



# 2016 Vermont Comprehensive Energy Plan



# Comprehensive Energy Plan

## *Team Effort*

### **State Government**

- Public Service Dept.
- Agency of Natural Resources
- Agency of Transportation
- Agency of Agriculture, Food, & Markets
- Agency of Commerce & Community Development
- Agency of Human Services
- Dept. of Bldgs & General Services

### **Community & Business Partners**

- Public Comments
- Utilities
- Energy Services Companies and Consultants
- Public Interest Organizations and Community Groups
- Business Community
- Town Energy Committees

# Public Process

*Thank you VECAN*

## **Prior to draft**

- Regional forums in
  - Woodstock
  - Middlebury
  - Manchester
  - St Albans
- General written comments
- Topical forums on
  - energy efficiency
  - energy supply resources
  - transportation
  - electric grid/utility issues
- Online survey

## **Following draft**

- Hearings in
  - Lyndonville
  - Essex
  - Montpelier
  - Westminster/Bellows Falls
- General written comments

# Major themes

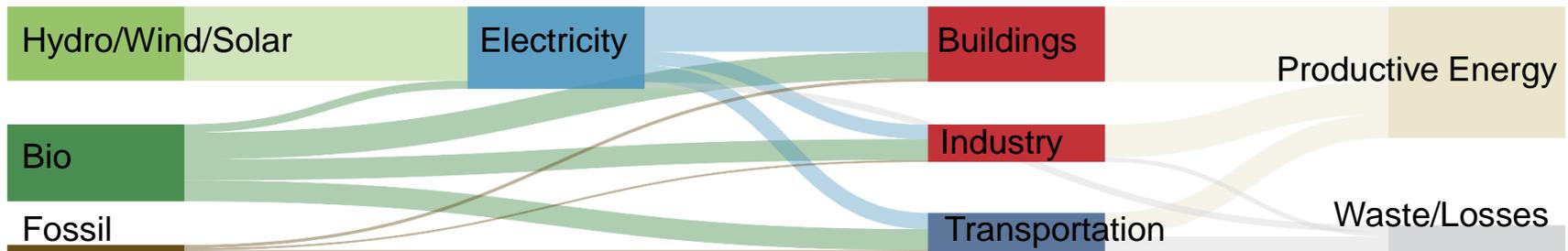
- Clean energy jobs
  - 1 in 16 workers employed in clean energy jobs
  - Up 29% since 2013
- Affordable and stable energy supply
  - Retain our energy dollars
  - Stable and low electric rates
- Focus on most vulnerable Vermonters
  - Low-income efficiency and weatherization programs
  - Heat saver loan and other financing options
  - Codes and standards

# What the CEP does

Scale of the transformation needed in

1. Buildings,
2. Transportation
3. Electricity

One illustrative distribution of energy - 90% by 2050



# What the CEP does

Provides **over 300** specific recommendations

Example:

*“Build on prior activities to evaluate finance tools currently available that have potential to accelerate renewable energy and energy efficiency deployment (e.g., Heat Saver Loan, PACE, VEDA commercial loans, CEDF incentives, on-bill programs, etc.) and expand the use of those tools as appropriate.”*

Example:

*“Additional thermal efficiency funding should consider how to best provide services to lower-income households that do not meet eligibility requirements for Weatherization Assistance Program services. Investigate potential opportunities, such as “do-it-yourself” programs, no-interest loans, and needs-based tiered incentives for those who are unable to afford efficiency measures.”*

# What the CEP Does NOT do

- Does not address particular projects
- Does not presume to know every choice we will make along the way
- Is not a climate change plan
  - non-energy related GHG emissions not included
  - Adaptation and resiliency planning not included

**For more information on the energy plan go to:**

**<http://energyplan.vt.gov>**



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# Goals in Statute

- Meet energy needs in a reliable, secure, sustainable, and affordable manner. (30 V.S.A. § 202a)
- Renewable policies that promote economic benefit, efficient use of resources, stable prices, market development, air and water quality, grid stability, climate change mitigation, and diversity of resources. (30 V.S.A. § 8001)
- 25% renewable by 2025. (10 V.S.A. § 580(a))
- 50% GHG emission reduction by 2028, and 75% (if practicable) by 2050. (10 V.S.A. § 578(a))
- Building efficiency – weatherize 25% of housing stock by 2025. (10 V.S.A. § 581)

# Requirements in Statute

- Renewable Energy Standard will grow the share of renewable energy in Vermont's portfolio through market-based mechanism (renewable energy credits). (30 V.S.A. § 8005)
  - 55% renewable in 2017, rising 4% every three years to 75% in 2032; and
  - 1% from distributed generators connected to Vermont's electric grid in 2017, rising 0.6% per year, to 10% in 2032.
  - Energy transformation projects will reduce fossil fuel use. Equivalent of 2% of retail sales, escalating to 12% in 2032.
- Standard Offer Program provides for long-term contracts for resources that are 2.2 MW or less (up to 127.5 MW). (30 V.S.A. § 8005a)

# Efficiency – 3 ways

- Continuing improvements in thermal and electric efficiency.
- Fuel switching away from combustion technologies to more efficient electric-powered technologies. (e.g. EVs are 3-times more efficient than combustion engines.)
- Declining source energy requirements of electricity generation because fossil generators are inefficient at capturing primary energy.

# Buildings

## Goals:

- 30% renewable by 2025
  - One way to get there:
    - Building shell improvements reduce heat demand by 14%
    - Heat pumps in ~15% of homes
    - Increase use of wood and/or bioheat by 20%
- All new buildings net zero by 2030
- Advanced wood heat technologies and sustainable forestry must be a priority.

# Transportation

Goal: 10% renewable by 2025

One way to get there:

- Keep vehicle miles traveled (VMT) per capita at or below 2011 levels
- 10% of all light-duty vehicles plug in
- 10% average bio-content in diesel

# Electric Power

Goal: 67% renewable by 2025

Electrifying heat and transport will increase electric energy demand:

- Load control on new electric demand is key.
- Storage, demand response, and smart rates will play a more important role.

