



## **Public Comments Sought on Northwest Regional Plan Amendments New Regional Energy Plan Proposed**

The Northwest Regional Planning Commission (NRPC) is seeking your comments on the draft amendment of the Plan for the Northwest Region 2015-2023. Copies of the draft are available at the NRPC office, 75 Fairfield St., St. Albans, VT or online at [www.nrpcvt.com](http://www.nrpcvt.com). *The draft plan amendments include: minor corrections to the plan, the new regional energy plan, and other amendments to ensure consistent policy statements.* NRPC invites comments on the draft amendments and on the extent to which the amendments are consistent with Title 24 V.S.A. Section 4302.

The Northwest Regional Plan was created under the guidance of the NRPC Board of Commissioners. The plan addresses the economic, social and environmental factors that influence and sustain growth and development in Franklin and Grand Isle Counties. It is intended for use as a guide for decision makers, as a vision for the region and as an eight-year action plan to address issues of regional importance. The draft regional energy plan amendment was completed under the guidance of the regional energy committee and extensive public input.

You may provide comments on the draft plan amendments by attending one of the public meetings or:

- E-mailing comments [cdimitruk@nrpcvt.com](mailto:cdimitruk@nrpcvt.com);
- Calling NRPC at 802-524-5958
- Faxing comments to NRPC at 802-527-2948; or
- Mailing comments to 75 Fairfield St., St. Albans, VT 05478

### **Public Meetings:**

May 24<sup>th</sup> 7:00 p.m. NRPC Board of Commissioners Meeting and Public Meeting  
Swanton Village Municipal Complex, Route 78, Swanton

May 30<sup>th</sup> 9:00 a.m. Formal Public Hearing  
Northwest Medical Center Conference Room #1

### **Northwest Regional Planning Commission**

**75 Fairfield Street, St. Albans, VT 05478 802-524-5958 [www.nrpcvt.com](http://www.nrpcvt.com)**

**Plan for the Northwest Regional, 2015-2023**  
**PROPOSED AMENDMENTS, April 2017**

**Table of Contents, Appendix**

Amended to "Appendices"

Rename "Definitions" to "Appendix I, Definitions"

Add "Appendix II, Northwest Regional Energy Plan" The full text of the plan can be found at [www.nrpcvt.com](http://www.nrpcvt.com) or call NRPC for a copy.

**Introduction, Page 8**

Add statement to the end of the 4<sup>th</sup> paragraph: "This regional plan consists of the Introduction, Economic Region, Social Region, Physical Region and Appendix I and II."

**Table 3, Implementation, Economic Region**

Energy is amended to read

"Energy (see appendix II for additional energy implementation)"

**Physical Region, Natural and Cultural Resources**

Correct Map 2, page 80, to show Lake Carmi, Metcalf Pond, Kings Hill Pond and Lake Champlain Missisquoi Bay water quality as impaired

Amend Map 5, page 84, to include Vermont Conservation Design Highest Priority Forest Blocks

**Economic Development, Energy**

Delete the energy section, pages 36-42 and add the attached section in its place.

**Miscellaneous Edits:**

Renumber pages, tables and figures as needed.



## Regional Plan Committee Meeting

5:30 p.m. Monday May 8, 2016

NRPC Conference Room

75 Fairfield Street, St. Albans

### Agenda

1. Adjustments to the Agenda
2. Draft Regional Energy Element
3. Draft Regional Energy Plan
4. Other Plan Amendments

*In accordance with provisions of the Americans with Disabilities Act (ADA) of 1990, the NRPC will ensure public meeting sites are accessible to all people or provide an opportunity to request accommodations. Requests for free interpretive or translation services, assistive devices, or other requested accommodations, should be made to Amy Adams, NRPC Title VI Coordinator, at 802-524-5958 or [aadams@nrpcvt.com](mailto:aadams@nrpcvt.com), no later than 3 business days prior to the meeting for which services are requested.*

# ENERGY

## GOALS

1. Use demand-side management to handle the expected doubling of electric energy demand in the Northwest region by 2050.
2. To reduce annual regional fuel needs and fuel bills for heating structures, and to foster the transition from non-renewable fuel sources to renewable fuel sources.
3. Hold VMT per capita to 2011 levels through reducing the share of single occupancy vehicle (SOV) commute trips by 20%, doubling the share of pedestrian and bicycle commute trips, increasing public transit ridership by 100% by 2050, and focusing regional development in or near existing growth centers and villages.
4. Quadruple region-based passenger rail trips (3,592/year in 2013) and double rail freight tonnage in the region (about 1500 tons in 2011) by 2050.
5. Increase the share of renewable energy in transportation to 10% by 2025 and to 80% by 2050 by increasing the use of renewable and less carbon-intensive fuels.
6. Increase the renewable energy generation capacity in the Northwest region to include an additional 208.5 MW of additional solar generation capacity, 19 MW of new wind generation capacity, and 10 MW of new hydro generation capacity by 2050.

## REGIONAL ASSETS AND OPPORTUNITIES

In 2017 NRPC completed the Northwest Regional Energy Plan, a pilot project funded by the Vermont Department of Public Service. The intent of the project was to complete in-depth energy planning at the regional level while achieving state and regional energy goals (figure 2)—most notably, the goal to have renewable energy sources meet 90% of the state’s total energy needs by 2050 (90 x 50 goal). In-depth regional energy planning is needed to address three key issues: energy security, environmental protection, and economic needs and opportunities. NRPC’s Energy Committee oversaw the development of the energy plan. The planning process included coordination with the Department of Public Service, Vermont Energy Investment Corporation and Energy Action Network, consultation with other regional planning commissions and substantial opportunities for municipal and public input.



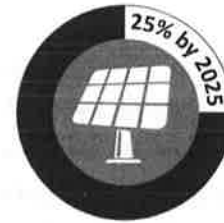
**FIGURE 2.1 STATE ENERGY AND GREENHOUSE GAS EMISSION GOALS**

**Goals for Reducing Greenhouse Gases** 10 V.S.A. § 578(a)



All percentages are based on 1990 levels

**Increasing Renewable Energy**  
10 V.S.A. § 580(a)



Produce 25% of energy consumed within the state through renewable energy by 2025

**Additional Goals Regarding Renewable Energy** 10 V.S.A. § 581(a)



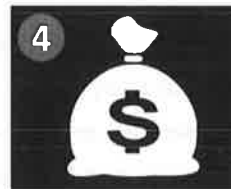
To improve substantially the energy fitness of at least 20% of the state's housing stock by 2017 (more than 60,000 housing units) and 25% of the state's housing stock by 2020 (approximately 80,000 housing units)



To reduce annual fuel needs and fuel bills by an average of 25% in the housing units served



To reduce total fossil fuel consumption across all buildings by an additional 0.5% each year, leading to a total reduction of 6% annually by 2017 and 10% annually by 2025



To save Vermont families and businesses a total of \$1.5 billion on their fuel bills over the lifetimes of the improvements and measures installed between 2008 and 2017



To increase weatherization services to low-income Vermonters by expanding the number of units weatherized, or the scope of services provided, or both, as revenue becomes available in the home weatherization assistance trust fund

The energy element of this regional plan consists of this energy section and the full Northwest Regional Energy Plan, included in Appendix II.

This plan includes the following key items:

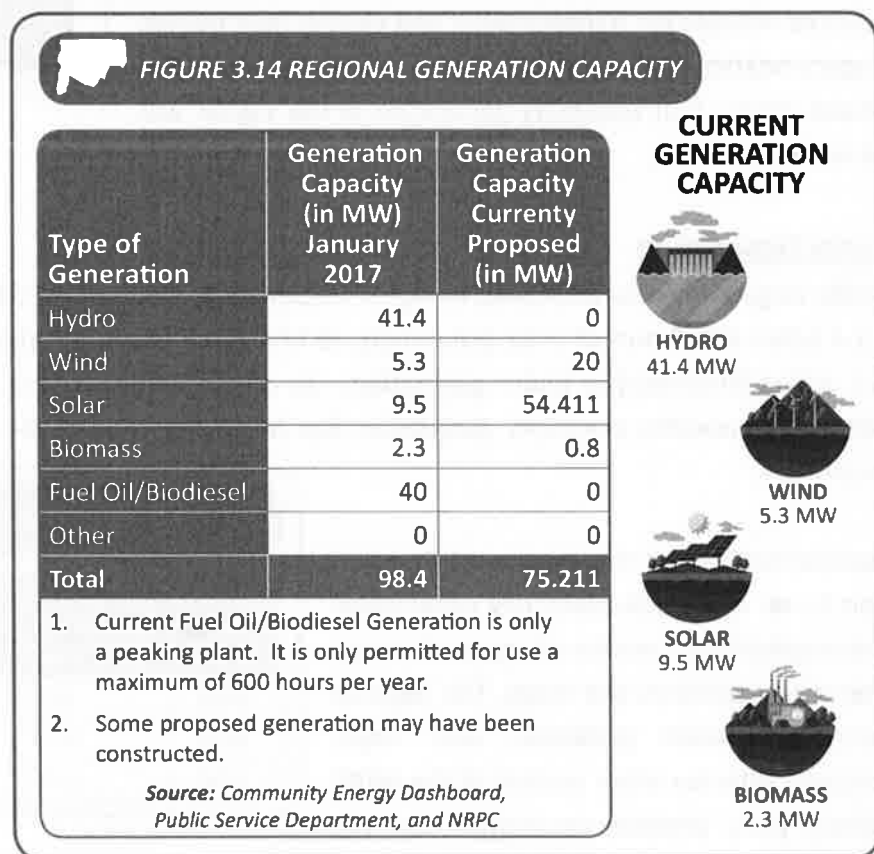
- A regional energy model that identifies targets for energy conservation and renewable energy generation (created in collaboration with Vermont Energy Investment Corporation (VEIC))
- Creation of specific strategies to help the region achieve state energy goals
- Identification of standards for locating future renewable generation facilities in the region and development of maps depicting possible locations for renewable generation facilities

**Northwest Reginal Energy Plan Outline** (see Appendix II for full plan)

Section I	Executive Summary
Section II	Introduction
Section III	Regional Energy Supply and Consumption
Section IV	Targets for Energy Conservation, Energy Use, and Electricity Generation
Section V	Strategies to Achieve Regional Targets
Section VI	Feasibility, Challenges and Conclusions
Appendix A	Regional Targets- energy conservation and renewable generation
Appendix B	Known and Possible Constraints- used to create regional energy generation maps
Appendix C	Regional Generation Maps
Appendix D	Planning Process
Appendix E	List of acronyms and phrases
Appendix F	Summary of Existing Renewable Generation Facilities in the Northwest Region
Appendix G	Summary of Municipal Energy- analysis and targets

## CURRENT ENERGY USE AND GENERATION

The region's energy supply and consumption were analyzed to establish baseline energy use. Based on the NRPC's estimates, the region currently uses approximately 2.243 trillion BTUs to space heat residential units each year and about 2.7 trillion BTUs to space heat commercial, industrial, and institutional structures. Regional electricity use totals approximately 1.647 trillion BTUs per year based on 2013 data available from Efficiency Vermont. Regional transportation energy use is greater than 3.1 trillion BTUs per year based on approximate passenger vehicle fuel use in the region. Actual regional transportation energy use is likely greater due to the use of commercial vehicles in the region.



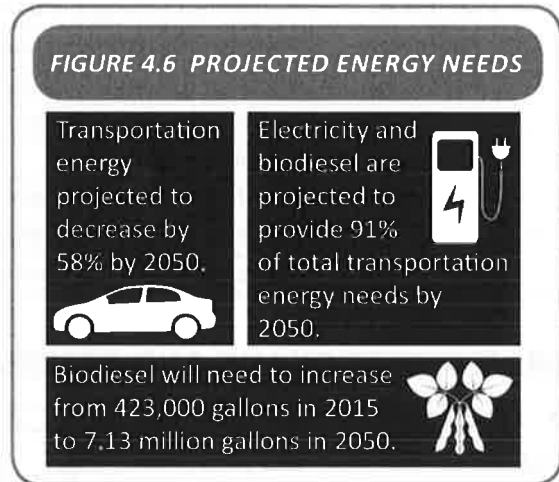
Currently, the region has the capacity to generate approximately 98.4 MW of electricity. About 58.4 MW of this electricity comes from hydro, wind, solar, and biomass sources (Community Energy Dashboard). The 58.4MW of renewable generation in the region is a "raw" number that does not take "capacity factors, renewable energy credits sold, or ownership of the systems" into consideration. The NRPC has estimated

current renewable generation in the region to be about 182,190.79 MWh per year when considering capacity factors for solar, wind, and hydro.

## ENERGY USE AND GENERATION- FUTURE TARGETS

### Energy Conservation

The NRPC cooperated with VEIC to create targets for energy conservation and renewable energy generation. The energy saved via conservation and improved efficiency is targeted to equal approximately 3.5 trillion BTUs by 2050. Conservation and improved efficiency are planned through a variety of means including increased use of efficient materials during construction and weatherization of existing structures. Most prominently, improved efficiency is targeted through the use of electric vehicles for transportation and electric heat pumps for space heating. The resulting increase in regional electricity demand means that electricity generation in the region will also need to increase.



### Energy Generation

Specific targets for new additional in-region electricity generation by 2050 include the following: 208.5 MW (711.4 billion BTU/hour) of solar generation, 19 MW (64.8 billion BTU/hour) of wind generation, and 10 MW (34.1 billion BTU/hour) of hydro generation. As of the writing of this plan, approximately 75.211 MW of additional renewable electricity generation has been proposed to be sited in the region but is not yet constructed.

A substantial part of the Northwest Region's effort to set renewable electricity generations goals involved the creation of regional energy generation guidelines and maps. The regional energy generation guidelines and maps, combined with the other section of the NRPC regional plan, provide parameters for the

**FIGURE 4.10 GENERATION TARGETS**

Year	New Wind (MW)	New Hydro (MW)	New Solar (MW)	Total New Generation (MWh)
2025	6.3	3.3	68.8	115,169.5
2035	12.5	6.6	137.6	230,338.9
2050	19.0	10.0	208.5	348,998.4

development of new solar, wind, hydro, and biomass energy generation facilities in the Northwest region. The maps provide a macro-scale look at different factors that impact the siting of renewable generation facilities including generation potential. NRPC has analyzed the results of the maps and guides and determined that NRPC has allowed for sufficient renewable electricity generation in the region while avoiding undue adverse impacts upon known and possible constraints (these resources are specifically identified in Appendix B).

## CHALLENGES AND OPPORTUNITIES

Based upon the analysis of NRPC, regional energy generation goals are attainable while still allowing for the protection of known and possible constraints. Achieving energy conservation goals will require heavy reliance on the choices of individual consumers in the region. The thermal efficiency goals are similar. NRPC can support the efforts of other organizations to increase conservation and thermal efficiency in the region but it cannot accomplish the goals and implement the strategies in the plan alone. Because citizen and consumer participation will be an important component of the success of this plan, NRPC will continue to work with our energy committee and will support the creation of municipal energy committees.

Achieving transportation-related energy goals is more straightforward. One of NRPC's core functions is coordinating transportation planning for the region. Therefore, NRPC is well suited to be a key player in achieving goals and implementing strategies for transportation. Progress on transportation-related implementation actions will be prioritized.

There are several challenges to successful plan implementation. Some of these challenges pertain to how the electric grid operates. This includes the need to balance "baseload" and "intermittent" electricity generation to ensure grid reliability and challenges related to the infrastructural capacity of the regional grid. Other challenges exist due to geography. Inclement weather is common in the region and can threaten electricity service. The Northwest region's proximity to Chittenden County may create challenges related to the equity of renewable generation siting. Other challenges include:

- Environmental issues when developing new hydro generation
- Lack of sufficient biofuel or ethanol technologies and research
- Potential reliance on cord wood
- Lack of site specific guidelines for solar and wind generation facilities
- Lack of residential building energy standard (RBES) and commercial building energy standards (CBES) outreach and enforcement
- The limits of regional planning commissions' jurisdiction

Overcoming the challenges to implementation will likely mean bearing both economic and environmental costs. The equity issues related to who will bear those costs is of continuing concern to NRPC.

## GOALS AND POLICIES

### Guiding Policy Statements

NRPC adopts these overall statements of policy to affirm its commitment to meeting state and regional energy goals and to satisfy the determination standards established by the Vermont Department of Public Service:



1. Support conservation efforts and the efficient use of energy across all sectors.
2. Reduce in-region transportation energy demand, reduction of single-occupancy vehicle use, and the transition to renewable and lower-emission energy sources for transportation.
3. Increase the use of energy conservation practices in site planning and development and support patterns and densities of concentrated development that result in the conservation of energy.
4. Develop and site renewable energy resources in the Northwest region that are in conformance with the goals, strategies, and standards outlined in this plan.

Additional goals, policies and implementation steps will guide the Northwest region in achieving energy conservation and renewable energy generation targets. These have been specifically identified for the following categories: electricity conservation, thermal efficiency, and transportation. Goals and policies in other areas of the regional plan related to local food production and consumption, land use patterns, natural resource protection, utilities and other areas also support implementation of the energy goals. Implementation steps can be found in the Introduction of this plan and the Northwest Regional Energy Plan in Appendix II.

### **Goals and Policies**

- 1. Use demand-side management to handle the expected doubling of electric energy demand in the Northwest region by 2050.**
  - a. Encourage public utilities to move all customers to smart rates (i.e., charging higher rates during peak demand times), and encourage public utilities to mitigate any differential effects of smart rates on low-income customers.
  - b. Encourage legislature and/or public utilities to create programs that promote the use of energy storage systems. Using electric storage systems may reduce peak demand and provide emergency back-up power.
  - c. Support public utilities' efforts to increase customers' knowledge of their energy use. This may happen through increased outreach to and education of customers, but it may also occur through the use of new technology such as real-time monitoring of energy use.
  - d. Support the efforts of Efficiency Vermont to promote the selection and installation of devices, appliances, and equipment that will perform work using less energy (e.g., ENERGY STAR). This includes "load controllable equipment."
  - e. Encourage HVAC and weatherization providers to join the Building Performance Professionals Association of Vermont (BPPA-VT) to provide holistic energy advice to Vermonters.
  - f. Support and encourage school participation in Vermont Energy Education Program (VEEP) activities that foster an educational foundation geared toward energy savings.
- 2. To reduce annual regional fuel needs and fuel bills for heating structures, and to foster the transition from non-renewable fuel sources to renewable fuel sources.**

- a. Support efforts to transfer residential and commercial sectors from heating oil and propane to biofuels, biomass, and electric heat pumps.
- b. Support changes that create simplified financing for fuel switching that links bill payments, home equity, and public sector incentives.
- c. Support the use of geothermal heating and cooling systems for new residential and commercial construction in the region.
- d. Support programs that provide assistance to low-income households to weatherize their homes.
- e. Endorse the use of Downtown and Village Tax Credit programs to complete weatherization projects in the region's designated areas.
- f. Support the creation of additional sustainable forest industries and biomass-related industries in the region to supply local biomass users.
- g. Support greater state enforcement of existing state energy codes (e.g., RBES and CBES) to ensure that all renovations of existing structures are energy efficient and meet current standards.

**3. Hold VMT per capita to 2011 levels through reducing the share of single occupancy vehicle (SOV) commute trips by 20%, doubling the share of pedestrian and bicycle commute trips, increasing public transit ridership by 100% by 2050, and focusing regional development in or near existing growth centers and villages.**

- a. New public and private transportation infrastructure shall be designed and built to interconnect with existing adjacent land development(s) and with adjacent lands that have the potential for future land development. This will ensure more efficient traffic patterns and bicycle/pedestrian movement within the region.
- b. Support efforts to make regional transit authorities like Green Mountain Transit statutory parties to all Act 250 applications in the region.
- c. Require a public transit stop for all residential and large commercial land developments subject to Act 250 if a stop is not currently available.
- d. Support planning for municipal streetscape improvements and on-street parking in state-designated village areas. This may require some cooperation with the Vermont Agency of Transportation in some villages due to the existence of state roads.
- e. Support municipal efforts to plan for future compact development that includes opportunities for walking, use of public transportation, and other forms of transportation that are an alternative to the single occupancy vehicle. Municipal efforts may include capital budgeting, streetscape plans, revitalization plans, or adoption of an "official map" (as outlined in 24 V.S.A. Chapter 117, to identify future municipal utility and facility improvements such as road or recreational path rights-of-way, parkland, utility rights-of-way, and other public improvements) by the municipality.
- f. Support changes to public transportation funding in the state that alters how public transit routes are funded. Support efforts for state funding of public transportation routes that serve stops on federal

and state highways (in a similar manner to the existing highway funding system) and require municipal funding primarily for public transportation routes that serve local roads.

- g. Investigate “cash out” programs that enable large employers to allow employees to “cash out,” or obtain cash in exchange for the ability to park at their job site. Work with large regional employers to determine if such a model is viable in the region.

**4. Quadruple region-based passenger rail trips (3,592/year in 2013) and double rail freight tonnage in the region (about 1500tons in 2011) by 2050.**

- a. Support the extension of Amtrak Ethan Allen Express rail service from Rutland to Burlington and Vermonter service to Montreal.
- b. Support increased rail freight service to the region.

**5. Increase the share of renewable energy in transportation to 10% by 2025 and to 91% by 2050 by increasing the use of renewable and less carbon-intensive fuels.**

- a. Require all commercial, industrial, and multifamily developments subject to Act 250 to provide electric vehicle (EV) parking spots and infrastructure to supply electricity for charging.
- b. Continue to support Vermont Agency of Commerce and Community Development (ACCD) grant opportunities for municipalities to install electric charging stations, infrastructure, and supply in designated areas.
- c. Support financial incentives for those that develop direct current (DC) fast electric charging stations.
- d. Support the development and creation of biofuels production and distribution infrastructure in the region.
- e. Support the efforts of municipal fleet operators to replace inefficient vehicles with more efficient vehicles, including heavy-duty vehicles that operate on biofuels.

**6. Increase the renewable energy generation capacity in the Northwest region to include an additional 208.5 MW of additional solar generation capacity, 19 MW of new wind generation capacity, and 10 MW of new hydro generation capacity by 2050.**

- a. Support the development of individual home and community-based renewable energy projects in the region through the following programs: Vermont Small Scale Renewable Energy Incentive Program, Clean Energy Development Fund, and tax and regulatory incentives including net-metering.
- b. Support changes to net-metering rules and other regulatory tools to provide financial incentives in order to encourage siting of renewable generation facilities on the built environment (such as parking structures and rooftops) and other disturbed lands (such as former landfills, brownfields, or gravel pits). Support changes to net-metering rules that disincentivize development on land identified in this plan as a location with known and possible constraints. Encourage multiple uses in

conjunction with the development of renewable generation facilities, such as grazing of livestock, recreation, or parking.

- c. Advocate for efforts by the Public Service Board to allow online application submissions and docket tracking for all projects that require a Certificate of Public Good.
- d. Continue to support the Standard Offer Program to foster deployment of diverse and cost-effective renewable energy resources, and support the evaluation of this program after 2022 to determine if the program should be extended or changed.
- e. Support the creation of “solar maps,” like the maps developed by Green Mountain Power, to make interconnection information available to the general public and accessible online. Local electric utilities could partner with the NRPC to create these maps.
- f. Support efforts by local utilities and private individuals to maintain and upgrade existing renewable electric generation facilities in the Northwest region and the state.
- g. Support the development of additional methane digesters on farms in the Northwest region, especially those that utilize manure from multiple farms and/or food waste.
- h. Support the creation of incentives for locating new renewable energy generation facilities within a half-mile of three-phase distribution line or electric transmission line infrastructure. Ensure new transmission lines and three-phase power lines associated with renewable energy projects do not create forest fragmentation or have an undue adverse impact on necessary wildlife habitats, ecological systems, and water and/or air quality.