



Energy Planning Project Outline & Glossary of Constraint Layers

The purpose of this document is to provide local select boards, planning commission, energy committees and conservation commissions with information on activities related to the regional energy plan that is being developed for the Central Vermont region. This document will also define the constraints in question outlined in the Municipal Energy Survey that was sent to your board/commission chair.

Regional Energy Planning Background and Timeline

Through a contract with the Department of Public Services, the Bennington County Regional Commission has subcontracted with the Central Vermont Regional Planning Commissions to develop a comprehensive regional energy plan. This plan will identify goals and policies that can be implemented on a regional level to meet the State of Vermont's Comprehensive Energy Plan Goals. The goals of the Vermont Comprehensive Energy Plan, are to:

1. Weatherize 80,000 Vermont homes by 2025
 - a. Intermediate goal of 60,000 homes by 2017
2. Get 90% of Vermont's energy from renewable sources by 2050
 - a. Intermediate goal of 25% of energy from renewable sources by 2025, including 10% of transportation energy
 - b. Intermediate goal of 40% of energy from renewable sources by 2035
3. Reduce total Vermont energy consumption by more than 1/3 by 2050
 - a. Intermediate goal of 15% reduction by 2025

To this end, the CVRPC will be working with its member municipalities to identify techniques to achieve these goals including the siting of renewable resources, rolling out building energy efficiency programs, coordinating transportation with land use planning, and protecting locally significant resources from adverse impacts of renewable energy development. Additionally, the comprehensive regional energy plan will contain information regarding existing energy usage by sector compared to 2050 targeted use rates by sector. This information will serve as the basis for identifying the increases or decreases in energy use necessary for the region as a whole to help plan for Vermont's energy future.



Act 174, Energy Standards and “Substantial Deference”

The Regional Energy Plan must meet standards for energy planning that were released by the Department of Public Service in November 2016. Act 174 (signed into law in 2016) states that if a regional or local plan is found to meet these standards, the plan is eligible for a “Determination of Energy Compliance.” If a plan has received a “Determination of Energy Compliance” the plan will be given substantial deference’ in the Public Service Board’s Section 248 process. The following definition of substantial deference has been established in Act 174 for this purpose:

“The Board shall give **substantial deference** to the land conservation measures and specific policies contained in a duly adopted regional and municipal plan...[meaning] that a land conservation measure or specific policy shall be applied in accordance with its terms unless there is a clear and convincing demonstration that other factors affecting the general good of the State outweigh the application of the measure or policy.”

Once CVRPC’s Regional Energy Plan has received a Determination of Energy Compliance (around June 2018), we can evaluate municipal plans for compliance with the energy standards and issue Determinations of Energy Compliance. Municipalities who wish to incorporate the energy standards into their plans and seek a Determination of Energy Compliance before the completion of the Regional Energy Plan can seek a Determination of Energy Compliance directly from the Department of Public Service until July 1, 2018.

All eleven RPCs have a goal of completing their draft regional energy plans by December 2017. The schedule that has been identified for the CVRPC includes the following milestones:

- October 2016 -** Distribution of baseline data for energy use by sector and targeted renewable energy needs by 2050 delivered to each RPC
- November 2016 -** Regional Energy Committee is formed to guide plan development and outreach efforts
- November 1, 2016 -** Department of Public Service releases energy planning standards and requirements for municipal plans to receive “substantial deference” by the Public Service Board



- December 2016 -** Draft resource maps are completed that identify locations with primary conditions for renewable energy (including wind, solar, hydro, and woody biomass) and also identify constraints of state-wide, regional, and local importance
- December 2016
thru May 2017 -** With guidance from the Regional Energy Committee, staff will develop a draft plan to meet the region's future energy needs including, electric, transportation, and thermal considerations
- June 2017 thru
December 2017 -** The draft regional energy plan will be presented for public comments and amended as needed to provide the most accurate representation of the region's energy future
- December 2017 -** Final regional energy plan is presented for approval by the Regional Planning Commission and the Department of Public Service

Ultimately, the comprehensive regional energy plan will serve as the basis for identifying the Region's overall energy needs and planning for efficient use of energy related resources. Also, this plan will serve as a resource for municipalities interested in developing local comprehensive energy plans in order to receive "substantial deference", as noted above, when applications for certificates of public good are being reviewed by the Public Service Board. Municipalities are under no obligation to develop their own comprehensive energy plan, however the regional plan can serve municipalities interested in pursuing this added level of recognition.

Mapping & Constraint Layers

Mapping standards are described in the Department of Public Service's Energy Planning Standards for Regional Plans. These standards outline the requirements for which plans are required to identify potential areas for development and siting of renewable energy resources, as well as areas that are unsuitable for siting those resources. By layering constraint areas (areas identified as likely unsuitable for development) over raw energy resource maps (maps that at the most basic, show where the wind blows and the sun shines), the Central Vermont region will be able to identify potential and preferred areas for renewable energy development.

Using input from municipalities, CVRPC is working to develop these energy maps. These maps will be broken out for all municipalities, and municipalities can use these region-provided maps



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to meet the municipal mapping standards for municipal energy plans if they so choose. This is one reason it is imperative municipalities provide detailed input to CVRPC regarding the map constraints and preferred locations, because these maps can be used by your municipality to satisfy the mapping requirement in town energy plans.

The constraint layers which will be included in the maps are broken out into two categories; ***known*** and ***possible***. The maps and the text describing the policies or rules used to construct the map, as well as the text describing specific policies applicable to map features, should be complementary. Any constraints included on the map should be clearly identifiable in the text, should a map lack sufficient clarity or granularity regarding the area in which a project is proposed.

Known constraints: These constraint layers signal likely, those not absolute, unsuitability for development based on statewide or local regulations or designated critical resources. Known constraints are significant because when a proposed development is up for review with the Public Service Board (PSB), a proposed development in an area marked as a known constraint will signify to the PSB that that area is highly unsuitable for development. Known constraints do not guarantee that no development will occur, but they will make it highly unlikely.

State identified known constraints include the following; Vernal Pools (confirmed and unconfirmed layers), DEC River Corridors, FEMA Floodways, State-significant Natural Communities and Rare, Threatened, and Endangered Species, National Wilderness Areas, Class 1 and Class 2 Wetlands (VSWI and advisory layers).

Possible constraints: These constraint layers signal conditions that would likely require mitigation, and which may prove a site unsuitable after site-specific study, based on statewide or regional/local policies that are currently adopted in or in effect. Possible constraints are significant because they signify to a developer that an area might need additional analysis or inspection before development plans are initiated. They also signify to the PSB that while these areas are suitable to a certain extent, they are not a preferred location for development.

State identified possible constraints include the following; Agricultural Soils, FEMA Special Flood Hazard Areas, Protected Lands, Act 250 Ag Mitigation Parcels, Deer Wintering Areas, Vermont Conservation Design include the following Highest Priority Forest Blocks: Connectivity, Interior, and Physical Landscape Diversity, Hydric Soils.



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Listed below are the State Know and Possible constraints and the proposed Regional constraints and the data/methodologies/definitions that went into those layers.

Known Constraints

Vernal Pools (confirmed and unconfirmed layers) – Vermont Fish and Wildlife, 2009 - Present – Vernal pools are small depressions in forests that fill with water in the spring and fall. They provide breeding habitat for many salamanders and frogs and have populations of other species dependent on water. There is a regulated buffer around the pool depression that provides protection for forest habitat. Data was collected remotely using color infrared aerial photo interpretation. “Potential” vernal pools were mapped and available for the purpose of confirming whether vernal pool habitat was present through site visits. This layer represents both those site which have not yet been field-visited or verified as vernal pools, and those that have.

DEC River Corridors – DEC WSMD Rivers Program, January 2015 - River corridors are delineated to provide for the least erosive meandering and floodplain geometry toward which a river will evolve over time. River corridor maps guide State actions to protect, restore and maintain naturally stable meanders and riparian areas to minimize erosion hazards. Land within and immediately abutting a river corridor may be at higher risk to fluvial erosion during floods. River corridors encompass an area around and adjacent to the present channel where fluvial erosion, channel evolution and down-valley meander migration are most likely to occur. River corridor widths are calculated to represent the narrowest band of valley bottom and riparian land necessary to accommodate the least erosive channel and floodplain geometry that would be created and maintained naturally within a given valley setting.

FEMA Floodways – FEMA Floodway included in Zones AE – FEMA Map Service Center – These are areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. A "Regulatory Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

State-significant Natural Communities and Rare, Threatened, and Endangered Species – Vermont Fish and Wildlife, National Heritage Inventory - The Vermont Fish and Wildlife Department's Natural Heritage Inventory (NHI) maintains a database of rare, threatened and endangered species and natural (plant) communities in Vermont. The Element Occurrence (EO) records that form the core of the Natural Heritage Inventory database include information on the location, status, characteristics, numbers, condition, and distribution of elements of biological



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diversity using established Natural Heritage Methodology developed by NatureServe and The Nature Conservancy. An Element Occurrence (EO) is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. For species Elements, the EO often corresponds with the local population, but when appropriate may be a portion of a population or a group of nearby populations (e.g., metapopulation).

National Wilderness Areas – USDA Forest Service - A parcel of Forest Service land congressionally designated as wilderness.

Class 1 and Class 2 Wetlands (VSWI and advisory layers) - The State of Vermont protects wetlands which provide significant functions and values and also protects a buffer zone directly adjacent to significant wetlands. Wetlands in Vermont are classified as Class I, II, or III based on the significance of the functions and values they provide. Class I and Class II wetlands provide significant functions and values and are protected by the Vermont Wetland Rules. Any activity within a Class I or II wetland or buffer zone which is not exempt or considered an "allowed use" under the Vermont Wetland Rules requires a permit. Class I wetlands have been determined to be, based on their functions and values, exceptional or irreplaceable in its contribution to Vermont's natural heritage and, therefore, merits the highest level of protection. All wetlands contiguous to wetlands shown on the Vermont Significant Wetland Inventory (VSWI) maps are presumed to be Class II wetlands, unless identified as Class I or III wetlands, or unless determined otherwise by the Secretary or Panel pursuant to Section 8 of the Vermont Wetland Rules.

Possible Constraints

Agricultural Soils – Natural Resources Conservation Service – Primary agricultural soils” are defined as “soil map units with the best combination of physical and chemical characteristics that have a potential for growing food, feed, and forage crops, have sufficient moisture and drainage, plant nutrients or responsiveness to fertilizers, few limitations for cultivation or limitations which may be easily overcome, and an average slope that does not exceed 15 percent. Present uses may be cropland, pasture, regenerating forests, forestland, or other agricultural or silvicultural uses. However, the soils must be of a size and location, relative to adjoining land uses, so that those soils will be capable, following removal of any identified limitations, of supporting or contributing to an economic or commercial agricultural operation. Unless contradicted by the qualifications stated above, primary agricultural soils include important farmland soils map units



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with a rating of prime, statewide, or local importance as defined by the Natural Resources Conservation Service (N.R.C.S.) of the United States Department of Agriculture.

FEMA Special Flood Hazard Areas - The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA) on NFIP maps. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies.

Protected Lands – Include State fee land and private conservation lands. Other state level, non-profit and regional entities also contribute to this dataset. The Vermont Protected Lands Database is based on an updated version of the original Protected Lands Coding Scheme reflecting decisions made by the Protected Lands Database Work Group to plan for a sustainable update process for this important geospatial data layer.

Act 250 Ag Mitigation Parcels –VT Department of Agriculture - All projects reducing the potential of primary agricultural soils on a project tract are required to provide “suitable mitigation,” either “onsite or offsite,” which is dependent on the location of the project. This constraint layer includes all parcels in the Act 250 Ag Mitigation Program as of 2006.

Deer Wintering Areas – VT Fish and Wildlife - Deer winter habitat is critical to the long term survival of white-tailed deer (*Odocoileus virginianus*) in Vermont. Being near the northern extreme of the white-tailed deer's range, functional winter habitats are essential to maintain stable populations of deer in many years when and where yarding conditions occur. Consequently, deer wintering areas are considered under Act 250 and other local, state, and federal regulations that require the protection of important wildlife habitats. DWAs are generally characterized by rather dense softwood (conifer) cover, such as hemlock, balsam fir, red spruce, or white pine. Occasionally DWAs are found in mixed forest with a strong softwood component or even on found west facing hardwood slopes in conjunction with softwood cover. The DWA were mapped on mylar overlays on topographic maps and based on small scale aerial photos.

Vermont Conservation Design include the following Highest Priority Forest Blocks:

Connectivity, Interior, and Physical Landscape Diversity – VT Fish and Wildlife - The lands and waters identified in this constraint are the areas of the state that are of highest priority for maintaining ecological integrity. Together, these lands comprise a connected landscape of large and intact forested habitat, healthy aquatic and riparian systems, and a full range of physical features (bedrock, soils, elevation, slope, and aspect) on which plant and animal natural communities depend.



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Hydric Soils – Natural Resources Conservation Service –A hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. They have the potential to be jurisdictional wetlands and wetland delineation should be conducted before development on hydric soils. This constraint layer includes soils that have hydric named components in the map unit.

Regional Constraints

Elevations above 2500 feet – This constraint uses USGS contours over 2500 feet.

Lake Shore Protection Buffers (250 Foot and 800 Foot in Calais Only) – For this constraint, CVRPC selected Vermont Hydrologic Dataset lakes and ponds greater than 10 acres and then buffered those by 250 feet and use the Town of Calais Land Use Regulations for shore lands in Calais.

Slopes Greater Than 25% - For this constraint, CVRPC performed a slope analysis using a 10 meter Digital Elevation Model.

Municipal Lands – For this constraint, CVRPC used the VCGI Protected Lands Database. This includes town owned conservation easements, town forests and town protected greenspaces. This layer does not include municipal owned parcels such as the town garage or a town green surrounding the town hall.

Questions or Feedback?

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