

1 CHITTENDEN COUNTY REGIONAL PLANNING COMMISSION
2 PLANNING ADVISORY COMMITTEE - MINUTES
3

4 DATE: Wednesday, December 8, 2021
5 TIME: 2:30 p.m. to 4:00 p.m.
6 PLACE: Virtual Meeting via Zoom with link as published on the agenda and in Main Conference Room at
7 CCRPC (no one attended in person)
8

Members Present:

Joss Besse, Bolton
Eric Vorwald, Winooski
Owiso Makuku, Essex
Ravi Venkataraman, Richmond
Meagan Tuttle, Burlington
Larry Lewack, Charlotte
Cymone Haiju, Milton
Ken Belliveau, Shelburne
Matt Boulanger, Williston
Jon Ignatowski, Bolton
Alex Weinhagen, Hinesburg
Paul Conner, South Burlington

Cathyann LaRose, Colchester
Robin Pierce, Essex Junction
Katherine Sonnick, Jericho
Adele Gravitz, Shelburne
Cymone Haiju, Milton
Darren Schibler, Essex

Staff:

Regina Mahony, Planning Program Manager
Melanie Needle, Senior Planner
Ann Janda, Energy Project Manager
Taylor Newton, Senior Planner

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10
11 **1. Welcome and Introductions**

12 Joss Besse called the meeting to order at 2:33 p.m. Joss welcomed new CCRPC staff member Ann Janda.
13

14 **2. Approval of September 8, 2021 Minutes**

15
16 Ken Belliveau made a motion, seconded by Alex Weinhagen, to approve the September 8, 2021 minutes. No further
17 discussion. MOTION PASSED.
18

19 **3. Draft Comprehensive Energy Plan & Act 174 Edits**

20 Regina Mahony explained that the draft Comprehensive Energy Plan (CEP) is a lengthy document, with changes and
21 format throughout and no table of contents. That made it challenging to synthesize in the presentation. Regina
22 Mahony also mentioned that staff have offered comments throughout the presentation as a starting point for
23 discussion. Ann Janda provided the PAC with a presentation on the **draft Comprehensive Energy Plan**. Ann Janda
24 began by explaining the presentation is not a comprehensive overview, rather it's focused on the concepts most
25 important to CCRPC and member municipalities. **The presentation is attached to these minutes.**
26

27 PAC comments/questions that followed the presentation:

28 Alex Weinhagen suggested that perhaps instead of adding another layer of review for building code enforcement (i.e.
29 HERS rating third party review), a better solution would be to train and license the builders and keep the
30 responsibility with them. Ann Janda stated the Plan does call for builder registry and education. Ann Janda added that
31 the third party reviewers would come in at the beginning of the building process, and at the end so the requirements
32 would be clear from the start. Darren Schibler concurred with Alex's comment and added that third party reviews
33 would add to the cost, and isn't the most efficient way to handle enforcement. Ravi Venkataraman also concurred
34 with licensing being the better solution, and added when Richmond was looking into the third party review it wasn't
35 clear if there were enough parties out there to do that work.
36

37 Regarding the solar siting/transmission issue, Darren Schibler suggested that perhaps these constraints could be
38 added to the enhanced energy plan mapping and/or have this issue be a component of the preferred sites as a starting
39 place. Taylor Newton added that another solution is for the PUC to establish geographic related pricing to incentivize
40 renewable energy projects in the most useful places, and avoid the most constrained places.
41

1 Ravi Venkataraman stated that he didn't see much mention of solar ready roofs in the draft CEP, and many roofs on
2 existing buildings are not solar ready. Is there a strategy to address this? Taylor Newton stated the RBES & CBES
3 codes are concerned with thermal, not energy generation. Taylor Newton further suggested that the most logical
4 strategy is likely to have municipal bylaws require solar readiness for large parking lots and buildings.

5
6 Joss Besse stated that it seems country-wide we have a major transmission capacity issue; and asked "who is
7 responsible for fixing this?" Taylor Newton stated that VELCO is responsible for this. Taylor Newton added some of
8 the infrastructure improvements are regional (ISO New England and all rate payers in New England share this cost);
9 while other infrastructure projects are state and distribution utility based. The projects will require a significant
10 amount of money. Regina Mahony stated that CCRPC made a comment on the VELCO Long Range Transmission
11 Plan that these issues can't be ignored and the state needs to prioritize infrastructure improvements. Regina Mahony
12 further stated that CCRPC will reiterate similar comments on the CEP.

13
14 Owiso Makuku asked a question about a point mentioned in the presentation regarding how weatherization projects
15 will be paid for. Owiso Makuku further added that tenants should not have to bear the cost of weatherization. Staff is
16 not certain how the weatherization program is intended to work and will circle back on this issue.

17
18 Melanie Needle provided a presentation on the **proposed Act 174 changes**, this presentation **is attached**.

19
20 PAC comments/questions that followed the presentation:

21 Paul Conner asked for an explanation of what "not applicable" would mean regarding a state constraint; is that an
22 option if a resource isn't within a particular town? Melanie Needle stated that it could be used to acknowledge that
23 there is a lot of pressure on land in Chittenden County for renewable energy generation since we have the most load,
24 and for other things like housing. And therefore, it might be logical to establish a balance within the energy planning
25 standards to acknowledge that not all constraints can be accommodated in all places. Regina Mahony added that
26 having a "not applicable" option, wouldn't prevent a municipality from acknowledging the resource as a constraint,
27 or upgrading it to a known constraint. Darren Schibler stated that he can see the need for some flexibility, but "not
28 applicable" may not make the most sense. Darren added, in the slides Option 3 offered some standards on how the
29 priority forest blocks could be mitigated and that might be the most helpful for solar developers. Darren Schibler also
30 added that it's odd to only forests as constraints, when they are also a resource for wood for heating. Alex Weinhalten
31 asked whether it matters what a municipality thinks about a constraint/resource, when it's the PUC that is going to
32 impose the constraints as the other state agencies want them to. Melanie Needle stated that at the moment the
33 discussion has been about adding the resource to the enhanced energy planning standards in Act 174; this doesn't
34 necessarily dictate the PUCs review criteria.

35
36 There was more discussion about confusion between the highest priority forest blocks and the priority forest blocks
37 and what's being added. Melanie Needle stated that the strikethrough version of the Act 174 changes in the agenda
38 does not include the addition of the priority forest blocks. This came later in a memo, which can be found [here](#).
39 However, the strikethrough version of Act 174 includes clarification on the individual resources that make up the
40 highest priority forest blocks. The individual resources were not called out specifically before, but Melanie Needle
41 stated that they were all included in the maps and data under the combined "highest priority forest block" resource.
42 Meagan Tuttle indicated that this was a question that she had. The strikethrough Act 174 standards now includes
43 "surface water and riparian areas" and she does not recall that these were included before. Melanie Needle will
44 review the maps again, and circle back with the PAC.

45
46 Meagan Tuttle also had a question about how the capacity issues line up with the priority wind/solar maps in the
47 enhanced energy plans. Is there alignment? Regina Mahony stated that unfortunately, we are not going to be able to
48 do all this analysis by the time we have to make comments on the draft CEP on 12/20. Some of this isn't going to be
49 worked out until we open up the ECOS Plan and incorporate these changes. And therefore, we don't know the full
50 effect on the municipal energy plans at this time either. Meagan Tuttle added that the CEP asks everyone to do more
51 (more solar, more EVs, etc.) but then at the same time puts more constraints on the land use; combined this has the
52 potential to be an un-workable challenge. Regina Mahony indicated that staff holds a similar concern, hence the
53 thought that perhaps "not-applicable" is a potential solution for bringing some balance to the situation. Paul Conner

1 reiterated that, even so, it doesn't seem quite right that a municipality could simply say "not applicable" on a
2 resource/constraint of state significance.

3
4 Meagan Tuttle had an additional question in the chat that was not discussed: does meeting energy targets include
5 ones in our plan already, or in the expanded targets in the CEP presentation?
6

7 Joss Besse stated that we need to wrap up this conversation and asked Staff for next steps. Regina Mahony thanked
8 the PAC for the comments, and asked members to provide Staff with any other comments as soon as possible as we
9 need to provide comments by December 20th.

10 11 **4. Building Homes Together Campaign Update**

12 Regina Mahony explained that most of the PAC should have received an email from Chris Donnelly at Champlain
13 Housing Trust regarding the campaign late last week. Regina Mahony added that the goals are 5,000 total
14 construction, with 25% affordable. Regina Mahony stated that most audiences they heard from said that 25% is not
15 enough; however the team wanted to keep the goal somewhat reasonable and we really hope that 25% is possible but
16 it will be hard. The plan is to announce the campaign to the press next week. Please sign on if you can; you can do it
17 individually.

18 19 **5. Legislative Items**

20 Regina Mahony stated that CCRPC had their Legislative Briefing yesterday, Tuesday, December 7th. The
21 presentation is located [here](#). Regina Mahony stated that broadband funding is a real challenge for non-
22 Communication Union District towns, and Charlie Baker suggested some flexibility to the funding program. Regina
23 Mahony indicated that these changes will probably be an uphill battle. Regina Mahony added that as of this week
24 Milton is our first Town to join a CUD – the Northwest CUD. This is a good reminder that joining an adjacent CUD
25 is an option. Regina Mahony also stated that there will likely be some bills on designations and Act 250 relief; we'll
26 talk more about that as the session starts.
27

28 Also Regina Mahony stated that CCRPC has an opportunity to receive some funding from United Way to assist with
29 retail cannabis preparation or bylaws. Melanie Needle provided examples of what that assistance might look like.
30 Regina Mahony asked the PAC to let us know if you'd like this assistance, because we may not participate in the
31 program if the assistance isn't needed.
32

33 **6. Members Items Open Forum**

34 No items mentioned.
35
36

37 **7. Regional Act 250/Section 248 Projects on the Horizon.**

38 Joss Besse asked the PAC to email Regina and Taylor any Act 250/Section 248 updates.
39

40 **8. Other Business**

- 41 a. The [FY23 UPWP Applications](#) were sent out before Thanksgiving. They are due on Friday, January 21,
42 2022. Please let Staff know if you have any questions or want to discuss any potential projects. Regina
43 Mahony asked the PAC to let staff know if they have any questions or want to discuss any projects.
- 44 b. VT Cannabis Control Board released [proposed Rule 1 – The Licensing of Cannabis Establishments](#) and
45 [proposed Rule 2 – The Regulation of Cannabis Establishments](#) on November 24th. Regina Mahony
46 mentioned that she has not reviewed these draft rules but wanted to let the PAC know that they are out there.
47 Alex Weinhagen mentioned that he reviewed them and provided some comments to Gwynn Zakov at VLCT
48 who is collecting comments now, prior to the official public comment period.
49

50 **9. Adjourn**

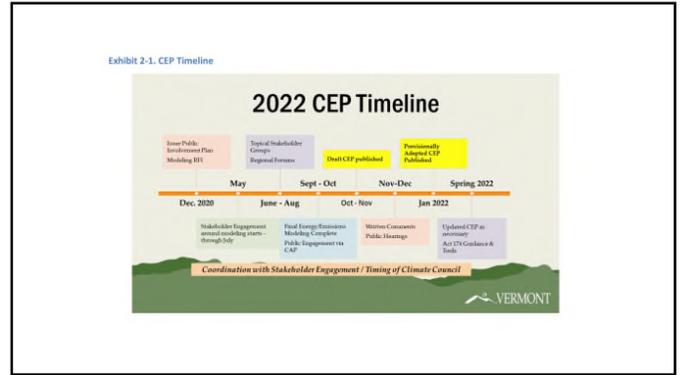
51 Meeting adjourned at 4:05pm.
52

53 Respectfully submitted, Regina Mahony

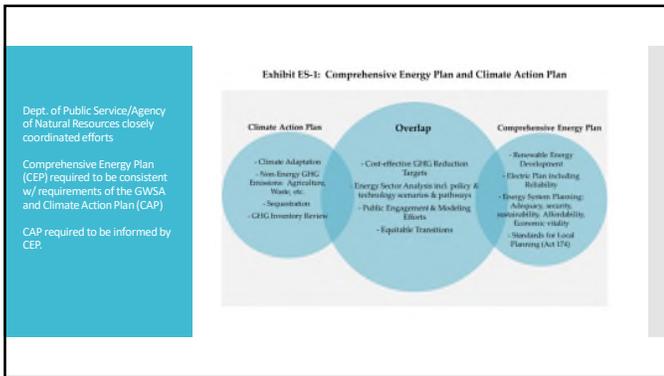
Draft 2022 Comprehensive Energy Plan (CEP) Debrief

Prepared by Ann Janda, Energy Project Manager
Chittenden County Regional Planning Commission

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The Department of Public Service (PSD) is required by 30 V.S.A. § 202b to update the Comprehensive Energy Plan (CEP) every six years.

General Purpose:

- Cost Effective GHG Reduction Targets
- Renewable Energy Development
- Energy Sector Analysis Policy and Technology Scenarios and Pathways
- Electric Plan - including reliability
- Energy System Planning Standards for Local Planning (Act 174)

Organized by:

- Equitable solutions and grid evolution
- Pathways, strategies, and recommendations

4

Targets

Renewable Energy: This CEP builds on and re-establishes the goals set in 2011 and 2016 CEP's:

- 25% of energy needs from renewable sources by 2025,
- 45% by 2035,
- 90% by 2050

Greenhouse Gas Reduction: The GWSA requires

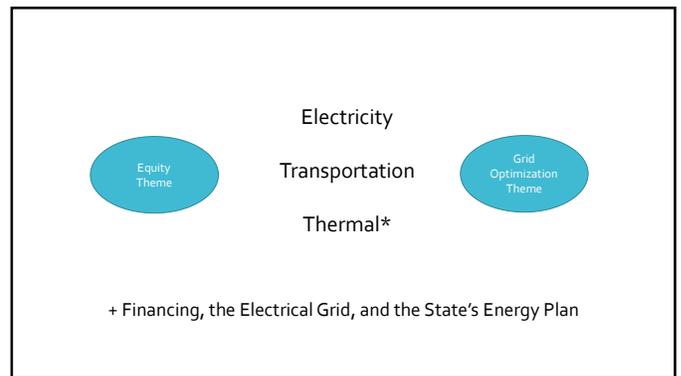
- 26% reduction from 2005 levels by 2025
- 40% reduction from 1990 levels by 2030
- 80% reduction from 1990 levels by 2050

This CEP shifts focus in the short-term from renewables to decarbonization. This will likely change some of the data on the regional energy plan and municipal energy plans.

Like the 2016 CEP, this draft Plan covers all energy sectors, and it sets **new goals for each sector:**

- Electric Sector:** meet 100% of energy needs from carbon-free resources by 2032, with at least 75% from renewable energy
- Transportation Sector:** meet 10% of energy needs from renewable energy by 2025, and 44% by 2040
- Thermal Sector:** meet 30% of energy needs from renewable energy by 2025, and 70% by 2042

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3. Achieving CEP Goals in a Just and Equitable Manner

Equity: The 2022 CEP references the Guiding Principles for a Just Transition developed by the Just Transitions Subcommittee of the Vermont Climate Council. As of 2021, all state agencies must now screen policy and budget proposals through a standardized Equity Impact Assessment (EIA) tool. Although developed before the Guiding Principles, the EIA tool addresses many of the same concerns.

3.4 Recommendations:

- 1) The Department of Public Service, as both the consumer advocate in regulated utility matters and as the State Energy Office, should develop a diversity, equity, and inclusion strategy to advance the transition to a just and equitable energy system for Vermonters and guide actions moving forward. Staff training opportunities in diversity, equity, and inclusion should be pursued to enhance agency capacity to understand, analyze, and integrate equity considerations in all policies and programs.
- 2) Equity should be considered as core criteria in all decision-making alongside least-cost and environmentally sound principles as defined within the statutes that guide energy policy in Vermont, including 30 VSA 202(a), 209, 218(c), 225, 248, 8005, and 8010, among others.
- 3) All strategies to promote the energy system transition should be designed to collect the robust and reliable data required to better understand baseline and historical inequities and measure progress towards remediating them.
- 4) The Department of Public Service should complete a review of existing practices and procedures protocols for energy-related public processes and recommend changes, as warranted, to encourage more inclusive and transparent engagement with Vermonters.
- 5) The Department of Public Service should continue working with sister agencies to establish and implement frameworks to consistently address issues of equity and justice across Vermont energy policy.
- 6) Act 174 enhanced energy plans completed by regional planning commissions and towns should include analyses of potential equity impacts of proposed policies, objectives, and goals included in the plans.

7

Electric Sector

Pathway – Carbon-free power supply

GOAL: be fully decarbonized and at least 75% renewable by 2032.

Expecting increased load from more EVs and heat pumps, particularly in winter.

Recommendation: Consider requirement for carbon-free power supply.

Currently no binding requirement beyond the 75% Renewable Energy Standard in 2032.

8

Transportation and Land Use

Transportation in VT produces more GHG emissions than any other sector (about 40%).

GOAL: Increase the number of electric vehicles in Vermont, and to have 100% light duty vehicles sales in Vermont to be Zero Emission Vehicles by 2035.

GOAL: Continue to prioritize Transportation Demand Management (TDM) due to its broad benefits.

9

Transportation and Land Use

Pathway – Vehicle Electrification

Recommendation: Accelerate Battery Electric Vehicle (BEV) Market Share Through Incentives

- New and Used Vehicle Incentive programs.
- MileageSmart, Replace your Ride
- Enhanced support for medium- and heavy-duty electric vehicles.

Recommendation: Facilitate Increased EV Market Share through Supporting Infrastructure and Policy

- Support for both DC Fast and Level 2 charging until free-market network can stand on its own.
- Participation in California's Advanced Clean Car program and adoption of California's Clean Cars II Regulations that will require 100% of light-duty vehicles available for sale in Vermont to be Zero Emission Vehicles.

Recommendation: Managing Electric Grid Impacts

- Load Management
- Efficient rate design

necessary to manage the impacts of electric vehicles to the grid while continuing to encourage PEV adoption.

10

Transportation and Land Use

Pathway – Cleaner Vehicles and Fuels

Combustion vehicles will be on the road for years to come. More fuel-efficient combustion vehicles and lower carbon-intensity combustion fuels (like biodiesel or renewable natural gas) could significantly reduce GHG emissions while the transportation sector electrifies.

Recommendation: Increase Vehicle Fuel Efficiency

Vermont can and should support increasingly stringent federal fuel efficiency standards and continue to explore options to improve the average fuel economy of the state's Vehicle Fleet.

Recommendation: Increase Targeted Use of Low-Carbon Fuels and Biofuels

including biodiesel, ethanol, compressed or liquefied natural gas, and potentially hydrogen— particularly in hard-to-electrify sectors.

Source: BENT FLAHERTY/CHINA, 2021

11

Transportation and Land Use

Pathway – Support Land Use Patterns that Increase Transportation Efficiency

Recommendation: Enhance Integration of Land use Planning into Transportation Decision Making Frameworks

Land use choices that support compact and mixed-use settlement can improve transportation system efficiency overall by reducing the distances between the places to which Vermonters travel regularly.

Exhibit 6-2. Vehicle Miles Traveled in Vermont, 2009-2019, in Millions

Source: US DOT, Bureau of Transportation Statistics

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VMT reduction - As of the 2021 Transportation Energy Profile, none of the 2016 CEP objectives are on track to reach the intended target. This CEP recommends more study of all the impacts of our car-centric society (such as pavement, concrete, urban heat islands, impervious surface runoff, etc.) to create more plausible goals.

2016 CEP Goal	Goal Number	Current Status per the 2021 Annual Energy Report*
Triple the number of state park-and-ride spaces	3,426	1,525
Increase public transit ridership by 110%	8.7 million annual trips	4.71 million annual trips
Quadruple VT based passenger rail trips	400,000 annual trips	149,795 annual trips
Double the rail freight tonnage in VT	13.2 million tons	6.7 million tons
Increase the percentage of EVs	10% of vehicle fleet	0.6%
Increase the number of HD and MD vehicles powered by renewable energy	10% of vehicles	4-10 transit and school buses; bio diesel ~0.02% of total fuel portfolio

13

Transportation and Land Use

Pathway – Increasing Transportation Choices

often called Transportation Demand Management, or TDM, like public transit, ride share, bicycling and walking, provide alternatives to getting around by single occupancy vehicle.

Recommendation: Provide Safe, Reliable, and Equitable Public and Active Transportation Options

Vermont already invests substantially in TDM options and should continue to do so.

Staff Note: TDM status quo not sufficient

14

Ann's Note:

Recommendations are found throughout the document under various items and strategies. The following tables are mine, not the documents.

15

Transportation and Land Use Recommendations

Recommendations	
5.4.1.1 New and Used PEV Incentive Programs	The Agency of Transportation should lead research to examine the optimal vehicle incentives that should be offered for each income category, the optimal amount of vehicle-eligibility cap, and the optimal income eligibility cap, given the principles of this CEP. Continue to support the PEV marketplace by continuing and enhancing new and used PEV purchase incentives, with a focus on ensuring equitable distribution of the burdens and benefits of such support.
5.4.1.2 MileageSmart Used High-MPG Incentive Program	Vermont should fund MileageSmart at levels that meet customer demand. Incentives for BEVs and PHEVs should reflect their contribution toward customer affordability and greenhouse gas reductions, and aim to help assure equitable participation in EV deployment.
5.4.1.4 Medium- and Heavy-Duty Vehicle Incentive Programs	Vermont should establish an incentive program for electric MHD vehicles to help move that market and should consider making this program available to not only individuals, but also commercial enterprises, including farms. Based on VTtrans study of technical feasibility and costs, and the outcome of ANR's Electric School and Transit Bus Pilot Program, determine the viability and cost-effectiveness of converting Vermont's diesel transit bus fleet to electric and implement recommendations of that study.
5.4.2.1 Continuing Support for Public Electric Vehicle Charging Infrastructure	Advance the implementation of the EVSE Deployment Plan currently under development by VEC for VTtrans, including public fast charging, workplace charging, and charging for residents of multiunit dwellings (such as apartments and condos).
5.4.2.2 Continue to Support Increase PEV Model Availability through Zero Emission Vehicle Memorandum of Understanding	Advance the Goal of the Vermont Legislature, as articulated in the Transportation Bill of 2021 (Act 95 of 2021) to have, as practicable, a level 3 EVSE charging port available to the public within 5 miles of every Interstate interchange and every 50 miles along state highways. This CEP sets a target for 80% of sales of all Light Duty Vehicles to be Zero Emission Vehicles by 2035.
5.4.2.4 Price-Transparency Systems for EVSE	Vermont should undertake the rulemaking process pursuant to ANR's existing authority to adopt the California's Clean Cars II Regulations. Provide staffing to the Agency of Agriculture, Food, & Markets to develop, implement, and enforce the EV charging program by implementing Handbook 330 requirements and training staff on the use of meters in preparation for NST to finalize protocols. Determine how to manage legacy EV charging infrastructure that does not meet NST Handbook 330 requirements, including a timeline for compliance or replacement of EVSE equipment.

16

Transportation and Land Use Recommendations

Recommendations	
5.4.1.1 New and Used PEV Incentive Programs	The Agency of Transportation should lead research to examine the optimal vehicle incentives that should be offered for each income category, the optimal amount of vehicle-eligibility cap, and the optimal income eligibility cap, given the principles of this CEP.
5.4.3 Strategy: Managing Electric Grid Impacts of PEVs 5.4.3.1 Rate Design	Encourage distribution utilities to include utility load management for all new home and workplace EV charging. This is best accomplished by establishing load management as the default for new EVs. Encourage regional and municipal plans to identify preferred locations for public serving DC fast chargers, such as downtowns and village centers. The Legislature has established a goal to locate DC fast charging within five miles of every interstate exit and within 50 miles of another fast charger on state highway network.
5.4.3.2 EVSE Demand Charges	Encourage distribution utilities to offer appropriate alternatives to standalone demand charges for public-serving fast chargers. Vermont utilities should consider offering rates that relieve fast charging load from traditional demand charges, provided that the rate covers marginal costs and reasonably protects the system from the burden of new coincident system peak loads.
5.7.1.1 State Smart Growth Designation programs	ACCD should simplify the programs that designate Vermont's settlement areas and support local policies and programs that provide a mix of equitable housing choices for both renters and homeowners. ACCD, in partnership with other State Agencies, should estimate the range of benefits, including energy and climate benefits, associated with land-use planning and transportation demand management investments.
5.8.15 Biking & Walking	AOT should evaluate the impact, including benefits and challenges, of the Complete Streets program to ensure that program is working as intended. This could include auditing or compliance inspections of municipally managed sidewalk and sidewalk projects in VTtrans Right of Way, and an understanding of how accessible, usable, and transparent the Complete Streets program is to municipalities, VTtrans, and partners.
5.8.1.6 Passenger & Freight Rail	Carry out the policies recommended in the Vermont Rail Plan for both freight and passenger rail. Encourage ridership on Amtrak service through continued marketing and outreach. Continue to improve rail infrastructure to reduce rail travel times.

Staff Note: Drive Electric VT is putting together best locations for chargers. Should prioritize chargers of Multi-Family Units.

Staff Note: Need to prioritize/fund water wastewater infrastructure for walkable communities.

17

Thermal & Process Energy Use

The heating of Vermont's buildings and the fueling of our industrial processes are responsible for 34% of the State's greenhouse gas emissions.

Approximately 25% of the energy used to heat buildings and provide process heat in industrial application currently comes from renewable sources, primarily wood.

This Comprehensive Energy Plan expands the target of increasing renewable thermal and process supply to

- 30% by 2025,**
- 45% by 2032 and**
- 70% by 2042.**

18

Thermal & Process Energy Use

Pathway – Reduce Thermal Energy Demand

Recommendation: Weatherization-At-Scale: This Comprehensive Energy Plan sets a new target of weatherizing 120,000 households by 2030, relative to a 2008 baseline.

Actions include devoting significant federal monies to kick start the pace of Weatherization, while building workforce and exploring opportunities for sustainable funding.

Recommendation: Encourage Efficient New Buildings

This Comprehensive Energy Plan maintains the target to achieve net-zero ready construction for all newly constructed buildings by 2030 through building energy standards.

Staff Note: This action does not address energy standards enforcement/compliance issues. See slide 28 for staff recommended action.

19

Thermal & Process Energy Use

Pathway – Enhance Low-Carbon Technology and Fuel Choices

Recommendation: Consider a Clean Heat Standard

Like a Renewable Energy Standard for electricity, a Clean Heat Standard would obligate heating fuel providers to increase retail sales of low carbon solutions and/or increase the supply of renewable fuels (e.g., biodiesel or renewable natural gas) or install clean heat measures (e.g., weatherization, advanced wood heat, or cold climate heat pumps).

20

Thermal & Process Energy Use

Pathway – Enhance Low-Carbon Technology and Fuel Choices

Recommendation: Continue to Encourage Cleaner Technologies and Fuels

Development of the advanced wood heat market, and support for district heat, biofuels, and alternatives to natural gas such as renewable natural gas, syngas, and hydrogen.

21

Thermal and Process Energy Use Recommendations

Weatherization at Scale

Actions Recommended by E&N as referenced in the CEP

- Increase funding** with a mix of State and Federal Funds. Use a mix of federal and State funds to support current programs and increase their reach over the next four years, funding a 40% increase in annual households served above current levels.
- Allow Clean Heat Standard carve-out for Weatherization.** If a Clean Heat Standard (a performance-based obligation on fuel providers, see Section 6.4.3) is implemented, Weatherization could be an eligible investment by which obligated entities could meet their requirements. However, because of the long payback period for weatherization investments, entities may choose other options to meet their requirements. Because weatherization achieves so many co-benefits and are often equitably distributed measures, a carve out for Weatherization—perhaps specifically directed to savings from low- and moderate-income Vermonters—is likely warranted.
- Support for On-bill Repayment.** As described above, Vermonters may have barriers to weatherization including split incentives or inability to secure or aversion to financing. Described further in Section 6.3.1.5, a “to-the-meter” financing mechanism is expected to be filed by distribution utilities, in partnership with Vermont Housing Finance Agency, in 2022. The pilot is intended to, if successful and fully funded, become self-supporting—meaning eventually funding from private sources of capital could be used to fund weatherization.
- Sustainable Weatherization Funding.** Longer-term sustained funding is necessary to continue to meet the State’s building energy objectives. See Sections 6.3.1.3–6.3.1.5 for descriptions of efforts aimed to develop sustainable funding sources.

Recommendations:	
6.3.1 Strategy: Weatherization at Scale – Driving Building Energy Efficiency Through Innovative Partnerships and Sustainable Funding Mechanisms	Support the recommendations outlined above, determining the appropriate near-term funding to dedicate toward weatherization in the 2022 Legislative session, and continuing to explore sustainable funding sources for weatherization.
6.3.3.4 Impact of Climate Change on Vermont’s Insurance Industry	PSD, DFR, and insurance industry stakeholders explore opportunities for collaboration on programs such as Weatherization that reduce energy use and reduce risk.

22

Thermal and Process Energy Use Recommendations*

Recommendations:	
6.3.2.1 Building Energy Standards	The Public Service Department’s energy code updates should put Vermont on a path so that all newly constructed buildings are net-zero ready by 2030. The Public Service Department should consider Societal cost-effectiveness as well as customer cost-effectiveness in analysis of code updates starting immediately. The Legislature should authorize the Public Service Department to adopt CBES stretch code by 2023, and authorize municipalities to adopt it. The Legislature should pass a builder registry requirement, with a goal that 100% of builders are registered with VT OPR and aware of the building energy standards and training opportunities by 2025. The Public Service Department should, in the next code update process, consider requiring all new constructed homes have a 200-amp service. Municipalities should consider requiring permitting and Certificate of Occupancy for building construction. They should also provide information on the Residential Building Energy Standards (RBES) and Commercial Building Energy Standards (CBES) when these types of permits are being applied for per status requirement. Municipalities should consider hiring a code official to review construction documents, receive RBES and CBES certificates, and enforce the building energy standards. If there isn’t enough construction to justify a municipal code official, perhaps a regional official could be paid by multiple municipalities. Municipalities should consider adopting beyond-basis code standards and adopt the stretch code versus other standards to maintain consistency across the state.

Staff Note: This action does not address energy standards enforcement/compliance issues. Conflicts with state statute. There should be statewide code and state enforcement with permits to pay for it or third party certification. See slide 28 for staff recommended action.

Staff Note: Also, a certain amount of weatherization should be required with any construction permit. Any substantial improvement should trigger a weatherization requirement.

23

Thermal and Process Energy Use Recommendations

Recommendations:	
6.3.2.2 Appliance Standards	Collaborate with other states with similar appliance standards to create a publicly accessible online database of qualifying equipment.
6.4.1 Strategy: Consider a Clean Heat Standard	Consider the adoption of a Clean Heat Standard for Vermont. The Public Utility Commission should, by January of 2023, complete a study the potential cost of a standard under different design parameters and expected measures, including the expected resources necessary to administer such a program. The Legislature should authorize the Commission to adopt a CHS if it can be structured to equitably meet G&C requirements at a reasonable cost to Vermont consumers.
6.4.1.1 Tier II of the Renewable Energy Standard (for distribution utilities)	The Public Service Department should continue to evaluate equity, cost, and measure savings of Tier II programs in its RES Reports.
6.4.1.2 Promote Electrification of Thermal Loads	Consider whether Tier II should become a part of any Clean Heat Standard. If Tier II is part of a CHS, ensure that CHS levels are set such that savings incremental to Tier II programs are made. Continue to encourage the installation of heat pumps, particularly in weatherized or already high-performing buildings to maximize the efficiency of heat pumps, and in partnership with Weatherization efforts. Encourage innovative designs that encourage heat pumps and manage their operation consistent with requirements of the grid.
	Enable Efficiency Vermont to continue to pursue refrigeration management alternatives to transform the heat pump market in Vermont to lower GWP refrigerants.

Staff Note: Consider funding a large consistent incentive across distribution utilities for cold climate heat pumps. Currently large incentives in some areas and very low in others. Could be written into Tier II standards.
Consider emissions standards or building performance programs for current buildings. See <https://www.2030path.org/energy>

24

Thermal and Process Energy Use Recommendations

This Comprehensive Energy Plan adopts a goal of meeting at least 35% of Vermont's total thermal demand with wood heat by 2030. To meet this target, this CEP recommends:

Recommendations:	
6.4.3 Developing the Advanced Wood Heat Market	<p>The State, when replacing end-of-life fossil fuel systems or building new buildings, should prepare a full cost-benefit analysis of replacement sources, including advanced wood heat. Such analysis should consider all environmental impacts. Separately from the benefit-cost analysis, the state should also consider the health of the forest products industry in its decision-making.</p> <p>Continue the sales tax exemption for advanced wood heat equipment that expires in June of 2023 to help address upfront costs of AWH systems.</p> <p>The Clean Energy Development Fund should encourage local manufacturing and processing of advanced wood heat fuels and other products in the wood heat supply chain, including all forms of wood fuel including cord firewood, pellets, green chips, and dry process chips, and support development of wood delivery infrastructure such as bulk pellet/chips trucks and wood fuel depots/silos.</p> <p>Provide training and education on the advanced wood heating systems for HVAC professionals to develop the advanced wood heating workforce.</p> <p>The Clean Energy Development Fund should conduct an education campaign to provide best practices on cordwood and wood pellet fuel, stove, and boiler/furnace selection, wood fuel storage, and operation and maintenance of wood burning appliances to promote the most efficient, clean, and cost-effective use of technology while protecting human and environmental health.</p> <p>The Clean Energy Development Fund should continue to support wood stove change-out programs, including supporting change-out programs to substitute fossil-fueled heating equipment with advanced wood heating equipment.</p>

25

Thermal and Process Energy Use Recommendations

Recommendations:	
6.4.3 Support District Heat	Vermont should continue to support development of cost-effective district heating systems, that are supplied by sustainably harvested biomass that equitably distribute the benefits of district heating as well as the costs.
6.4.3 Foster Greater Use of Biomass as Transitional Renewable Fuel	<p>Compare a biomass-based diesel blending requirement to a clean energy heat standard or other sector-wide requirement to determine whether one of these would be practical and effective. Such comparison should include a regional fuel market impact analysis.</p> <p>Advocate for reporting requirements for percentages of BBD in heating fuels to allow measurement of progress towards any implemented requirements and state renewable energy goals.</p> <p>In partnership with fuel dealers and others, transition heating fuel supplies to an appropriate level of renewable fuels, particularly for customers that will have difficulty transitioning to electric sources or lack access to capital to make an energy transition while avoiding locking into use of combustion-based technologies that could event to fossil fuels.</p> <p>Consider linking incentives provided to consumers for purchase of BBD with potential state resources that offset a portion of fuel dealer investments in BBD infrastructure and some form of performance-based policy such as the Clean Heat Standard.</p>
6.4.3 Natural Gas and Support for Renewable Natural Gas	<p>Complete the study of Vermont potential for Renewable Natural Gas as required by Public Utility Commission Order in Case 21-0019 P&T. Based on results of that study, consider ways to support cost-effective RNG development.</p> <p>Consider RNG or cleaner fuel requirements for Vermont Gas, first in the context of a Clean Heat Standard, and if a CHS is not pursued then independent of a CHS. Any RNG design should consider the benefits and burdens of RNG to all ratepayers.</p>

26

4 Grid Evolution

The CEP calls for Vermont's overarching goal for the grid of the future to be this:

A secure and affordable grid that can efficiently integrate, use, and optimize high penetrations of distributed energy resources to enhance resilience and reduce greenhouse gas emissions.

DERs

Distributed Energy Resource (DER) is any resource located on the distribution system, any subsystem or behind a customer meter such as electric storage, distributed generation (e.g. rooftop solar), thermal storage, electric vehicles, etc.

Pursuing grid modernization without clear objectives and a mechanism for understanding and navigating tradeoffs is a good way to end up with an unaffordable and inefficient grid that sub-optimally and inequitably integrates DERs with minimal impact on reducing emissions.

27

4 Grid Evolution

4.5 Vermont Distribution Grid Planning

Hosting Capacity Issues

In Vermont, given the high solar penetration (~40% of peak loads statewide, over 80% of substation transformer rated capacity in at least 41 substations and over 100% of substation capacity in at least 17 substations), additional interconnections are increasingly limited by substation transformer thermal overloads. The traditional approach is to upsize substation transformers – which have a cost of several million dollars apiece.

Future approaches to grid integration that might lower costs and increase PV penetrations include dynamic PV curtailment, advanced communication and control schemes, battery storage, and new, forward-looking planning approaches. These more innovative approaches could help unlock both distribution and transmission hosting capacity. One starting point might be to require all distribution utilities to create and maintain publicly accessible distribution hosting capacity maps using a common methodology.

28

Additional Staff Comment

Building Energy Code Compliance

CCRPC and Two Rivers RPC Staff Recommendation

Many municipalities have adopted enhanced energy plans that include the goal of ensuring that new and existing buildings meet or exceed the state's energy standards. However, ensuring the standards are met is challenging because 1) The energy code (RBES and CRES) allows for self-certification by builders, and 2) state statutes are vague regarding compliance. The energy code itself states that the Department of Public Service, who adopts the energy code, will not enforce energy code. Enforcement is then left up to municipalities, who are not explicitly given this task via statute, and lack the technical expertise or resources to ensure compliance. And although municipalities have the authority to adopt "Vermont Stretch Energy Code," which is a higher standard, tools to ensure compliance with the Stretch Code suffer from the same issues as those for the base code.

One possible solution for residential buildings is to adjust state statute to include the option for municipalities to be allowed to require a third-party Home Energy Rating System (HERS) rating to demonstrate compliance with RBES, rather than self-certification. A certified HERS rater would assist the builder in understanding and meeting the energy code. The certified HERS rater would verify if the energy code has been met through energy modeling and blower door testing. The HERS rating system would ensure residents are getting what they pay for, builders are limiting their liability, and municipal staff are able to simply verify the builder is working with a HERS rater before issuing a permit and confirm that the final rating number meets or exceeds the threshold set by the code.

One possible solution for commercial buildings is to include the option for municipalities to be allowed to require commercial builders to confirm that the final rating number meets or exceeds the threshold set by the code via a third party.

29



CHITTENDEN COUNTY RPC
Communities Planning Together

Proposed changes to Act 174 Standards

12/8/2021

1

Summary of Changes

- Updating, Clarifying, and Improving Organization
 - PUC, PSD, 2022 CEP
- Affirmative Determinations are still valid. Plans submitted after the 2022 CEP will need to meet these new standards
- State Goals and Policies are edited
- Targets: Establish
- Guidance is due out within 6 months of CEP being adopted
- New Standard: Equity Assessment (building, transportation, land use, generation siting)
- Statement of Policy replaced with policy and objectives
- Example Actions Updated
- Climate Resilience (buildings and land use)
- Storage and Transmission/Distribution
- Unambiguous policy language
- New data for Vernal Pools
- Preferred Sites References the need to be consistent with any net metering rulemaking
- Priority Forest Blocks as a possible constraint



2

Forest Blocks

- **Interior Forest Blocks** Forest blocks are areas of contiguous forest and other natural communities and habitats, such as wetlands, ponds, and cliffs, that are unfragmented by roads, development, or ag.
- **Connectivity Blocks** are the network of forest blocks that together provide connectivity at the regional scale and is that habitat blocks are connected to each other.
- **Act 174 Proposal**
 - Given the multiple values that forests provide, including carbon storage and sequestration, and restrictions on forest conversion proposed in the Public Utility Commission's net-metering rulemaking, the Agency of Natural Resources recommends that additional forest blocks—specifically, priority interior and connectivity forest blocks as identified in Vermont Conservation Design—be added as possible constraints.



3

1. **Option 1:** Add priority interior and connectivity forest blocks from Vermont Conservation Design as possible constraints under standard 12.C, with the possible addition of guidance clarifying that it is acceptable to treat possibly constrained lands as potentially developable for purposes of determining whether sufficient land is available to meet renewable energy targets (i.e., Standard 9.C).
2. **Option 2:** Add priority interior and connectivity forest blocks from Vermont Conservation Design as possible constraints under 12.C with a "not applicable" option and requirement that if "not applicable" is selected, justification for non-applicability based on the region's or municipality's ability to meet renewable energy targets is provided.
3. **Option 3:** In lieu of adding priority interior and connectivity forest blocks from Vermont Conservation Design as possible constraints, add a new standard that requires regions and municipalities to consider whether forest blocks and habitat connectors identified in regional or municipal plans pursuant to Act 171 should be treated as known or possible constraints and that policies for development and siting of renewable energy facilities be consistent with policies for forest blocks and habitat connectors. E.g.:

12.X. Does the plan (a) evaluate whether forest blocks or habitat connectors identified pursuant to 24 V.S.A. § 4348a(a)(2)(F) [for regional plans] and 24 V.S.A. § 4382(a)(2)(D) [for municipal plans] should be treated as known or possible constraints, and (b) ensure that policies established for the development and siting of renewable energy resources are consistent with policies for forest blocks and habitat connectors?



4

Staff Comments

- Option 2
 - N/A for all constraints
- New Data showing prime energy resource areas to account for updated constraints and transmission/distribution constraints
- Supporting guidance that suggests how to account for grid constraints in our estimation of a renewable energy potential



5

Impact on Renewable Generation Target is nominal



- Prime Solar = 8,659 Acres (1,327,057 MWh)
- Prime Solar Minus Priority Forest Blocks = 7,667 Acres (1,175,351 MWh)
- Huntington, Jericho, Richmond, Williston, Underhill, Essex Town, Westford
- Target (255,054 MWh to 501,196)



6

Known and Possible Constraints w/ Priority Forest Blocks



- Huntington, Jericho, Richmond, Williston, Underhill, Essex Town, Westford

TABLE 35. 100% SOLAR SCENARIO

Town Name	Prime Solar Acres	Prime Solar Subtotal (MW)	% of Total Potential in Prime Solar	Potential Solar Capacity (MW) (Prime Solar + Non-Prime)	Can Meet Load Target with Prime Solar Potential?	Can Meet High Target with Prime + Non-Prime Potential?
Barton	173	22	3%	26,537	0	0
North Ferrisburgh	9	3	2%	5,930	0	0
Burlington	71	9	3%	10,868	1	1
Charlotte	251	36	3%	44,506	1	1
Colchester	737	92	6%	114,870	1	1
Jericho + Ferrisburgh	883	130	8%	135,323	0	0
Windsor	817	204	10%	227,049	0	0
Huntington	400	51	2%	62,715	1	1
Jericho	575	72	3%	88,239	1	1
Madison	941	118	3%	144,402	1	1
Richmond	648	87	3%	84,618	1	1
West Ferrisburgh	258	25	2%	33,547	0	0
St. George	82	8	3%	9,343	1	1
Underhill	295	36	2%	328,914	1	1
Westford	750	95	3%	121,478	1	1
Williston*	938	92	4%	114,512	1	1
Windsor	214	29	1%	23,984	1	1
County Total	8,457	1,082	2%	1,827,827	11	11