



ENERGY FUTURES GROUP

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Energy in Act 250

TESTIMONY TO VT HOUSE NATURAL RESOURCES, FISH & WILDLIFE

Richard Faesy

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Overview

- Who I am and my experience in Vermont
- Vermont's energy and climate goals
- How can Act 250 help support our goals?
- Beneficial electrification
- What specifically should Act 250 do to support clean energy?

Richard Faesy

- 30 years in the energy efficiency industry in Vermont
- Residential buildings expertise
 - LEED, HERS, US DOE Home Energy Score certifications
- Program and policy experience
 - Throughout the U.S. and Canada
- Vermont energy industry involvement
 - Chair, Energy Coop of Vermont
 - Board member, Building Performance Professionals Association (BPPA)
- Starksboro resident
 - Chair Starksboro Energy Committee
- Partner in Energy Futures Group
 - Hinesburg, Vermont clean energy consultancy

About Energy Futures Group

Vermont-based clean energy consulting firm established in 2010

Areas of Expertise

- Energy Efficiency & Renewable Energy
- Program Design
- Policy Development
- Expert Witness Testimony
- Building Codes
- Evaluation
- Cost-Effectiveness

Range of Clients

- Government Agencies
- Advocates
- Regulators
- Utilities

Clients in 39 states and provinces plus regional, national and international organizations.



Framework

- Energy is core to environmental stewardship
- Climate change is real and needs to be considered
 - Electric system
 - Transportation
 - Thermal (heating our buildings and water)
- Frames to consider
 - 90% renewable energy by 2050 goal in Comprehensive Energy Plan
 - Consistency with greenhouse gas (GHG) goals
 - New construction zero energy designed by 2030
- Incorporate efficiency and resiliency considerations

Vermont's Energy & Climate Goals

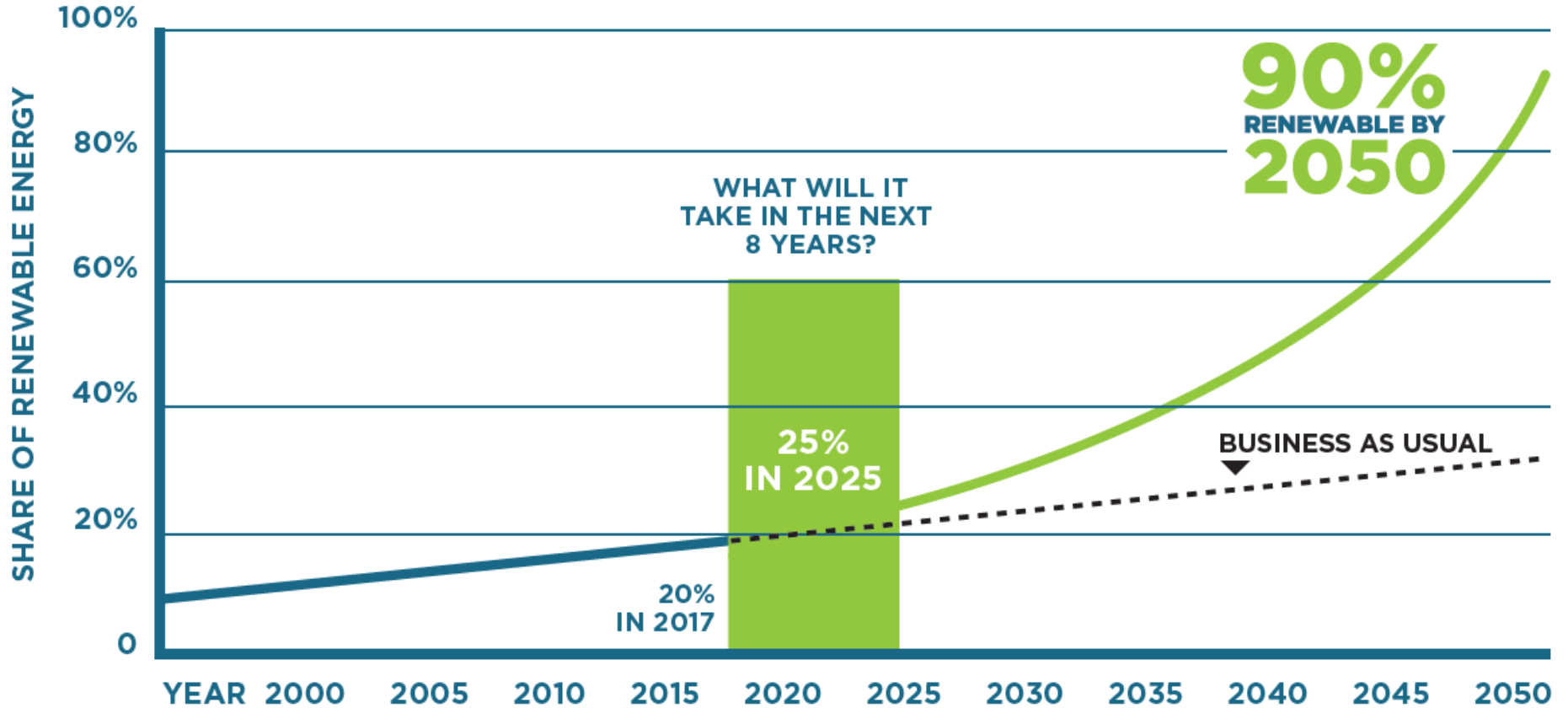
- Energy

- Vermont's Comprehensive Energy Plan (CEP) sets a goal of meeting 90% of our energy needs through efficiency and renewables by 2050.
- The first milestone is 25% renewable by 2025.

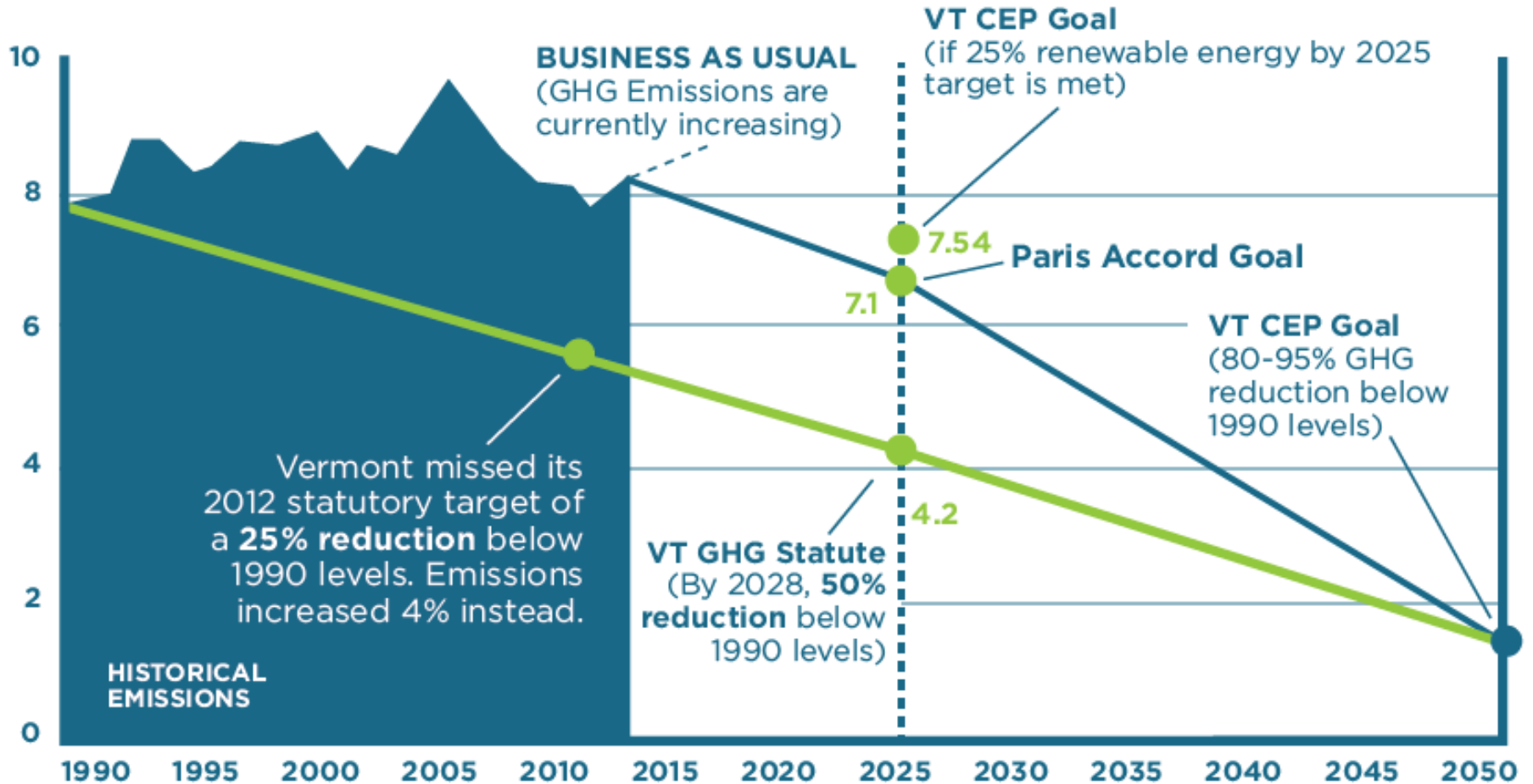
- Climate

- Vermont joined a bipartisan coalition of states committed to upholding the Paris Climate Accord with a **26-28% greenhouse gas (GHG) emissions reduction from 2005 levels by 2025.**
- Vermont's own statutes are even more ambitious, with the goal of a **50% reduction from 1990 levels by 2028.**

BUSINESS AS USUAL WILL NOT GET US TO 90% BY 2050 (OR 25% BY 2025)



Vermont's Energy & Climate Goals



HISTORICAL EMISSIONS FROM VERMONT AGENCY OF NATURAL RESOURCES: CLIMATECHANGE.VERMONT.GOV

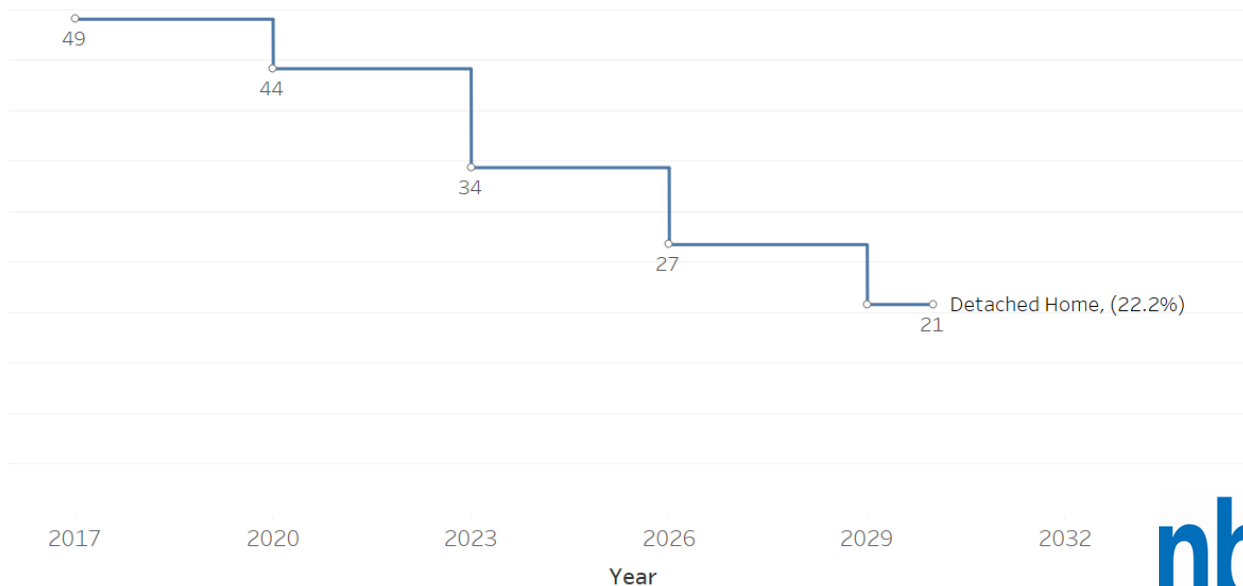
New Construction Zero Energy Goals

- Comprehensive Energy Plan (CEP) calls for all zero energy new construction by 2030
- Act 250 projects need to be there by 2026

Site EUI (kBtu/sf) targets to reach a zero energy code in 2029

2020: 10% Better than 2018 IECC

2020-2029: Constant percent savings



How can Act 250 help?

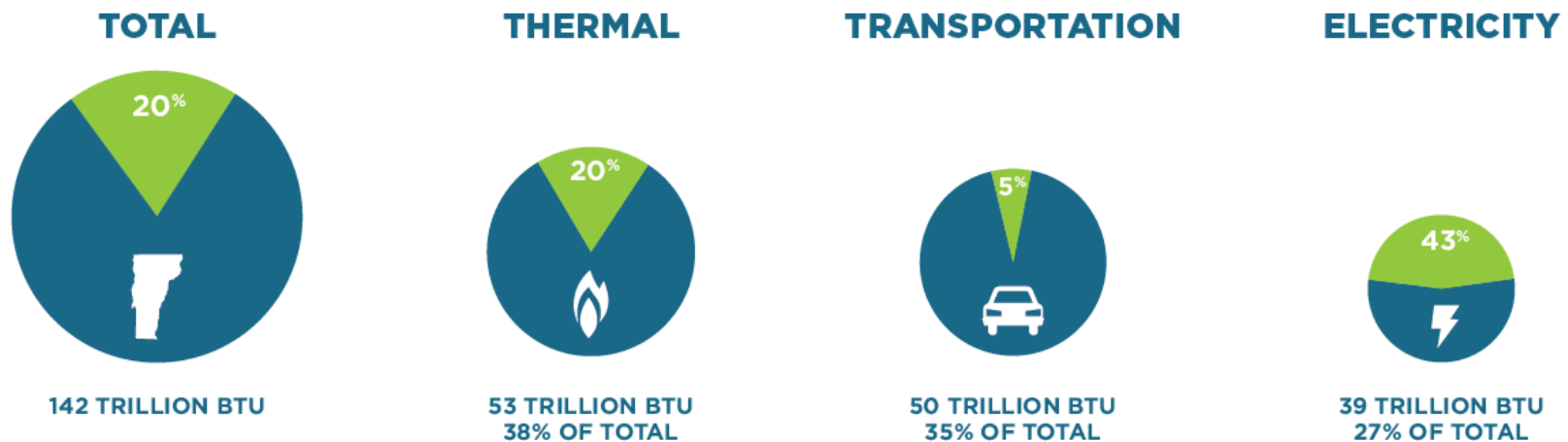
- Ask whether each Act 250 criteria helps us achieve our climate and energy goals
- Prioritize biomass over fossil fuels
- Set the highest bar for energy efficiency when thinking about “best available technology”
 - Criteria 9F
 - Energy conservation (or efficiency)
 - Conservation = turning off the lights
 - Efficiency = replacing an incandescent light bulb with an LED one
- Plan for zero energy design by 2026
- Prioritize beneficial electrification over fossil fuels

What is beneficial electrification?

- We need to transition off of fossil fuels to meet our climate and energy goals
- Electricity is becoming greener
 - 43% of Vermont's electricity is from renewable sources
 - BED and WEC are 100% renewably-sourced
- Vermont's Renewable Energy Standard (RES)
 - Requires 75% renewable electricity by 2032
 - Requires smaller-scale local sources
 - "Tier 3"/Statewide Total Energy Program ("STEP") requires utilizes to wean their customers off of fossil fuel use
 - See <https://www.energyfuturesgroup.com/tier-3/>
- Replace fossil fuels with greener electricity

How renewable are we now?

- Vermont is not as green as we would like to think
- We need much more action sooner
- Act 250 can lead the way

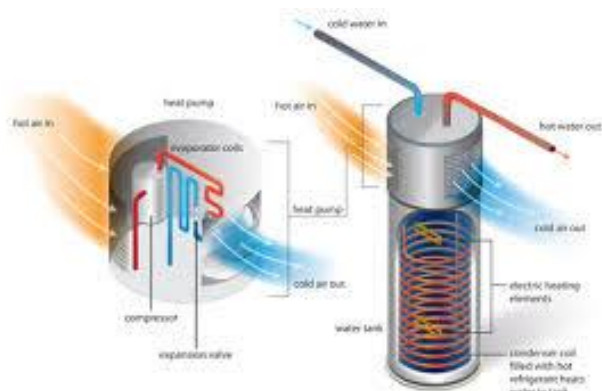


Why electrification?

- Supports Vermont's climate and energy goals
- Cleaner
- More affordable
- Local
- Prepare for the battery storage future
- Ability to integrate with distributed resources
 - Solar PV
 - Electric vehicles as grid assets

Electric equipment

- Heat pumps
 - Cold-climate ductless heat pumps
 - Air-to-water heat pumps
 - Ground-source heat pumps
- Heat pump water heaters
- Electric vehicles
- Industrial equipment



Biomass

- Wood is a local renewable resource
- Advanced wood heating systems to replace central fossil fuel systems
- Community projects



Specifically, what should Act 250 do?

- Continue requiring “stretch energy code”
 - Residential Building Energy Standards (RBES)
 - Commercial Building Energy Standards (CBES)
 - About 15% higher than “base” code
 - 2019 updates are in the works for January 2020 enactment
- Require energy code compliance
 - Air leakage testing
 - Documentation of energy code compliance
 - Builder registry and code enforcement legislation is in the works
- Require all-electric or biomass-heated buildings
 - Future-proof our buildings
 - Prepare for the electrified future
- Install Electric Vehicle Service Equipment (EVSE)
 - Charging stations in all housing development



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