Draft 2022 Comprehensive Energy Plan (CEP) Debrief

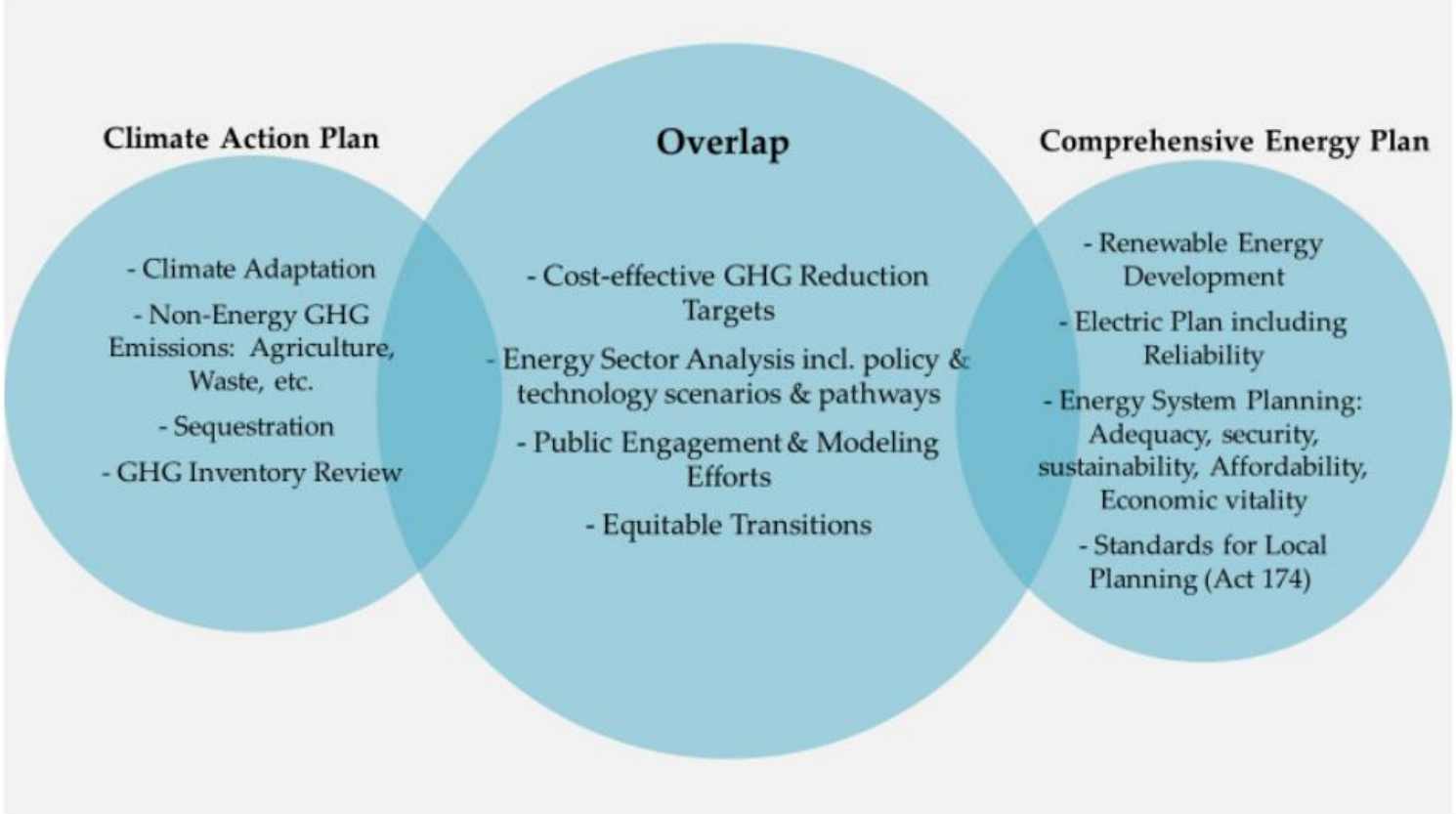
Prepared by Ann Janda, Energy Project Manager

Chittenden County Regional Planning Commission

Comprehensive Energy Plan (CEP) required to be consistent w/ requirements of the GWSA and Climate Action Plan (CAP)

CAP required to be informed by CEP.

Exhibit ES-1: Comprehensive Energy Plan and Climate Action Plan



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 New
- 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.

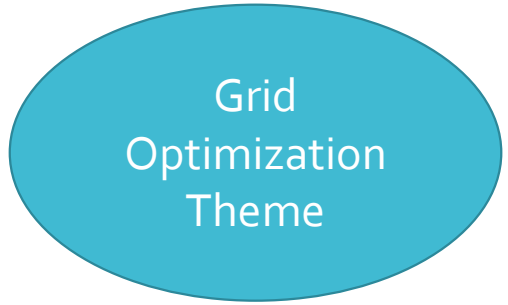
Like the 2016 CEP, this draft Plan covers all energy sectors, and it sets **new goals for each sector**:

- **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 45% by 2040
- **Thermal Sector:** meet 30% of energy needs from renewable energy by 2025, and 70% by 2042

Electricity

Transportation

Thermal



Transportation and Land Use

Responsible for about 40% of the States GHG emissions

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.

Transportation and Land Use

Pathway – Vehicle Electrification

Recommendation: Accelerate EV Sales 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.
- 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.

Transportation and Land Use

Pathway – Cleaner Vehicles and Fuels

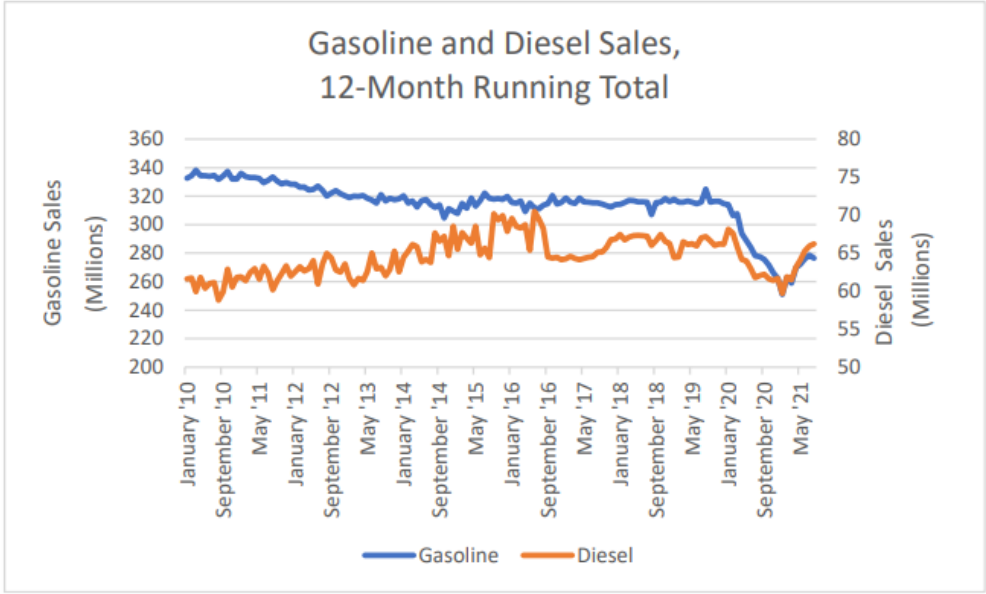
Combustion vehicles will be on the road for years to come. More fuel-efficient combustion vehicles and lower carbon-intensity combustion fuels (like biofuels or renewable natural gas) could significantly reduce GHG emissions while the transportation sector electrifies.

Recommendation: Increase Vehicle Fuel Efficiency

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 Use of Low-Carbon Fuels and Biofuels

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



Source: Joint Fiscal Office, 2021

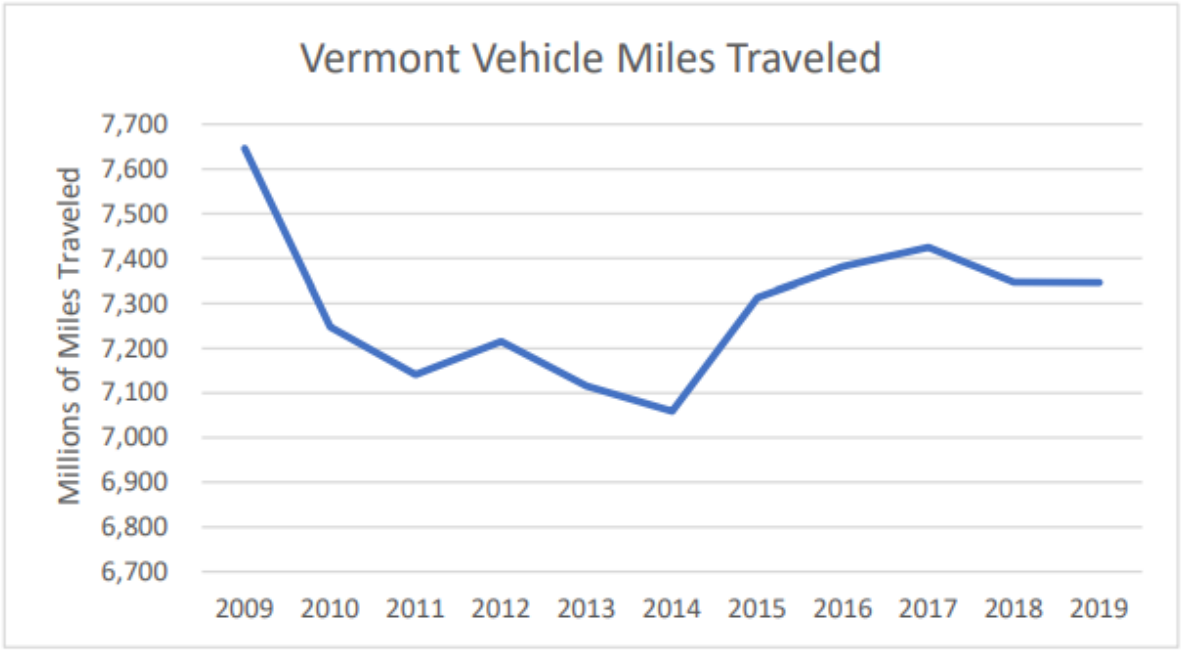
Transportation and Land Use

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 5-3. Vehicle Miles Traveled in Vermont, 2009-2019, in Millions



Source: US DOT, Bureau of Transportation Statistics

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

Thermal & Process Energy Use

Responsible for 34% of the State's GHG emissions.

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:

Recommendations Include:

- Weatherization (120 households by 2030)
- Net Zero Energy Code by 2030
- A Clean Heat Standard for heating fuel providers
- Encouragement of cleaner fuels, such as advanced wood heat, biofuels, etc.

4 Grid Evolution

4.5 Vermont **Distribution** Grid Planning

Hosting Capacity Issues

In Vermont, with high solar penetration, additional interconnections are limited by substation transformer thermal overloads. Upsizing substation transformers costs millions of dollars apiece.

Future approaches to grid integration that might lower costs 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 capacity maps.