Comprehensive Energy Plan Regional Forum #3: Southwestern Vermont

June 8, 2021, 4-6 p.m.

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

Welcome! The meeting will get started shortly.

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Regional Forums: Purpose

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

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Introduction of Facilitation Team

- Cindy Cook, Adamant Accord

- Overview of Etiquette for PSD Online Public Engagement
- Review of Forum Agenda

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Forum Etiquette and Zoom Logistics

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

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Agenda

4:00 Welcome and Introductions, *PSD*

4:10 Review Agenda, Forum Etiquette Guidelines and Zoom Logistics, *Facilitator*

4:15 Overview of the Comprehensive Energy Plan Development Process, *PSD*

4:30 Responses to Informational Questions re the CEP Process, *Facilitator and PSD*

4:35 Regional Planning Commission Presentation(s) re the Regional Enhanced Energy Plans, *RPCs*

5:10 Responses to Informational Questions re the RPC Presentations

5:15 Municipalities' Input

5:45 Public Comments

5:55 Next Steps and Future Opportunities for Input

6:00 Adjourn

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Introduction to Vermont Comprehensive Energy Plan – 2022 Update Process

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Vermont Energy Policy

Title 30, Section 202a:

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

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Comprehensive Energy Plan - Two Plans

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

- CEP Required Every 6 years – next due **January 2022**

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Comprehensive Energy Plan – *Requirements*

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

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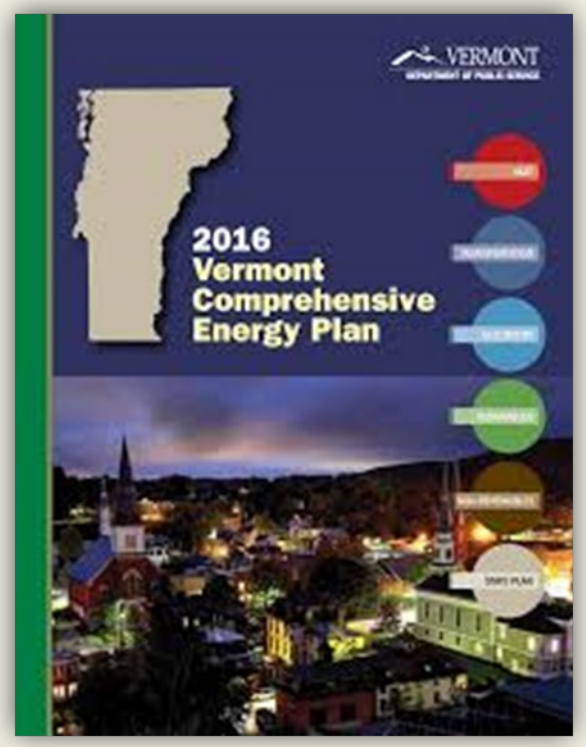
2016 Comprehensive Energy Plan

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



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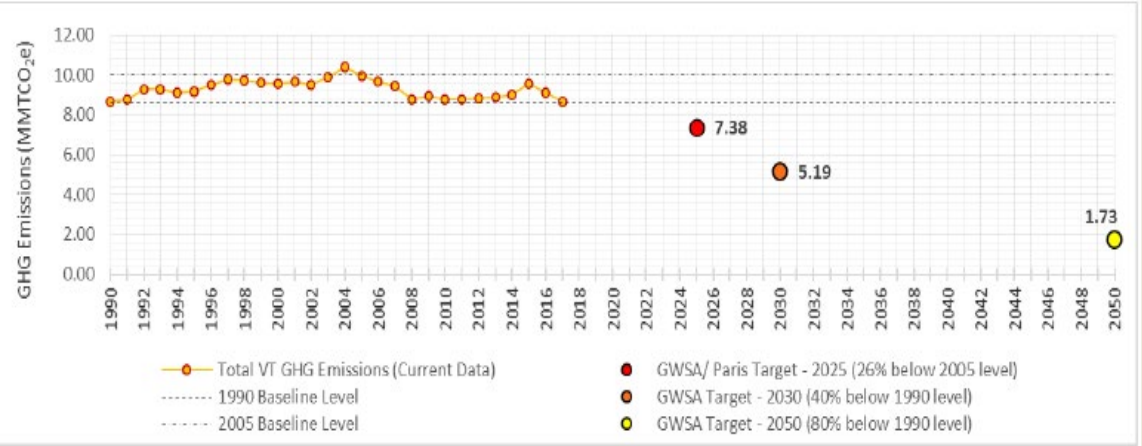
2022 CEP Starting Points

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



VT GHG Inventory. VT DEC AQCD May 2021

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Energy Plan & Climate Plan

Climate Action Plan

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

Overlap

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

Comprehensive Energy Plan

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

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2022 CEP Vision

- Focus on a strategic plan that identifies
  - Tradeoffs among policies
  - Milestones for identifying success and need for modification in policies
  - Uncertainties that could affect policy success
- Includes
  - Act 174 standards & recommendations
  - Climate and Renewable Energy Pathways
  - Electric Plan
  - State Agency Energy Plan

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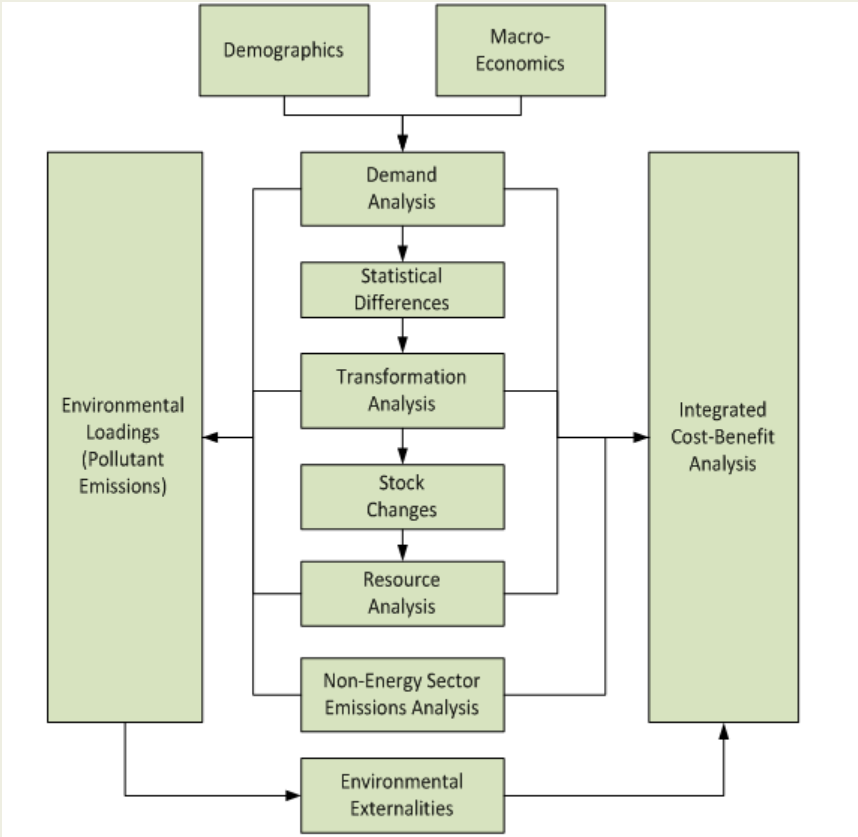
2022 CEP Modeling

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



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2022 CEP Tentative Timeline (as of 5.24.21)

Issue Public Involvement Plan

Modeling RFI

Topical Stakeholder Groups

Regional Forums

Draft CEP published

Final CEP Published

Dec. 2020 | **May** | **June** | **Aug** | **Sept/Oct** | **Sept–Nov** | **Jan 2022**

Stakeholder Engagement around modeling starts – through July

Final Modeling Complete

Written Comments

Public Hearings

Coordination with Stakeholder Engagement / Timing of Climate Council

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Questions?

- Type your questions in the chat, “raise your hand” to be unmuted and ask your question verbally (or request to do this in the chat if you don’t have that functionality), or press *6 when telephone callers are invited to ask questions.
- You can also send comments on the CEP by email (or mail) to: PSD.ComprehensiveEnergyPlan@vermont.gov
- And please visit our website (information on upcoming events and other avenues for providing input): https://publicservice.vermont.gov/content/2022-plan

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Questions for Consideration:

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

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Regional Energy Planning Presentations

- Addison County Regional Planning Commission
- Rutland Regional Planning Commission
- Bennington County Regional Commission

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Addison County Regional Energy Priorities

Andrew L'Roe and Adam Lougee

Addison County Regional Planning Commission

Southwestern VT Regional Energy Forum

June 8, 2021

Addison County Energy

- Energy Section of Regional Plan updated and approved in July 2018
- 11 Municipal Enhanced Energy Plans approved or in process
- 1500 solar facilities, 47 MW installed photo-voltaic capacity (through 2020)

<u>Active partners:</u>

- Addison County Climate Economy Action Center (https://ceacac.org/)
- Acorn Renewable Energy Co-op (https://www.acornenergycoop.com/)
- Town Energy Coordinators and Committees

ACRPC Goals & Strategies: Thermal Efficiency & Conservation

Goal: Increase the Region's thermal energy efficiency and self-sufficiency by reducing both its energy use and carbon footprint

Strategies:

- Promote thermal efficiency in the Region's municipal buildings;
- Encourage and support the Region's resident's efforts to weatherize their homes;
  (Target: **55%** of municipal households weatherized by 2050);
- Encourage proposed development to optimize design features and energy systems that conserve energy and use renewable sources;
  (Target: **7,000+** New Heat Pumps units by 2050);
- Encourage and promote local and sustainably harvested wood and efficient wood heating;
  (Target: **600+** New Efficient Wood Heat Systems units by 2050).

ACRPC Goals & Strategies: Transportation

Goal: Reduce reliance on nonrenewable fossil fuels, and shift reliance to renewable energy sources.

Strategy: Create infrastructure and policies supporting electric vehicle use within the Region.

(Target: **30,000** New Electric Vehicles in use by Addison Region owners by 2050)

Goal: Reduce vehicle miles traveled per capita by reducing amount of single occupancy vehicle (SOV) trips.

Strategies:

- Support efforts to increase access to safe, everyday walking and cycling within and across municipal borders;
- Support public transportation programs serving the Region.

Goal: Increase the use of rail for freight and passenger services.

Strategy: Support improvements to the Western Rail Corridor that improve safety and the ability of the corridor to carry additional freight and passengers.

Goal: Transition transportation from oil and gasoline to cleaner and/or to renewable, non-fossil-fuel options.

Strategy: Encourage options for cleaner fuel availability.

ACRPC Goals & Strategies: Electricity Use & Conservation

Goal: Conserve renewable and non-renewable electrical energy resources.

Strategies:

- Support energy conservation efforts and the efficient use of energy by installing efficient electric equipment;
- Promote energy efficiency in all buildings, including retrofits and new construction.

Goal: Shift energy use from non-renewable energy sources to electricity from renewable sources.

Strategies:

- Work with municipalities, electric utilities and community groups to lead and support the transition.

ACRPC Goals & Strategies: Land Use, Generation, & Transmission

Goal: Plan for increased electric demand in partnership with Green Mountain Power and Efficiency Vt.

Strategies:

- Lead by example. Encourage the use of renewable energy production in town buildings, schools and residences;
- Support the development and siting of renewable energy resources in the Region;
- Favor the development of generation utilities in identified preferred locations over the development on other sites.

Goal: Promote Land Use planning that supports reducing energy usage and conserving resources

Strategies:

- Encourage settlement patterns that reduce travel requirements for work, services, and recreation by helping member municipalities to create plans and zoning;
- Continue to encourage and support local food systems and farmers' markets;
- Conserve forest land as a renewable energy resource and promote the responsible and efficient use of wood for biomass energy production;
- Conserve viable agricultural lands for potential use in local food system production, and/or potential use in raising biofuel crops.

Challenges & Opportunities: Thermal Efficiency & Conservation

Issues of Note: Providing Economic certainty to spur investment.

Specific Challenges: Reduce paybacks on average to be less than the average length of homeownership.

Opportunities: Allow financing of thermal efficiencies to run with the structure, not the individual, to provide economic incentives (cash flow) for more homeowners to participate.

CEP and Act 174 Role:

- Incentivize homeowner investment and establish guidelines for utility financing.

Challenges & Opportunities: Transportation

Issues of Note: People will convert to electric vehicles when they deem it in their personal and economic best interest.

Specific Challenges: Distances between rural communities and employment.

Opportunities: Emphasizing and financing based on long term ownership costs. The F-150 electric base price less than its gasoline counterpart should be a gamechanger, especially if charging is available.

CEP and Act 174 Role:

- Incentivize creating charging stations.
- Document the savings and the break even point of the long-term ownership costs of electric vehicles vs. their gasoline equivalents, including reduced fuel and maintenance costs.
- Create and tie incentives for electric vehicles to decreasing the payback times of electric ownership below that of a gasoline vehicle.

Challenges & Opportunities: Electricity Use & Conservation

Issues of Note: Increase in electric dependence as people move to heat pumps and electric vehicles.

Specific Challenges: Increased stress on the transmission and distribution grids and increases in peaking and therefore costs.

Opportunities: Battery storage and microgrids.

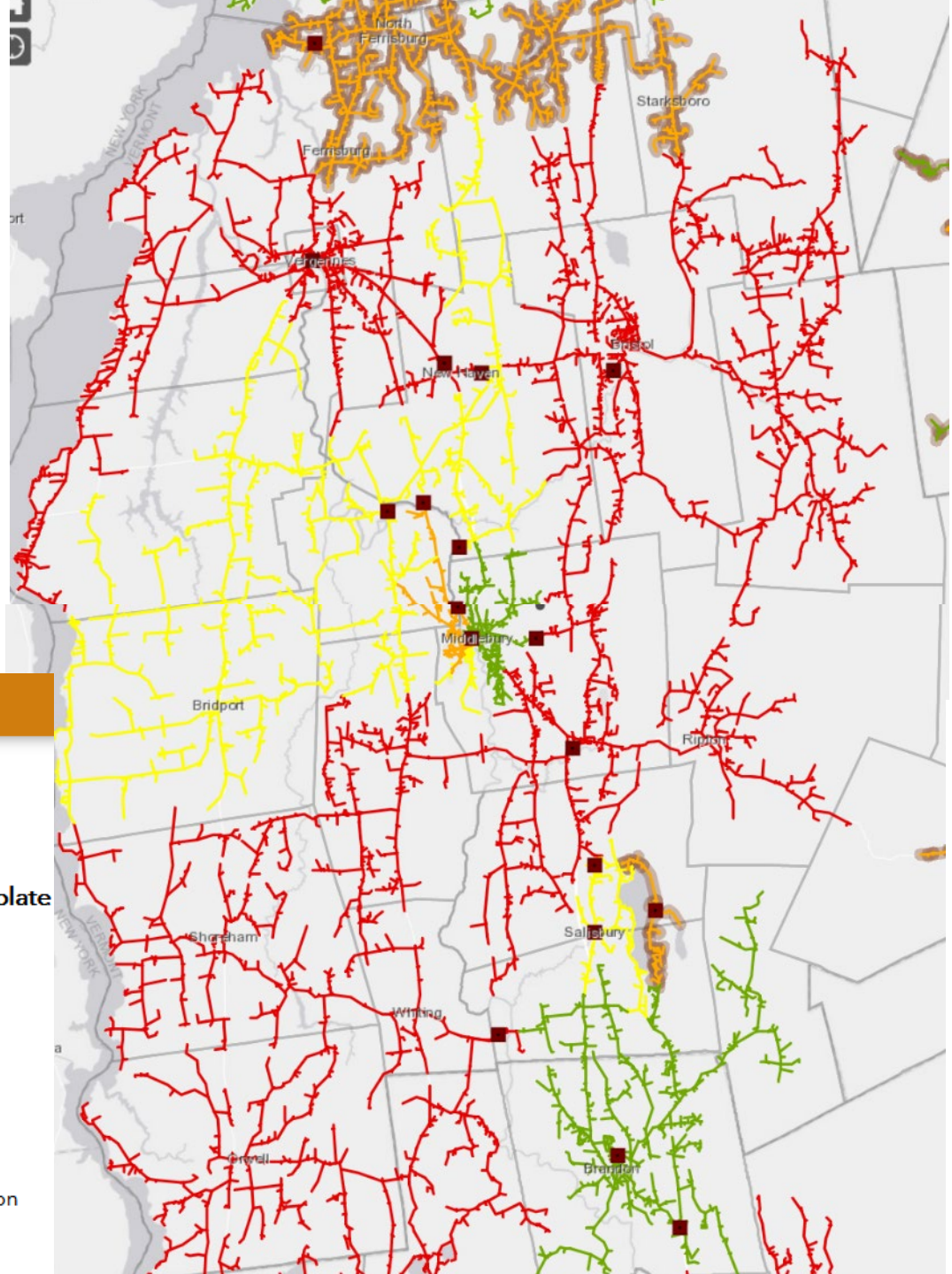
CEP and Act 174 Role:

- Use projects like the Panton Microgrid to determine their viability in other places.

Challenges & Opportunities: Land Use, Generation & Transmission

Issues of Note:

- Existing Circuit capacity for additional generation.



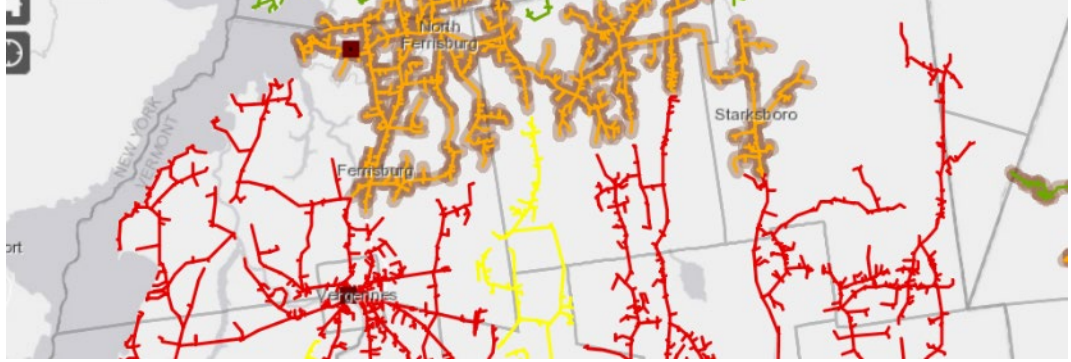
GMP Solar Map 2.0

Substations

DG Circuit Capacity Per Substation Nameplate Rating

- Unrated
- Substation transformer with at least 20% capacity remaining
- Substation transformer with less than 20% capacity remaining
- Substation transformer with less than 10% capacity remaining
- Due to system limitations, interconnections on this circuit may experience higher costs and delayed interconnections

Challenges & Opportunities: Land Use, Generation & Transmission



Issues of Note: Existing Circuit capacity for additional generation on both the distribution and Transmission Grid.

Specific Challenges: Locating Commercial scale generation in areas where it will be most cost-effective.

Opportunities: Incentivize the most cost-effective projects.

CEP and Act 174 Role:

- Identify cost-effective locations from a grid perspective;
- coordinate the efficient utilization of the transmission and distribution systems with generation planning incentives.

Takeaways/Recommendations

- Incentivize homeowner weatherization investment
- Incentivize creating charging stations.
- Create and tie incentives for electric vehicles to decreasing the payback times of electric ownership below that of a gasoline vehicle
- Determine battery and microgrid viability
- Identify and incentivize cost-effective renewable energy facility locations from a grid perspective

Thank You!

Andrew L'Roe and Adam Lougee

alroe@acrpc.org and alougee@acrpc.org

Addison County Regional Planning Commission

Regional Energy Planning Presentations

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- Rutland Regional Planning Commission
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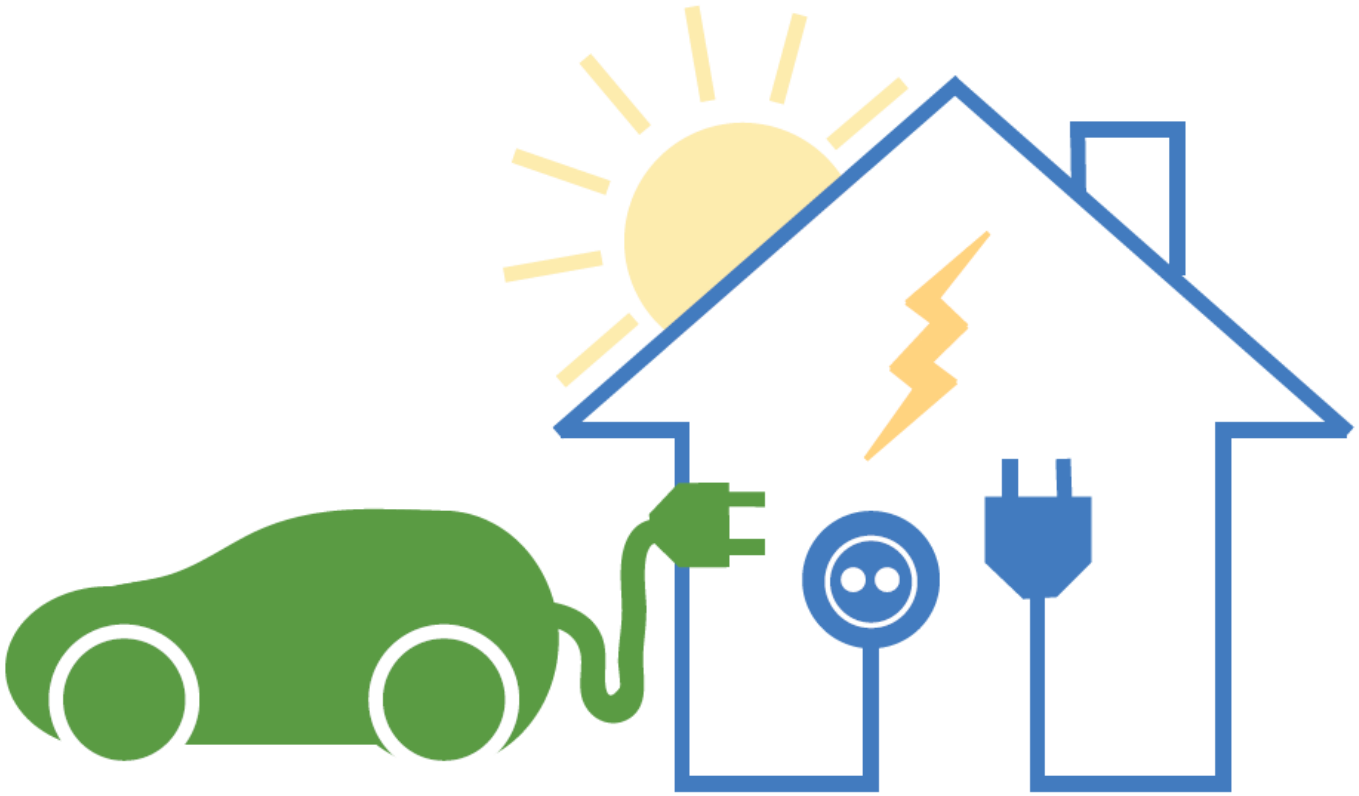


RUTLAND REGION ENERGY PLANNING

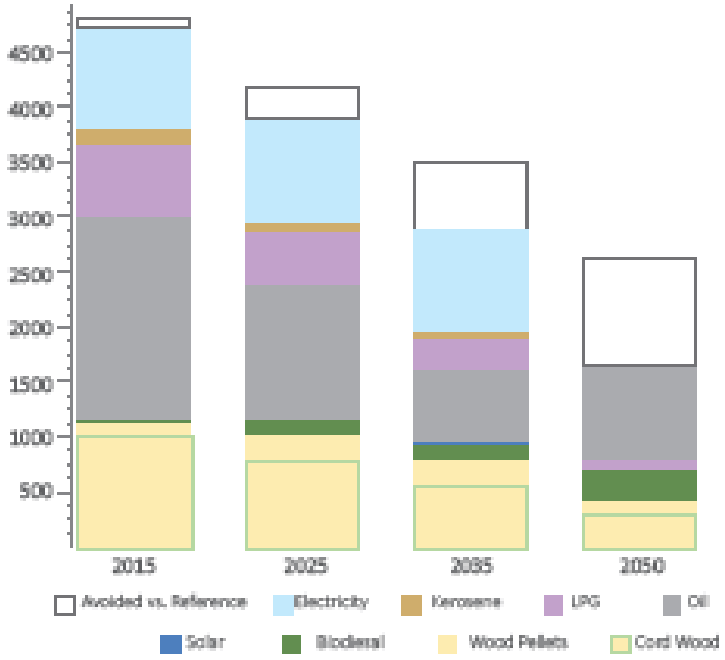
BARBARA NOYES PULLING

Rutland Regional Planning Commission

June 8, 2021

RRPC Regional Energy Plan Overview

- Success Stories: Sudbury and Brandon
- Like other RPCs, RRPC used LEAP modeling to suggest ways to reduce demand of fossil fuels, encourage electrification, and increase renewable generation to meet Vermont goals.
    - The modeling and ambitious goals met with much skepticism.
    - But what a difference a few years can make?

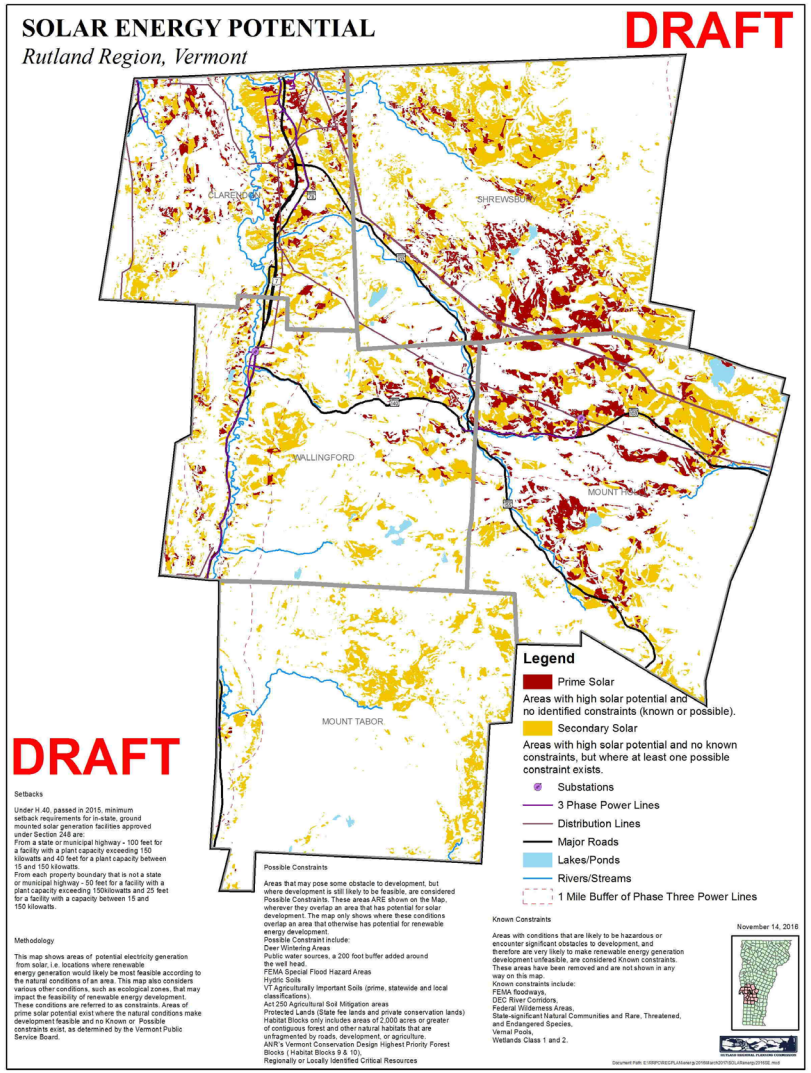


RRPC Regional Energy Plan Overview

- Cold climate heat pumps are popular. Electric vehicles are not just for early adaptors. And it's easier to imagine reducing our use of fossil fuels.
- These changes are now much more economically feasible.
- Federal and state incentives can make those transitions even more viable.

RRPC Regional Energy Plan Overview

- RRPC thought there was enough renewable energy generation potential to divide our regional target equally among our towns.
- We will need to adjust those targets to make them more realistic for some of our communities - especially those with limited access to distribution/transmission infrastructure and farther from load.
- Need to locate solar with infrastructure and check the accuracy of the mapping.

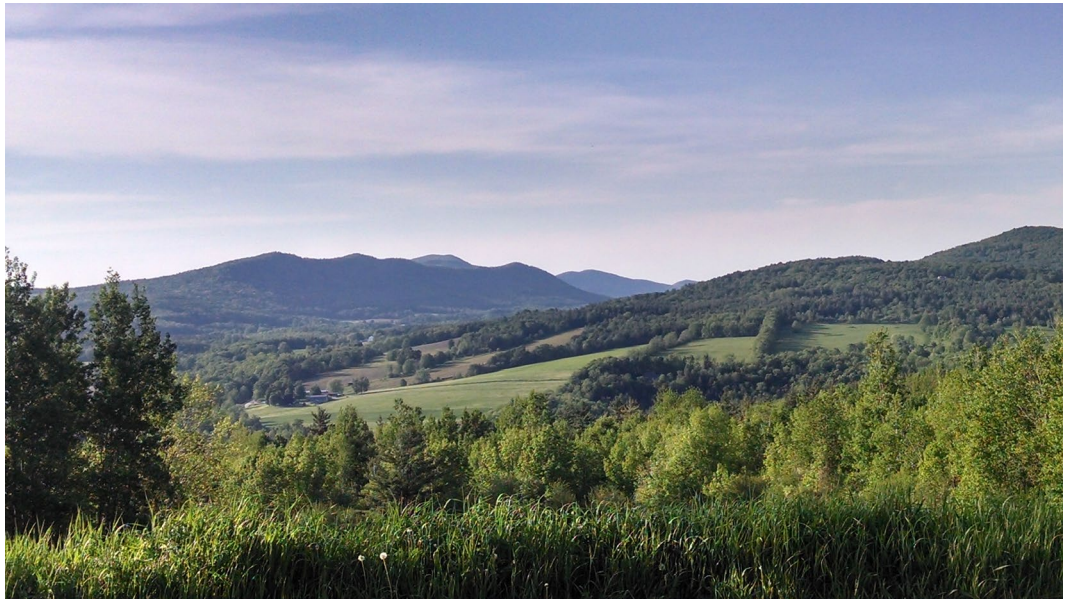


Sector-Specific Challenges & Opportunities

Thermal

- Getting local energy companies on board
  - Help them change their business models with free education.
  - Reimburse them for financial impacts.

Sector-Specific Challenges & Opportunities



Thermal

- Reduce the Use of Wood Biomass as Fuel
  - Used to be ag lands
  - Now concerns about use of forests from an environmental perspective; preservation of priority blocks and corridors.
  - Questions about carbon release / loss of carbon sinks.

Sector-Specific Challenges & Opportunities

Transportation

- RRPC promotes telecommuting. Is that Smart Growth or something else?
  - Transportation patterns are difficult to change in rural communities.
  - Build out more broadband/high speed fiber optic internet service.
  - More residents will work from home post-COVID.
- Will this trend lead to more compact villages?

Sector-Specific Challenges & Opportunities

Electric Supply & Demand

- Promote microgrids and large-scale battery storage in areas with limited transmission capacity:
  - To help reduce peak loads.
  - Allow for continued renewable generation build-out.

- Convince (incentivize) those communities in zones with capacity to do more generation.

Wrap Up/ Conclusion

- One Size Doesn't Fit All; Get Creative.
- Encourage More Communities to Adopt Energy Plans and to Implement Strategies.
- Assist Towns with Limited Access to Energy Distribution/Transmission.
- Determine how best to use the area's high-speed internet and vast wood biomass.

Regional Energy Planning Presentations

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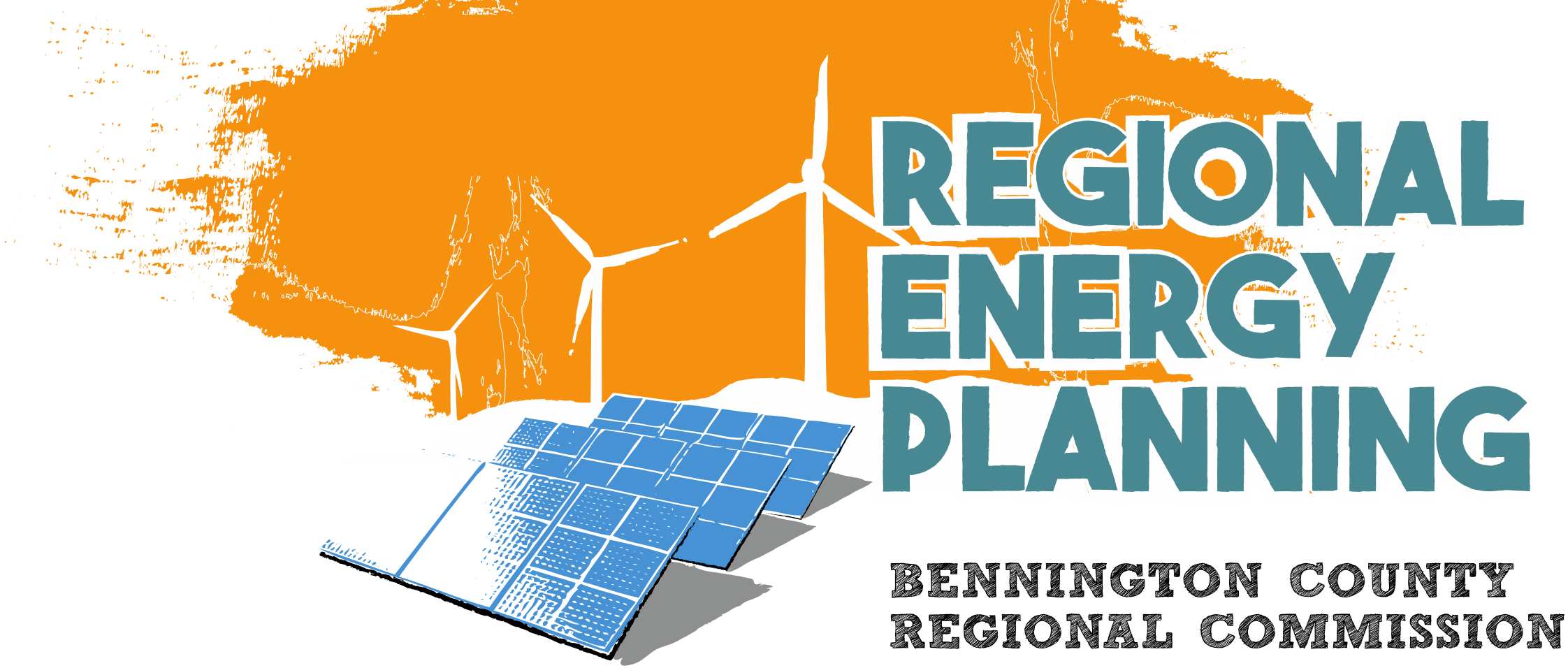
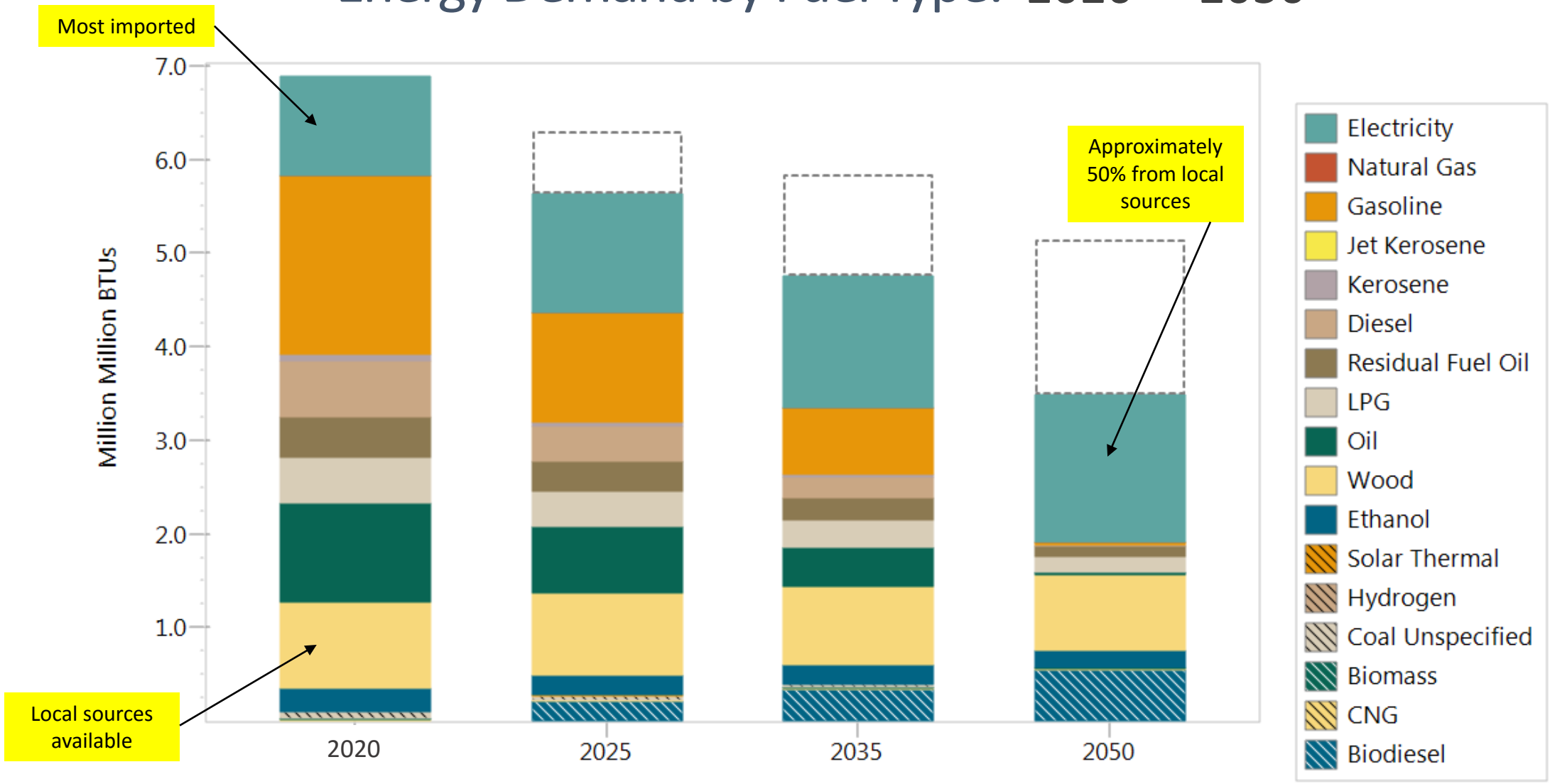


Vermont Comprehensive Energy Plan - Regional Forum - June 8, 2021

Bennington Region

Energy Demand by Fuel Type: 2020 - 2050



How do we get there?

Conservation, efficiency, switch to renewable fuels, including biomass and both imported and local electricity derived from renewable sources.

- **Thermal: improving building stock, changing and improving heating systems and fuels.**
- **Transportation: reducing the amount of driving and transforming the vehicle fleet.**
- **Electricity: continuing efforts at conservation (Efficiency Vermont), and opportunities for new generation in the region.**

Thermal Strategies/ Regional Issues

Biomass Heating System at Bennington College

- Building Weatherization Programs
  - Age of Housing Stock and prevalence of rental units with incentive challenges
  - Lack of a weatherization workforce; Need for better uptake of BROC/NWWVT programs
- Alternative Heating Systems
  - Biomass – use of local wood supply – residential and commercial/institutional
  - Heat pumps – opportunity for retrofitting existing buildings (with weatherization)
  - Geothermal for new construction (good resource in region)
- Energy Efficiency and Permitting
  - New construction and system replacement: <u>deployment of new fossil fuel-based systems makes it difficult or impossible to meet regional energy and GHG goals</u>
- Fuel Dealers → Energy Service Providers
  - Opportunity for weatherization workforce, installation/service of alternative heating systems….

Transportation Strategies/ Regional Issues

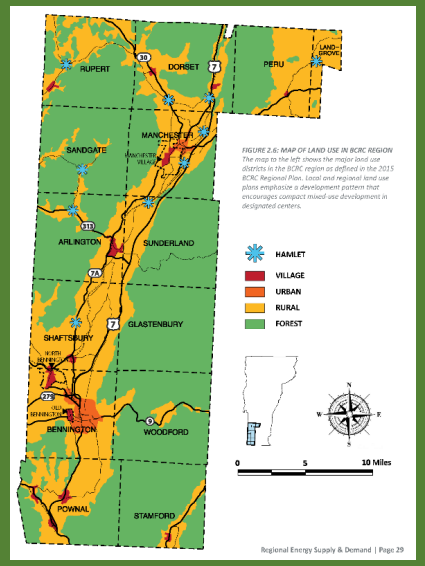
- Pursue Growth and Development in Compact Mixed-Use Centers
  - Infrastructure investments – especially in “village centers”
  - Changes to local and state land use regulations

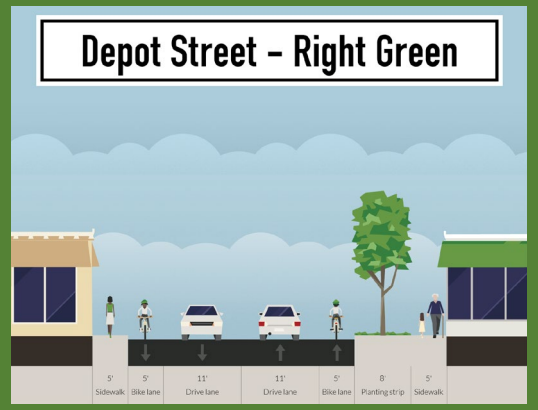
- Implement Improvements to Promote Walking and Biking
  - “Complete Streets” as a genuine requirement at all levels
  - Streamline bicycle and pedestrian planning and development, address permitting hurdles

- Expand the Use of Electric Vehicles and E-bikes
  - More support in region for outreach to auto dealerships
  - Support for charging infrastructure, especially at MF rentals and workplaces
  - Purchase incentives!

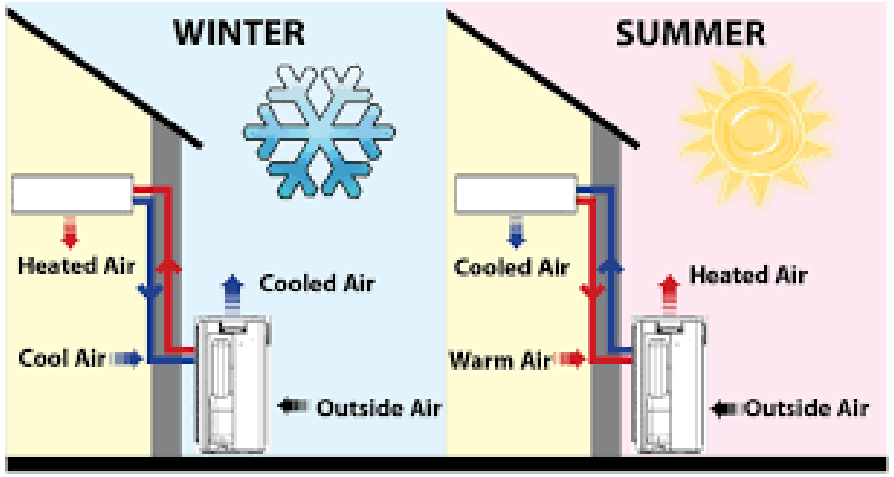
- Increased Use of Public Transportation
  - Expanded service between large communities/downtowns and village centers and other rural hubs

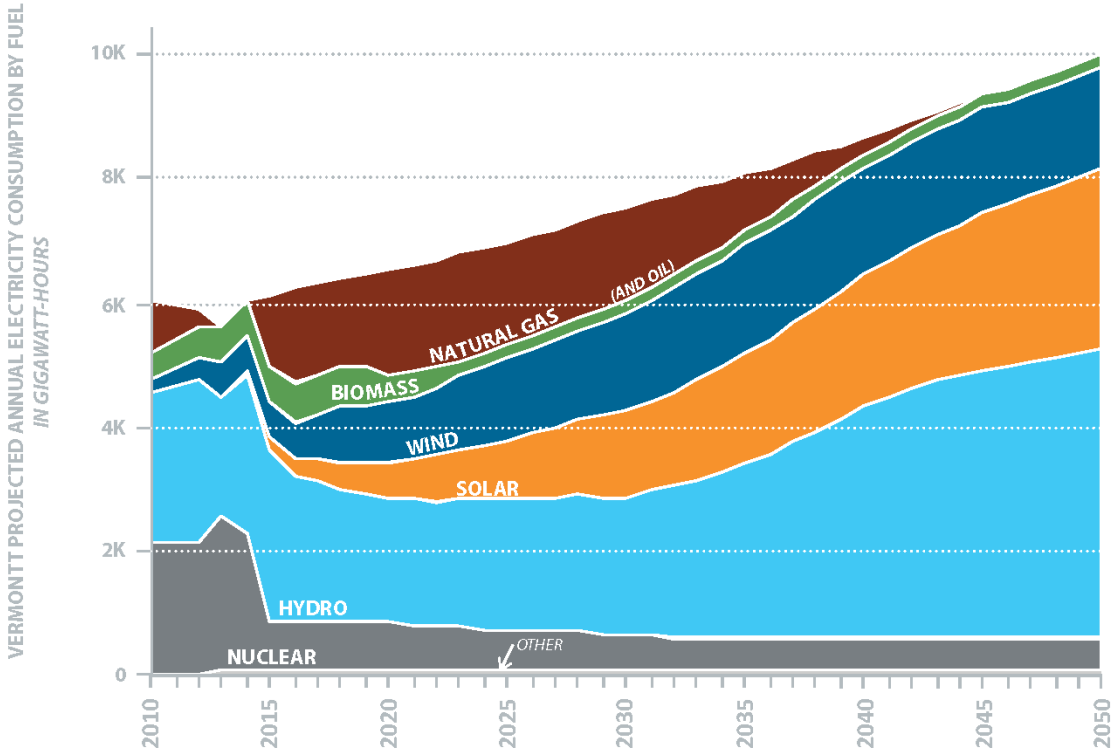
- Rail Service Improvements
  - Maintain (or restore) critical connection to Amtrak passenger rail station in Rensselaer
  - Greater use of freight rail, infrastructure repairs and upgrades





Electricity Generation and Use: 2020 - 2050



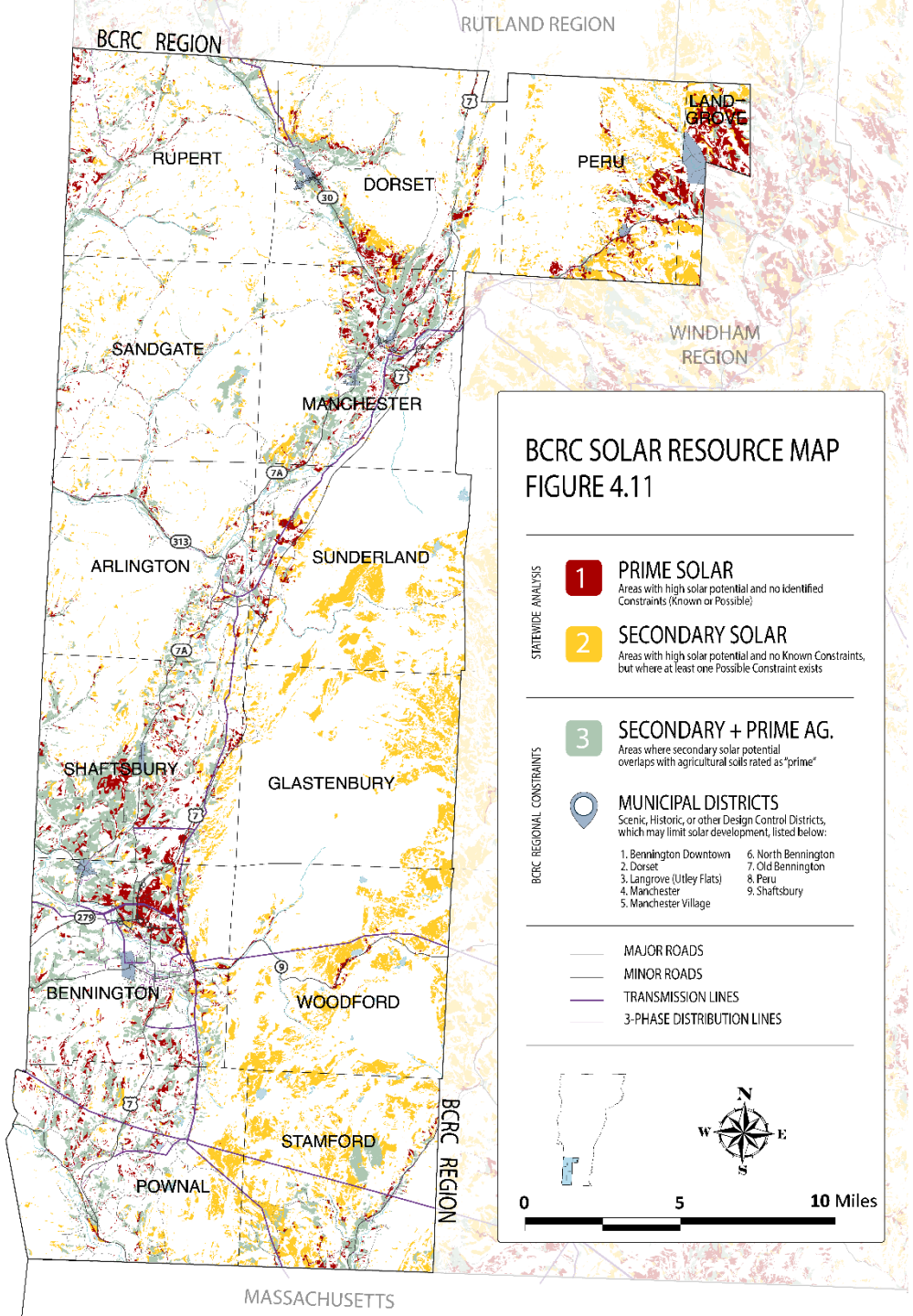


	YEAR	ELECTRICITY CONSUMPTION (GWh)	NEW HYDRO (MW)	NEW WIND (MW)		NEW SOLAR (MW)	
				Low	High	Low	High
VERMONT	2010	5,623	-	-		-	
	2025	6,991	25	65	122	405	608
	2035	8,073	50	260	488	840	1,260
	2050	10,044	93	260	488	1,500	2,250
BCRC REGION	2010	318	-	-		-	
	2025	381	1	9	17	19	30
	2035	421	1	18	34	38	60
	2050	473	1	18	34	68	107
			1	26		85	

Electricity Strategies/Regional Issues

- Energy Efficiency
  - Expanded Use of Efficiency Programs
  - Influence Behavioral Changes (consumer feedback programs, variable pricing and smart grid technology, other information resources)
- Transmission and Distribution Systems Recognize Increased Future Electricity Demand
  - Coordination with VELCO and GMP
- Support Local Electricity Generation from Renewables (example siting map next slide)
  - Solar and Wind (residential, commercial, and utility scale) in appropriate locations – close coordination with municipal energy planning: guidelines and preferred sites
  - Hydro potential is limited, but utilize at existing dam sites
- Recognize need for increased use of electricity and that imported electricity may be relied upon to a greater degree than originally anticipated

Final Regional Plan Map highlighting agricultural soils and locally-enacted scenic and design review/historic districts



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Municipalities' Input

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- What recommendations from municipal enhanced energy plans should the PSD actively consider as it updates the Comprehensive Energy Plan?

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Public Comments

- Please share your comments
- Please remember to speak clearly and concisely
- Thank you!

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Additional Opportunities for CEP Comment

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

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

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

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Thank You!

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