

Repeal Income Tax Credits for Innovative Motor Vehicles

The *Repeal Income Tax Credit Innovative Motor Vehicles*, or SB17-188, attempts to repeal a tax credit previously approved by the General Assembly, which incentivizes tax payers to buy innovative motor vehicles as opposed to traditional fuel vehicles. Tax payers receive a tax credit on the purchase or lease of an innovative motor vehicle. Innovative or alternative fuel vehicles are defined as vehicles such as hybrids, plug-in hybrid electrics, vehicles that are modified to have idling reduction technology, or vehicles that use any type of alternative fuel such as hydrogen, biodiesel, or ethanol. The goal of SB17-188 is to increase the market share of innovative vehicles and reduce the harmful pollution associated with traditional fuel vehicles.

Repealing the original bill would increase tax revenues as the tax credits are phased out over the next couple years. There would then be a proposition on the ballot in the November election which would ask voters to approve these estimated revenues be put into the “highway users tax fund”. The repeal of SB17-188 reduces incentives which promote the purchase of, the lease of, or modification into, innovative motor vehicles.

The tax credits at issue apply to all alternative fuel vehicles defined above and not just light-duty passenger vehicles. The rebates are as follows; \$5000 for a light-duty passenger vehicle, \$7000 for a light duty truck, \$10000 for a medium-duty truck, and \$20000 for a heavy-duty truck. There are also credits available for tax payers who lease acceptable vehicles, and they are; \$2500 for a light-duty vehicle, \$3500 for a light duty truck, \$5000 for a medium-duty truck, and \$10000 for a heavy-duty truck. The increases in credit amounts are due to the higher prices associated with larger-duty vehicles. Any Colorado tax payer can wait to receive the credit with their tax return, or the lender will deduct the smallest credit amount (\$5000)

directly off the vehicle price in return for ownership of the credit. By deducting the \$5000 directly of the price, the tax payer is reducing the interest they will pay on the vehicle.

In the market for motor vehicles there are producers and buyers. Producers make the vehicles and offer them at a certain price. Buyers are willing to pay a certain amount for what they value the vehicle to be worth. Equilibrium occurs when a producer and buyer agree on a price. For both parties directly involved in the market transaction, this is an efficient outcome in the absence of non-pecuniary externalities. However, in many markets and especially in the market for motor vehicles, externalities are present.

Externalities are benefits or costs that arise from a market transaction, and affect the welfare of people outside of the market mechanism. A positive externality has beneficial effects to society and a negative externality has detrimental effects. In the presence of negative externalities, the equilibrium quantity of production will be too high and social welfare will be diminished. If the cost of a negative externality was factored into the market price, the equilibrium quantity would be less than what the market alone ends up at and thus more socially desirable. Similarly, if left solely to the market, the quantity of products that produce positive externalities would be too little and inefficient to society. The government can remedy these types of situations by taxing products with negative externalities or subsidizing products with positive externalities.

The market for motor vehicles produces several externalities with which the government should concern itself. Pollution is one of the most common examples of a negative externality. Pollution from vehicles includes ozone, particulate matter and other smog-forming emissions. Health risks associated with these pollutants are serious. Pascale Scapecchi found the health risks associated with vehicle emissions include increasing respiratory ailments such

as asthma and bronchitis, and increasing the likelihood of life threatening cancer diagnoses or heart failure. The same study found that there is a very strong link between particulate matter exposure and premature mortality. Particulate matter is one by-product of internal combustion (traditional fuel) engines. Scapecchi also found that at a global level, “particulate matter is estimated to be responsible for nearly 800,000 premature deaths” in 2004.

Apart from the health risks of pollution, a major concern for the government should be climate change. The United States Environmental Protection Agency(EPA) attributes all the increases in greenhouse gases over the last 150 years to human activity. Greenhouse gases trap heat and make the planet warmer. The EPA attributes 26% of total U.S. greenhouse gas emissions to transportation alone, and 84% of those emissions to light-, medium-, and heavy-duty vehicles. An integrated research project called ENSEMBLE predicts the side effects of climate change, beyond just the health effects, to include declining agriculture and food security, water supplies, energy, and ecosystems. Scientists and economists are beginning to grapple with the serious environmental and economic consequences of failing to reduce global emissions.

Increasing innovative vehicle use is one way to begin cutting dangerous pollution. As of early 2014 there were 3,122 registered electric vehicles in Colorado which doubled the number registered as of early 2013. In the Electric Vehicle Implementation Study done by the Colorado Energy Office in 2014, all of Colorado’s electric vehicles accounted for an annual reduction of approximately 5,922 tons of carbon dioxide emissions compared to traditional fueled vehicles. Each individual innovative vehicle accounts for an average drop of about 37% of carbon dioxide emissions compared to the typical gasoline powered vehicle. Increasing the innovative vehicle

market share is a responsible way for the government to increase market efficiency in the face of the negative externality of pollution.

Another study done by the Electric Power Research Institute (EPRI) reported several interesting conclusions. They assume the steady growth of U.S. alternative energy sources to continue. They also assume passenger electric vehicles' steady increase in both light- and medium-duty transportation markets to continue. From 2015 – 2050, and based on current policies, they estimate a 24% reduction in greenhouse gas emissions overall. The study considers production, delivery, and use of fuels in the transportation and electricity sectors. Then they calculate the numbers assuming accelerated growth of passenger electric vehicles in the market. In this case, they estimated a 52% reduction in emissions by 2050.

The study by the EPRI looked at harmful health pollutants as well. They assumed that by 2030, 17% of light-duty vehicles and 8% of medium-duty vehicles will be powered by electricity. Emissions from both power and transportation sectors were calculated and subsequent effects to air quality were tested for the continental U.S. using three-dimensional atmospheric models. The results show a decrease in both harmful ozone and particulate matter in the accelerated electrified transportation fleet scenario. They also estimated a drop in both acids and harmful environmental nutrients in the electrified scenario.

Government involvement in the market is necessary because there are no property rights to air quality. When only a small number of parties are involved, assigning property rights will solve the problem of externalities because someone will either be compensated for, or compensate someone else for the externalities produced. This compensation would be factored into the equilibrium price and the socially optimal equilibrium would result. However, because millions of people are involved in pollution and air quality, this solution is staggeringly

costly. Another solution would be to tax drivers depending on how much pollution they produce to decrease overall pollution. This is again very difficult and costly.

The answer can be through a Pigouvian subsidy by the government. The current tax credits are of this form of subsidy. They are paying tax payers to employ a technology that produces less pollution so as to internalize the externalities and arrive at a more efficient social outcome. Such subsidies are efficient measures to slow the harmful emissions in Colorado.

SB17-188 will repeal a solution that attempts deal with positive externalities associated with innovative vehicles. These tax credits essentially lower the price in the market for vehicles that reduce harmful pollutants and greenhouse gases. From a buyer perspective, there is now a substantial financial advantage to choosing a less harmful innovative vehicle. Without the government intervention of the tax credit, the cost of that pollution is not factored into the price of the product even though it affects everyone, including those who do not participate directly in the market transaction.

By stimulating the innovative vehicle market, the government is responsibly dealing with the market inefficiencies. Repeal of SB17-188 will slide the market back to a socially inefficient equilibrium. As I have shown, the government must maintain these types of tax credits. Preserving intelligent policies now can substantially affect the planet in the future. Inaction today will cost future generations.

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