

# THE CLIMATE IMPACT OF GETTING TO SCHOOL

WATT HOURS PER STUDENT MILE

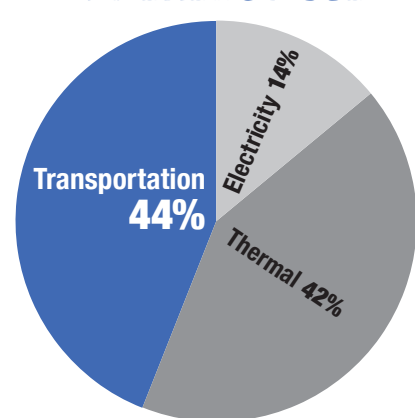
GRAMS OF CO<sub>2</sub>e PER STUDENT MILE

## ENERGY IMPACT<sup>1</sup>

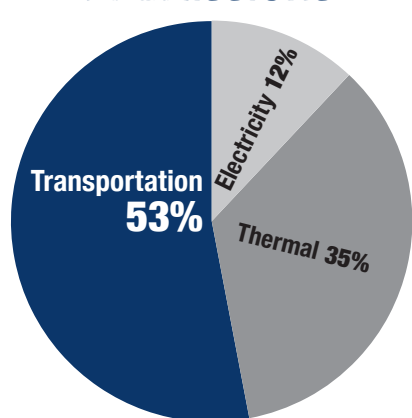
### WHY DOES IT MATTER?<sup>2</sup>

Transportation is where Vermonters use the most energy. It accounts for over half of Vermont's emissions, more than thermal (heating and cooling buildings) or electricity.

VT ENERGY USE



VT EMISSIONS



### OUR MISSION

is to build a deep understanding of energy through education, encouraging choices that result in sustainability in our communities, economy and environment.

more resources at [VEEP.ORG](http://VEEP.ORG)

info@veep.org  
802-552-8674  
Montpelier, VT

poster produced by VEEP, 2019

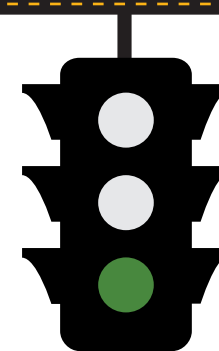
### NOTES

- This poster uses "Life Cycle Assessment of Transportation Options for Commuters" by Shreya Dave, Massachusetts Institute of Technology, ©2010 as a primary data source. All data and data sources used to create this poster can be explored at [veep.org/posterdata2019](http://veep.org/posterdata2019).
- Graphs in the "Why Does it Matter?" text box come from the Energy Action Network's 2018 Annual Progress Report: [eavnvt.org/2018-progress-report](http://eavnvt.org/2018-progress-report)
- VEEP's assessment of energy use (Wh), emissions (g CO<sub>2</sub>e), and efficiency (MPGe) all include not only the energy needed to fuel the vehicle (Operations), but also the energy needed to create and maintain the vehicle (Manufacturing and Maintenance), to extract and transport the fuel (Fuel Production), and to build and maintain roads and bridges needed for vehicle use (Infrastructure).
- Emissions for electric vehicles are calculated based on the New England electric grid (ISO-NE) emissions. Emissions can be lower if using electricity from renewables to charge the car. In most of the U.S., the electric grid is not as clean as New England and emissions associated with electric vehicle use are higher.
- When using this poster, we encourage you to think about total miles traveled to get the student(s) to school. For example, if an adult drives one student 5 miles to school and then drives back home, the vehicle traveled 10 miles to deliver the student to school, even though the student only traveled 5 miles. How would you measure the impact of that trip?

## EMISSIONS IMPACT<sup>1</sup>

### WHAT CAN I DO TO HELP?

- Use the data in this poster to find ways to reduce your transportation impact. Let us know what you did at [info@veep.org](mailto:info@veep.org).
- Sign your school up for the **Way to Go challenge** and get resources and incentives for schoolwide action to reduce your transportation impact: [waytogovt.org](http://waytogovt.org).
- Get in touch with VEEP for **support on transportation curriculum, transportation action projects and technology challenges** like app development for school and extracurricular carpools: [info@veep.org](mailto:info@veep.org).



### LEGEND<sup>3</sup>

#### OPERATIONS

The fuel used to operate the vehicle.

#### FUEL PRODUCTION

Activities to explore for the fuel, extract the fuel, refine the fuel and deliver it to the point of use.

#### INFRASTRUCTURE

Building and maintaining the infrastructure for transportation, including roads and bridges.

#### MANUFACTURING

Making the vehicle.

#### MAINTENANCE

Routine maintenance and repairs to the vehicle over its lifetime.

### UNITS

**WATT HOUR (Wh):** Amount of energy to light a 1-watt bulb for one hour. Electricity is sold by the kilowatt hour (kWh) or 1,000 Wh. A gallon of gasoline contains 32,800 Wh of energy.

**MPGe:** Miles per gallon gasoline equivalent (MPGe) translates efficiency of any fuel (gasoline, electric, or diesel) based on the energy in a gallon of gasoline. (MPG, or miles per gallon, is a commonly used measure of efficiency for gasoline cars). To get the **MPGe per student** we multiply MPGe by the average number of students in the vehicle (not including the driver unless the driver is a student).

**STUDENT MILE<sup>5</sup>:** Energy use in watt hours and emissions in grams of CO<sub>2</sub>e in this poster are expressed per "student mile." A student mile divides the energy use and impact by the number of students per vehicle. For example when you have twice as many students sharing a bus or car, the energy use and emissions divide in half. See note 5.

**CO<sub>2</sub>e:** Carbon dioxide equivalent is a measure of all emissions of greenhouse gases, using a common unit based on the global warming impact from a molecule of CO<sub>2</sub>.

For additional details, go to [veep.org/posterdata2019](http://veep.org/posterdata2019)

