

MiSustainable Holland

About this series

The MiSustainable Holland column is a collection of community voices sharing updates about local sustainability initiatives.

This Week's Sustainability Framework Theme:

Community Knowledge: The collective knowledge and energy of the community is an incredible resource that must be channeled to where it is needed.

The math on car electrification adds up to savings

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Last month we reviewed how electricity generated by Holland's natural gas power used to run a residential heat pump can be more energy-efficient than a traditional gas furnace. You hopefully won't be surprised to hear that the emissions calculations are similarly encouraging for electric vehicles in Holland.

The average driver in Michigan travels a bit under 15,000 miles per year, or around 40 miles per day. In recent years, new gas-powered vehicles achieve a reported average of 25 miles per gallon of gasoline burned. Older vehicles and larger cars like SUVs and pickup trucks often have worse fuel efficiency ratings.

Based on this average fuel economy, driving 15,000 miles requires 600 gallons of gasoline. The carbon emissions generated from burning that much gasoline come out to 5.3 metric tons of CO₂ per year.

To put that 5.3 metric tons in perspective, the combined electricity and natural gas use of the average Holland home emits a total of roughly 7.7 metric tons of CO₂ per year. That means that for a family with two or more gas-engine cars, your vehicle emissions alone will probably be higher than your emissions for everything else in your home.

Now, if you drive an electric vehicle, those same 15,000 miles per year will equate to something around 5,000 kilowatt-hours (kWh) of added electricity use, since most electric vehicles get around three miles of range per kWh.

But consider that, unlike burning a gallon of gasoline, which creates the same emissions no matter where you are, the emissions from powering your electric vehicle depend on where you live and the source of your electricity.

In Holland, our electric emission rate is around one half of a metric ton of carbon emissions per 1,000 kWh. This is a net emissions average from our Holland Energy Park – our natural gas power plant – and the other resources in our electric portfolio (including around 16 percent renewables). So, 5,000 kWh of electricity to charge an electric vehicle generates about 2.5 metric tons of carbon dioxide emissions per year.

That is less than half of the emissions from the average gasoline-powered vehicle!

In addition to the environmental benefits of reduced emissions, electric vehicles also have human health benefits. While they are still responsible for emissions, they spare your fellow drivers and pedestrians from having to breathe the pollutants from your tailpipe, since electric vehicles have zero direct emissions.

In even better news, for the average gasoline and electric vehicles described above, the electric vehicle will save you a little over \$1,500 per year in fuel costs based on Holland BPW's residential electric rate and an assumed gas price of \$3.50 per gallon.

Want to compare your own car to what your carbon emission and costs would be to own an electric vehicle? Check out Holland BPW's new "EV Toolkit" located on our website at <https://www.hollandbpw.com/en/ev-toolkit>.

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