

Vermont
Energy Investment
Corporation

Transportation Technical Reference Manual

Technical Reference Manuals

- Define Energy and Transportation Efficiency

Users:

- Utilities
- Public Utility Commissions
- State Energy Offices
- Transportation Planning Agencies



Approaches to Measuring Cost Effectiveness

- **Societal Cost**
- Program Administrator Cost
- Participant Cost
- Rate Payer Impact

Consumer costs

- Incremental cost of efficiency measure
- Operation and maintenance, energy costs

Utility Costs

- Impact on peak load

Societal Costs

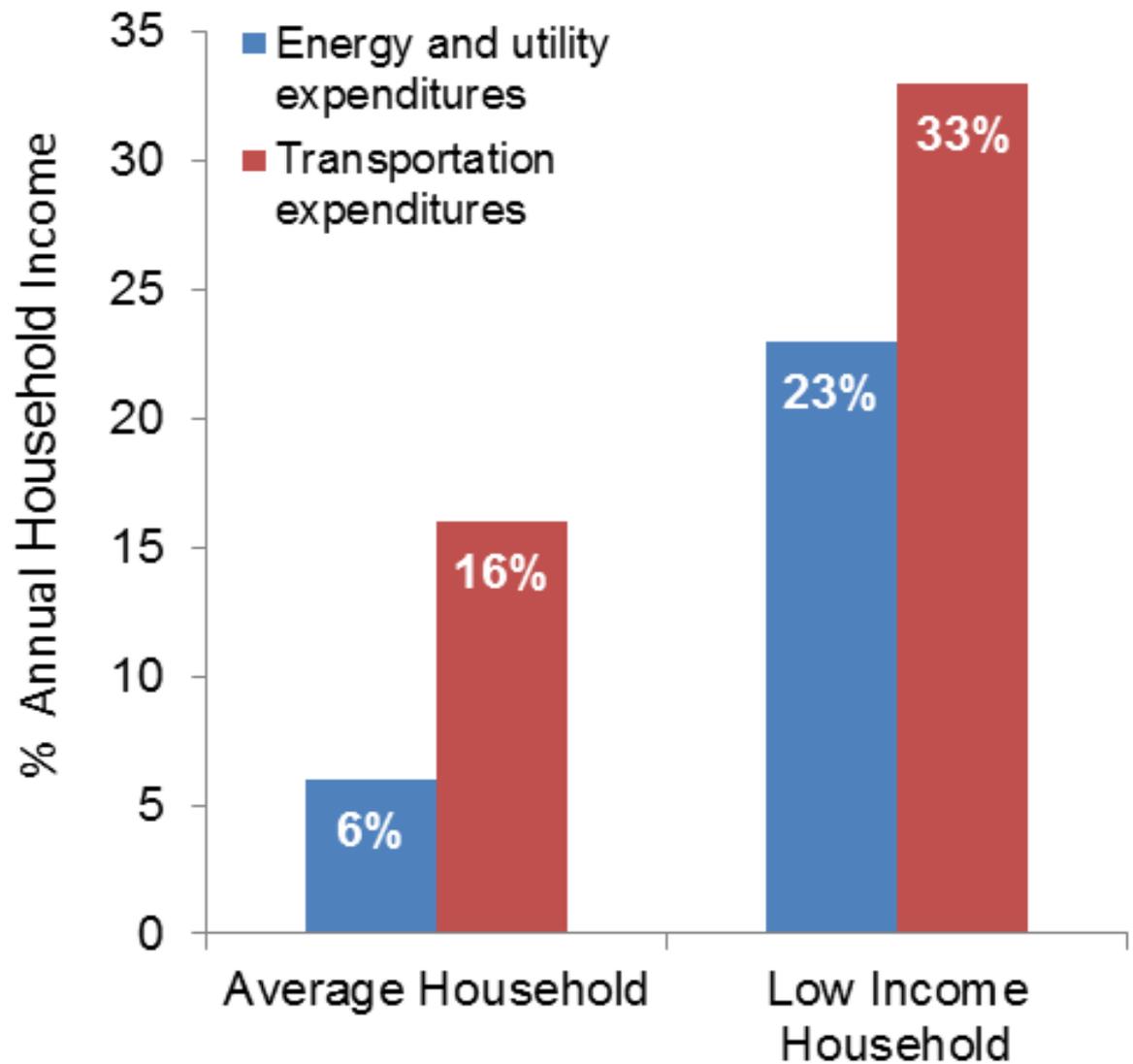
- GHG emissions
- Health impacts
- Congestion impacts

- Accounting for Externalities
- Factors to consider in future analyses
- Geographic and Temporal Variation in Externalities
- Non-energy Benefits

Factors included in this analysis:

Prices of gasoline, diesel, electricity
Avoided electricity costs
Gasoline GHG emissions per gallon
Electricity GHG emissions per kWh
Societal cost of GHG emissions per ton
Health costs of vehicle emissions
Health costs of electricity generation
Annual vehicle miles traveled
Cost of Level 1 EVSE
Cost of Level 2 EVSE
Cost of 'smart' commercial Level 2 EVSE
Cost of DC Fast Charging station

Assistance for Low Income Households



Transportation Efficiency Measures

- All Electric Vehicle
- Commercial/
Public Level 2
Electric Vehicle
Supply Equipment
- Residential Level 2
Electric Vehicle
Supply Equipment



TRMs can be used to assess the energy and non-energy benefits of:

- bicycling
- walking
- conventional vehicles, and
- natural gas vehicles.

TRMs provide energy and transportation planners a comprehensive means of measuring efficiency



Thank You

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Transportation Energy Profiles for State Energy Offices

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Assistance for SEOs

- Developing goals and metrics
- Tracking

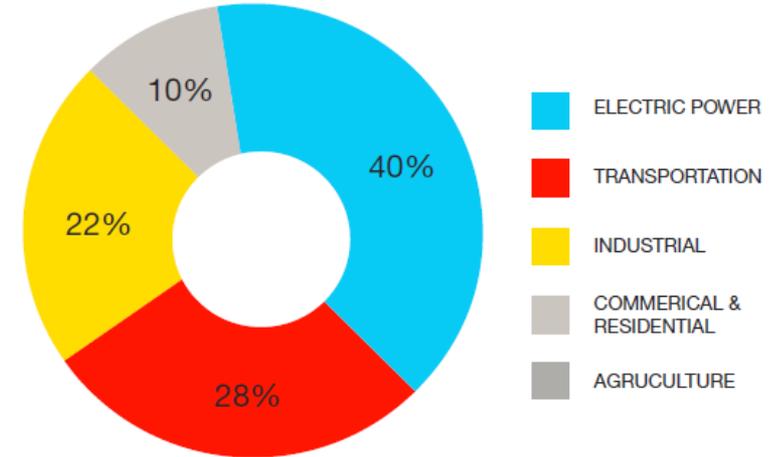
Energy use

GHG emissions

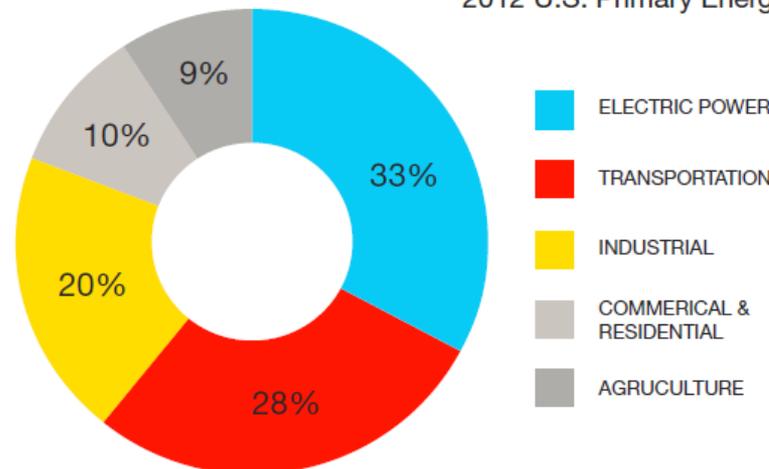
AFV use and fueling

infrastructure

Travel mode and mobility



2012 U.S. Primary Energy Use



2012 U.S. GHG Emissions

NASEO

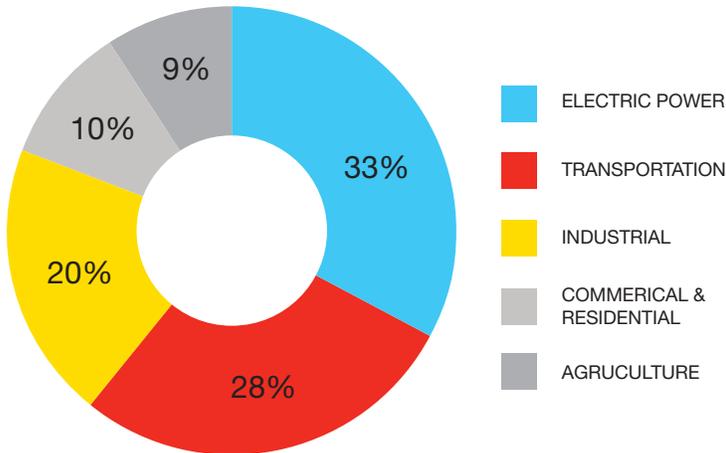
 Vermont Energy Investment Corporation

Transportation Energy Profiles for State Energy Offices

Transportation energy analysis is a critical piece of any comprehensive energy planning. The transportation sector accounts for 28% of primary energy use. State specific data is available to assist State Energy Offices in their important energy planning work.

The National Association of State Energy Officials (NASEO) and the Vermont Energy Investment Corporation (VEIC) can help states develop the transportation section of their comprehensive energy plans and track progress towards goals by developing meaningful metrics for:

- Transportation energy use;
- Greenhouse gas emissions;
- Alternative vehicle use and fueling infrastructure;
- Travel modes, and mobility.



2012 U.S. GHG Emissions

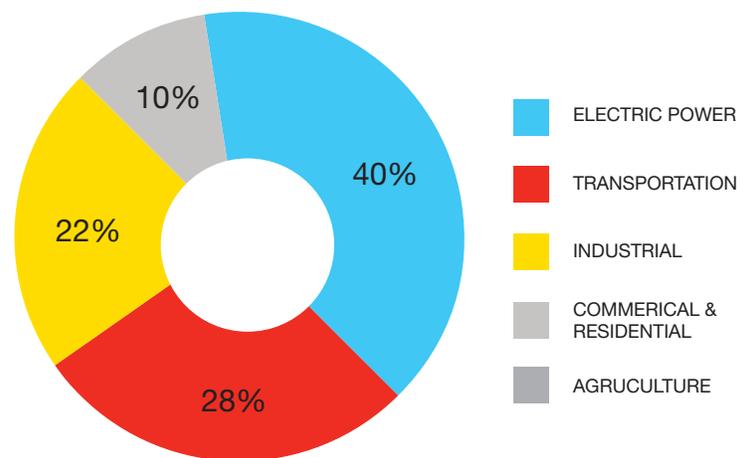
Clients will be provided a State Transportation Energy Profile, detailing current trends in state transportation energy use, identification of efficiency gains in the transportation system and policy recommendations.

Available data and sources include:

- Energy Information Administration
- The National Household Travel Survey
- The American Time Use Survey
- The American Community Survey
- State-level data from Federal Highway Administration
- Gasoline and diesel tax revenue
- Locations of electric vehicle charging infrastructure
- Locally available data (e.g., transit ridership, fuel expenditures by state agencies and school districts, travel surveys)

Through collaboration with state agencies, additional data may be available, including:

- Activity levels and active transportation (Behavioral Risk Factor Surveillance System);
- Number and geographic distribution of electric vehicles, hybrids and fleet efficiency (vehicle registrations)



2012 U.S. Primary Energy Use

