Chittenden County's Regional Energy Plan

Planning Commissions – September 2016

Chittenden County RPC
Communities Planning Together

Background

1. State Contract:

CCRPC has a contract through the Department of Public Service to write a regional energy plan to "advance the State's energy and climate goals while being consistent with local and regional needs and concern."

2. Act 174 (became law in 2016) and "Substantial Deference"

The Regional Energy Plan is needed to gain a "Determination of Energy Compliance" from the Commissioner of Public Service. With this determination the Public Service Board will give "substantial deference" to the plan – meaning 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.

Background

2. Act 174 and "Substantial Deference" Continued

Once our Regional Energy Plan gains a "Determination of Energy Compliance", we can grant that determination to the **local energy plans/the energy element of a municipal plan.**

The more closely the regional plan reflects your local concerns and priorities, the more likely it is that your municipality could use the regional plan at the Public Service Board to help protect your interests.

Municipalities can also develop their own plan and seek a local determination directly from the Commissioner of Public Service Board until July 1, 2018.

Why Write a Regional Energy Plan?

Vermont's 2016 Energy Plan Goals

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

The State currently gets 16% of its energy from renewable sources.

Who Is Involved?

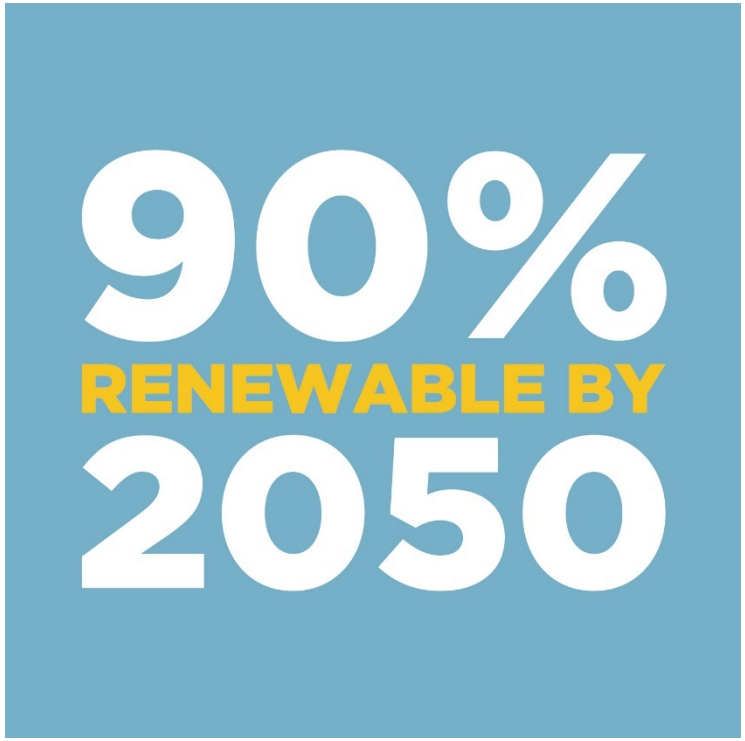
- CCRPC's municipalities, Long Range Planning Committee and Energy Subcommittee
- Electric utilities and other stakeholders
- Department of Public Service (DPS)
- Vermont Energy Investment Corporation (VEIC)
- Vermont Energy Action Network (VEAN)

July 2016	• Project Kickoff
September 2016	• Outreach to Planning Commissions and other stakeholders • Energy Subcommittee first meeting
October 2016	• Projections of future energy use and production goals completed (LEAP model) • Feedback from municipalities on local constraints due
November 2016	• First draft of Energy Resource Maps • Regional and Local Energy Standards released by Department of Public Service
May 2017	• First draft of Regional Energy Plan completed
December 2017	• Local and State review of plans completed • Final revisions finished
February 2018	• Regional Energy Plan adopted by RPC
June 2018	• 2018 Chittenden County ECOS Plan (including the Regional Energy Plan) adopted by CCRPC

What will the Plan Discuss?

The Chittenden County **Regional Energy Plan** will be a roadmap for how Chittenden County will do our part to meet Vermont's energy goals by:

- Establishing quantitative targets for energy use tied to the Vermont Energy Goals
- Establishing quantitative targets for energy generation tied to the Vermont Energy Goals
- Outlining specific regional strategies for energy generation and conservation



What will the Plan Discuss?

Our energy plan will need to meet the standards currently being developed by the Department of Public Service

- These standards will be available by November 1, 2016

We know that the Regional Energy Plan must plan for Chittenden County to produce a significant portion of the energy we will use in the future

- We are working with VEIC and the Department of Public Service as they determine how much energy Chittenden County is projected to use in the future

What will the Plan Discuss?

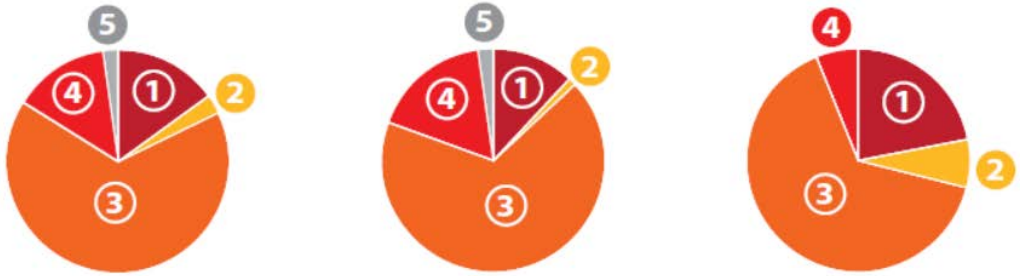
1. Baseline data on energy usage across all sectors and where that energy comes from

	Fuel Type: Space Heating	Number of House-holds	Avg. Use (Annual)	Percent of Use (All HHs)	Percent of Use: Owner	Percent of Use: Renter	Percent of Cost (All HHs)
1	Tank/LP/etc. Gas	2261 HHs	2.3 Mil Gal	15%	12%	22%	26%
2	Electricity	383 HHs	8.1 GWh	3%	1%	7%	5%
3	Fuel Oil	9779 HHs	7.0 Mil Gal	67%	67%	65%	56%
4	Wood	1993 HHs	12.9K Tons	14%	17%	6%	13%
5	Other	269 HHs	-	2%	2%	0%	-

ALL HOUSEHOLDS
Estimated percent of all households using each type of heating fuel in the region.

OWNERS
Estimated percent of owner-occupied households using each type of fuel.

RENTERS
Estimated percent of renter-occupied households using each type of fuel.



Bennington Region Energy Plan Example

FIGURE 2.4: HOME HEATING ESTIMATES BY FUEL, BCRC REGION, 2014
The majority of both renter- and owner-occupied households in the BCRC Region use Fuel Oil. For town-level data, see APPENDIX A: BCRC TOWN DEMOGRAPHIC AND HOME HEATING DATA.
Data from 2014 US Census Bureau American Communities Survey estimates.

What will the Plan Discuss?

2. Strategies to achieve a 1/3 reduction in the amount of energy used in the region by 2050

Bennington Region Energy Plan Example

Table 4.1: Efficiency Vermont Residential Weatherization Projects by County, 2011-2014*

County	2011	2012	2013	2014
Addison	30	48	99	80
Bennington	53	52	174	80
Caledonia	8	12	24	29
Chittenden	130	160	136	128
Essex	2	1	1	3
Franklin	8	9	18	14
Gland Isle	5	7	3	16
Lamoille	18	31	30	57
Orange	36	38	59	57
Orleans	8	6	19	19
Rutland	152	297	226	178
Washington	134	182	155	148
Windham	79	154	114	132
Windsor	33	59	98	103
VT Total	696	1,056	1,156	1,044

What will the Plan Discuss?

3. Future energy demand by energy source

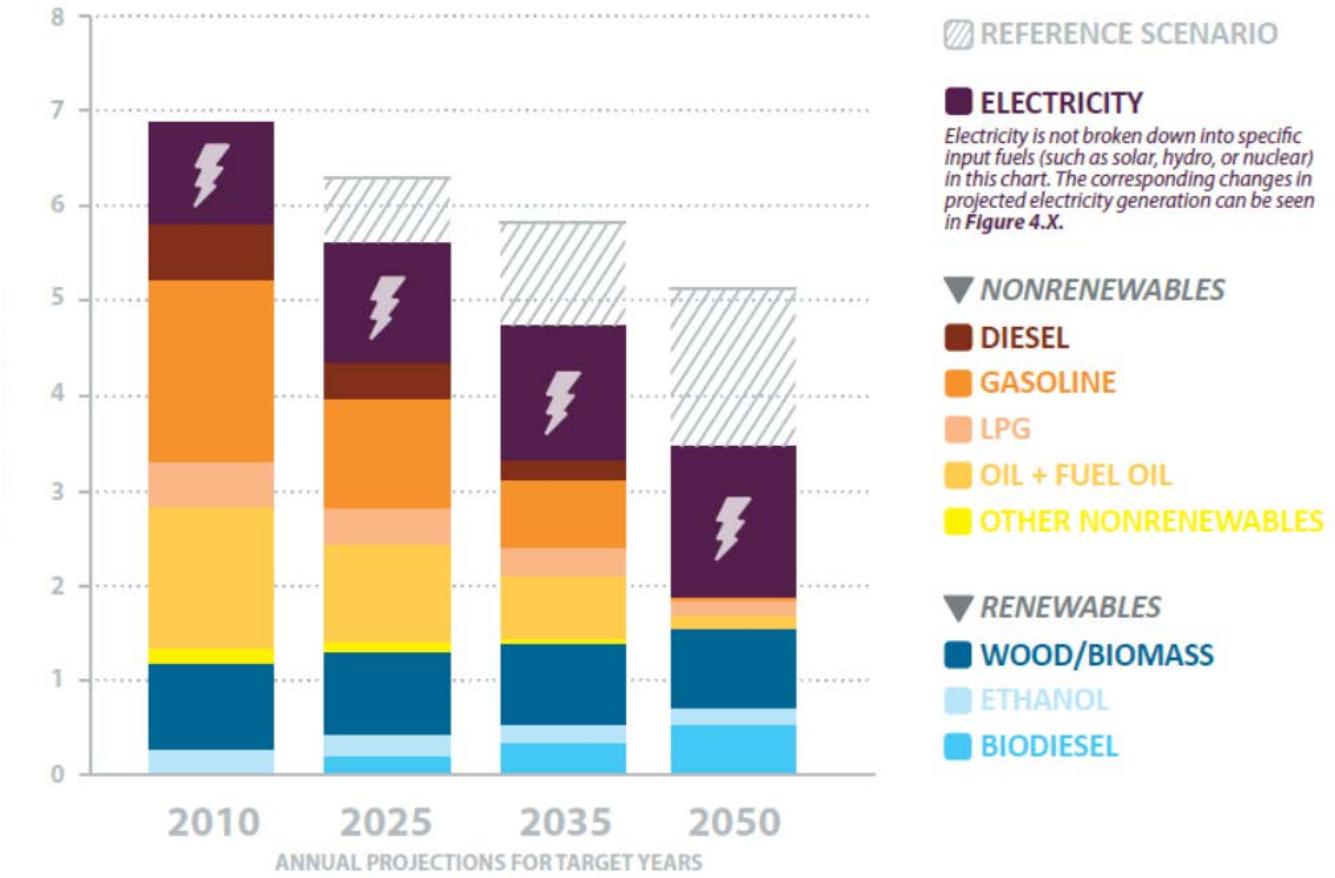


FIGURE 3.2: BENNINGTON REGION, ENERGY USE BY FUEL TYPE, 2010 - 2050

Bennington Region Energy Plan Example

What will the Plan Discuss?

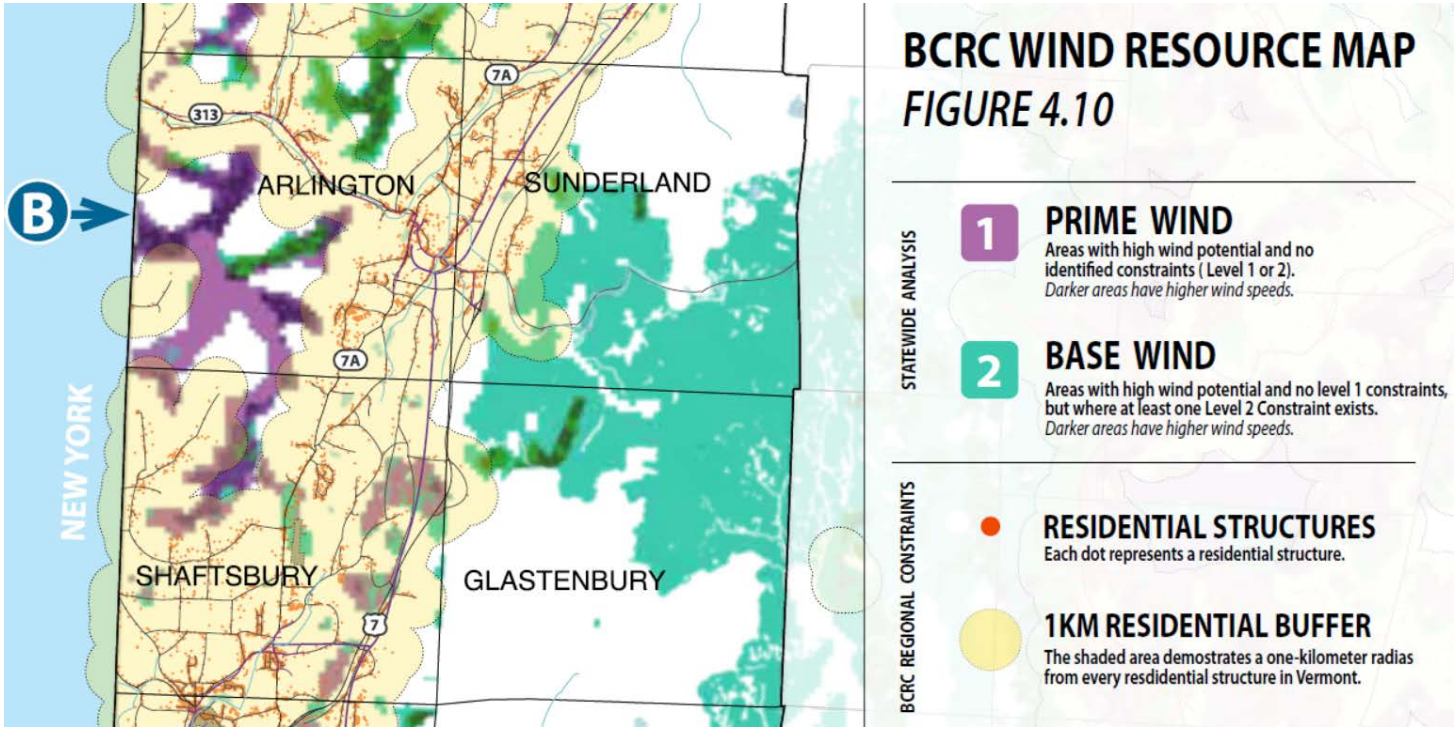
3. Continued: The portfolio of energy types used to meet that demand with 90% renewable sources

	YEAR	ELECTRICITY CONSUMPTION (GWh)	NEW HYDRO (MW)	NEW WIND (MW)	NEW SOLAR (MW)
VERMONT	2010	5,623	-	-	-
	2025	6,991	25	200	445
	2035	8,073	50	400	926
	2050	10,044	93	400	1,647
BCRC REGION	2010	318	-	-	-
	2025	381	1	16	24
	2035	421	1	28	48
	2050	473	1	28	85

Bennington Region Energy Plan Example

What will the Plan Discuss?

4. Identification of renewable energy generation resources in Chittenden County



Bennington Region Energy Plan Example

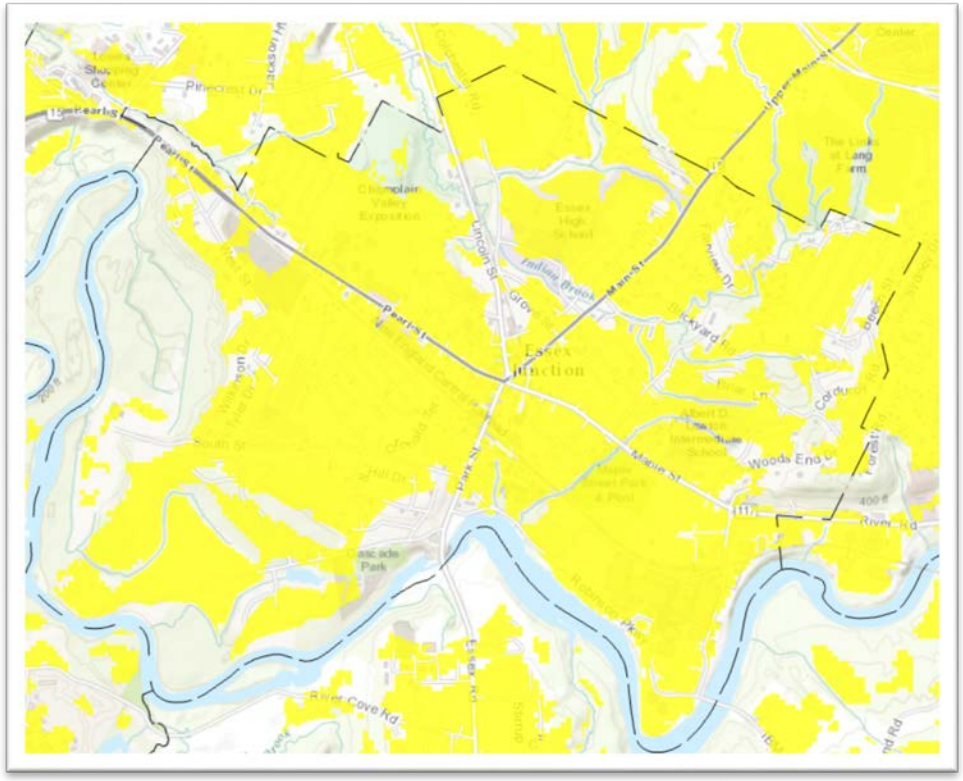
Energy Production Mapping

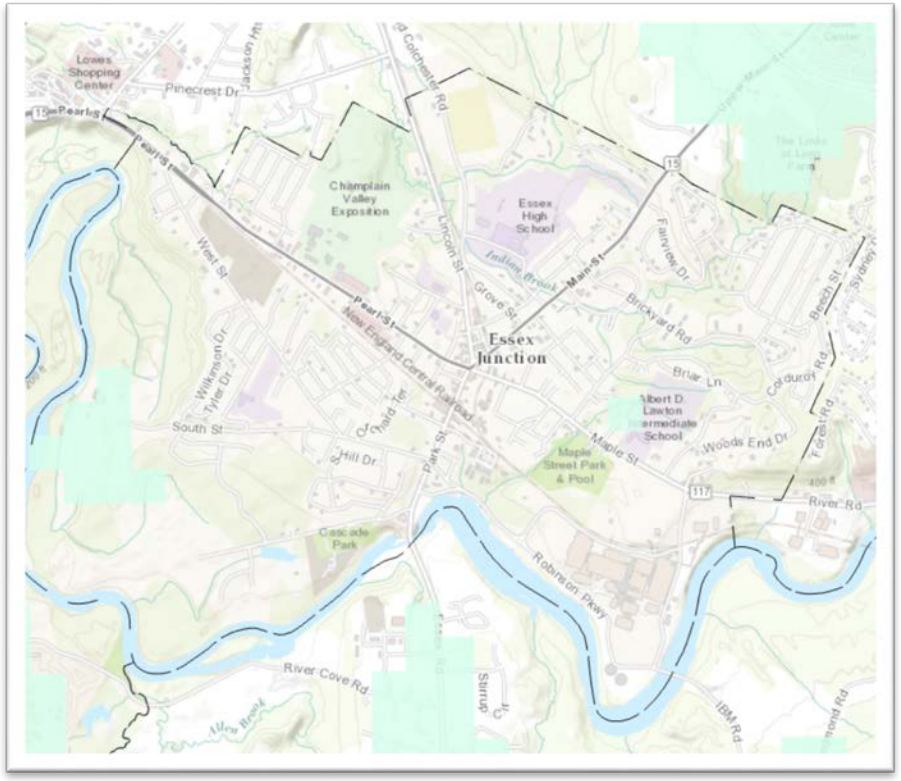
- Step 1 – Identifying all possible solar and wind generation areas based on GIS analysis.
- Step 2 – We need your help to identify important features to protect (ex. wetlands buffers) as local constraints for solar and wind energy facilities.
- Step 3 – We will compare the remaining available land suited for energy generation to the amount of renewable energy that we are obligated to produce.

While hydroelectric and biomass will both be discussed in the Regional Energy Plan, they are not currently mapped.

Renewable Energy Production Mapping

Step 1: Identifying all possible energy generation sites





- Potential Ground Mounted Solar PV Resource Areas

- Potential Wind Resource Areas
  - Large Commercial Wind Resources Areas
  - Small Commercial Wind Resource Areas
  - Residential Wind Resource Areas

Energy Production Constraints

Level 1 Constraints are conditions that the Department of Public Service has determined would likely make development unfeasible.

- FEMA Floodways & ANR River Corridors
- Federal Wilderness
- Rare and Irreplaceable Natural Areas (S1-S3)
- Vernal Pools (including a 600 foot buffer)
- Class 1 and 2 wetlands (NOT including buffers)
- Existing transportation infrastructure

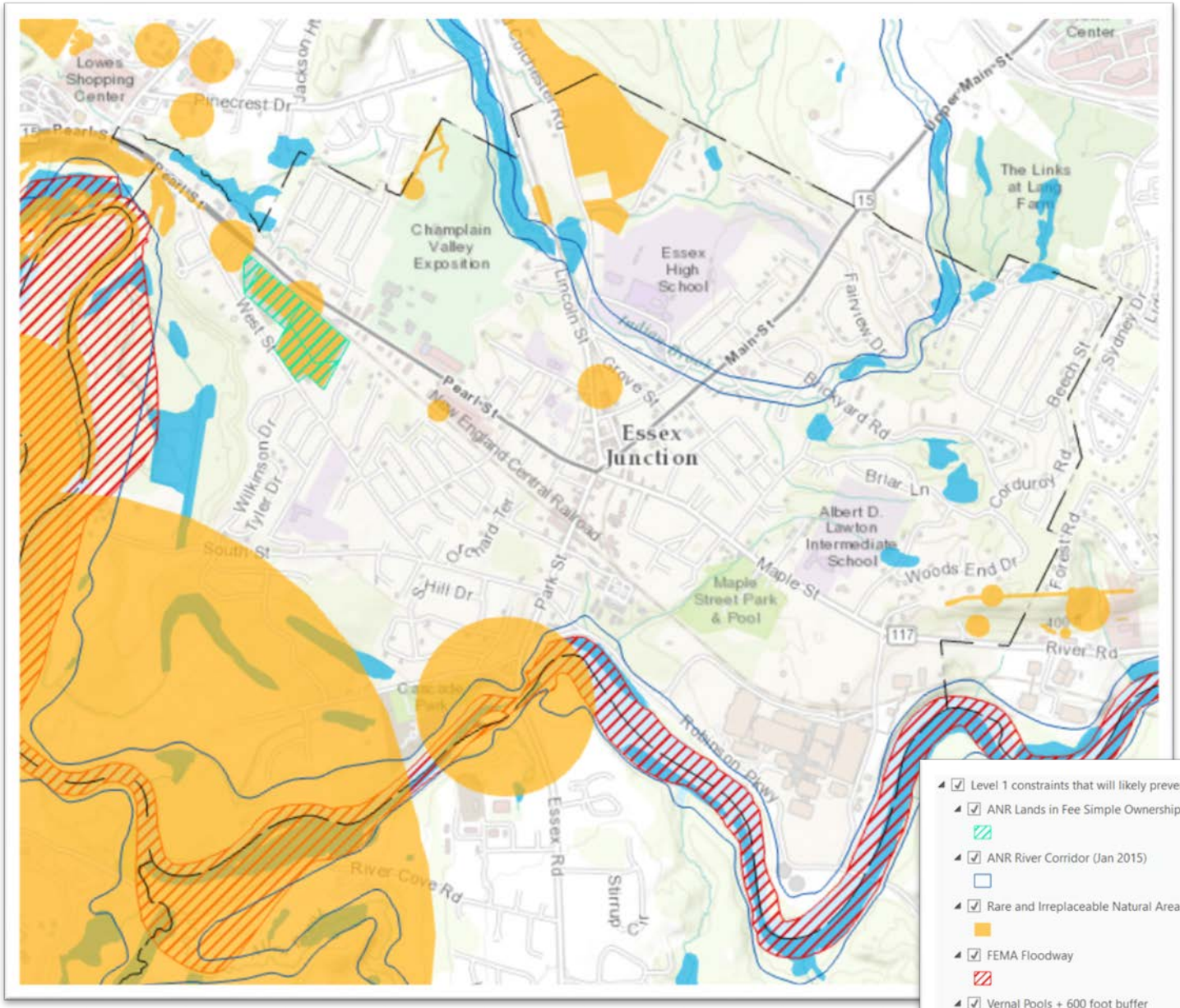
CCRPC is currently working with the Agency of Natural Resources and other agencies to ensure that the maps use the most current data.

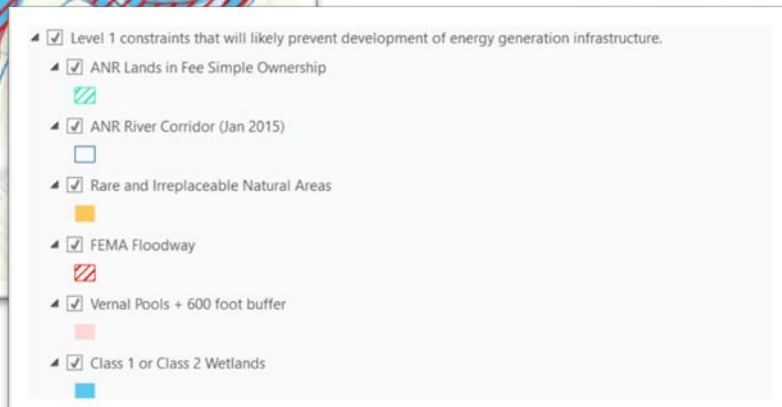
Energy Production Constraints

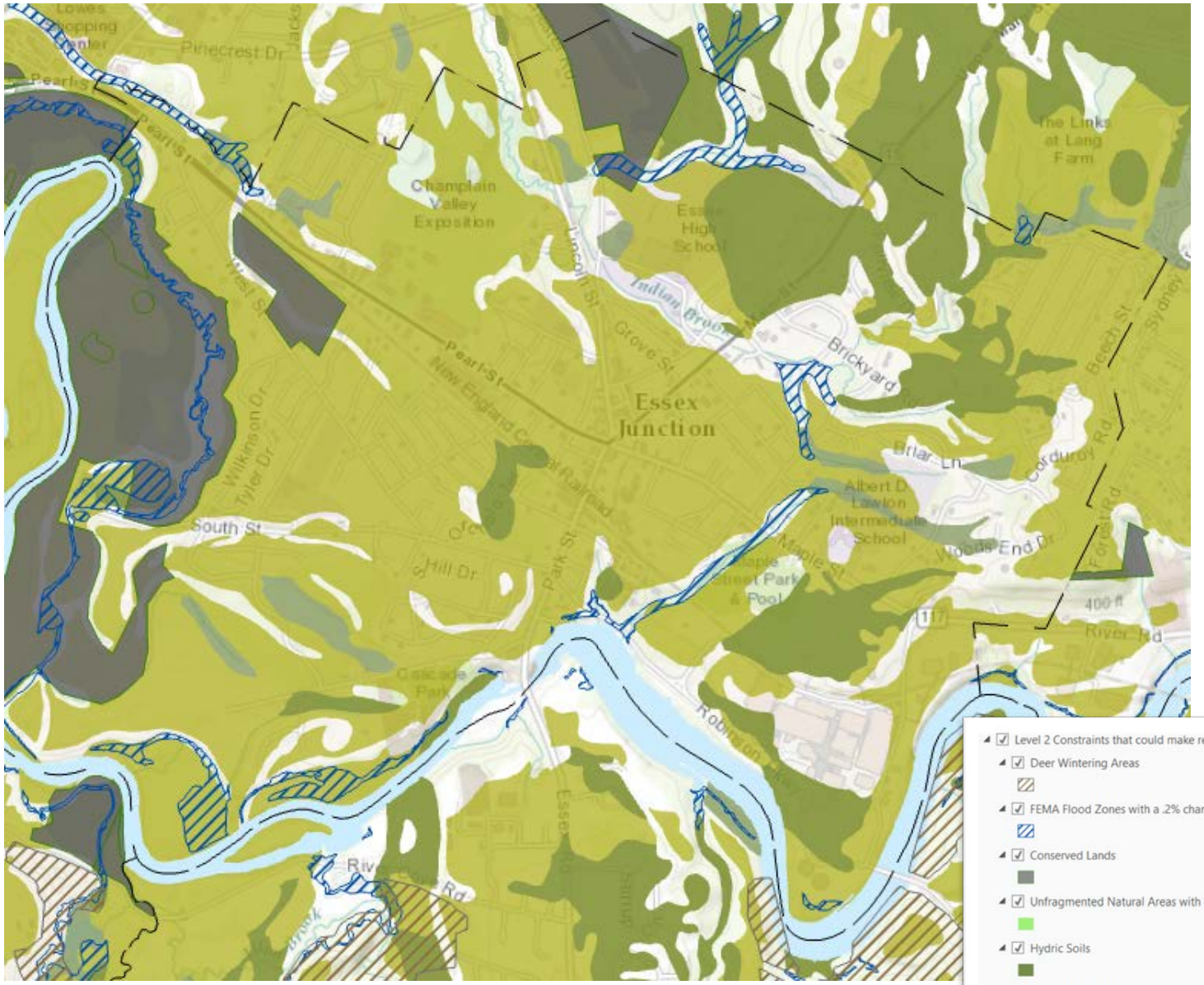
Level 2 Constraints are conditions that the Department of Public Service has determined would impact development, but not necessarily prevent it

- Agricultural and Hydric Soils
- FEMA Special Flood Hazard Areas (100-year flood zone)
- .2% Annual Chance Flood Zone (500-yr Flood Zone)
- Habitat Blocks (9 &10)
- Conserved Lands
- Deer Wintering Areas
- Class 3 Wetlands

Step 2: Identifying Level 1 Constraints

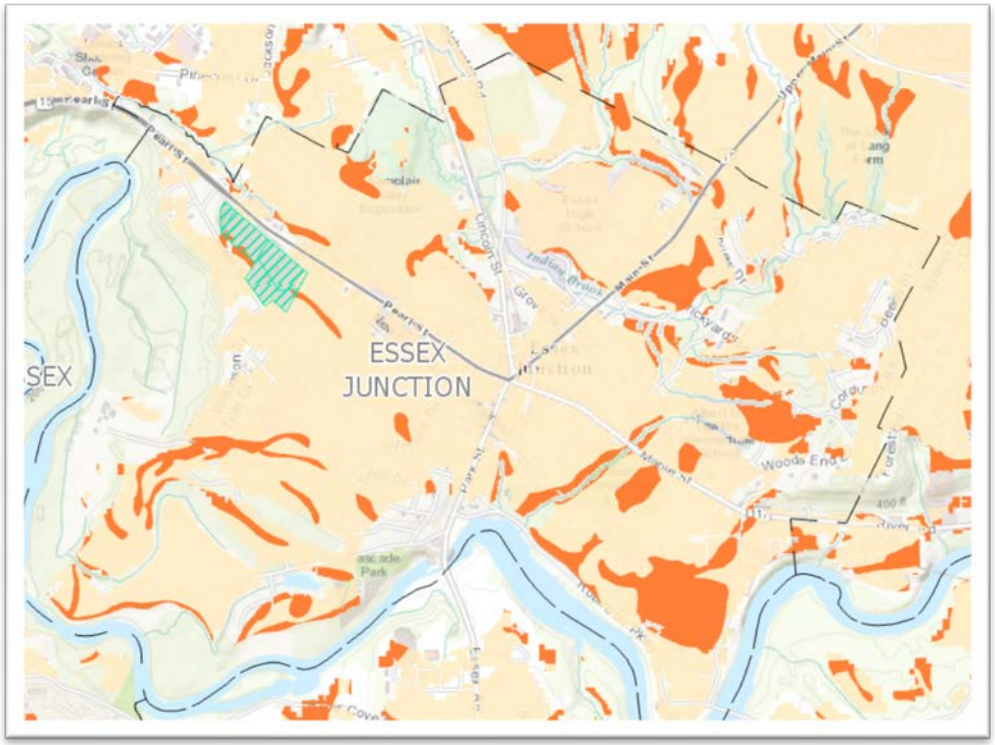


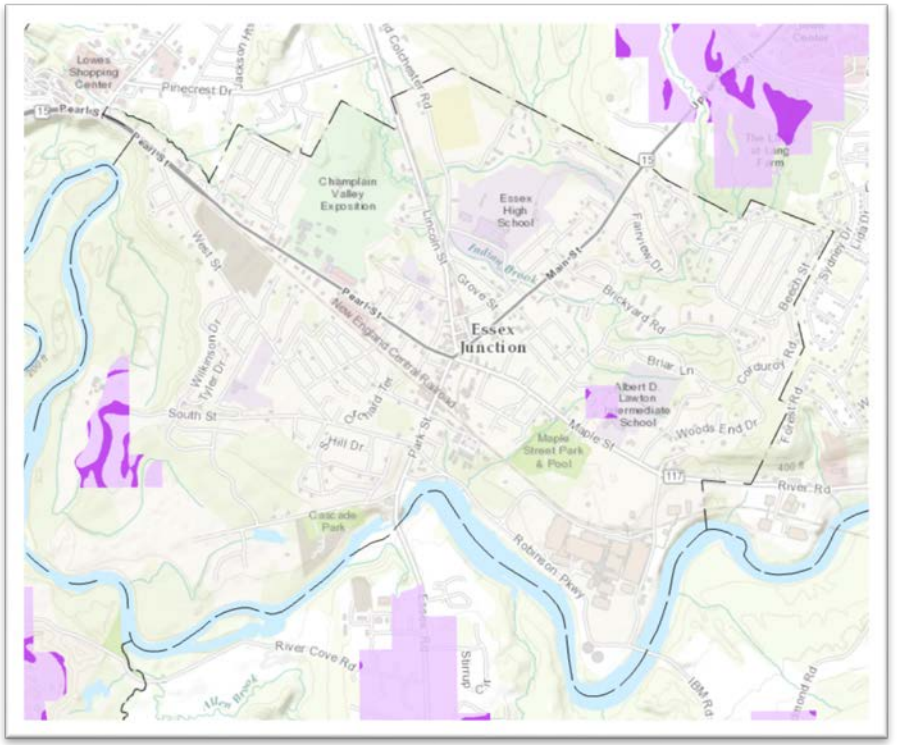


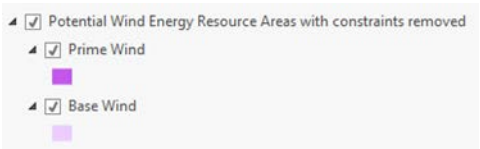


Step 2: Identifying Level 2 Constraints

Step 3: Removing Level 1 Constraints, indicating Level 2 Constraints.







Prime energy resource areas are areas with no level 1 or level 2 constraints. Base energy resource areas have one or more level 2 constraints.

Energy Production Mapping

What these maps do:

- Provide guidance regarding appropriate and inappropriate places for renewable energy development **based on a simple GIS exercise**
- Act as a good resource to start a conversation about energy siting in your town and our region

Energy Production Mapping

What these maps don't do:

- Take all local regulations into account—for example, your regulation of conserved land may be stricter, or you may have identified scenic views that should be protected
- Automatically prohibit or allow renewable energy generation
- Replace the detailed process a developer must go through to propose a site for a renewable energy

Energy Production Mapping

- We want to create maps that both reflect local policies and leave enough space for energy generation
- Chittenden County is obligated to produce a significant amount of the energy we consume
- The process of adding constraints to the maps must take that into account

Your Municipality's Input

- For CCRPC's Regional Energy Plan to be effective, it needs to include siting maps that accurately reflect municipal policies
- Are there areas in your municipality that should be indicated as Level 1 or Level 2 constraints?
  - For example, conserved land, wetland buffers, specifically identified scenic resources, protected resources in your bylaws, etc.

Your Municipality's Input

- Remember: Just because an area is not shown on a map as having generation potential does not mean that it might not in the future.
- Changes in technology may make new generation sites available.
- You should still identify important features to protect (ex. wetlands buffers) as constraints even outside of the current generation areas.

Regional Energy Production Constraints

To start, CCRPC has been considering these additional **Level 1 Constraints**:

- ANR-owned lands (ANR policy prohibits commercial energy generation on these lands)
- A buffer of 1 km around homes for industrial scale wind generation
- Wetland and other surface water buffers (as defined in municipal regulations)

These recommendations are not reflected on the current maps.

Next Steps

- Please develop your list of proposed constraints by **October 7**
- We will review your proposed constraints in light of the energy targets the County is required to reach. We may need to contact you at this stage.
- We are required to send draft maps to the Department of Public Service on **December 1**
- You can follow our progress at http://www.ccrpcvt.org/our-work/environment-natural-resources/energy/

Questions, comments, concerns?

- Melanie Needle, (802) 846-4490 ext. *27, mneedle@ccrpcvt.org
- Emily Nosse-Leirer, (802) 846-4490 ext. *15, enosse-leirer@ccrpcvt.org