient public transit
- Improve bike/pedestrian networks

**Energy Plan Actions**
- Promote weatherization programs, energy efficiency incentives, and energy building codes
- Assist municipalities in developing Enhanced Energy Plans that align with state goals
- Facilitate discussion with GMTCC to promote educational programs on energy efficiency
- Explore feasibility of biogas and biomass generation
- Work with partners to increase public transit options and improve bike/pedestrian networks

*Photo Credit: Suncommon*
Progress: Regional Energy Actions

• Assisted 7 municipalities in developing Enhanced Energy Plans

• Hosted energy workshops (weatherization, energy efficiency incentives, utility rebates)

• Worked with Purpose Energy to conduct a digester study

• Continue to support efforts to improve bike/pedestrian connections
### Thermal and Electric Sectors

#### Challenges in Lamoille County

- Falling short of weatherization targets. Many residents are eligible for low-income weatherization programs, but there is a long waiting list.
- Limited grid system capacity
- Grid system upgrades and energy storage will need to be addressed to meet energy targets
- Limited wind resources outside scenic ridgelines
- The cost to install heat pumps is still out of many residents’ financial reach
- Gaps in electric utility mapping

#### Target: Households Weatherized

<table>
<thead>
<tr>
<th>Households/Year</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of households</td>
<td>543</td>
<td>2,429</td>
<td>5,771</td>
<td>12,901</td>
</tr>
<tr>
<td>Percentage of households</td>
<td>5%</td>
<td>21%</td>
<td>49%</td>
<td>100%</td>
</tr>
</tbody>
</table>

#### Target: Households Heated with Electric Heat Pumps

<table>
<thead>
<tr>
<th>Households/Year</th>
<th>2015</th>
<th>2025</th>
<th>2035</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of households</td>
<td>51</td>
<td>296</td>
<td>775</td>
<td>1,545</td>
</tr>
<tr>
<td>Percentage of households</td>
<td>0%</td>
<td>3%</td>
<td>7%</td>
<td>14%</td>
</tr>
</tbody>
</table>

*Source: LEAP Targets, VEIC*
Transportation Sector

**Challenges in Lamoille County**

- Limited grid system capacity to support new renewable generation and transition to an all-electric vehicle fleet
- Current EV incentives are not competitive enough to be affordable for lower income households. EV ownership in Lamoille County is not rising fast enough to meet the energy targets.
- Challenges generating enough “known” demand to support public transit routes
- Limited financial resources to match grants to make bike/pedestrian improvements

### Target: Passenger Electric Vehicle Use

<table>
<thead>
<tr>
<th>Vehicles/Year</th>
<th>2016</th>
<th>2025</th>
<th>2035</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of electric vehicles</td>
<td>100</td>
<td>1,368</td>
<td>4,575</td>
<td>11,801</td>
</tr>
<tr>
<td>Percentage of vehicles</td>
<td>0.5%</td>
<td>11%</td>
<td>39%</td>
<td>89%</td>
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</table>

*Source: LEAP Targets, VEIC*
### The Grid System Challenge

#### Optimized Solar PV Distribution by Regional Planning Commission

<table>
<thead>
<tr>
<th>Zone Names</th>
<th>Installed Solar PV as of 2020 (MW)</th>
<th>Additional Solar PV (MW)</th>
<th>Optimized Solar PV Distribution (MW)</th>
<th>Regional Targets (Existing Solar + All New Renewables) 2050 (MW)</th>
<th>Regional Targets (Existing Solar + All New Renewables) 2035 (MW)</th>
<th>Regional Targets (Existing Solar + All New Renewables) 2025 (MW)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addison (ACRPC)</td>
<td>49.7</td>
<td>30.1</td>
<td>79.8</td>
<td>143.6</td>
<td>109.8</td>
<td>71.8</td>
<td>1</td>
</tr>
<tr>
<td>Bennington (BCRC)</td>
<td>17.5</td>
<td>66.4</td>
<td>83.9</td>
<td>121.9</td>
<td>85.9</td>
<td>48.9</td>
<td>2</td>
</tr>
<tr>
<td>Central Vermont (CVRPC)</td>
<td>29.1</td>
<td>44</td>
<td>73.1</td>
<td>342.5</td>
<td>151.4</td>
<td>103.6</td>
<td>3</td>
</tr>
<tr>
<td>Chittenden (CCRPC)</td>
<td>74.1</td>
<td>41.5</td>
<td>115.6</td>
<td>393.6</td>
<td>275.7</td>
<td>157.9</td>
<td>4</td>
</tr>
<tr>
<td>Lamoille (LCPC)</td>
<td>9.1</td>
<td>25.5</td>
<td>34.6</td>
<td>135.0</td>
<td>91.9</td>
<td>48.7</td>
<td>5</td>
</tr>
<tr>
<td>Northeastern (NVDA)</td>
<td>20.6′</td>
<td>28</td>
<td>48.6</td>
<td>27.4</td>
<td>22.6</td>
<td>17.9</td>
<td>5</td>
</tr>
<tr>
<td>Northwest (NRPC)</td>
<td>34.2</td>
<td>8.6</td>
<td>42.8</td>
<td>247.0</td>
<td>166.2</td>
<td>87.9</td>
<td>6</td>
</tr>
<tr>
<td>Rutland (RRPC)</td>
<td>41</td>
<td>126.6</td>
<td>167.6</td>
<td>304.4</td>
<td>113.4</td>
<td>50.4</td>
<td>4</td>
</tr>
<tr>
<td>Southern Windsor (SWCRPC)</td>
<td>18.8</td>
<td>56.7</td>
<td>75.5</td>
<td>154.7</td>
<td>80.7</td>
<td>43.6</td>
<td>2</td>
</tr>
<tr>
<td>Two River OTQ (TRORC)</td>
<td>38.7</td>
<td>59.3</td>
<td>98</td>
<td>190.5</td>
<td>125.5</td>
<td>66.5</td>
<td>2</td>
</tr>
<tr>
<td>Windham (WRC)</td>
<td>28.1</td>
<td>148.2</td>
<td>176.3</td>
<td>60.7</td>
<td>45.7</td>
<td>30.7</td>
<td>4</td>
</tr>
<tr>
<td>Totals</td>
<td>360.8’</td>
<td>636</td>
<td>996.8’</td>
<td>2121.2</td>
<td>1268.8</td>
<td>728.0</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: VELCO 2021 Draft Long-Range Transmission Plan
Opportunities In Lamoille County

• Increase solar and biomass energy use
• Reduce transportation demands (increase telework/use of trail networks)
• Locate energy development on preferred sites to support existing village centers (rooftops, parking lots, industrial parks), connect to existing infrastructure, and preserve scenic habitat
Considerations for CEP

• Consider grid system capacity, grid control, and energy storage challenges identified in the 2021 VELCO Long Range Transmission Plan when revisiting statewide energy targets

• Consider placing further emphasis on protecting scenic and environmentally sensitive ridgelines regarding wind development (emphasize in siting policies and energy mapping)

• Reference updated incentive programs

• Work with Low Income Weatherization Program providers to increase capacity and resources to support these programs
Regional Energy Planning Presentations

- Northeastern Vermont Development Association
- Lamoille County Planning Commission
- Northwest Regional Planning Commission
Goals

- Decrease transportation and heating energy demand
- 237.5 MW of renewable energy generation by 2050

Key Strategies

- Solar energy development
- Strategic electrification- electric heat pumps & electric vehicles
- Weatherization
- Efficient Land Use
Unique Regional Challenges and Opportunities

- **Challenges**
  - Grid Constraints - Sheffield-Highgate Export Interface (SHEI)
  - Solar Energy is intermittent
  - Proximity to Chittenden County where electric demand is expected to increase more rapidly

- **Opportunities**
  - Job creation in renewable energy & weatherization
  - Local utilities & community groups
  - Large number of commuters to Chittenden County
Thermal Energy Use

Two strategies
1. Increased use of electricity (heat pumps) for heating
2. Weatherization of existing homes
Transportation Energy Use

Three strategies to reduce transportation energy use
1. Encourage compact, walkable development in historic population centers
2. Encourage public transit and bicycle/pedestrian infrastructure
3. Fuel switching- Electric Vehicles and Biodiesels

$59,898,632.34 spent in transportation fuel costs
Electrical Energy

- 208.5 MW Solar
- 19 MW Wind
- 10 MW Hydro
• Addressing grid constraints is crucial to ensuring increased renewable energy supply

• Decreasing demand relies heavily on individual consumer choices

• Regional energy goals are ambitious and will require coordination of a variety of stakeholders
  • State, regional and local level
ENERGY PLANNING

Northwest Regional Planning Commission (NRPC) adopted a Regional Energy Plan in 2017. This regional plan supports the implementation of the Vermont Comprehensive Energy Plan and the pursuit of Vermont’s energy and carbon-related goals. NRPC has a standing Regional Energy Committee composed of Regional Commissioners. The Committee works on projects related to implementing the Regional Energy Plan. NRPC is also involved in the review of proposed renewable electricity energy facilities as an automatic party to all Section 248 proceedings in Franklin and Grand Isle Counties.

NRPC is committed to working with municipalities that pursue local energy planning-related work. This includes development of municipal enhanced energy plans, development of solar screening ordinances, supporting local energy committees, or any other type of energy-related project. For more information on energy planning, please contact Linda Blasch at lbblasch@nrpcvt.com.

Municipal Enhanced Energy Plans

A municipal enhanced energy plan is an optional addition to a municipal plan that municipalities are authorized to adopt under 24 V.S.A. 54352. The purpose of a municipal enhanced energy plan is to implement the Vermont Comprehensive Energy Plan at the municipal level.

Plans typically include an analysis of current energy use & generation, maps of the best locations for future energy generation, and recommended actions the municipality can take to support the state’s energy goals.
Clarifying questions?

• Type your questions in the chat, “raise your hand” to be unmuted and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.
Municipalities’ Input

- What is most important for the state to include in the Comprehensive Energy Plan to support municipal energy planning?
- How can the standards and recommendations for developing municipal Act 174 plans be improved?
- What recommendations from municipal enhanced energy plans should the PSD actively consider as it updates the Comprehensive Energy Plan?
Public Comments

• Please share your comments
• Please remember to speak clearly and concisely
• Thank you!
Additional Opportunities for CEP Comment

Website (information on upcoming events and other avenues for providing input): https://publicservice.vermont.gov/content/2022-plan

Email (to submit comments on the CEP):
PSD.ComprehensiveEnergyPlan@vermont.gov

Mail (alternative means of submitting comments on the CEP):
Comprehensive Energy Plan
Public Service Department
112 State Street
Montpelier, VT 05620
Thank You!