



Vermont Climate Economy Action Team

Union of Concerned Scientists: Rural Drivers Have Most to Gain from Clean Vehicles

As seen in the Daily Yonder, February 18, 2019

<https://www.dailyyonder.com/union-concerned-scientists-rural-drivers-can-save-clean-vehicles/2019/02/18/30455/>

Drivers living outside urban areas have farther to drive for work, shopping and trips to the doctor, so they spend more on gas and repairs and produce more emissions per capita. Switching to clean vehicles would save money; it would also help the environment.

The transition to clean vehicle technologies such as electric vehicles will benefit consumers everywhere, promising lower operating and maintenance costs, along with less pollution and a cleaner environment.

But the drivers with the greatest economic potential to gain by purchasing an electric vehicle are the residents of small towns and rural counties. Drivers living outside of urban areas often have farther to travel to work, shop, and visit a doctor. They have to repair their vehicles more frequently, they produce more carbon emissions per capita, and they spend more money on gasoline. As a result, rural drivers have the greatest potential to save money by making the switch to an electric vehicle.

Overall, rural residents have the potential to save up to twice as much as urban residents by making the switch from a conventional sedan to an electric vehicle. In addition, rural residents who drive pickup trucks and SUVs have the potential to dramatically cut their fuel costs and emissions through programs to encourage efficiency and electrification.

Rural drivers' potential to save money and cut emissions

Using data from the 2017 National Highway Traffic Survey, we created a model that approximates what vehicles are being driven, and for how many miles, in every county in the Northeast and Mid-Atlantic region. This data allows us to

The **Vermont Climate Economy Action Team** is dedicated to advancing initiatives to expand distributed energy generation and efficiency in Vermont, cultivate climate economy entrepreneurs and startup businesses, and reduce Vermont's carbon impact while boosting economic development, creating jobs, and attracting youth and creative entrepreneurs to the state. Members of the team represent the over 460 participants in the **Vermont Climate Economy Partnership** dedicated to building a vital future for Vermont through innovation in energy development, the wise use and reuse of resources, efficiencies, smart growth, and a strong working lands economy.

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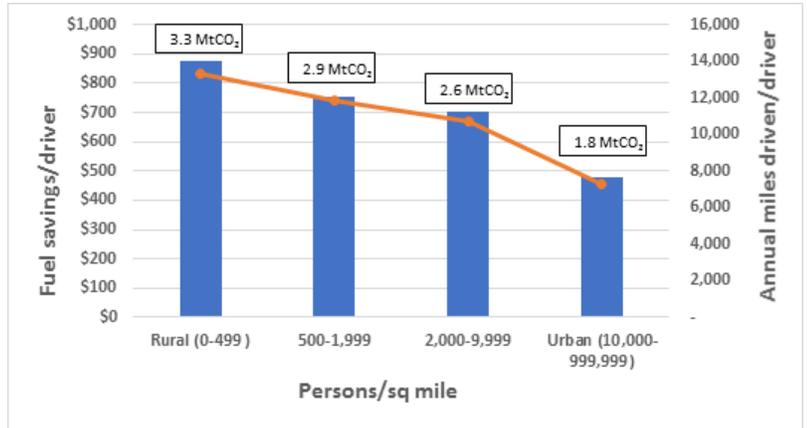
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approximate the average cost and emission savings from an electric vehicle in each county. We also mapped out some of the differences in vehicle miles traveled that form the basis of these calculations. Our full methodology is here: <https://s3.amazonaws.com/ucs-documents/clean-vehicles/Clean-Vehicles-Rural-Drivers-Methodology.pdf>)

Overall, we find that in our most rural counties, the average driver will save \$870 per year and cut carbon dioxide emissions by more than 3 metric tons per year by choosing an electric vehicle over a conventional sedan. That is almost twice the average emissions reduction from an EV in our most urban counties.

Bringing clean vehicle technologies to rural areas will not only benefit rural drivers, but it will also improve whole rural economies. Nearly all the money that we spend on gasoline and diesel fuel ultimately leaves our towns and our region, for other parts of the world. As electric vehicles replace the internal combustion engine on our roads, there will be more money in consumers' pockets – which means more jobs, and more local development for our small towns.



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Obstacles to rural electrification

Unfortunately, although rural residents have the greatest potential to save from purchasing an electric vehicle, currently EV sales are concentrated in urban areas and inner suburbs. As of 2017, people in urban areas and inner suburbs report that they are about three times more likely to own a plug-in vehicle compared to people in rural areas.

Rural drivers share many of the same challenges in selecting an electric vehicle as urban and suburban drivers: not many consumers are aware of how easy it is to make the switch to an electric vehicle, and the charging infrastructure is inadequate. These concerns are particularly acute for rural drivers, who on average need to travel greater distances between charging stations and destinations. Rural drivers do have one major advantage over urban drivers: they are much more likely to have access to offstreet parking, which should make installation of a home charging station easier.

In addition, rural drivers may have additional concerns about electric vehicle technology, such as the ability of electric vehicles to provide adequate performance in cold weather climates (hint: EVs are great in cold or inclement weather) or to provide enough range to deal with rural driving distances. Some of these concerns are being addressed through improvements in technology: at 200+ miles, cars like the Chevy Bolt and Tesla Model 3 can serve the daily driving needs of residents of all areas. But even as the technology improves, cultural assumptions about what kind of vehicle is appropriate in what kind of area may remain.

As more electric vehicle models come to market, and vehicle costs continue to drop, rural drivers will have increasing choices in vehicle types from SUVs to pick-up trucks. But an EV may not work for every rural household today. Fortunately, automakers compelled by vehicle efficiency standards have been bringing more efficient gasoline and diesel cars and trucks to market. Upgrading to a newer, more fuel efficient vehicle is another strategy available for every household today.

The Northeast needs a rural electrification strategy

Increasing growth of EV sales in rural areas will require states of the Northeast region to take a more proactive approach towards electrification in rural areas. We need a targeted strategy to reduce the barriers to adopt electric vehicles in our outer suburbs and rural areas. Such a strategy should include:

- ▶ **Increased incentives for rural & low- and moderate-income drivers.** Overcoming the high purchase price of the vehicles is critical to achieving mainstream penetration of electric vehicles. Northeast states should consider adding additional incentives to make electric vehicles affordable for rural drivers. These incentives should include not only additional upfront rebates to reduce the purchase price of the car, but also financing assistance to help people with insufficient credit to purchase a new car. By targeting rural drivers, we can use incentive money most effectively to achieve our goals for emission reduction and cost savings.
- ▶ **Vehicle retirement programs to take the most inefficient trucks off the road.** Many rural drivers are stuck driving some of the dirtiest, most inefficient vehicles on the road. A 10 year old Ford F-150 gets as little as 14 mpg, for example. A rural driver who trades an old F-150 to a new model can save up to \$1,000 per year. Programs such as California's Enhanced Fleet Modernization Program have helped retire some of these low-emission vehicles and in the process saved money for drivers of all kinds of vehicles.
- ▶ **Build rural charging infrastructure.** Addressing rural range anxiety will require increased investment in rural charging stations. Utilities should target rural areas for support, both for public charging and for support in constructing home charging stations.
- ▶ **Support grassroots education outreach and marketing efforts.** Bulk purchasing programs such as the Drive Green program run by Green Energy Consumers Alliance can reduce costs and help consumers address the complex decisions necessary to purchase an electric vehicle. Utility programs such as Green Mountain Power's electric vehicle program can negotiate good deals from the auto industry and help their customers make the switch to electric vehicles. These programs should be encouraged to target rural communities and drivers.

As states in the Northeast and Mid-Atlantic consider new regional strategies to address transportation emissions, it will be critical for states to identify new strategies to help rural residents cut emissions and save money on transportation. One piece of a rural transportation strategy should be to enhance infrastructure that provides an alternative to driving an automobile, through expanded regional public transportation that give them easy access to urban centers, pedestrian and biking infrastructure that create vibrant communities in small towns. We should also consider how to best use innovative new transportation models facilitated by technology, such as vanpools, flexible bus routes, and ride hailing and sharing services to expand clean mobility to rural residents.

At the same time, we know that realistically driving a personal vehicle will remain an important part of the transportation system for rural communities. We need to provide rural residents with the cleanest vehicles that fit their needs. We encourage states to meet the challenges facing rural drivers with bold investments that can save money for consumers and reduce pollution for everybody.

By Daniel Gatti, a senior Transportation Analyst for the Clean Vehicles Program at the Union of Concerned Scientists, in collaboration with Maria Cecilia Pinto de Moura.