



**Natural Climate Solutions and the implementation of Massachusetts' GWSA**  
**January 22, 2020 Briefing**  
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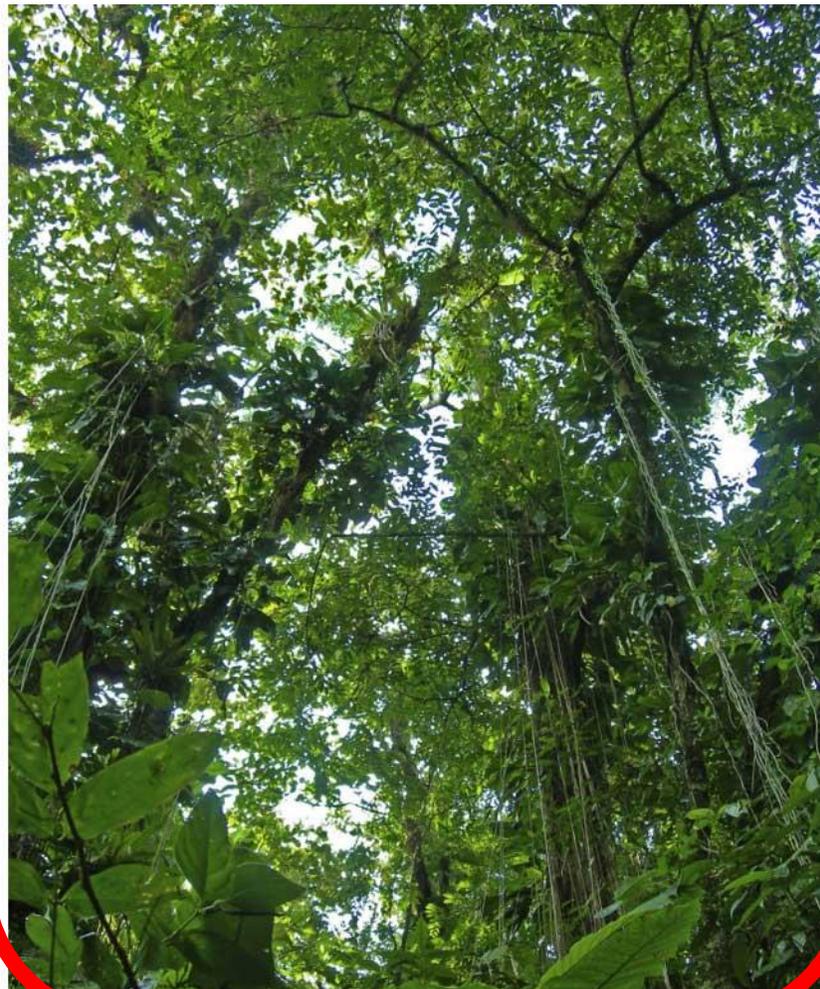
- I. Natural climate solutions:
  - a. What are they?
  - b. What is the opportunity in Vermont?
- II. The Global Warming Solutions Act in MA
  - a. Impressions
  - b. How might VT act differently?
- III. Nature in the GWSA: 4 reasons

# We know how to solve climate change...

REDUCE EMISSIONS



REMOVE EMISSIONS



ADAPT TO EMISSIONS



# NATURAL CLIMATE SOLUTIONS



## PROTECT, RESTORE & BETTER MANAGE



## FORESTS, FARMS & WETLANDS



Natural climate solution:

AVOIDED FOREST CONVERSION



Natural climate solution:

# IMPROVED FOREST MANAGEMENT



Well-managed forests and forest reserves absorb and store carbon for long timeframes, and provide wood products that also hold carbon and meet societal needs



Natural climate solution:

# TREE PLANTING



Natural climate solution:

## HEALTHY FARM SOILS



Natural climate solution:

# WETLANDS



# Natural Climate Solutions for the U.S.

National

State

1

Mitigation Potential  
(Million tons CO<sub>2</sub>e per year)

0

2014 net emissions  
Million tons CO<sub>2</sub>e per year

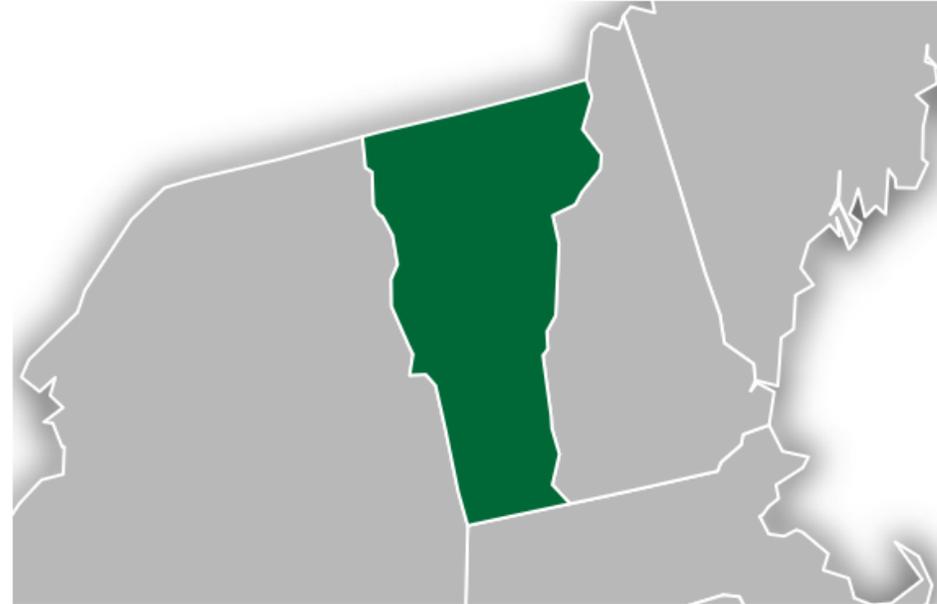
0  2 (Max NCS potential)

Vermont's Selected  
NCS Potential

Vermont

Full Extent

Click map to select state



## Mitigation Pathways ⓘ

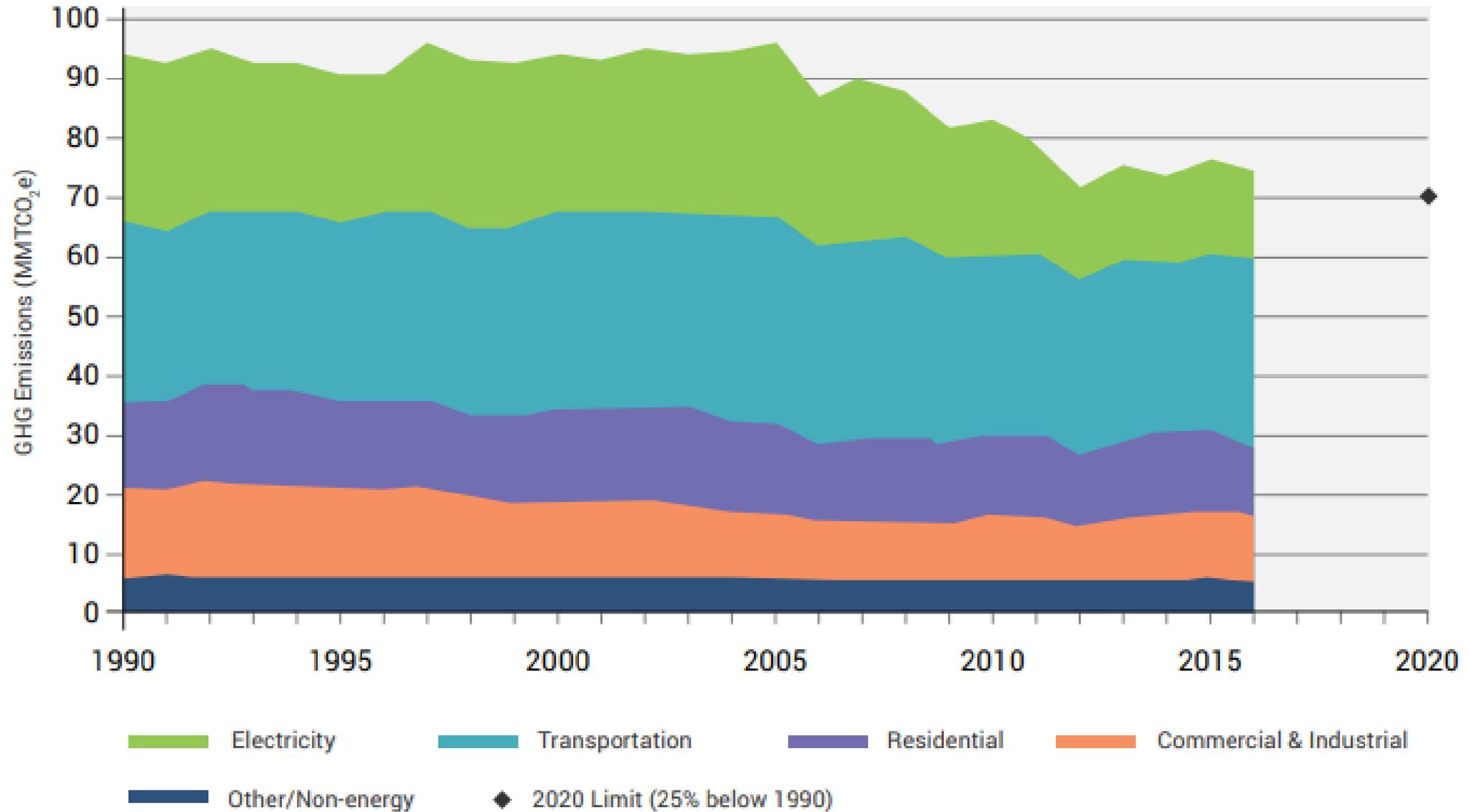
Marginal Abatement Cost  
\$ per ton of CO<sub>2</sub>e 🔒

Reforestation	Off	\$10	\$50	\$100	Max
Avoided Forest Conversion	Off	\$10	\$50	\$100	Max
Fire Management	Off	\$10	\$50	\$100	Max
Urban Reforestation	Off	\$10	\$50	\$100	Max
Avoided Grassland Conversion	Off	\$10	\$50	\$100	Max
Grassland Restoration	Off	\$10	\$50	\$100	Max
Alley Cropping	Off	\$10	\$50	\$100	Max
Cover Crops	Off	\$10	\$50	\$100	Max
Cropland Nutrient Management	Off	\$10	\$50	\$100	Max
Improved Manure Management	Off	\$10	\$50	\$100	Max
Improved Rice Cultivation	Off	\$10	\$50	\$100	Max

Pathway	NCS Mitigation (Mt CO <sub>2</sub> per year)	Area Available (million acres)
Reforestation	1.01	0.33
Avoided Grassland Conversion	0.15	0
Avoided Forest Conversion	0.11	0.01
Cover Crops	0.08	0.17
Alley Cropping	0.05	0.02
Cropland Nutrient Management	0.02	N/A
Improved Manure Management	0.02	N/A
Grassland Restoration	0.01	0
Urban Reforestation	0	0
Fire Management	N/A	N/A
Improved Rice Cultivation	N/A	N/A

# The Global Warming Solutions Act in MA

**FIGURE 2 | MASSACHUSETTS GHG EMISSIONS, 1990 – 2016**

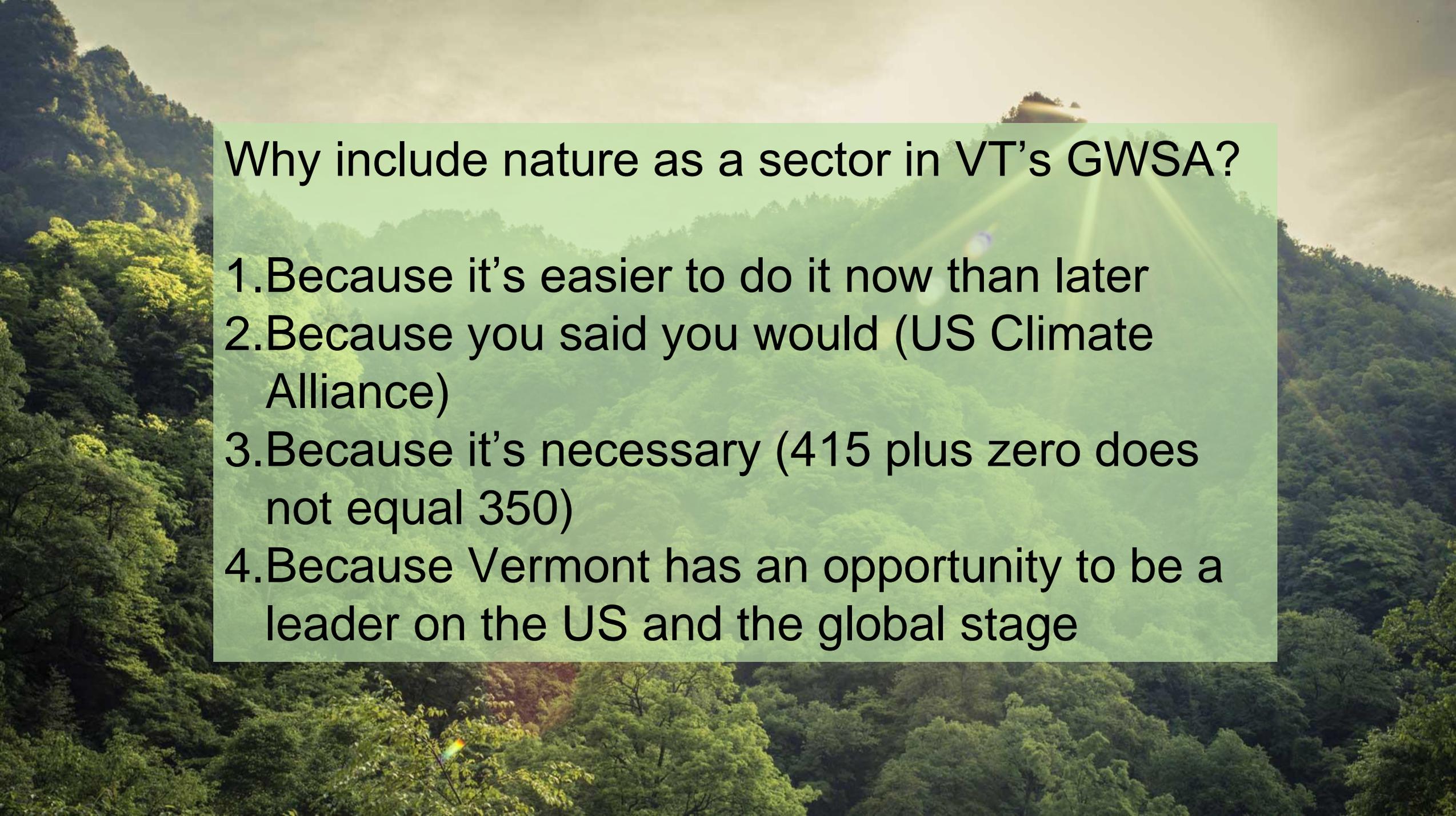


## ***Global Warming Solutions Act successes include:***

- Public-private partnerships (weatherization)
- Aiming big (80x50 study)
- Including adaptation (EO 569 and GWSA Adaptation plan)

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- Still room to more fully incorporate natural climate solutions (lands as a “sector”)

A scenic view of a forested mountain range. The foreground shows dense green trees, while the background features rolling hills and a sun flare in the sky. A semi-transparent green box is overlaid on the image, containing text.

## Why include nature as a sector in VT's GWSA?

1. Because it's easier to do it now than later
2. Because you said you would (US Climate Alliance)
3. Because it's necessary (415 plus zero does not equal 350)
4. Because Vermont has an opportunity to be a leader on the US and the global stage

# Natural Climate Solutions – Opportunities in Vermont

Phil Huffman | *Dir. Government Relations & Policy, TNC VT*



- Vital part of “silver buckshot” for climate change
- Co-Benefits of Natural Climate Solutions
- Connects to other VT policy efforts and ongoing work
- Key principles for offsets and payment/credit frameworks
- The Nature Conservancy’s position on H.688