Electricity Will Be Colorado’s Cleanest Vehicle Fuel by 2020

DENVER, CO — Policies that are transitioning Colorado’s energy supply to renewables and natural gas will make electricity the cleanest fuel by far for automobiles by 2020.

The findings come from a new report, Transportation Fuels for Colorado’s Future that compares the “wells to wheels” energy use and air pollution of vehicles fueled by gasoline, compressed natural gas and electricity. The three different fuels were compared using average fuel efficient new vehicles purchased in 2013 and the same vehicles operating in 2020 after state clean air and renewable energy policies begin to take effect.

Figure 5. Comparison of GHG Emissions, 2020
“In terms of energy efficiency and emissions, gasoline, electric and CNG vehicles each perform best on certain metrics in 2013,” said Mike Salisbury, report author and a transportation research associate at the Southwest Energy Efficiency Project. “However, as existing state policies improve the electric grid, the plug-in electric vehicle is going to accelerate past gasoline and CNG as the cleanest car in just a short period of time.”

The report analyzed energy use and emissions from manufacture to disposal of the automobiles; extraction and processing of the vehicle fuels; and emissions related to driving. The report was prepared by SWEEP in order to fill information gaps in other recent clean vehicle research and to help inform policymakers.

Because the performance of electric cars becomes so much better than gasoline or CNG cars over time, the report recommends that policymakers should focus on investments and policies to increase the penetration of electric vehicles into the light-duty vehicle fleet.

The state’s Clean Air, Clean Jobs Act (HB-1035, 2010) is expected to reduce air pollution from electricity generation through closure of several older, dirty coal-fired power plants in the Denver front range region. The Renewable Energy Standard (CRS 40-2-124, effective 2010) requires investor-owned utilities to provide 30% of power generation from renewable sources of energy by 2020 and other utilities, 10%. With these policies in place, Colorado’s electricity generation is expected to become cleaner and more efficient over time, and electricity as a fuel for vehicles will follow suit.

The report notes that in 2020, Colorado will need to comply with stringent new smog standards that the United States Environmental Protection Agency is expected to issue in 2014. Electric vehicles will have significantly lower emissions of smog precursors than the other two fuel types and therefore can help the state meet the higher standards.

“The one wildcard in the analysis is methane emissions,” said Will Toor, director of transportation programs at SWEEP. “Methane is a potent greenhouse gas, and there currently is significant debate about the actual levels of methane emissions from natural gas drilling.”
The study assumed that methane leaks from natural gas wellheads in Colorado are low. But Salisbury and Toor both cautioned that higher rates of methane from natural gas extraction have been reported and, if true, would significantly increase the greenhouse gas emissions from CNG vehicles. Regardless of the rate of methane leaks, electric vehicles emit the least amount of greenhouse gases by 2020.

The report recommends that policymakers better quantify methane emissions and adopt policies to reduce these emissions from natural gas extraction in Colorado.

The Southwest Energy Efficiency Project is a public interest organization that promotes energy efficiency in the Southwest. ##

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