

# Overview of Vermont's Climate Action Plan

26 PATHWAYS

64 STRATEGIES

234 SPECIFIC ACTIONS



# Global Warming Solutions Act

---

## **GWSA Enacted:**

September 23, 2020

---

## **1<sup>st</sup> Climate Council Meeting:**

November 20, 2020

---

## **Climate Action Plan adopted:**

December 1, 2021

---

## **Required updates:**

every 4 years

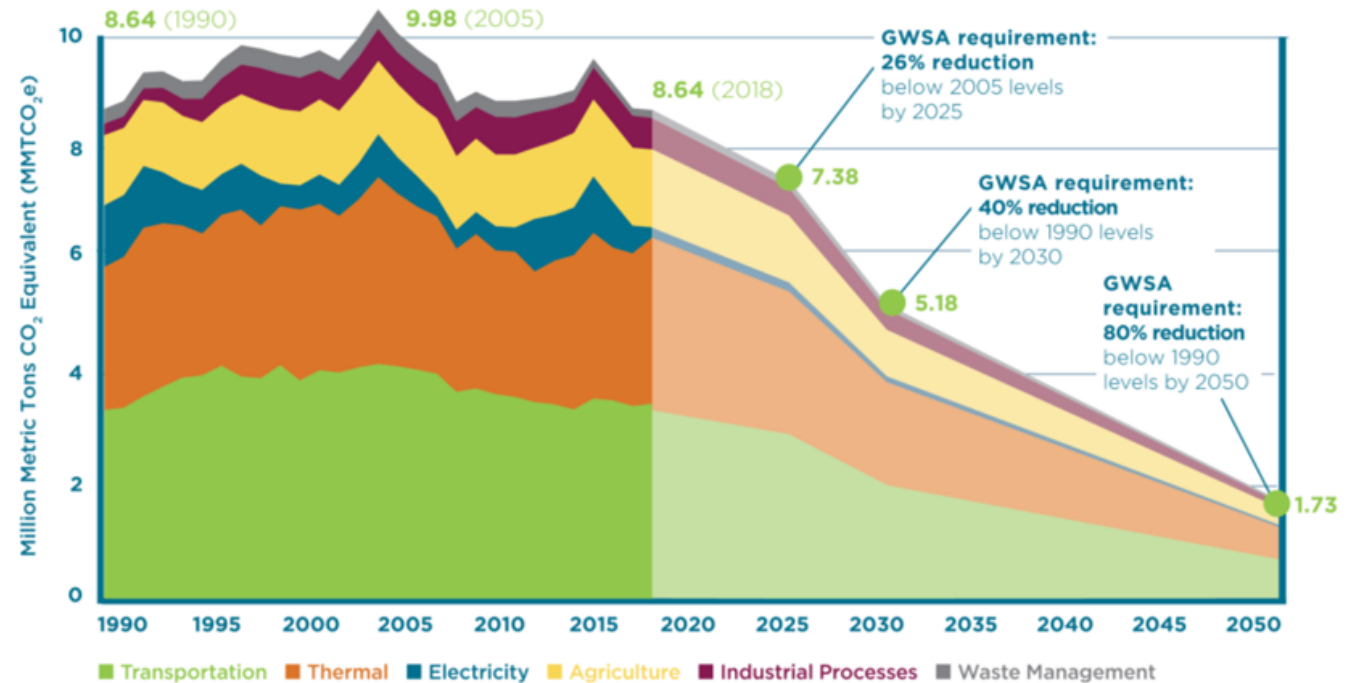
# Emissions Reductions Requirements

**By 2025:** 26% below 2005 levels

**By 2030:** 40% below 1990 levels

**By 2050:** 80% below 1990 levels

## Vermont's historical GHG emissions and future requirements



Source: Vermont Agency of Natural Resources, Vermont GHG Emissions Inventory and Forecast (1990-2017), 2021.

Climate  
Action Plan is  
organized around  
five areas:

emissions  
reductions

resilience and adaptation  
natural and  
working lands

resilience and adaptation  
communities and  
built environment

carbon  
sequestration  
and storage

cross-cutting  
pathways

# Equity Lens: Guiding Principles for a Just Transition

*A framework for the Climate Council and subcommittees to evaluate, adjust and prioritize recommendations based on how they will impact Vermont's impacted and frontline communities.*

**01**

**Ensuring  
inclusive,  
transparent,  
and  
innovative  
engagement**

**02**

**Creating  
accountable  
& restorative  
recommend-  
ations**

**03**

**Moving at the  
speed of  
trust**

**04**

**Incorporating  
solidarity to  
create  
inclusionary  
spaces**

**05**

**Prioritizing  
the most  
impacted  
first**

**06**

**Developing  
supports for  
workers,  
families, and  
communities**

This slide cut/pasted from the presentation used by VT Secretary of the Agency of Natural Resources, Julie Moore.

The Vermont Legislature will likely consider an Environmental Justice Bill this session

# The Plan has a 2021 Carbon Budget for Vermont

**AFOLU:**  
 Agriculture  
 Forestry  
 Other  
 Land  
 Uses

**Table 1<sup>59</sup>. Estimates of carbon stocks and fluxes of Vermont’s agriculture, forestry, and other land use (AFOLU) sector compared to the state’s greenhouse gas (GHG) emissions<sup>60</sup>.**

AFOLU sub-sector	Carbon storage (MMT CO <sub>2</sub> e)	Net carbon flux (MMT CO <sub>2</sub> e per year) <sup>61</sup>			Components
	2020	1990	2005	2020	
Agriculture	63	+0.70	+0.61	+0.49	Crops (including hay), fertilizers, livestock, management
Forests	1,859	-5.1	-3.2	-3.2 <sup>62</sup>	Forests, conversion to/from forests, harvested wood products (combustion, decay, and storage in use and in landfill)
Grasslands and shrublands	41	+0.06	+0.05	+0.05	Unmanaged and managed (e.g., pasture)
Wetlands and water bodies	57	-0.01	-0.01	-0.01	Wetlands and water bodies
Urban and developed	15	-0.26	-0.27	-0.28	Trees
<b>Net for AFOLU sector</b>	<b>2,035<sup>63</sup></b>	<b>-4.61</b>	<b>-2.82</b>	<b>-2.95</b>	<b>AFOLU sectors and components listed above</b>
VT GHG emissions <sup>64</sup>		+7.41	+8.68	+7.22	Electricity, heating, transportation, fossil fuel industry, industrial processes, waste management <sup>65</sup>
<b>Net of AFOLU sector and VT GHG emissions<sup>66</sup></b>		<b>+2.8</b>	<b>+5.86</b>	<b>+4.27</b>	<b>All sectors listed above</b>

Since 1990, wetland and waterbodies, grasslands and shrublands, and urban and developed lands saw fairly stable annual net flux rates, and emissions from the agricultural sector declined.

**Further investigation into this declining forest sector sink is warranted** and important to developing strategies for complying with the GWSA requirement that Vermont achieve net zero emissions by 2050.

# **Emissions Reductions** Pathways and Actions

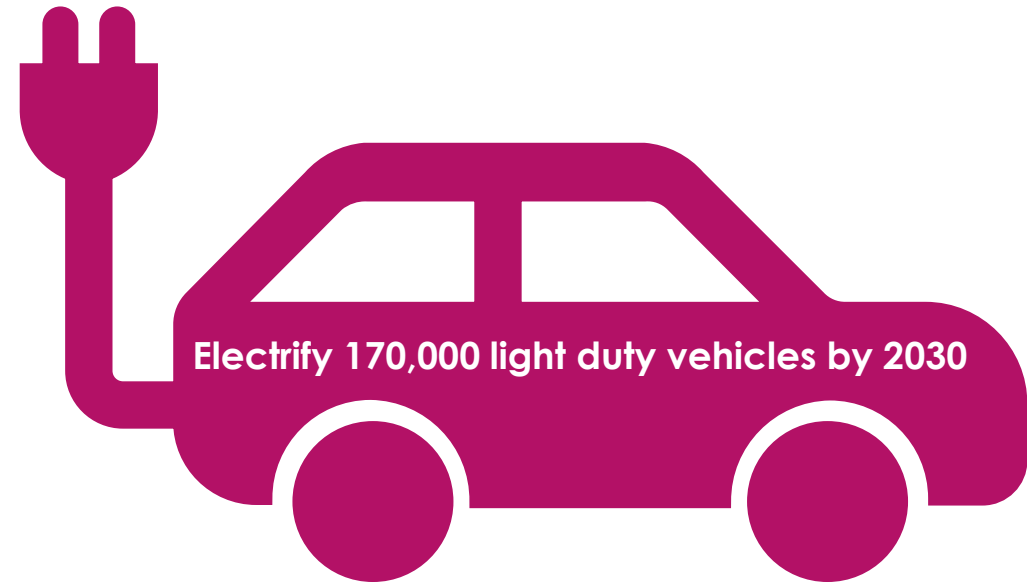
# **Transportation Sector**



## Transportation

### Pathway 1: Light Duty Vehicle Electrification via

- ▶ Regulation - By 2035 all car sales will be zero emissions
- ▶ Expanded Incentives - EVs and E-bikes
- ▶ Continued Equity Programs - Replace Your Ride, Mileage Smart, etc.
- ▶ More EV Charging
- ▶ Outreach and Education - EVs and VMT

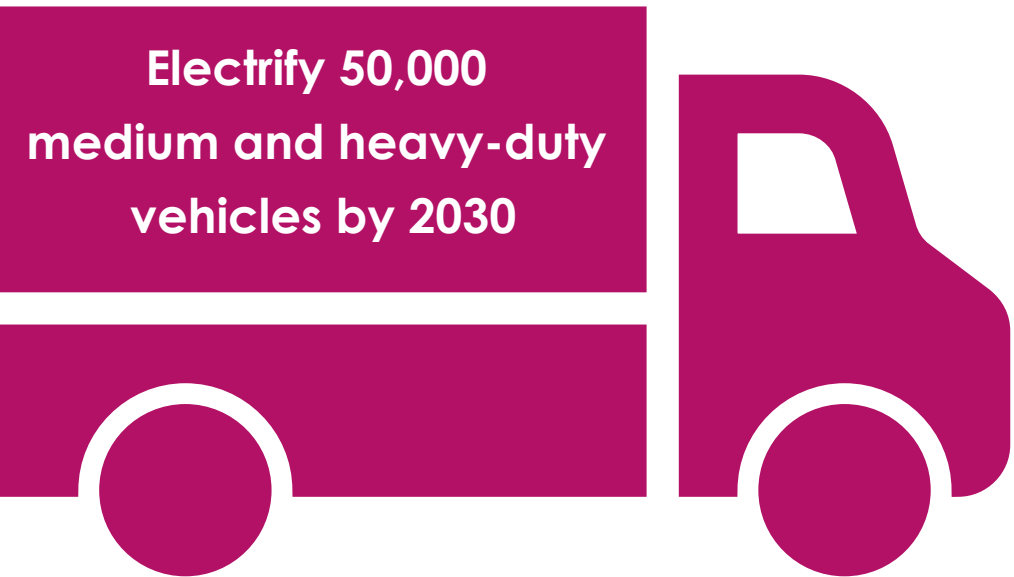


Currently there are  
4,360 EVs  
registered in Vermont

## Transportation

### Pathway 2: Heavy Duty Electrification via

- ▶ Regulation
- ▶ Incentives
- ▶ Idle Reduction Systems
- ▶ Electrify Truck Parking  
Spaces for Auxiliary Power



# Transportation Pathway 3: Reduction in Vehicle Miles Traveled (VMT)

## VTrans to create Transportation Implementation Plan:

- Smart Growth strategies
- Establishing VMT targets
- Increase public transit

## If feasible, affordable, and effective at reducing GHG emissions:

- Free public transit
- Expand and improve Amtrak/rail
- Enhance Complete Streets

# **Buildings & Thermal Sector**

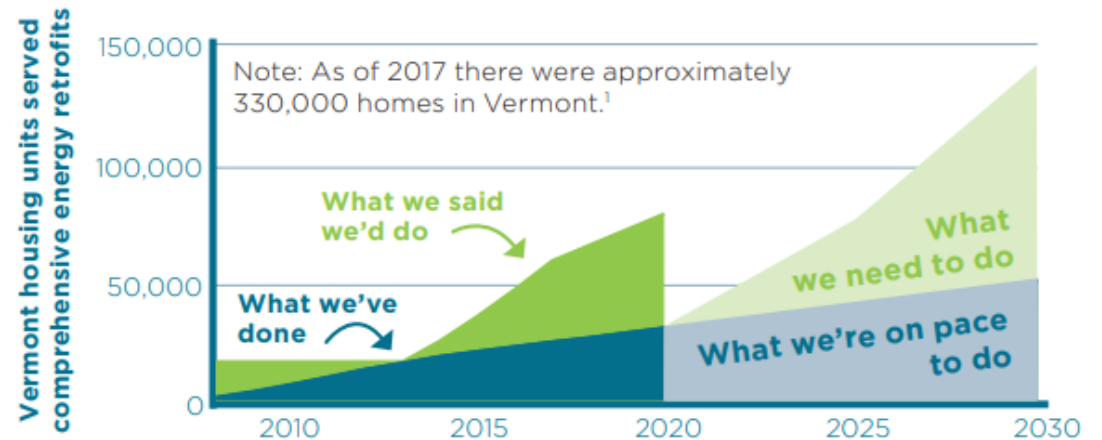


## Buildings & Thermal

### Pathway 1: Weatherization and Energy Code

- ▶ Weatherize 90,000 homes by 2030
- ▶ Workforce development (see next slide)
- ▶ Energy and financial coaching
- ▶ On-bill financing
- ▶ Efficiency standards for rental properties (RPES)
- ▶ Zero Energy Ready building energy code by 2030
- ▶ Code training and enforcement assistance to municipalities

## Weatherization: actual & projected



Sources: What We've Done: Vermont Department of Public Service, "2019 Report on VT's Progress Toward Building Energy Fitness Goals"; What we said we'd do: 10 V.S.A § 581. Others: EAN.  
1. Vermont Housing Finance Agency (VHFA), Vermont Housing Needs Assessment: 2020-2024, 2020.

Source: Energy Action Network Progress Report



## Buildings & Thermal

### Pathway 1: Weatherization and Energy Code

► Workforce development

**Table 1: Weatherization Workforce Estimates for Completing Weatherization Targets in the CAP**

	2023	2024	2025	2026	Cumulative
<b>Total Weatherization Projects (Cumulative)</b>	36,000	41,000	48,000	57,500	57,500
<b>New Weatherization Projects (Annual)</b>	3,500	5,000	7,000	9,500	25,000
<b>Crews Needed (Assuming 11 projects completed per year by a crew of 5)</b>	318	455	637	864	864
<b>Crew Members Needed</b>	1,590	2,275	3,182	4,318	4,318
<b>Office Members Needed (Assuming 1 per 10 crew members)</b>	159	228	318	432	432
<b>Energy Auditors Needed (Assuming 90 completed per year per auditor)</b>	39	56	78	106	106
<b>TOTAL NEW WORKERS – CUMULATIVE</b>	<b>1,788</b>	<b>2,559</b>	<b>4,215</b>	<b>5,720</b>	<b>5,720</b>
<b>TOTAL NEW WORKERS – ANNUAL</b>	<b>510<sup>6</sup></b>	<b>771</b>	<b>1,616</b>	<b>1,505</b>	<b>N/A</b>

Source: Vermont Climate Council December 29, 2021 Recommendations for Deployment of ARPA Funding to Support Climate Action Plan Implementation



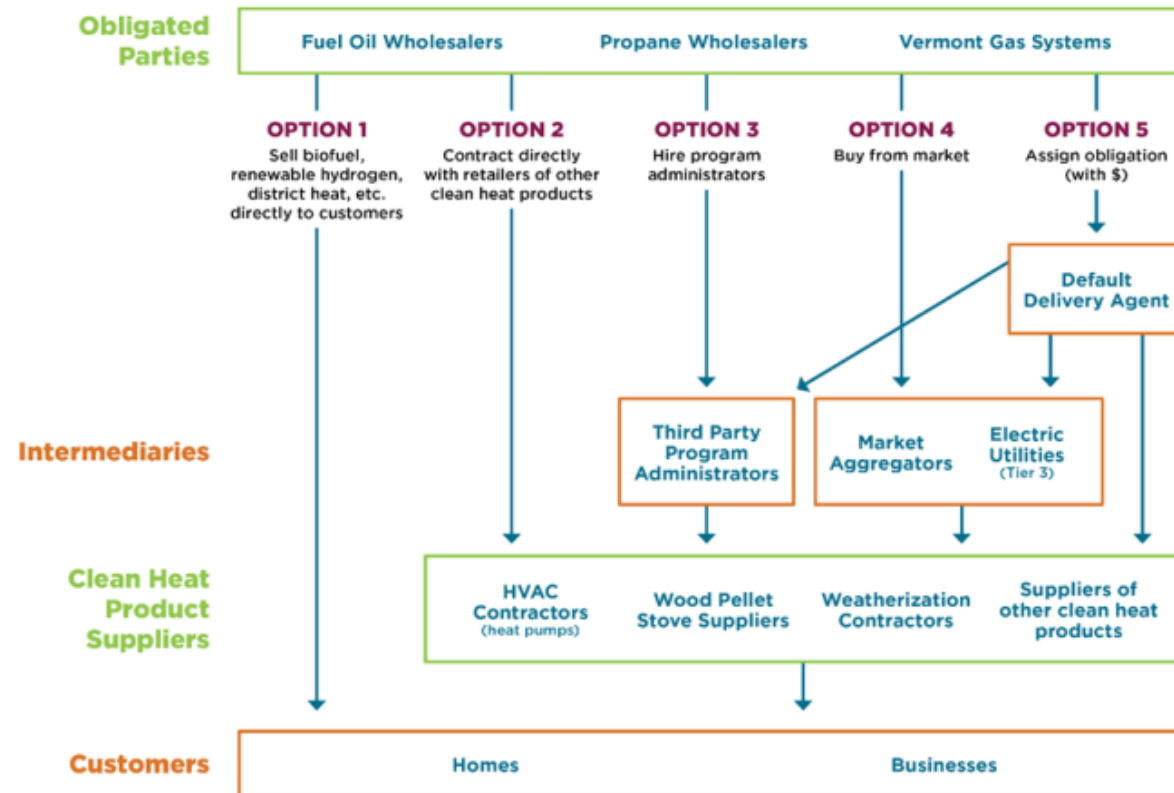
## Buildings & Thermal

### Pathway 2: Reduce carbon content of fuels

#### ► Clean Heat Standard for fossil fueled heat wholesalers

- Timeline to Implement - Legislation by the end of the current session (May 2022) followed by no longer than 18-24 months for administrative process, including program design, etc.

### Obligated Party Options



# Electricity Sector



# Electricity

Pathway 1: Further decrease GHG emissions from electric sector purchases

Pathway 2: Enable All Vermonters to Choose Electrification

Pathway 3: Load Management and Grid Optimization

## Key Actions

100% Carbon Free or Renewable Electricity by 2030

200-amp service

Utility load control programs

# **Agriculture Sector**

## Agriculture

Pathway: Reduce the sources of emissions and enhance the sinks of greenhouse gases

- ▶ Reduce tillage and increase vegetative cover
- ▶ Expand Capital Equipment Assistance Program (CEAP)
- ▶ Rotational grazing
- ▶ Integrate woody vegetation in agricultural production
- ▶ Edge-of-field practices that increase herbaceous and woody vegetation
- ▶ Restoration practices that support climate mitigation and resilience
- ▶ Nutrient Management and Amendments (e.g. biochar, compost)
- ▶ Methane capture and energy generation on farms
- ▶ Improved manure management and storage programs
- ▶ Feed management program to reduce enteric methane emissions

# **Non-Energy Sector**

# Non-Energy Emissions Pathways

Reducing Emissions of  
Refrigerants in Vermont

Reduce Process Emissions from  
Semiconductor Manufacturing  
in Vermont

Reduce Fugitive Emissions from  
Wastewater Treatment Facilities

**Resilience and Adaptation, Carbon  
Sequestration, and Cross Cutting Pathways**  
Noteworthy Actions

# Resilience and Adaptation Noteworthy Actions

## Land Use

- ▶ Low impact development
- ▶ Support smart growth
- ▶ Walking, biking and transit – increase investment
- ▶ Train local builders in small and mid-sized and accessory dwelling units
- ▶ Statewide conversation on land use and housing
- ▶ Increase Municipal Planning Grant (MPG) funds to support more housing
- ▶ Rolling planning grant for Neighborhood Development Area (NDAs) applications
- ▶ Multi-stakeholder committee process with funding to support the development of a statewide land use planning policy
- ▶ If a statewide land use planning policy and implementation plan is authorized, explore creation of a State Planning Office and/or other potential structure
- ▶ Significant revisions to Act 250 to support Compact Settlement (Cross Cutting Pathways)

# Resilience and Adaptation Noteworthy Actions

Support for Local Energy  
and Resilience Projects

- ▶ Climate and energy planning funding
- ▶ Evaluate Enhanced Energy Plans for ability to site renewable energy, avoid the conversion of working and natural lands, and loss of carbon sequestration
- ▶ Support electrification of municipal fleet vehicles
- ▶ Weatherization and Efficiency Navigators at RPCs
- ▶ Climate planning toolkit
- ▶ Natural resource position at RPCs
- ▶ Fund adaptation and resilience projects
- ▶ Require collection of fossil fuel usage data for municipal operations
- ▶ All utilities provide similar rebates, incentives



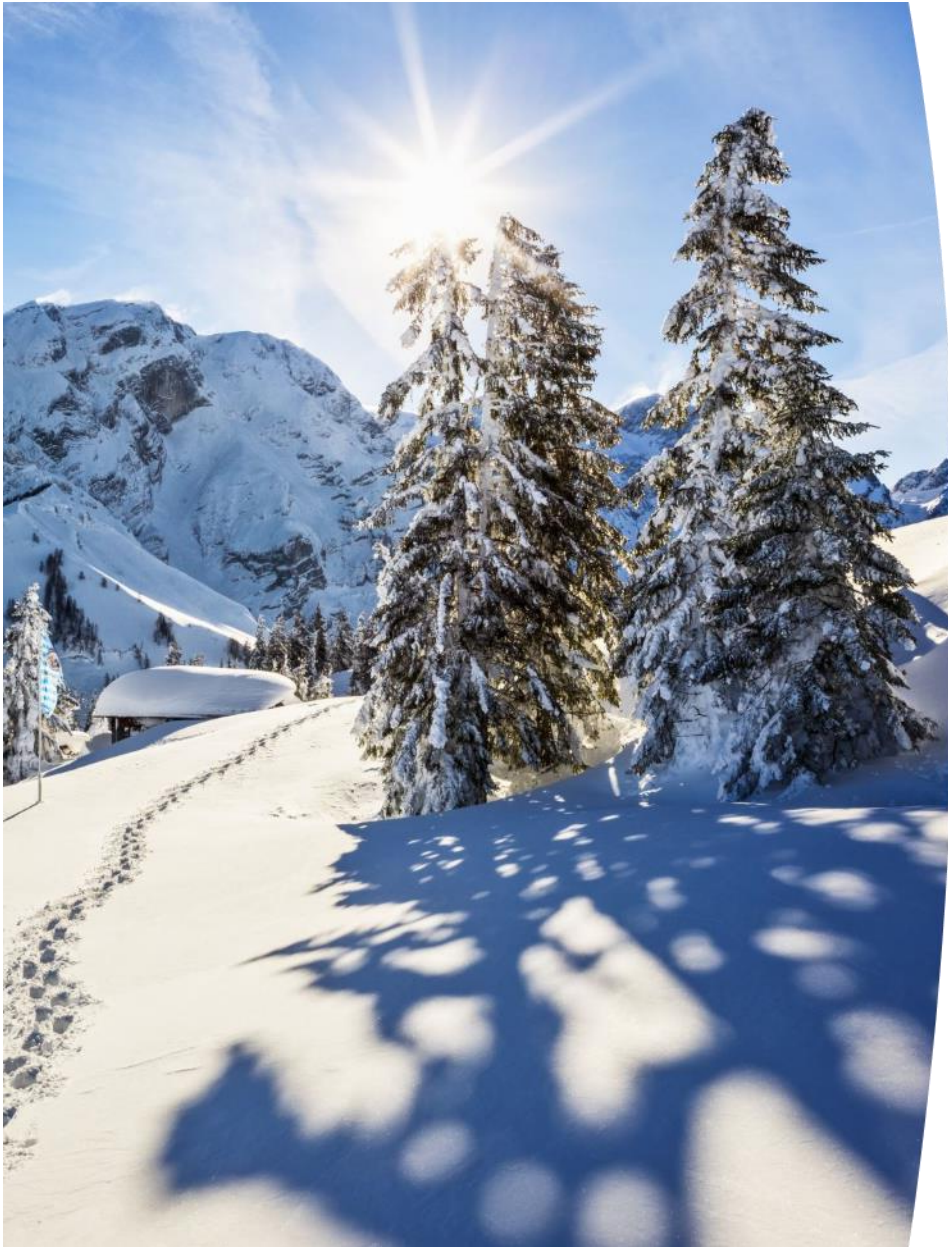
# Resilience and Adaptation Noteworthy Actions

Forest Health  
and Conservation

- ▶ Farmland Conservation & Protection tools - easements, Act 250, planning, zoning.
- ▶ Develop program for forest landowners for climate-adaptive management practices.
- ▶ Protect forest health and biodiversity on state and private lands
- ▶ Establish "climate resilience zones"
- ▶ Enhanced planning support to municipalities and regions to maintain forest blocks and connecting habitats
- ▶ Authorize ANR to have statewide jurisdiction and permitting authority for river corridors for all kinds of development.

# What Happens Now?

- ▶ Activity largely moves back into the Legislature to:
  - ▶ Identify high-impact policy priorities that will support durable environmental outcomes
  - ▶ Fully appropriate ARPA funds for climate action
  - ▶ Understand additional analyses and contractor support needed to fully achieve the requirements of the GWSA, including:
    - ▶ Advancing improvements to the emissions inventory and carbon budget
    - ▶ Establishing an approach for data collection and management to track progress
    - ▶ Creating a municipal climate toolkit, including vulnerability index
    - ▶ Continuing and expanded public outreach and engagement
  - ▶ Ensure diverse appointments to the Council, and support with just compensation



▶ The Council and subcommittee meetings are always open to the public:  
<https://climatechange.vermont.gov/getinvolved/calendar/month>

▶ The Council also welcomes comments through the portal on the Council's website:  
<https://climatechange.vermont.gov/getinvolved>