

ECONOMIC REGION

GUIDING THEMES

Enhance Economic Competitiveness

Regional economic development strategies will help the Northwest region to compete with other regions around the state and throughout upstate New York and Canada. Improving economic opportunities in the Northwest region will provide residents with employment opportunities close to their homes. Having a wide range of job opportunities available in the region improves the quality of life for residents. Addressing issues such as workforce development, business retention and development, cluster analysis, and entrepreneurial mentorship and support will help the region become more competitive. In addition, enhancing community and public health as part of the regional plan is important to improving its economic health. A person’s socioeconomic status is one of the strongest indicators of his or her physical health. Therefore, improving the economic situation within the region will also help to improve public health within the region’s communities.

Coordinate Policies and Leverage Investment

The policies and actions in the regional plan will connect to and influence statewide approaches to economic development, community health and sustainability. This plan’s proposed actions utilize the strengths of local and regional organizations to provide a coordinated approach to economic development. The plan recognizes the importance of adequate infrastructure and healthy communities as key components of economic prosperity. The goals, policies and actions in the regional plan are coordinated with related state policies, and the plan supports federal policies of sustainable development and livability. The plan is consistent with the Vermont Municipal and Regional Planning and Development Act, Title 24, Chapter 117, V.S.A., including the new requirement for an economic development element in local and regional plans.

As part of the Healthy People Strong Communities project, NRPC held twenty community meetings to hear ideas about economic development, disaster resiliency, Complete Streets and public health. The key themes from the economic development discussions are summarized below.

TABLE 1: COMMUNITY MEETINGS – ECONOMIC REGION KEY THEMES

Growth Opportunities	<ul style="list-style-type: none"> • Value-added agriculture • Small and diversified farms • Work-at-home population • Entrepreneurialism incubator • Capitalization on Jay Peak Resort expansion • Revolving loan fund • Canadian business (individuals and recruiting business) • Tourism and welcome centers • Identity • Promotion of our heritage
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Develop a Ready Workforce	<ul style="list-style-type: none">• The region’s workforce is unprepared for jobs requiring higher skills.• Schools must prepare students for skilled-labor jobs.• More workers and training opportunities are needed in skilled trades (e.g., plumbers, carpenters).• Transportation is a problem because it limits training and job opportunities. The region wants alternatives, better information on transportation options and jobs closer to home.• A disconnect exists between the region’s youth/school system and the community; businesses don’t know what skills are being taught.
Changing Demographics	<ul style="list-style-type: none">• Attract young families because the region’s communities are aging. But to do this, we need to maintain good jobs so that younger residents can take the place of those who are retiring.• Cultivate an environment that retains people by creating amenities and marketing them (e.g., family-friendly employers and community events).

ECONOMIC DEVELOPMENT

GOALS

As part of the Healthy People, Strong Communities project, Franklin County Industrial Development Corporation (FCIDC) and Lake Champlain Islands Economic Development Corporation worked with businesses, stakeholders and communities to develop the Economic Development Strategy for the Northwest Region of Vermont. Through numerous meetings, research on economic trends and an examination of the future vision for the region, the following overall goals were established:

- 1. Improve the health of citizens and businesses by supporting the region's unique geography and landscape.**
- 2. Ensure that communities and businesses can rely on employees who are work ready; have strong work ethics and necessary skills in reading, writing, math and communication; and are drug free.**
- 3. Ensure that businesses, employees and communities have access to funding that is achievable and affordable, business costs that are reasonable and appropriate, and an infrastructure that is available and dependable.**
- 4. Facilitate collaboration among Franklin and Grand Isle Counties to address issues that are similar throughout each county and secure the communities' economic future.**
- 5. Creative enterprises enhance the local economy and support a superior quality of life in the region. Ensure that opportunities to experience and/or participate in the arts are available to everyone.**

ECONOMIC OPPORTUNITIES AND CHALLENGES

Regional Assets

The Economic Development Strategy for the Northwest Region of Vermont, which includes Franklin County and Grand Isle County, involves building a diverse economy, creating a competitive advantage for our businesses and increasing the well-being of our communities. Supporting job growth and sustainability in existing industries and preparing our infrastructure and workforce for emerging industries is an overarching goal. Our success depends on identifying strategic industries for the region and making specific recommendations for the development of a highly skilled workforce to support those industries. Like all counties in Vermont, the health of businesses, employees, and communities in this region depends upon having access to funding that is achievable and affordable, business costs that are reasonable and appropriate, and an infrastructure that is available and predictable.

Businesses continue to struggle with the cost of health care, electricity and site permitting, and this issue is common throughout the state and New England. The regional assets of Franklin and Grand Isle Counties are strong counterpoints to cost challenges and a key to the success of many businesses operating in the region. The following assets are critical to the regional economy:

- The Lake Champlain shoreline and the resulting tourist industry
- A working landscape and agricultural economy that supports regional food systems and keeps rural lands undeveloped
- Well-planned infrastructure including industrial parks and a strong transportation network
- Intact town and village centers that include public spaces and are designed to serve pedestrians
- Proximity to Canada and major transportation routes

- A wealth of organizations and individuals committed to improving our residents’ quality of life (e.g., through housing, transportation, energy and the environment)
- A long history of state and local commitment to sustainable development as reflected in state law (Act 250 and Act 200) and regional and municipal plans

Table 2 provides an overview of economic indicators in Franklin and Grand Isle Counties. Franklin County is a leader in Vermont’s economic development. The strong working relationships between private and public sectors including communities, businesses, planning groups, and educational organizations have been the catalyst for the creation of more than 3,000 jobs in 30 firms during the past 40 years (source- FCIDC). This growth has transformed Franklin County from a predominantly agriculture-based economy to today’s diverse, dynamic, industrial and economic base whose high-quality products are driven by leading-edge technologies. Several Canadian companies have located their U.S. operations within Franklin County industrial parks. To strengthen small and large businesses and promote the establishment of start-up businesses and entrepreneurial endeavors in Franklin and Grand Isle Counties, the region requires a strong and predictable infrastructure that encourages new owners and markets to support economic development.

TABLE 2: THE REGIONAL ECONOMY	
County Wages (2012)	Average annual wages were less than those of Vermont as a whole: <ul style="list-style-type: none"> • Franklin County: \$39,962 • Grand Isle County: \$30,547 • Vermont: \$40,965
Total Employment (2011)	<ul style="list-style-type: none"> • Franklin County: 14,220 • Grand Isle County: 1,130
Top Three Employment Sectors (2011)	<ul style="list-style-type: none"> • Franklin County: manufacturing, health care, retail • Grand Isle County: retail, accommodations, construction
Place of Work: Franklin County Residents (2011)	<ul style="list-style-type: none"> • Franklin County: 43.6% • Chittenden County: 41.4%
Place of Work: Grand Isle County Residents (2011)	<ul style="list-style-type: none"> • Chittenden County: 54.8% • Grand Isle County: 15.2% • Franklin County: 13.4%
Unemployment (2014)	<ul style="list-style-type: none"> • Franklin County: 4.3% • Grand Isle County: 4.4% • Vermont: 4.2%
<i>Source: Vermont Department of Labor</i>	

Grand Isle County is the home of hundreds of small and micro businesses, as well as a fully permitted business park in Alburgh for light manufacturing, and a privately owned industrial park in Grand Isle (Island Industrial Park), with lots available. According to U.S. Census data, Grand Isle County currently exports more than 50% of its working age population to employment outside the county. The economy is centered on tourism and agriculture, but a growing number of people are establishing home-based professional businesses thanks to the availability of high-speed Internet service. These entrepreneurs enjoy a relaxed lifestyle while working from their homes in the region, and they also have easy access to the interstate and Burlington International Airport.

Workforce

The work of the Franklin Grand Isle Workforce Investment Board (FGIWIB) supports employers and employees through multiple programs. The need continues to grow for instruction in basic skill sets and specific training and certifications. Industrial maintenance, industrial electricity, CNC setup and shop print reading are in constant

demand by local manufacturers. Adult education programs feature regularly scheduled classes in licensed nursing assistant (LNA), clinical medical assistant, phlebotomy, home health care and emergency response training. Various small businesses and individuals consistently seek support in financial software, basic computer and Office software, child-care provider and supervisory training. With ever-changing needs and innovations, it is critical that these services remain available to incumbent workers, new employees and individuals.

The Value of Manufacturing
 The number of employers in the manufacturing sector within the region has remained steady during the past five years—at or around 60. Manufacturing wages in the past five years have increased by 33%. The average wage of \$55,000 in 2013 was well above the county average for all employment. (VT Dept. of Labor)

Industrial and Commercial Development

Industrial and commercial development in Franklin County has remained strong during the past two decades with the growth of Mylan Technologies, Perrigo, Homeland Security and Northwestern Medical Center (NMC). In keeping with the regional land-use goals, industrial development has expanded almost entirely within previously permitted industrial parks that are in or adjacent to our downtowns and regional growth areas. The region continues to receive interest from businesses based in Quebec that seek a market in the United States. Grand Isle County still struggles to provide public transportation and municipal wastewater, which limits its commercial and industrial growth. The region’s vibrant base of manufacturing and agriculture and its expanding base of sustainable agriculture and health-care services are all critical to the health of our communities. Like all counties in Vermont, the health of businesses, employees and communities depends upon having access to funding that is achievable and affordable, business costs that are reasonable and appropriate, and an infrastructure that is available and predictable. We must utilize the existing infrastructure and understand the common threads throughout the region that are essential in supporting business and social communities.

Working Landscape

Supporting the unique geography and landscape of the counties and providing an environment that supports families and businesses in agricultural endeavors is essential to the health of our communities. Value-added agriculture continues to become more important in the region, as demonstrated by the dramatic increase in the value of agricultural products sold from 2007 to 2012 (Table 3). The Northwest Regional Planning Commission (NRPC), the FCIDC, Lake Champlain Islands Economic Development Corporation (LCIEDC), Northwestern Medical Center and others are cooperating to provide marketing, business planning and other support to local food growers and producers.

TABLE 3: THE WORKING LANDSCAPE ECONOMY	
Value of Agricultural Products Sold	The dollar value increased from 2007 to 2012: 14.8% in Franklin County and 42.4% in Grand Isle County.
Value of Dairy	Milk accounts for 60% to 70% of agricultural product value. Franklin County tied with Addison County for the largest share of Vermont milk production, at 26.2% (2012).
Importance of Maple Syrup	Franklin County produced 35.1% of Vermont’s maple syrup in 2012—more than twice as much as any other county.
Agricultural Employment	Agricultural employment constituted 2.7% of Franklin County’s and 2.8% of Grand Isle County’s covered employment (2012).
Changes in Farm Acreage	From 2007 to 2012, the amount of farm acreage increased by 3.5% in Franklin County and 11% in Grand Isle County.
<i>Source: VT Labor Market Information 2014, VT Dept. of Labor</i>	

Community-supported agriculture (CSA) and farmers' markets are common throughout the region and their success is demonstrated with two examples. The Lake Champlain Islands Farmers' Market has seen a dramatic increase in sales during the past few years. In 2009, the market generated approximately \$66,000 in revenue. In 2012, the market grossed more than \$190,000. During the same time frame, vendor participation increased from 25 vendors to 40 vendors. In Franklin County, the Fairfield Farmer's Market Online reports that sales increased almost threefold in its first year of business, grossing \$9,000 in 2011 and \$26,000 in 2012.

Tourism

Tourism is a considerable financial and cultural contributor to the region. In 2011, the Vermont Department of Tourism and Marketing documented 487,000 visitors to the region. Tourism spending totaled \$57.7 million, peaking during the summer months at more than \$38 million. Tourism estimates include visitors and a substantial second-home population. In Grand Isle County, the summer population is estimated to be three times the year-round population. Accommodations, food service and retail account for more than 40% of the county's private sector employment. Tourism within the region continues to grow; visitors at the Georgia Information Centers increased by more than 25% from 2013 to 2014, and rooms and meals tax receipts continue to increase each year. Increasing numbers of Canadian visitors account for a portion of the growth in tourism and bike tourism continues to grow in importance.

Arts, Culture and the Creative Economy

The Creative Economy refers to efforts to foster economic growth and development through creativity, cultural heritage and entrepreneurship, which reinforce the region's unique character and sense of place. According to the New England Foundation for the Arts, "Vermont nonprofit arts and cultural enterprises constitute a major industry for the state. In 2009, the spending of their 1,532 arts and cultural organizations amounted to over \$148 million, and they provided jobs for over 3,100 people" (New England Foundation for the Arts, *New England's Creative Economy: Nonprofit Sector Impact*, September 2011).

St. Albans City and Grand Isle County were participants in the Vermont Council on Rural Development's (VCRD) Vermont Creative Communities Program. Action items for St. Albans City included *Arts and Community Events in Taylor Park, Organizing Evening Events, Building an Arts Center and Options for High-Speed Internet Access*. The Creative Economy project unified the municipalities of Grand Isle County by identifying two county-wide projects: *Expanding Indoor Community Space and Develop Trails to Tour Local Farms, Arts, and Other Islands Highlights*. Grand Isle Art Works was formed as an artists' collective, and is now a thriving business, with a gallery, café, and represents 40+ artists and crafters. 'Open Farm and Studio Tour: Discover the Heart of the Islands' is in its ninth year. Great Ice in Grand Isle also evolved from this planning effort and just completed its 9th season.

During the public involvement portion of the NRPC's Healthy People, Strong Communities initiative, residents conveyed the need for community centers throughout the region. Members of the public expressed a sense of disconnect with other community members as a result of not having a public gathering site where arts, cultural and community events could be held during all seasons of the year.

GOALS AND POLICIES

- 1. Improve the health of citizens and businesses by supporting the region's unique geography and landscape.**
 - a. Increase the production and marketing of local foods, beverages and natural products as well as expand access to those products at local and broad-based markets by supporting production and educating and engaging the public.

- b. Promote county assets and quality of life for the citizens of Franklin and Grand Isle Counties, tourists and recreationists by collaborating with regional brands and local food and beverage markets and capitalizing on the region’s proximity to Canada, Chittenden County and population centers in the northeastern United States.
 - c. Support efforts to ensure that the working landscape—including agriculture, forestry and value-added production—remains a key sector in the region’s economy.
- 2. Ensure that communities and businesses can rely on employees who are work ready; have strong work ethics and necessary skills in reading, writing, math and communication; and are drug free.**
- a. All levels of education—both K through 12 and post-secondary—must provide students with the basic skills and solid work ethics for the workplace as well as higher-education programs, and they must deliver skill sets that meet the changing needs of business and the rigors of collegiate programs.
 - b. All sectors of business, education, public protection and the community must actively support economic sustainability by educating residents and employees on substance abuse, supporting drug rehabilitation and drug prevention programs, and addressing the crimes often related to drug addiction.
- 3. Ensure that businesses, employees and communities have access to funding that is achievable and affordable, business costs that are reasonable and appropriate, and an infrastructure that is available and dependable.**
- a. Ensure that the existing vibrant base of businesses—including manufacturing, agriculture and related businesses, health care, retail and service industries, home-based businesses, telecommuting, and seasonal and tourist-based businesses—have knowledge of and access to existing resources.
 - b. Support efforts to bring in additional public and private resources to expand and upgrade infrastructure including water, wastewater, broadband internet, and energy.
 - c. Forge strategic partnerships for creating a full range of housing options across the entire pricing spectrum to affordably house the regional workforce.
- 4. Facilitate collaboration among Franklin and Grand Isle Counties to address issues that are similar throughout each county and secure the communities’ economic future.**
- a. Establish goals for Grand Isle County to improve collaboration among the “islands” while distinguishing each unique community.
 - b. Support regional economic development services such as workforce training, public transportation, incubator development and collaborative marketing.
 - c. Ensure that new economic development enhances and supports the region’s land use goals.
 - d. Work cooperatively with other regional partners to maintain/improve a quality of life that is necessary to attract and retain the type of talented workforce required for a high-performance regional economy.
- 5. Creative enterprises enhance the local economy and support a superior quality of life in the region. Ensure that opportunities to experience and/or participate in the arts are available to everyone.**
- a. Collaborate with regional partners to expand markets, unify promotion, produce celebratory events, build artists’ and artisans’ markets, and provide technical support and access to capital for culturally based businesses and creative entrepreneurs.
 - b. Facilitate locally designed creative economy projects that build upon the region’s cultural heritage and creative assets.
 - c. Support collaboration between communities and artists for arts appreciation, arts learning and arts promotion.
 - d. Encourage public and private investments in the arts.

ECONOMIC INFRASTRUCTURE: POST-SECONDARY EDUCATION, CHILD CARE, WORKFORCE & TELECOMMUNICATIONS

GOALS

Economic development is successful when it is based upon a region’s assets, including the infrastructure necessary to support sustainable economic growth. A wide range of economic infrastructure is necessary to support the NRPC’s Healthy People, Strong Communities project. Franklin and Grand Isle Counties are fortunate to have successful communities, available industrial land, a strong working landscape and a vibrant local economy. Still, the region must make an effort to maintain existing assets and further grow the region’s infrastructure in order to ensure that all citizens have access to economic opportunities.

The following goals were devised to ensure the existence of high-quality infrastructure to support economic development:

1. **Make workforce training and post-secondary education available to increase employment rates, job retention, earnings and occupational skills.**
2. **Ensure the availability of safe and affordable child care, and integrate child-care needs into the planning process.**
3. **Develop and maintain a high-quality, affordable telecommunications infrastructure that provides the most efficient and effective as well as the least obtrusive system possible.**
4. **Ensure the availability of broadband access in order to increase economic opportunity and support economic diversity.**

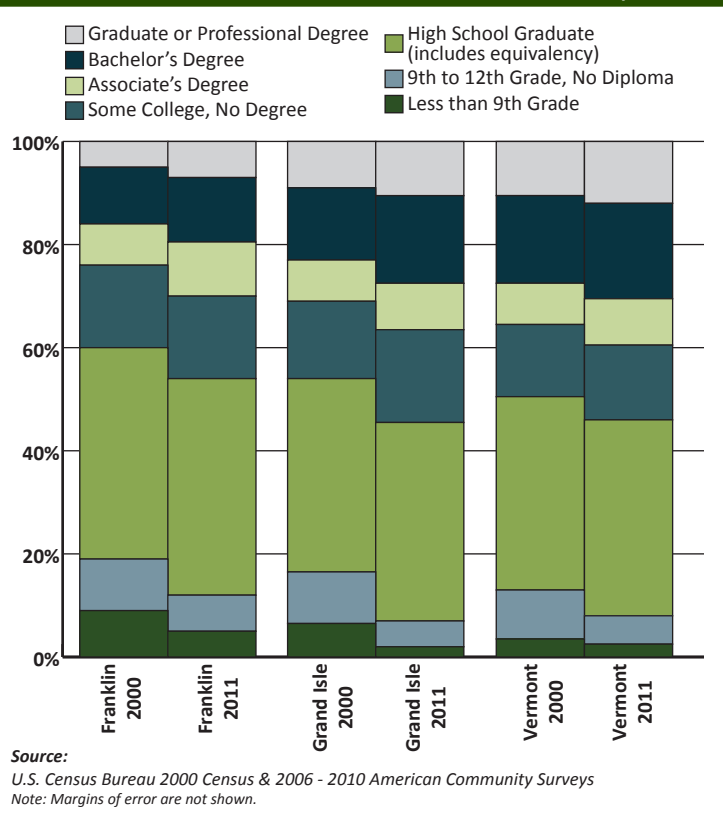
ASSETS AND VALUES

Post-Secondary Education and Workforce Training and Education

Students who never complete high school have a large impact on the region’s long-term economic outlook. The U.S. Department of Education’s National Center for Education Statistics (2011) reports that the median income of persons ages 18 through 67 who had not completed high school was roughly \$25,000 in 2009.

Grand Isle County residents have educational attainment levels similar to the state as a whole.

FIGURE 1: EDUCATIONAL ATTAINMENT - RESIDENTS AGE 25+ FRANKLIN & GRAND ISLE COUNTIES, VT



Compared to the state, Franklin County has a higher percentage of residents who have completed less than the ninth grade (though that percentage has dropped over the past decade) as well as a lower percentage of residents with a graduate/professional or bachelor’s degree (Figure 1).

The cohort graduation rate is the percentage of students enrolled at a school who graduate within six years of entering ninth grade. Franklin County reported an 8.1% cohort dropout rate in 2012 compared to 12.5% for the state (Table 4). Grand Isle County does not have a high school and therefore does not have any dropout data to report.

TABLE 4: SIX-YEAR DROPOUT RATE STATUS IN FRANKLIN COUNTY

County	All	Female	Male	Eligible for Free or Reduced-Cost Lunch Program
Franklin	8.13%	7.20%	9.02%	14.55%

Source: http://education.vermont.gov/new/html/data/dropout_completion.html

Post-Secondary Education and Workforce Development

The phrase “post-secondary education and workforce development” describes the knowledge, skills and behaviors essential for high school graduates to be prepared to enter college and the workforce and to compete in the global economy. Post-secondary education and workforce development curriculum assumes that students are ready and able to demonstrate reading and math literacy without the need for remediation. Table 5 shows the educational attainment of the region’s residents.

Workforce development is hard to measure, but it is extremely important to the continued prosperity of the region and for maintaining and attracting new business and industry. Incumbent employees who receive on-the-job training are, in general, promoted and receive higher wages. Newly trained employees who move into new positions create backfill openings for entry-level workers. The Vermont Training Program (VTP) provides comprehensive resources to prepare Vermont’s workforce for new and enhanced positions. The VTP offers funds for the training of new hires and incumbent workers. Training can fall into categories such as on-the-job, classroom or other specialized training. Grants can cover up to 50% of the training cost.

Vocational education is offered at the Cold Hollow Career Center in Enosburg Falls and at a number of high schools. Northwest Technical Center in St. Albans City also serves students in grades 10 through 12 who are interested in technically oriented careers, and it also offers classes for adults. The Franklin Grand Isle Workforce Investment Board, whose mission is to identify and direct current and future workforce needs, manages a workforce training site located in Swanton.

The Community College of Vermont offers educational services through a network of 12 sites around Vermont including a campus in St. Albans City. Numerous degree programs and individual classes are also available online. The college is part of the Vermont State Colleges system, and it provides degree and non-degree programs to more than 9,000 students statewide.

Vermont Adult Learning (VAL) is a nonprofit organization that provides educational services for adults ages 16 and older who are not enrolled in high school. VAL provides General Educational Development (GED) preparation and testing as well as instruction in reading, writing and math. VAL also help students in a number of related areas including driver’s licenses, citizenship applications and basic computer skills.

TABLE 5: EDUCATION ATTAINMENT

	High School Graduate or Higher	Bachelor's Degree or Higher
Franklin County	88.1%	22.3%
Grand Isle County	93.0%	29.6%
Vermont	91.3%	34.2%

Source: U.S. Census 2008–2012 American Community Survey 5-Year Estimates, for people 25+ years in age

Many colleges and universities serve the region's residents in locations throughout the state, in neighboring states and in Canada including the University of Vermont and Champlain College in nearby Burlington, Vermont Technical College in Randolph Center, St. Michael's College in Colchester, McGill University in Montreal and Bishop's University in Sherbrooke. In addition, numerous accredited online colleges and universities are available to the region's residents. Online educational opportunities provide an alternative for students who cannot attend classes in the traditional campus and classroom environments. Ensuring that the region's residents have access to such educational opportunities is essential to the economic health and prosperity of northwestern Vermont.

Child Care

Quality child-care services provide important benefits to a community and the region by contributing to early-childhood development, enhancing children's social skills and resulting in more economically productive careers as well as great personal and community civility (see Table 6 for data on overall need for services). Additionally, child-care services enable parents of young children to work, which reduces employers' recruiting and training costs for new employees following turnover due to parents' inability to obtain adequate child care.

TABLE 6: ESTIMATED NEED AND SUPPLY OF CHILD-CARE SERVICES IN THE REGION

	Franklin County	Grand Isle County
Number of children birth to 12 years	6,136	689
Number of children who require regulated child care (estimated)	3,988	448
Number of children five years old and younger	3,007	319
Proportion of licensed providers serving infants and toddlers	64%	50%

Source: VT Agency of Human Services

When parents are confident their children are well cared for, parents are less distracted and are more productive workers. When employers provide or subsidize child-care services as an employee benefit, parents are more loyal and committed employees and have lower rates of work absenteeism.

When child-care providers hire local workers and buy goods and services from local businesses, economic benefit is multiplied.

According to the Vermont Agency of Human Services, the average cost for center-based care in Vermont is \$140.92 per week for infants and \$125.71 per week for preschoolers. This means a family with an infant and a preschooler in licensed care would pay a total of \$266.63 per week for child care. There is a significant gap between the current child-care subsidy rates and the market rates for care, especially for children younger than age three. Among working families who pay for child care, 27% of low-earning families spend more than one-fifth of their earnings on child care, compared with only 1% of higher-earning families.

TELECOMMUNICATIONS

Information technology is integral to fulfilling the economic needs of residents and businesses in the region. Telecommunications is the communication of information through various media. Information is transmitted in numerous formats (e.g., voice, data, graphics, images and video) over various media (e.g., copper wires, fiber-optic cable, air and space). In the Northwest region, telecommunications incorporates an array of technologies including wireless communications facilities as well as services such as landline telephone, digital subscriber line (DSL), cable, broadband and satellite. Telecommunications occupies an important share of the region's infrastructure and is vital in supporting the present and future economy of Vermont.

Broadband and Wireless Technology

Broadband is a telecommunications technology that delivers a range of high-speed Internet services. Broadband technology is a necessary component of the region's economic development. Broadband services can help increase residents' access to educational opportunities and resources, provide an interactive online marketplace for consumers, expand the customer base for businesses, facilitate access to higher-skilled employment opportunities for residents, enhance medical capabilities for health-care providers, provide access to health resources for the public and contribute to increased productivity in the workplace. In addition, broadband services promote a sense of community through various online forums and encourage civic participation. Civic organizations can provide services to a greater portion of the communities they serve and create opportunities for new services.

Existing broadband services in the region include DSL, cable, satellite, mobile wireless and fixed-point wireless. Broadband companies serving the area include Comcast, FairPoint Communications, GlobalNet, GAW, Hughes Network Systems, StarBand, AT&T Mobility, Verizon Wireless, Sprint Nextel and WildBlue. The majority of the region has broadband coverage with speeds at or exceeding 768 Kbps download/200 Kbps upload. Approximately 73% of the region had broadband service as of December 31, 2011, according to the Vermont Broadband Mapping Initiative. The coverage gaps are concentrated in the eastern portion of Franklin County and include parts of Bakersfield, Berkshire, Fletcher, Sheldon, Richford and Montgomery. The most current view of broadband availability by census block may be found at www.BroadbandVT.org.

In 2012, the NRPC participated in the creation of the statewide Broadband Technology Plan. A Regional Technology Planning Team assessed where promising opportunities are available to further develop broadband technology adoption and use. The team used the Vermont Telecommunications Plan along with local and regional knowledge to develop strategies and actions for integrated use of broadband technology across the following sectors: business, education, energy/utilities, health care, human services, libraries, media and municipal government/emergency services. The plan is available at www.nrpcvt.com/Broadband.html.

GOALS AND POLICIES

1. **Make workforce training and post-secondary education available to increase employment rates, job retention, earnings and occupational skills.**
 - a. Support efforts by the Franklin-Grand Isle Workforce Investment Board and regional technical centers to provide training that is based on employer-defined skill standards and essential academic learning requirements.
 - b. Promote efforts to provide individuals with the skills, knowledge and abilities required to improve economic well-being and respond to changing workforce needs.

- 2. Ensure the availability of safe and affordable child care, and integrate child-care needs into the planning process.**
 - a. Municipal plans should include the future need for and supply of child-care services, assess whether local barriers exist for the provision of needed services and develop action programs to reduce any local barriers.
 - b. Municipal land-use and development regulations should authorize child-care services in appropriate locations convenient to households and employers.
 - c. Employers, schools and community organizations should collaborate to ensure that affordable, quality child-care services are available to meet the different needs of households.

- 3. Develop and maintain a high-quality, affordable telecommunications infrastructure that provides the most efficient and effective as well as the least obtrusive system possible.**
 - a. Promote Internet provider programs that offer reduced-cost broadband plans for families who qualify for the free or reduced-cost lunch program. Advocate for the expansion of these programs to more Internet providers.
 - b. Identify and inventory specific technology infrastructure needs, such as telecommuting hubs and Wi-Fi hotspots.

- 4. Ensure the availability of broadband access in order to increase economic opportunity and support economic diversity.**
 - a. Support the development of a telecommunications infrastructure that enhances high-quality education and lifelong learning opportunities.
 - b. Consolidation of new telecommunications facilities on existing sites is preferred over the development of new sites. New telecommunications equipment and towers shall be sited in the least obtrusive and least ecologically sensitive areas possible.
 - c. Promote universal access to high-speed broadband and emerging telecommunications technologies.
 - d. Ensure that the telecommunications system and related infrastructure fit within the character of the area as defined by the local and regional plans.
 - e. Target higher broadband speeds for village centers, downtowns and growth centers to encourage development.

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 fossil fuel needs and fuel costs for heating structures, and to foster the transition from non-renewable fuel sources to renewable fuel sources.
3. Hold vehicle miles traveled 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.

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

FIGURE 2: STATE AND GREENHOUSE GAS EMISSION GOALS

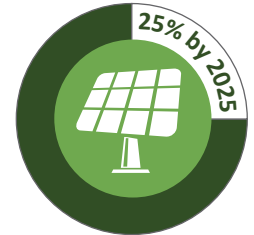
Goals for Reducing Greenhouse Gases 10 V.S.A. § 578(a)



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

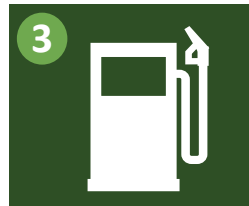
Additional Goals Regarding Renewable Energy 10 V.S.A. § 581(a)



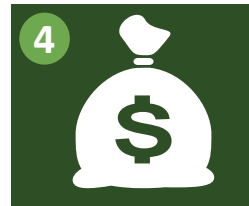
To improve substantially the energy fitness of at least 20% of the state's housing stock by 2017 (more than 60,000 housing units) and 25% of the state's housing stock by 2020 (approximately 80,000 housing units)



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

TABLE 7: NORTHWEST REGIONAL ENERGY PLAN OUTLINE (See Appendix II for full plan)

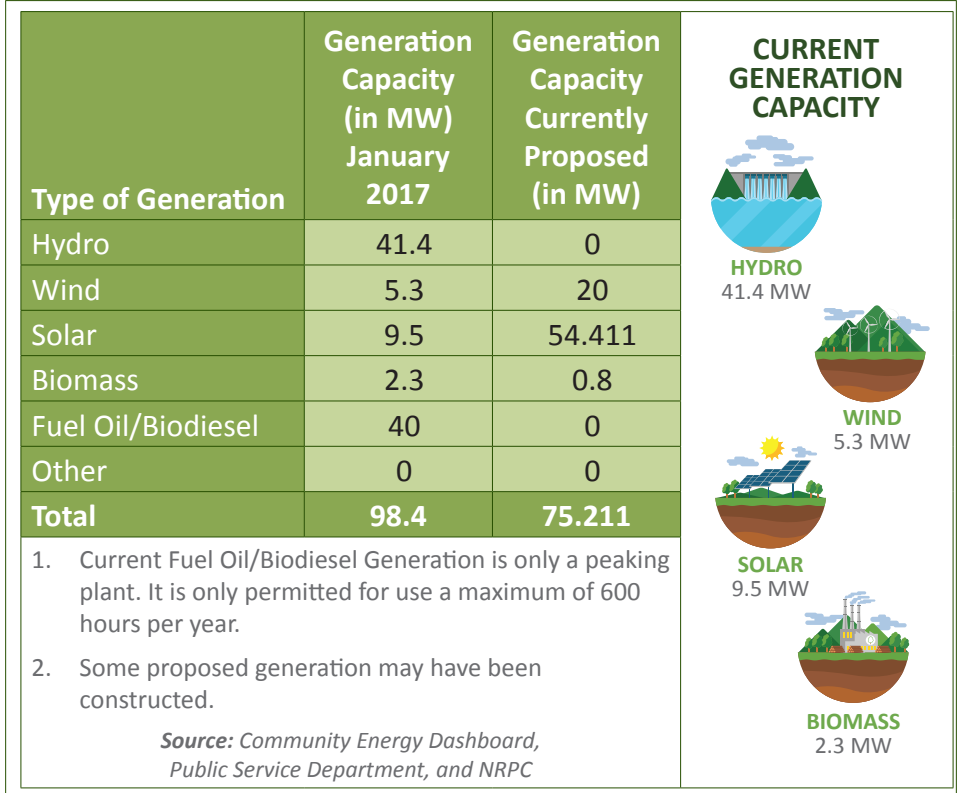
Section I	Executive Summary
Section II	Introduction
Section III	Regional Energy Supply and Consumption
Section IV	Targets for Energy Conservation, Energy Use, and Electricity Generation
Section V	Strategies to Achieve Regional Targets
Section VI	Feasibility, Challenges and Conclusions
Appendix A	Regional 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.

FIGURE 3: REGIONAL GENERATION CAPACITY



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 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 of the Regional Energy Plan).

NRPC is committed to achieving the wind generation target of 19 MW of generation by 2050, but only through the construction of appropriately scaled wind generation facilities. Based upon the analysis in the Regional Energy Plan (Appendix II), the region generally does not have suitable locations for the construction of “industrial” or “commercial” wind facilities within the region and therefore finds this scale of development does not conform to this plan. For the purposes of this plan, NRPC will consider any wind facility with a tower height (excluding blades) in excess of 100 feet tall to be considered an “industrial” or “commercial” wind facility.

If a municipality through its local planning process identifies a preferred location(s) for an “industrial” or “commercial” wind facility within their boundaries, NRPC may consider amending this plan to account for this local preference. Coordination and consensus among neighboring municipalities will be a critical component of any process to amend the regional plan in this regard. Additionally, NRPC shall only consider such an amendment if the location, or locations, identified by the municipality do not include “known constraints” and mitigate impacts to “possible constraints” as identified in this plan.

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

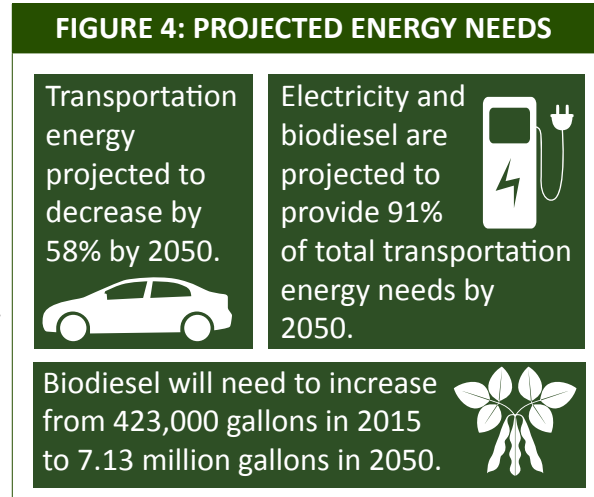


FIGURE 5: GENERATION TARGETS

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

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. Small scale energy production goals and conservation goals require broad citizen participation in order to be achieved. 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
- 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, standards and maps contained 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 nonrenewable sources such as 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 all households, including 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 vehicle miles traveled (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. Work with regional employers to identify and encourage programs to reduce single occupancy vehicle commuting by employees. Share best practices and encourage recognition of successful programs.
- 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.
- i. Development and siting of energy generation facilities shall be in conformance with the goals, strategies, standards, mapping and other information contained in the entire regional plan. Standards of review for known and possible constraints (regional energy plan, appendix B) will be used in evaluation of conformance.
- j. Wind facilities with a tower height (excluding blades) in excess of 100 feet tall shall not be considered to be in conformance with this plan.