Comprehensive Energy Plan
Vermont's Energy Future

Public Hearings

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Comprehensive Energy Plan

What is it?

Title 30, Section 202b - The CEP must include:

Comprehensive Analysis and Projections

- Usage
- Supply
- Cost
- Environmental Effects

For All Sectors of Energy Usage

- Electricity
- Thermal Energy
- Transportation
- Land Use
- Efficiency

Recommendations for State Implementation

- Actions – Public and Private
- Regulation
- Legislation

Title 30, Section 202 - Updated Electric Plan

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Comprehensive Energy Plan

Why create it?

Title 30, Section 202a:

To assure, to the greatest extent practicable, that Vermont can meet its energy service needs:

- In a manner that is **adequate, reliable, secure** and **sustainable**
- Assuring **affordability** and encouraging the state's **economic vitality**
- **Using** energy resources **efficiently** and managing demands cost effectively
- Employing **environmentally sound** practices

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Comprehensive Energy Plan

Presentation Overview

Where are we now?

What is our long-range goal?

Why strive to achieve the goal?

How will the goal be achieved?

Highlights of recommended strategies by energy sector:

- **Efficiency**
- **Electricity**
- **Thermal Energy**
- **Transportation**
- **Land Use**

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Where Are We Now?

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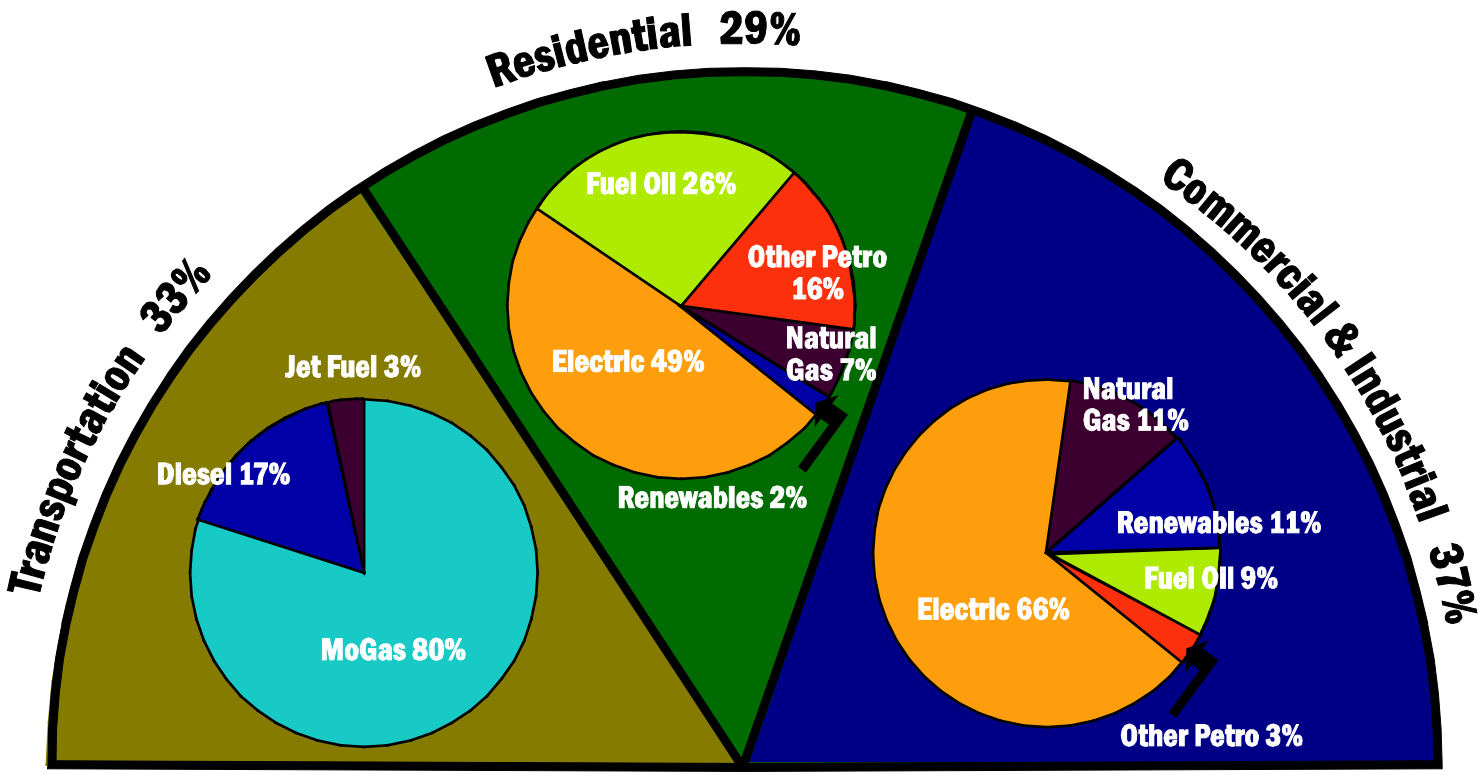
Vermont Total Energy Use by Sector

(percent of total BTUs consumed, 2008)



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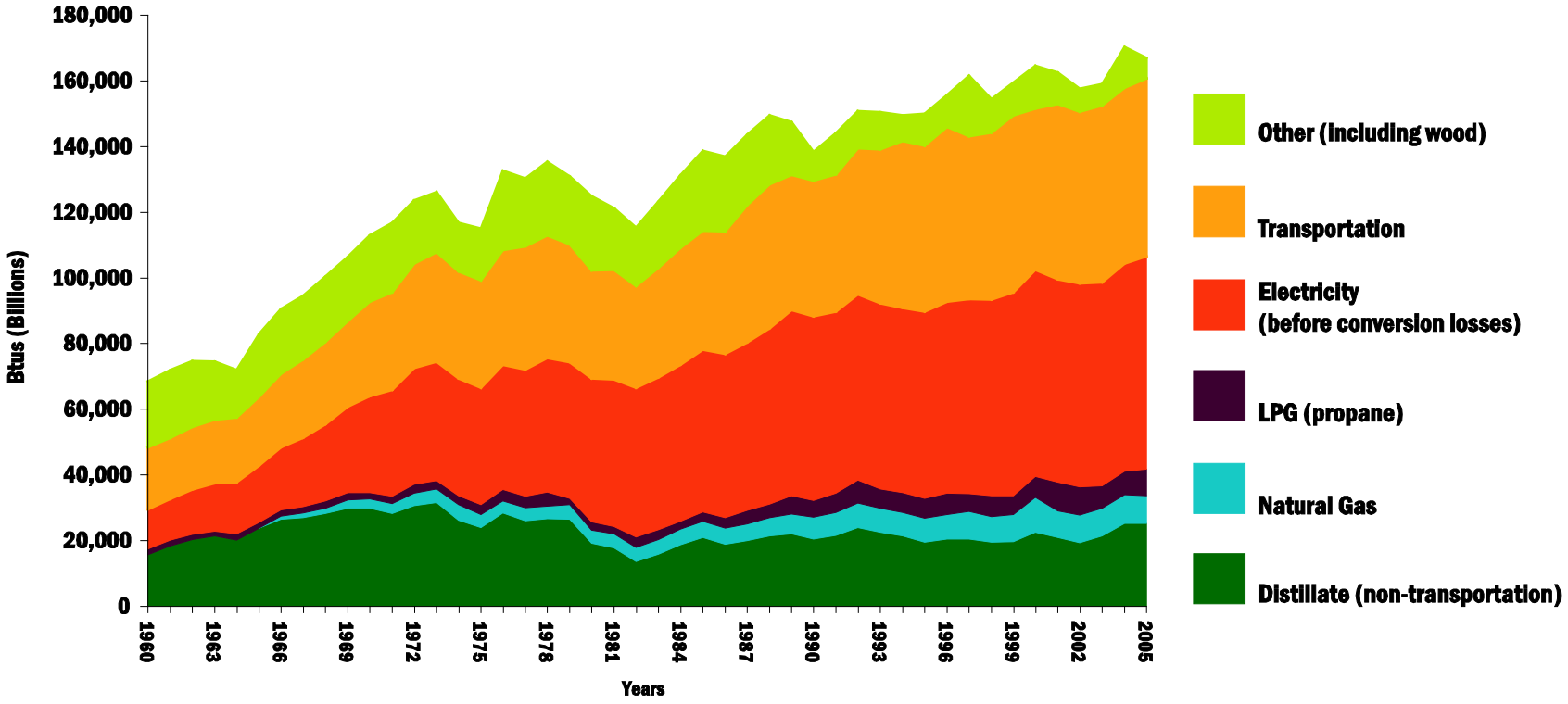
Total Energy Usage Has Increased



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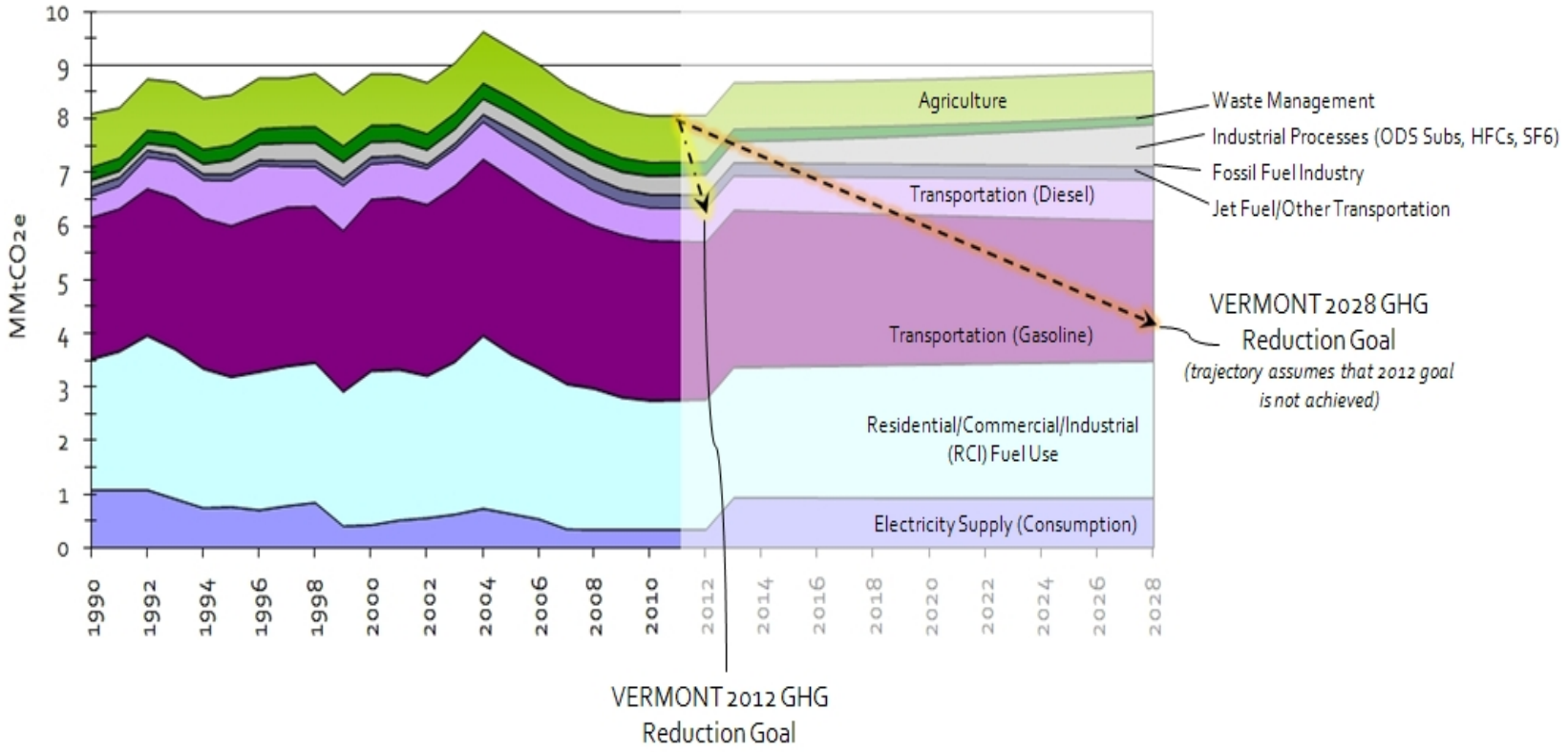
VT GHG Emissions (MMTCO2e)



Source: VT ANR 2010

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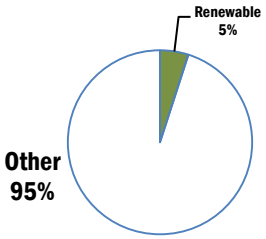
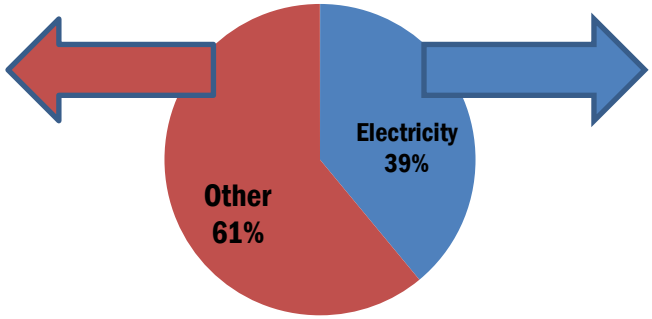
Vermont Renewable Energy Usage

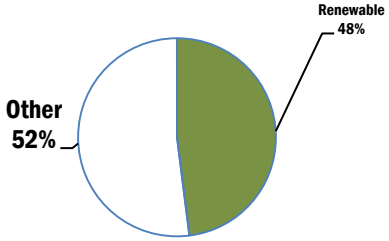
Renewable Other Energy



Total Energy Type



Renewable Electric Energy



48% of electricity is currently from renewable sources, including HQ hydro and projects with RECs sold out of state

Transportation and thermal are both heavily dependent upon fossil fuels

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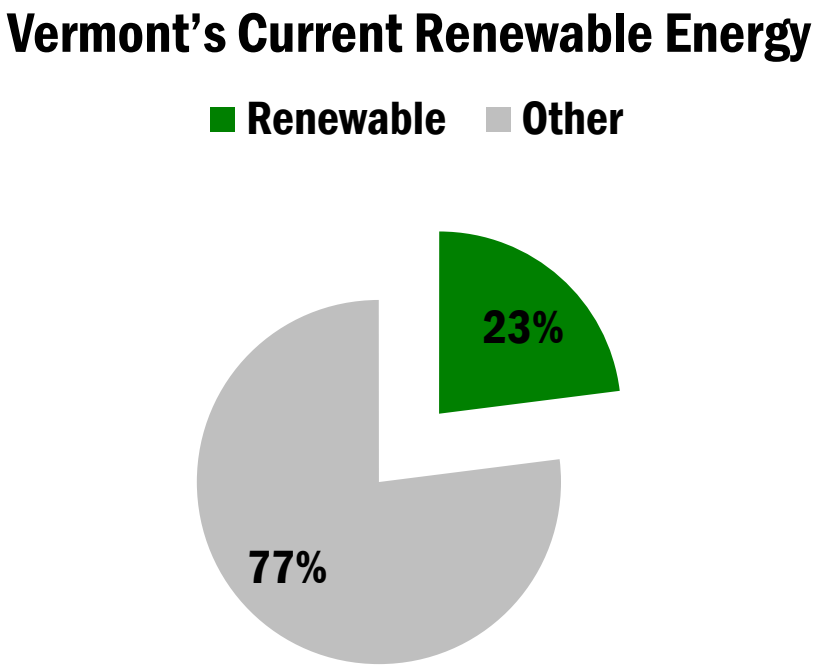
Total Renewable Energy



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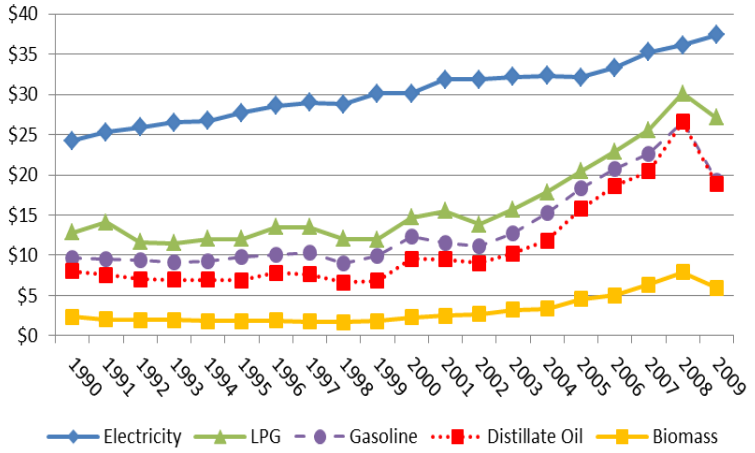
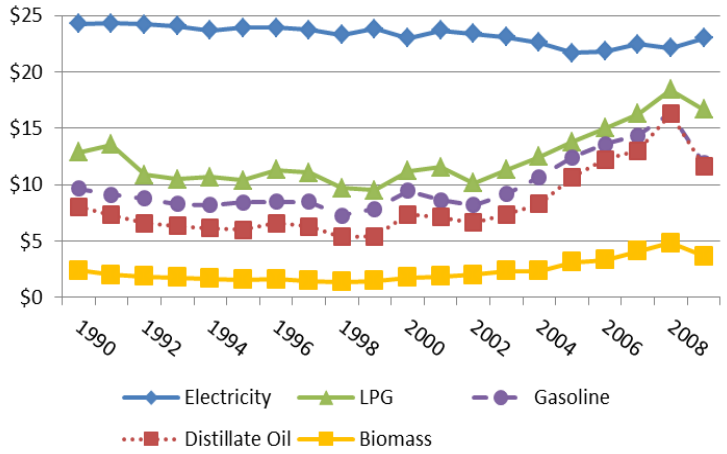
Energy Costs

Energy Source Prices ($ /million BTU & inflation-adjusted 1990 $ /million BTU)





Electricity is the highest priced energy source, yet costs have risen less than the rate of inflation (US CPI). Gasoline and distillates prices have outpaced inflation.

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Efficiency Is The Least Costly Way To Fulfill Our Energy Needs

Electric Efficiency:

- Annual average load growth savings of 2%/yr
- Annual average cost per kWh saved = ~4 cents
- The benefits of electric efficiency
  - $1 public spending = $4.6 in NPV to state
  - Local jobs creation
  - Regional charges on electric bills are avoided

Thermal Efficiency:

- Creates jobs
- Leverages fiscal resources

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Efficiency in Vermont's Homes and Businesses

Mix of programs for energy improvements to make homes and businesses more comfortable and affordable

No easy path for Vermonters to implement projects

Behind on our goals

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Transportation

- Nationally, transportation costs account for 21% of all household expenses
- Most Vermonters spend *more* than the national average
- Many Vermonters spend more on driving than health care, education, or food
- Driving is Vermont's single largest GHG source (more than 40%)

Surface Transportation Policy Project, 2003.
"Driven to Spend: A transportation and Quality of Life Publication."

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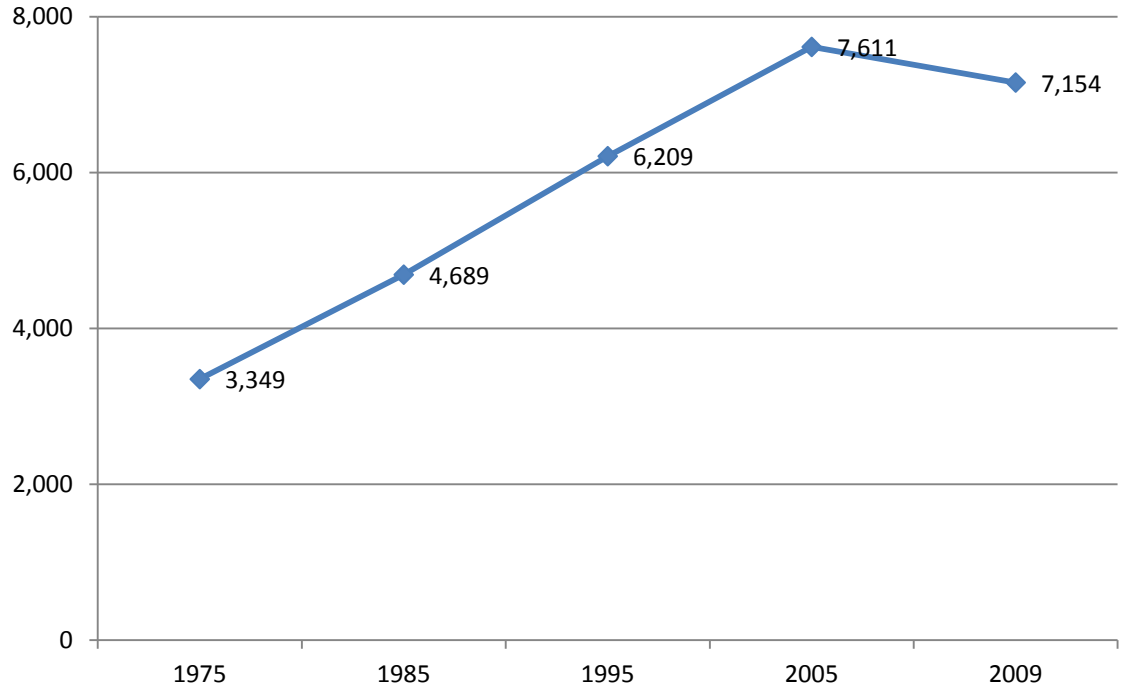
Transportation Costs Vermonters and Our Environment



Vermont Annual Vehicle Miles Traveled, in millions, 1975-2009

Vehicle Miles Traveled have increased dramatically in the last 30 years

Source: Vermont Agency of Transportation Highway Research VMT Report

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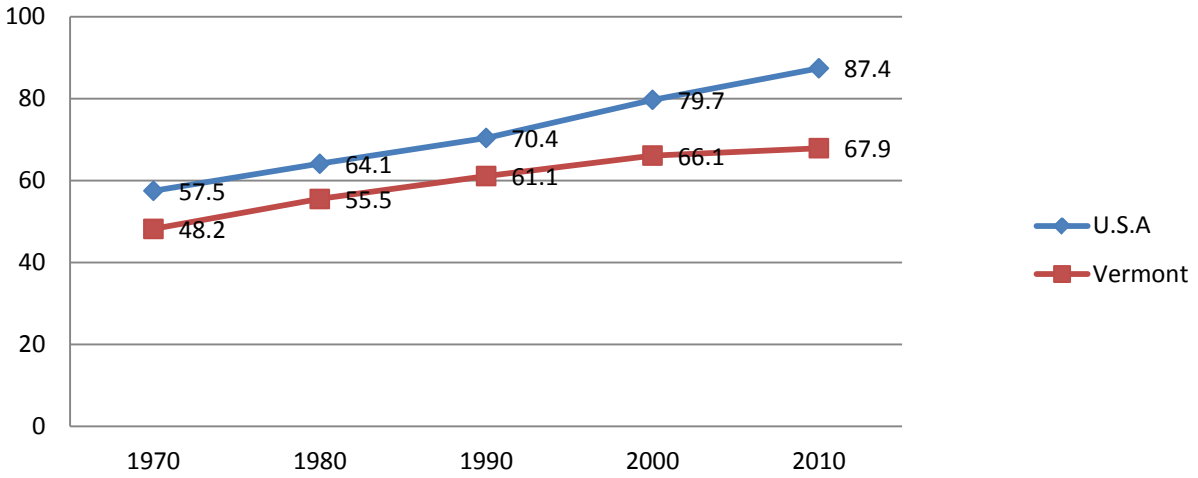
Land Use and Energy Impact



Population density, Vermont vs. US, 1970-2010, U.S. Census

Vermont is a rural state; over 30% of Vermonters live in our 21 designated downtowns

The 2010 Census shows that many of our 21 communities grew at a slower pace than the state average

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The Transportation and Land Use Link

People travel fewer miles as accessibility to service, density and/or mixing of buildings increase

-Source: Ewing & Cervero, 2001

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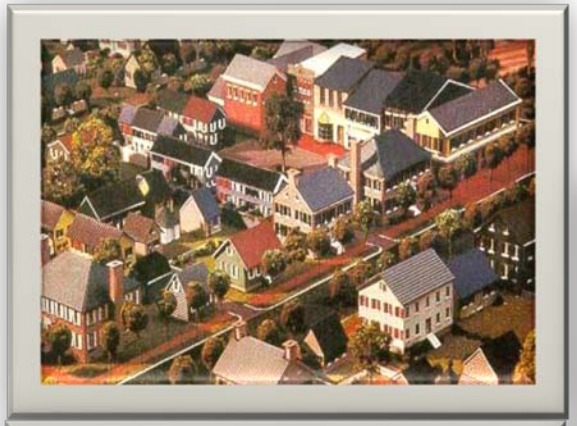
How We Grow Matters…



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What Is Our Long-Range Goal?

What Is Our Long-Range Goal?

90% renewable energy by 2050

By mid-century, Vermont can be nearly free of fossil fuel usage, in all energy sectors

2011: ~23% renewable → **2050: 90% renewable**

efficiency electricity thermal energy transportation land use

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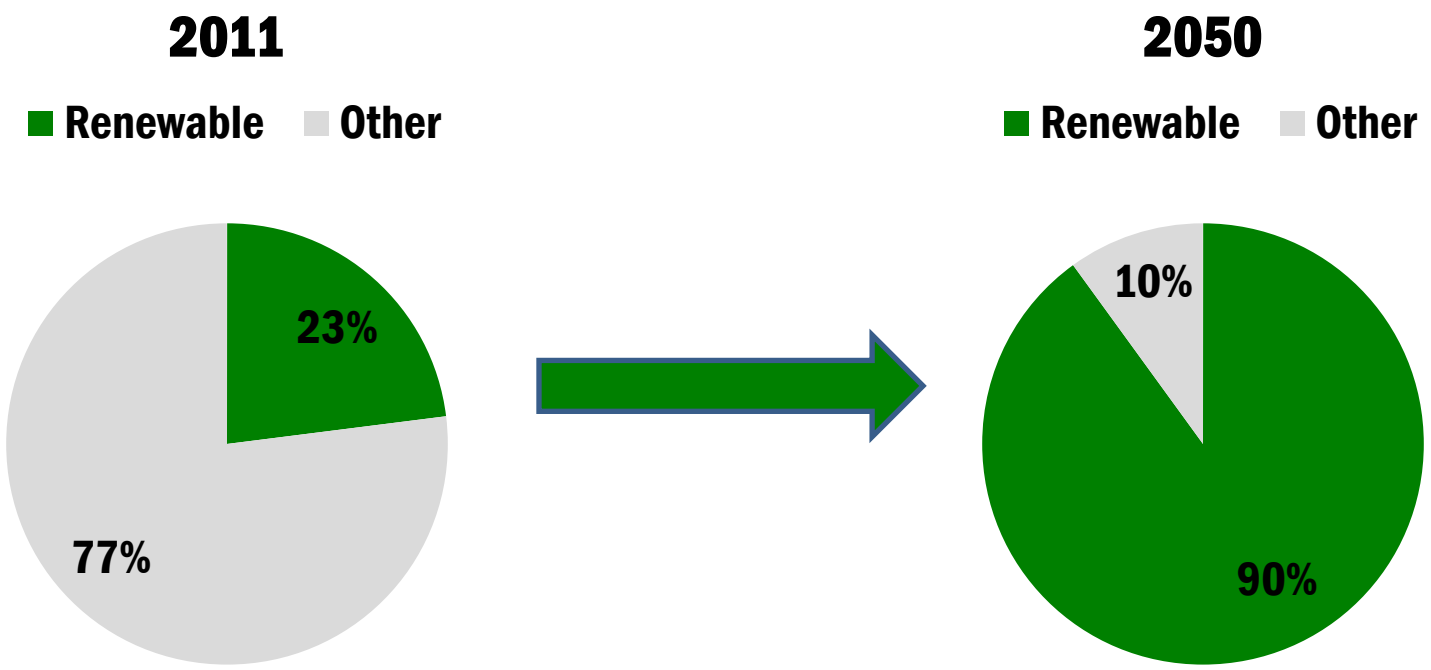
What Is Our Long-Range Goal?



efficiency electricity thermal energy transportation land use

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Why Strive To Achieve This Goal?

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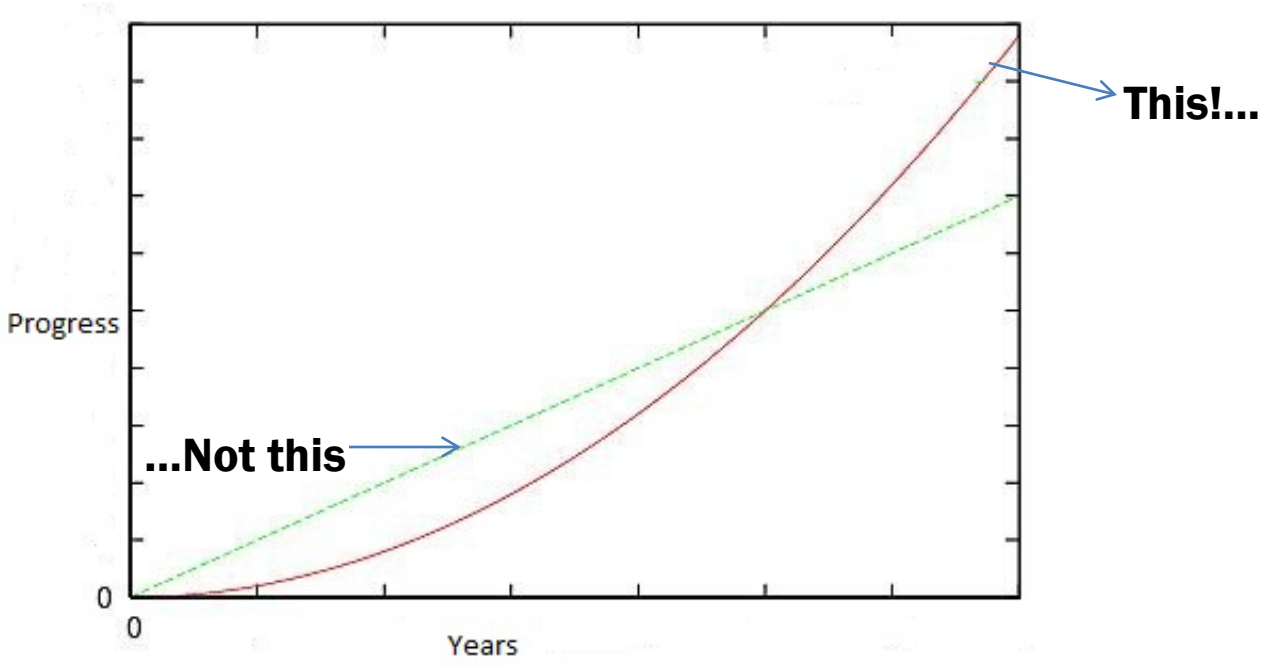
Why Strive To Achieve This Goal?

Four key benefits:

1. **Foster Economic Security and Independence**
2. **Safeguard Our Environment**
3. **Drive Innovation and Jobs Creation**
4. **Increase Community Involvement and Investment**

How Will the Goal Be Achieved?

How Will the Goal Be Achieved?



Set Goals and Policies Now To Achieve Progress Over Time…

efficiency electricity thermal energy transportation land use

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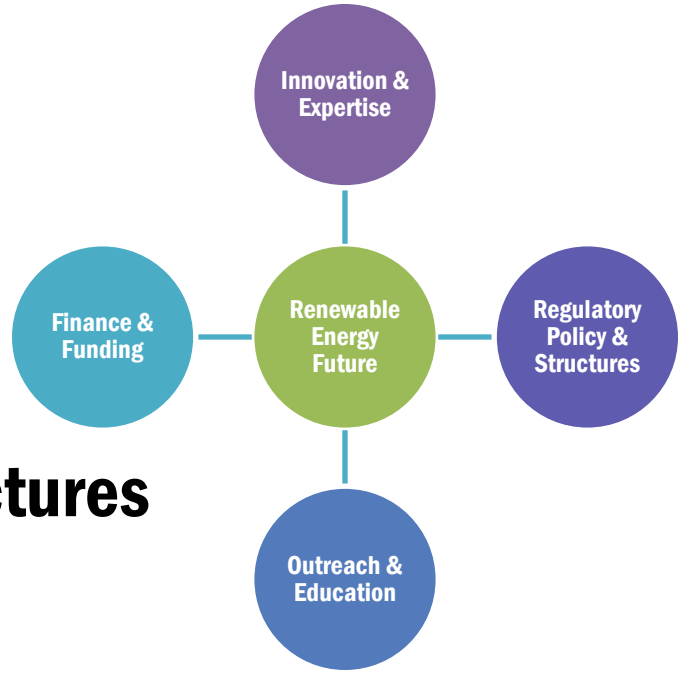
How Will the Goal Be Achieved?

Concerted Planning and Integrated Action Create Momentum:

1. Outreach and Education
2. Finance and Funding
3. Innovation and Expertise
4. Regulatory Policies and Structures



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Strategies by Energy Sector

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Strategies by Energy Sector

Energy Efficiency: Use Less and Save Money

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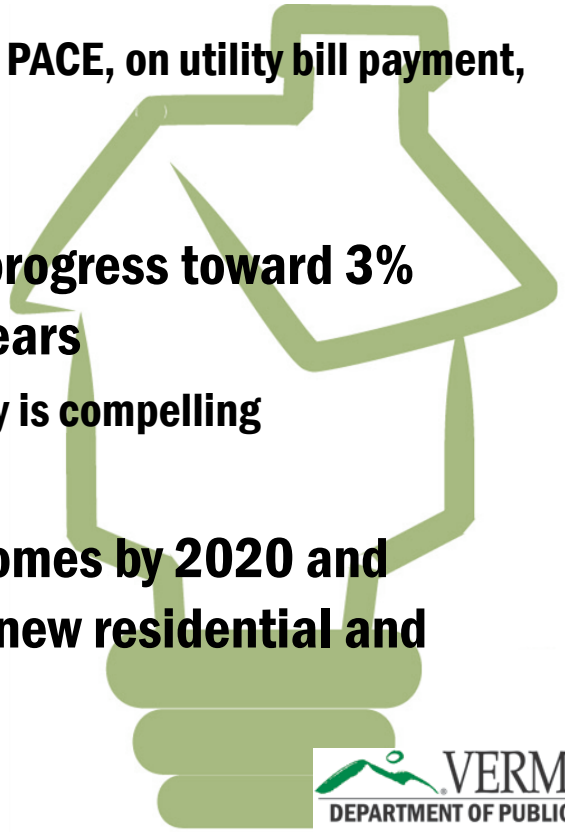
Highlights of Electric and Thermal Efficiency Recommendations

- **Whole Building Roadmap by the end of 2012**
  - **Consumer delivery – ease and accessibility**
  - **Funding and finance mechanisms, including PACE, on utility bill payment, public financing tied to fuel source**

- **Electricity: Continue steady yet robust progress toward 3% savings annually, greater than in past years**
  - **The economic case for electric efficiency is compelling**

- **Thermal: Double % of new EnergyStar homes by 2020 and encourage path to net zero by 2030 for new residential and commercial construction**



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Strategies by Energy Sector

Electricity: Harnessing Progress In Our Use Of Renewable Energy Sources

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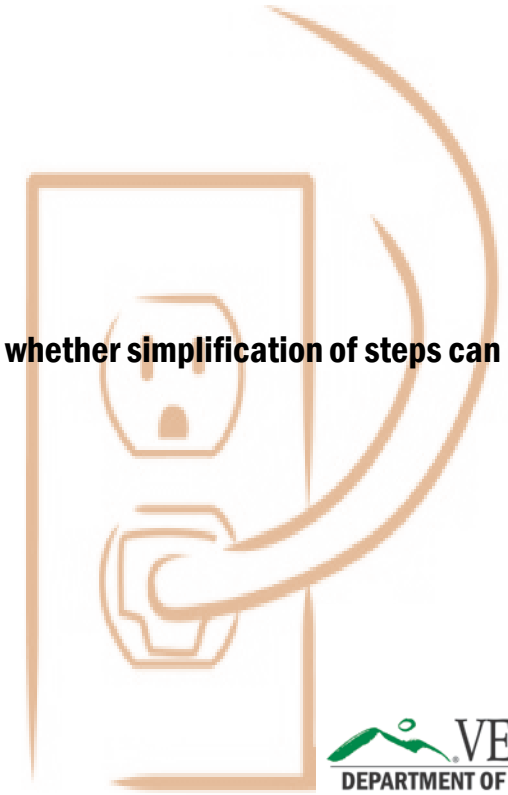
Highlights of Electricity Recommendations

- **Renewable Electricity: Set policies to maintain existing progress plus dramatically increase total renewable sources of electricity by 2032**

- **Process Improvements:**
  - Renewable Energy Project Manager
  - Mediation in all siting cases;
  - Review recent siting permitting (solar, wind) to determine whether simplification of steps can be achieved for smaller projects

- **Finance/Funding:**
  - Finish CEDF strategic plan with new Board;
  - Investigate/develop on utility bill financing



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Strategies by Energy Sector

Thermal Energy: Sustainably Heating Our Homes and Businesses

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Highlights of Thermal Recommendations

- Improve efficiency program – ease of use, integrated offerings – because the easiest way to reduce heating bills is to reduce the need to heat
- Increase use of biomass and biofuels for heating
  - Including CHP projects; advocacy for low sulfur and low carbon fuel standards
- Increase access to natural gas
  - 5% of current energy profile is natural gas; there is significant room to increase the use of natural gas for heating, and possibly for electricity
  - Tradeoffs exist: natural gas offers price, environmental, and stable supply advantages compared to other forms of fossil fuel for heating
- Transition our local fuel dealers and suppliers to energy services providers

Strategies by Energy Sector

Transportation: A Major Energy Challenge For The Next Generation

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Highlights of Transportation Recommendations

Transportation represents our:

Largest Cost

Greatest Use of Fossil Fuels

Highest Contributor to GHGs

VTrans Working to Get You There
Vermont Agency of Transportation

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Highlights of Transportation Recommendations

- **Key to setting a 90% renewable by 2050 goal is ability to transition transportation to renewable electricity - requires many policy changes**

  Financing Vehicle Charging Infrastructure Technology/Cost

  Sets metrics based upon achieving 25% renewable in transportation by end of 20 years – an ambitious lens for planning.

- **We must also continue to push for better fuel standards, greater access to commuter facilities and transportation options, and reduction in number/length of single-occupant commute trips**
  - **Determine VT-registered CAFE and then set goal to meet national CAFE or 5% improvement in state CAFE (whichever greater) by 2025**
  - **Triple Park & Ride spaces in 20 years**
  - **Reduce single-occupant commute trips by 20% in 20 years**

http://www.connectingcommuters.org/

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Commuting & Ridesharing Resources for Vermonters

A Carpool Story

Ride along with three Go Vermont carpoolers and learn the benefits of sharing a ride.

Watch their video

Go Vermont is a free resource that provides transportation options for people who want to reduce the cost and environmental impact of driving. The program features a free carpool/vanpool matching service, event and single trip ride matching, ridesharing tips, and other practical information on getting around by biking, walking, bus, train and ferry.

Go vermont

Like 74 likes. Sign Up to see what your friends like.

JOIN TODAY

LOG IN

Video: How to use the ride matching software

Quick Search

Before you register, you can see who wants to share a ride near you, and the carpools/vanpools and rideshare routes in your immediate area.

Carpool Finder

Vanpool Finder

Event/Single Trip Finder

Done Internet 100%

Strategies by Energy Sector

Land Use: Lowering Energy Use And Fostering Our Communities

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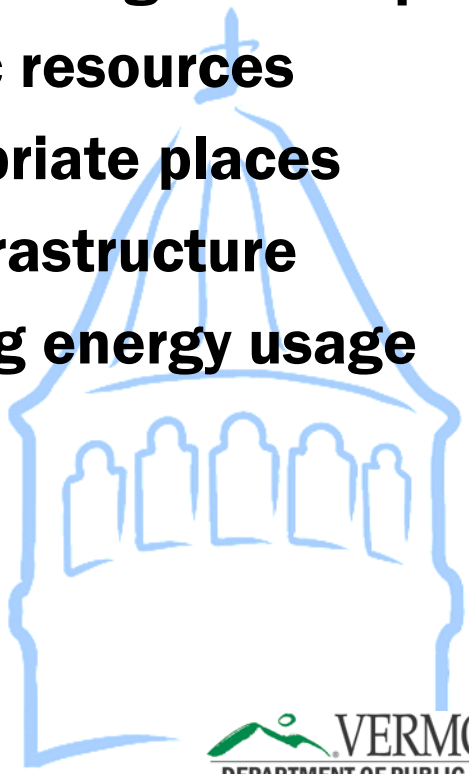
Highlights of Land Use Recommendations

Land Use Programs are intended to help…

- **Preserve rural character and the working landscape**
- **Conserve natural and historic resources**
- **Support development in appropriate places**
- **Invest efficiently in public infrastructure**

…All with the benefit of improving energy usage



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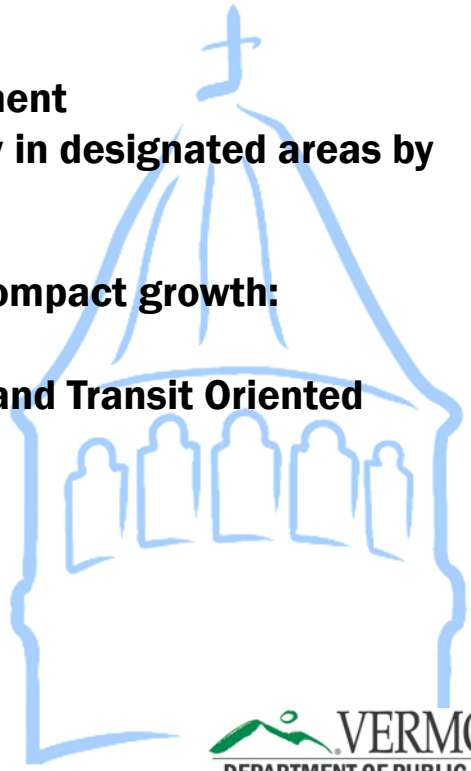
Highlights of Land Use Recommendations

- Foster better coordination with Regional Planning Commissions and Energy Committees

- Improve State Designation Programs:
  - Finish recommendations by end of 2011 and implement
  - Measure success in next census – increased density in designated areas by 2020

- Coordinate state incentives and programs to align with compact growth:

- Develop specific training programs for Complete Streets and Transit Oriented Design:
  - Hold three workshops in 2012



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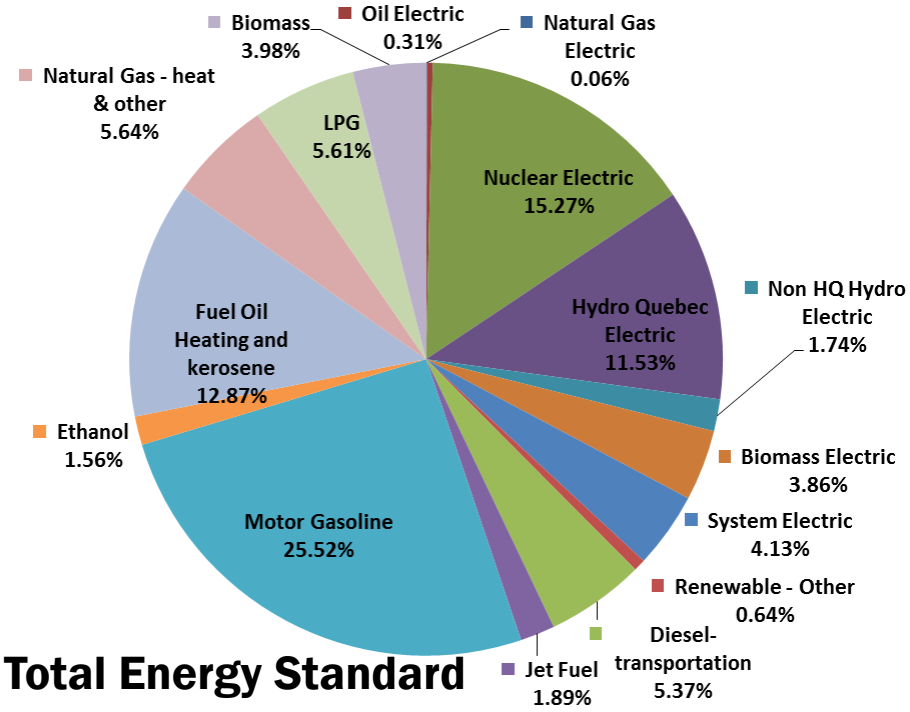
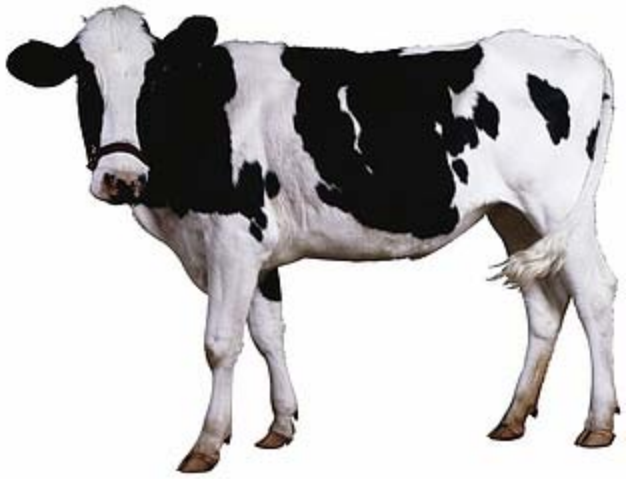
Other Highlighted Actions…



Total Energy Standard



Farm Energy Programs

State of Vermont Energy Leadership

efficiency | electricity | thermal energy | transportation | land use

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Finalizing the Plan

- Conduct public hearings
- Review written comments submitted by October 10
- Revise plan to present to Governor Shumlin mid-October
- Review any feedback from governor's office
- Final revisions and copy-editing
- Final Comprehensive Energy Plan in November 2011

Implementing the CEP

Recognizing the intersection of all energy usage:

- Climate Cabinet charged with oversight for executive branch

Presentation to the Legislature in January 2011:

- List of possible legislative actions or changes

Regional Planning Commissions & Town Energy Committees:

- Forums for RPCs and Energy Committee review and local action

Review, Revise, Repeat:

- Annual review with three-year revision plan – working toward goal

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Thank you for coming…

For more information regarding the energy plan, go to:

www.vtenergyplan.vermont.gov

Please submit any written comments by October 10, 2011

Thanks to Agency of Transportation and Agency of Commerce & Community Development for slides and data

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