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## Tax Credit for Qualified Plug-in Electric Drive Motor Vehicle Purchases

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### Introduction

U.S. energy policy addresses three national concerns:

- The reliance of the nation on imported petroleum;
- The deterioration of air quality due to Greenhouse Gas (GHG) emissions; and
- Slow job growth in the automobile industry.

With global demand for petroleum projected to grow by 1% each year over the period of 2008 to 2030 and demand in 2030 forecasted at 105 million barrels of petroleum per day, the U.S. expects continued market volatility in petroleum prices.<sup>1</sup> It is estimated that the U.S. economy currently consumes 14 million barrels of petroleum daily and the U.S. imports about 60% of its oil, with the transportation sector alone consuming more petroleum than any national economy in the world.<sup>2</sup> Because the U.S. economy relies heavily on imported petroleum and experiences the effects of petroleum price fluctuations, policy makers face a national energy security issue.

By establishing an international competitive advantage in the emerging electric automobile industry, the U.S. economy should be able to generate domestic jobs.

In 2010, the U.S. joined the Electric Vehicles Initiative, an international policy forum dedicated to accelerating the introduction and adoption of electric vehicles. As a member nation, the U.S. is committed to the global deployment of at least 20 million passenger car electric vehicles by 2020. As of 2012, the Electric Vehicles Initiative reports that its members have produced in excess of 180,000 electric vehicles, with the U.S. having the highest cumulative stock of 71,174 electric vehicles, and Japan having the second highest cumulative stock of 44,727 electric vehicles.<sup>3</sup>

An externality resulting from the extensive economic use of petroleum is GHG

<sup>1</sup> Organization for Economic Co-operation and Development (OECD)/International Energy Agency (IEA) "World Energy Outlook", 2009, p. 42, <http://www.iea.org/media/weowebiste/2009/WEO2009.pdf>.

<sup>2</sup> U.S. Department Of Energy, AER 2009, Tables 5.13a through 5.13d; BP, plc, Statistical Review of World Energy 2010, pp. 11-12.

<sup>3</sup> International Energy Agency (IEA), Electric Vehicles Initiative (EVI) Global EV Outlook: Understanding the Electric Vehicle Landscape to 2020, Map p. 4. Apr 2013, [http://www.iea.org/topics/transport/electricvehiclesinitiative/EVI\\_GEO\\_2013\\_FullReport.PDF](http://www.iea.org/topics/transport/electricvehiclesinitiative/EVI_GEO_2013_FullReport.PDF).

emissions.<sup>4</sup> According to the U.S. Environmental Protection Agency, GHG emissions have increased steadily in recent decades, and the transportation sector accounts for 29% of total national GHG emissions that have led to the deterioration of air quality.<sup>5</sup> Electric vehicles are zero emission alternatives to conventional internal combustion engine vehicles (conventional vehicles) as they alleviate bad air quality. Because of the GHG emission reduction potential of zero emission vehicles and the need for the U.S. to reach a reduction target, the federal government has offered various tax incentives to encourage the production and purchase of low and zero emission vehicles. One of these tax incentives, the Qualified Plug-In Electric Drive Motor Vehicle tax credit (EV tax credit) is available to individuals and businesses.

When the Congress originally considered the EV tax credit, the Joint Committee on Taxation estimated a total of \$2.0 billion as the budgetary cost between fiscal years 2009 and 2019.<sup>6</sup> The New Qualified Plug-in Electric Drive Motor Vehicle tax credit (IRC Section 30D), was first enacted in the Energy Improvement and Extension Act of 2008 and was next amended by the American Recovery and Reinvestment Act of 2009. To qualify for this credit, a motor vehicle must have at least four wheels, weigh less than 7 tons, be primarily for use on U.S. public streets, roads and highways, and conform to the regulations related to the Environmental Protection Agency's Title II of the Clean Air Act.<sup>7</sup> Electric Vehicles run exclusively on chemical energy stored in rechargeable electric batteries.<sup>8</sup> An electric battery's capacity refers to the quantity of electricity which the battery stores, in kilowatt hours, measured from a zero percent state of charge to a one hundred percent state of charge, and the motor vehicle should be equipped to use an external source of energy to recharge the battery. At present, the per-vehicle dollar tax credit available to taxpayers is capped at \$7,500. The tax credit equals the sum of the base amount of \$2,500 and an

additional \$417 for each kilowatt hour of battery capacity in excess of five kilowatt hours and up to \$5,000. After 2009, the credit begins to be phased out in the second calendar quarter after the manufacturer sells over 200,000 plug-in, electric drive motor vehicles.

The following section will specifically analyze Section 30D using the ten principles outlined in the AICPA Tax Policy Concept Statement No. 1: Guiding Principles of Good Tax Policy: A Framework for Evaluating a Tax Proposal. It would further relate this credit to other energy tax incentives.

<sup>4</sup> Greenhouse gasses such as carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons trap heat in the Earth's atmosphere. Over time, human activities that produce greenhouse gasses have increased Earth's natural atmospheric concentrations of greenhouse gasses that are associated with detrimental planetary climate changes. Significant global temperature increases change weather patterns that affect Earth's ecosystems, air and water quality, and human health. According to the U.S. Global Change Research Program (GCRP), detrimental climate changes are occurring now and are expected to increase, but climate changes are mitigated by reducing human-caused emissions of greenhouse gasses. Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson (eds.). *GCRP, Global Climate Change Impacts in the United States*, Cambridge University Press, 2009, p. 12.

<sup>5</sup> Report to Congress by U.S. Department of Transportation, "Transportation's Role in Reducing U.S. Greenhouse Gas Emissions," Vol. 1 & 2, April 2010, p. 2-5. See Table 2.1: U.S. Environmental Protection Agency (2009) *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008*, [http://ntl.bts.gov/lib/32000/32700/32779/DOT\\_Climate\\_Change\\_Report\\_-\\_April\\_2010\\_-\\_Volume\\_1\\_and\\_2.pdf](http://ntl.bts.gov/lib/32000/32700/32779/DOT_Climate_Change_Report_-_April_2010_-_Volume_1_and_2.pdf).

<sup>6</sup> Joint Committee on Taxation, Estimated Budget Effects of the Revenue Provisions Contained in the Conference Agreement for H.R. 1, American Recovery and Reinvestment Tax Act of 2009, JCX-19-09 (February 12, 2009), p.3.

<sup>7</sup> IRC Sect. 30D(d)

<sup>8</sup> Vehicles that are powered by fuel-cell batteries qualify for a different tax credit under IRC Section 30B.

## Equity and Fairness

*Similarly situated taxpayers should be taxed similarly.*

**Horizontal Equity:** As a uniform tax credit, the EV tax credit is available to individuals and businesses for the purchase of qualifying plug-in electric vehicles. However, Section 30D limits the electric vehicle category exclusively to passenger vehicles that must be acquired for use or lease and not for resale.<sup>9</sup> All types of taxpayers qualify for the credit and the EV tax credit maintains horizontal equity, since similarly situated taxpayers within marginal income tax brackets qualify for the same tax credit and thereby achieve approximately similar tax outcomes. The Manufacturer Suggested Retail Price (MSRP), without the EV tax credit, for the lowest priced plug-in electric vehicle models ranges from \$26,700 for the Chevy SPARK to \$69,900 for a Tesla MODEL S. The MSRP for a Nissan LEAF without the EV tax credit is \$29,800.

**Vertical Equity:** The U.S. system of income taxation is progressive, and the effect of the nonrefundable tax credit is not vertically equitable across all marginal income tax brackets. Low-income taxpayer in the 10% and 15% income tax brackets are unlikely to benefit from the tax credit because

they do not have tax liability.<sup>10</sup> Generally, middle income taxpayers within the 25% income tax bracket or higher benefit from the tax credit.<sup>11</sup> A single filer with at least \$55,600 in earnings (a married couple filing jointly with at least \$75,300 in earnings), with no dependents, after a 2012 standard deduction, and with no other tax credits would earn almost the full \$7,500 EV tax credit.

It is possible that wealthy taxpayers in the higher income tax brackets may be insensitive to the nonrefundable EV tax credit when deciding to purchase electric vehicles. The wealthy taxpayers could elect not to take the EV tax credit, because the benefit of taking the monetary capped nonrefundable tax credit is insignificant relative to the wealthy taxpayers' substantial net taxable income; however most taxpayers probably opt to take the credit. The EV tax credit does not affect the poor

<sup>10</sup> The U.S. Census estimates that the 2012 poverty threshold for a single taxpayer under 65 years of age is \$11,945 (15% income tax bracket), and the poverty threshold for a two person household with no dependents is \$15,374 (10% income tax bracket). See: Poverty Thresholds for 2012, U.S. Census, <http://www.census.gov/hhes/www/poverty/data/threshld/thresh12.xls>.

<sup>11</sup> U.S. marginal income tax rates and brackets are available at Post Cliff Brackets for 2013 at [http://www.taxbrackets2013.com/post\\_cliff\\_brackets.html](http://www.taxbrackets2013.com/post_cliff_brackets.html)

taxpayers' tax position, but it can benefit both middle and high income tax payers by lowering their income tax liabilities.

**Alternate Policy Initiative:** According to Steven J. Skerlos, and James J. Winebrake, certain regional factors impact the magnitude of social benefits derived from the use of electric vehicles.<sup>12</sup> The economists criticize the current national policy of subsidizing electric vehicles across all taxpayers in the U.S. and alternatively recommend the achievement of greater social benefits by targeting the EV tax credit to taxpayers in locations where the tax credit provides the greatest environmental, health, and energy social benefits. Skerlos and Winebrake evaluate the regional variability of social benefits associated with the use of the electric vehicle and hypothesize that these factors are mostly heterogeneous across the continental U.S. and accommodate a better policy of targeted electric vehicle subsidies to consumers in specific locations or regions. They propose that energy policy, which is regionally targeted with the EV tax credit, provides the greatest social

<sup>12</sup> Steven J. Skerlos and James J. Winebrake, "Targeting plug-in hybrid electric vehicle policies to increase social benefits", Energy Policy 38 (2010) pp. 705-708, <http://www-personal.umich.edu/~skerlos/phev.pdf>.

benefits based on the following regional factors. First, an incentivized increased use of electric vehicles leads to reductions of air pollution by primarily targeting the tax credit incentive in traffic-congested metropolitan areas, where air quality is poor, instead of thinly populated areas. Second, incentivized increased use of electric vehicles leads to reductions in GHG emissions by focusing the tax credit in regions that provide low-carbon electricity generation grids, supplied by renewable energy sources, over regions that rely heavily on coal, oil, or natural gas. The current EV tax credit qualifies all taxpayers across the nation, and it maintains horizontal equity, while the proposed regionally targeted EV tax credit is selectively available and potentially causes horizontal inequity.

<sup>9</sup> The electric vehicle tax credit does not apply to buses, trains, medium-duty, or heavy-duty trucks.



## Certainty

*The tax rules should specify when the tax is to be paid, how it is to be paid and how the amount to be paid is to be determined.*

**Direct Tax Credit Effects:** Taxpayers who purchase electric vehicles anticipate receiving the benefit of the current EV tax credit when they file their annual income tax returns. The amount of tax credit received is calculated on Form 8834 that determines the tax credit amount associated with either a personal use or a business/investment use of the purchased electric vehicle. The tax form's calculations begin with a tentative EV tax credit amount that is sourced from the electric vehicle's certificate. Certificates for qualified electric vehicles originate from either domestic manufacturers or domestic distributors of foreign manufacturers. The certificates are conveyed to electric vehicle dealerships and transferred to taxpayers at the point of purchasing electric vehicles<sup>13</sup> thereby providing taxpayers with certainty before the purchase that their new electric vehicles qualify for the EV tax credit.

**Indirect Tax Credit Effects:** Given that Section 30D includes phase-outs, the IRS periodically publishes announcements detailing withdrawals of specified electric

<sup>13</sup> Each certificate provides that the electric vehicle's specific make, model, and model year characterize it for the taxpayer's qualification of the EV tax credit

## Convenience of Payment

*A tax should be due at a time or in a manner that is most likely to be convenient for the taxpayer.*

**Current Tax Credit Effects:** The EV tax credit is incorporated into the annual income tax return that taxpayers file. However, the income tax return includes an additional form and requires complicated calculations.

**Prospective Tax Credit Effects:** Over the past five years, the federal government has subsidized costly, low-performance first-generation electric vehicles in an embryonic electric vehicle industry by providing taxpayers with the incentive of the tax credit for the purchase of electric vehicles. For taxpayers, realization of the potential benefit of the credit is latent and embedded in the calculated annual income tax filing and reporting process. The current administration's 2014 budget proposal to Congress seeks to improve the EV tax credit rules by assigning the tax credit benefit to electric vehicle dealerships, while allowing purchasers to receive an immediate up front point-of-sale rebate of the EV tax credit amount.<sup>14</sup> If the proposed rules are implemented, consumers will be more

receptive to purchasing price-discounted electric vehicles, but the inconvenience of capturing the tax credit will shift to electric vehicle dealerships through the process of filing their business taxes.

<sup>14</sup> Antony Ingram, "Obama Budget Boosts Funding, Tax Credit For Electric Cars", Christian Science Monitor, Apr 14, 2013, <http://www.csmonitor.com/Business/In-Gear/2013/0414/Obama-budget-boosts-funding-tax-credit-for-electric-cars>

## Economy of Collection

*The costs to collect a tax should be kept to a minimum for both the government and taxpayers.*

**Current Tax Credit Effects:** Since the first offering of the EV tax credit, the IRS has borne the burden of issuing guidance on this credit, creating Form 8834, and reviewing taxpayer claims. Presently, electric vehicle sales in the U.S. are low compared to conventional vehicle sales, but the costs borne by the IRS to administer the EV tax credit increased during the 2012 tax year by 14,592 new claims for electric vehicles sold in 2012.<sup>15</sup>

a wide variety of model choices, there will be an increase in electric vehicle sales.<sup>16</sup> Furthermore, the EV tax credit is part of an already voluminous and complex U.S. tax code list of expenditures that amplify the administrative burden of the U.S. tax code.

**Prospective Tax Credit Effects:** If the temporary tax credit provision is made available to taxpayers in future years, the administrative burden of the IRS is expected to increase with the forecasted increase in future electric vehicle sales. Today, the nascent electric vehicle industry is considered to be in its early development phase, evidenced in 2012, by a small selection of no more than eight models that were widely available to the general public. Because there is a strong correlation between electric vehicle sales and product assortment, the EVI forecasts that in the near future, when consumers experience

<sup>15</sup> IEA, EVI Global EV Outlook: Understanding the Electric Vehicle Landscape to 2020 Map p. 4, Apr 2013, [http://www.iea.org/topics/transport/electricvehiclesinitiative/EVI\\_GEO\\_2013\\_FullReport.PDF](http://www.iea.org/topics/transport/electricvehiclesinitiative/EVI_GEO_2013_FullReport.PDF).

<sup>16</sup> Ibid.

## Simplicity

*Tax law should be simple so that taxpayers understand the rules and can comply with them correctly and in a cost efficient manner.*

**Current Tax Credit Effects:** Section 30D is confusing, and new electric vehicle purchasers mistakenly believe that the overall current cost of new electric vehicles is lower than it actually is, because they do not fully understand the details of the tax credit calculation.<sup>17</sup> For the EV tax credit, income taxpayers should include in supplemental Form 8834 information sourced from documents provided by their automobile dealerships, such as vehicle identification numbers and proofs of the qualifying credits, and must further determine if their electric vehicles are for personal or business use.

effectiveness of the tax provision should be measured by its long-term effects on gasoline use and GHG emissions.

**Policy Effects:** To simplify Section 30D, the temporary tax provision should be recognized as a permanent tax provision, and complicated manufacturer phase-outs should be eliminated. According to an AICPA tax legislative study, “The on-again-off-again nature of these [temporary] provisions, coupled with retroactive tax law changes, necessitate filing amended returns, make long term planning difficult, and significantly increase complexity”<sup>18</sup>. Moreover, the cost-

<sup>17</sup> Deborah Gordon, Daniel Sperling, and David Livingston, “Policy Priorities for Advancing the U.S. Electric Vehicle Market”, Carnegie Endowment for International Peace, Sep 17, 2012, [http://carnegieendowment.org/files/electric\\_vehicles.pdf](http://carnegieendowment.org/files/electric_vehicles.pdf).

<sup>18</sup> AICPA Tax Reform Alternatives, “Tax Reform Alterna-

tives for the 21st Century”, Oct 2009, [http://www.aicpa.org/press/pressreleases/2009/downloadabledocuments/perab\\_aicpa\\_tax\\_reform\\_october\\_2009\\_final.pdf](http://www.aicpa.org/press/pressreleases/2009/downloadabledocuments/perab_aicpa_tax_reform_october_2009_final.pdf).

## Neutrality

*The effect of the tax law on a taxpayer's decisions as to how to carry out a particular transaction or whether to engage in a transaction should be kept to a minimum.*

**C**urrent Tax Credit Effects: Section 30D, offered as a tax liability reduction incentive, has largely failed to influence the behavior of the large population of U.S. taxpayers to purchase electric vehicles. In 2012, electric vehicle sales accounted for a meager 0.1% of the 15 million annual vehicle sales<sup>19</sup> reflecting the U.S. taxpayers' preference for conventional vehicles. According to the Congressional Budget Office (CBO), the EV tax credit was considered to have the largest potential impact on the prices of vehicles.<sup>20</sup> However, electric vehicle sales have been sluggish because even after the EV tax credit, electric vehicles are more expensive than other vehicles, and consumer purchase decisions include a perceived price factor, which is outweighed by other convenience attributes, such as vehicle performance, safety, reliability, mileage range, and the availability of accessible charge stations, or Electric Vehicle Supply Equipment (EVSE). Many consumers maintain that today's electric vehicles cover limited driving distances and require frequent recharging of battery power, and this is a misconception that generally applies to the first marketed models. According to a San Francisco Bay Area automobile product specialist, for consumer purchases that result in the rejection of electric vehicles in favor of conventional vehicles, price savings are often ignored and overshadowed by the consumers perceived driving "range anxiety".<sup>21</sup>

<sup>19</sup> Julie Halpert, "Why Americans Still Don't Drive Electric Cars", The Fiscal Times.com, January 22, 2013, <http://www.thefiscaltimes.com/Articles/2013/01/22/Why-Americans-Still-Dont-Drive-Electric-Cars.aspx#page1>

<sup>20</sup> Congressional Budget Office: Effects of Federal Credits for the Purchase of Electric Vehicles, Congress of the United States, Sep 2012, p. 6, [http://www.cbo.gov/sites/default/files/cbofiles/attachments/09-20-12-ElectricVehicles\\_0.pdf](http://www.cbo.gov/sites/default/files/cbofiles/attachments/09-20-12-ElectricVehicles_0.pdf).

<sup>21</sup> Dennis Franklin, Toyota Product Specialist, Personal Interview, Sep 2013.

## Economic Growth and Efficiency

*The tax rules should specify when the tax is to be paid, how it is to be paid and how the amount to be paid is to be determined.*

**C**urrent Tax Credit Effects: Having recently emerged from a prolonged recession, and troubled with a federal budget deficit currently estimated at \$642 billion<sup>22</sup> the U.S. should reassess its pursuit of a leadership position in establishing an international competitive advantage in the emerging electric automobile industry. Economists argue that in the global trading economy, other nations endowed with budget surpluses and low-cost labor, such as China, can better justify subsidizing their clean-technology industries, than the U.S. These nations' positive spillovers benefit the U.S. as their economic trading partner. Some of these benefits include cost-effective green technologies.

**Prospective Tax Credit Effects:** Although government funding is intended to transform the niche luxury market of electric vehicles into a more sustainable broad-based market, it will be costly for the U.S. to indefinitely continue the fiscal stimulus of the electric vehicle industry.<sup>23</sup>

<sup>22</sup> Adele C. Morris, Pietro S. Nivola, and Charles L. Schultze. Clean Energy: Revisiting the Challenges of Industrial Policy, Climate and Energy Economics Discussion Paper. The Brookings Institution, June 4, 2012, [http://www.brookings.edu/~media/research/files/papers/2012/6/04%20clean%20energy%20morris%20nivola%20schultze/04\\_clean\\_energy\\_morris\\_nivola\\_schultze.pdf](http://www.brookings.edu/~media/research/files/papers/2012/6/04%20clean%20energy%20morris%20nivola%20schultze/04_clean_energy_morris_nivola_schultze.pdf).

<sup>23</sup> Electric vehicle purchases are limited to a small

Currently, the financial support from the federal government for the infrastructural development of EVSE and electric vehicle battery research is a subsidy of approximately 4.17% of the current budget deficit, or \$268 million.<sup>24</sup> Additional tax credits are offered for commercial EVSE installation at 30% of the cost, not to exceed \$30,000, and for qualified residential EVSE installation tax credit of up to \$1,000.<sup>25</sup> It may be cost-efficient for the private sector to develop the national EVSE infrastructure based on market forces of supply and demand.

**Policy Effects:** The federal government should spotlight its funding on research and development to improve electric batteries. According to a CBO report summary, an average electric vehicle equipped with a battery capacity of 16 kilowatt-hours qualifies for the maximum Section 30D tax credit, but a tax credit of more than

segment of affluent consumers that is both environmentally-conscious and an early adopter of technology

<sup>24</sup> IEA, EVI Global EV Outlook: Understanding the Electric Vehicle Landscape to 2020, Map p. 4, Apr 2013, [http://www.iea.org/topics/transport/electricvehiclesinitiative/EVI\\_GEO\\_2013\\_FullReport.PDF](http://www.iea.org/topics/transport/electricvehiclesinitiative/EVI_GEO_2013_FullReport.PDF).

<sup>25</sup> The American Taxpayer Relief Act of 2012 extended the IRC Section 30C Alternative Fuel Vehicle Refueling Property credit through 2013, retroactive to the 2011 expiration of the credit. The EVSE tax credit is calculated on Form 8911 and guidelines are provided by IRS Notice 2007-43 at [http://www.irs.gov/irb/2007-22\\_IRB/ar10.html](http://www.irs.gov/irb/2007-22_IRB/ar10.html).

## Economic Growth and Efficiency

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\$12,000 would be required to attain the same lifetime costs compared with internal combustion engines or traditional hybrid vehicles.<sup>26</sup> The targeted development of low-cost, high-capacity electric batteries will enhance electric vehicle mileage range and price-competitiveness, thereby enabling mass market saturation and ultimately achieving the policy goal of job creation. A green vehicle workforce will increase jobs in design, production, sales, service, infrastructure, and education.<sup>27</sup>

## Transparency and Visibility

*Taxpayer should know that the tax exists and how and when it is imposed upon them and others.*

**C**urrent Tax Credit Effects: A small market niche of taxpayers who are potential electric vehicle consumers are generally well informed about the EV tax credit, while most taxpayers remain uninformed. However, under the auspices of the Transportation Electrification Initiative of the Department of Energy, 6.24% of the current budget deficit, or \$400 million in grant funding, has been committed to demonstration, deployment, and education projects involving electric vehicles with the goal of promoting public awareness and enhancing their appeal to U.S. consumers.<sup>28</sup> Because most taxpayers do not know the details of the EV tax credit and do not understand how it applies to them, the credit does not meet the principle of transparency and visibility.

## Minimum Tax Gap

*A tax should be structured to minimize noncompliance.*

**C**urrent Tax Credit Effects: Arguably, tax expenditures contribute to the reduction of the U.S. tax gap, which is estimated to be between \$385 billion and \$600 billion.<sup>29</sup> Expenditures, such as the EV tax credit, incentivize taxpayers to comply with the federal tax filing requirements to receive their credit by filing timely and paying their reduced tax liabilities. According to a U.S. Government Accountability Office report, voluntary compliance increases when taxpayers are less likely to evade taxes and prepare error-free tax returns.<sup>30</sup> Generally, the tax gap is minimized for the EV tax credit because taxpayers are expected to claim the credit with valid electric vehicle certificates.

## Appropriate Government Revenues

*The tax system should enable the government to determine how much tax revenue will likely be collected and when.*

**A**ccording to the CBO, the projected total budgetary cost of the main federal programs that support the incentive for taxpayers to purchase electric vehicles through 2019 is about \$7.5 billion.<sup>31</sup> To facilitate the tax credit related revenue analysis of the government, the IRS requires domestic and foreign manufacturers' domestic distributors to report actual statistics of qualified electric vehicle sales to consumers or retail dealerships during each calendar quarter.<sup>32</sup> The reports are to include quantitative data such as the number of qualified electric vehicles sold per make and model and taxpayer-specific qualitative data. The current tax rules associated with the EV tax credit enable the IRS to compile data for analysis, and the EV tax credit meets the principle of Government Revenues.

<sup>26</sup> Congressional Budget Office: Effects of Federal Credits for the Purchase of Electric Vehicles, Report Summary, Congress of the United States, Sep 2012, <http://www.cbo.gov/publication/43576>.

<sup>27</sup> Shannon M. Sedgwick, and Christine Cooper. "Electric Vehicles: The Market and its Future Workforce Needs, LAEDC Economic and Policy Analysis", Pacific Gateway Workforce Investment Network, Aug 2012, p. 20. [http://www.laedc.org/reports/EV\\_PGWIN\\_FINAL.pdf](http://www.laedc.org/reports/EV_PGWIN_FINAL.pdf).

<sup>28</sup> Congressional Budget Office: Effects of Federal Credits for the Purchase of Electric Vehicles, Congress of the United States, Sep 2012, p. 9, [http://www.cbo.gov/sites/default/files/cbofiles/attachments/09-20-12-ElectricVehicles\\_0.pdf](http://www.cbo.gov/sites/default/files/cbofiles/attachments/09-20-12-ElectricVehicles_0.pdf)

<sup>29</sup> Christopher Matthew, "The \$600 Billion that the IRS Can't Collect", Time.com, Mar 27, 2013, <http://business.time.com/2013/03/27/the-600-billion-the-i-r-s-cant-collect/>.

<sup>30</sup> U.S. Government Accountability Office, "Understanding the Tax Reform Debate: Background, Criteria, and Questions", Sep 2005, p.31, <http://www.gao.gov/new.items/d051009sp.pdf>.

<sup>31</sup> Congressional Budget Office: Effects of Federal Credits for the Purchase of Electric Vehicles, Congress of the United States, Sep 2012, p. 5, [http://www.cbo.gov/sites/default/files/cbofiles/attachments/09-20-12-ElectricVehicles\\_0.pdf](http://www.cbo.gov/sites/default/files/cbofiles/attachments/09-20-12-ElectricVehicles_0.pdf).

<sup>32</sup> Refer to: IRS Notice 2009-89 at <http://www.irs.gov/pub/irs-drop/n-09-89.pdf>; Part III of the Internal Revenue Bulletin No. 2009-48 (2009) at <http://www.irs.gov/pub/irs-irbs/irb09-48.pdf>; List of manufacturers and vehicles qualified for the EV credit at <http://www.irs.gov/Businesses/Qualified-Vehicles-Acquired-after-12-31-2009>; Published electric vehicle sales data reported to the IRS by manufacturers at <http://www.irs.gov/Businesses/IRC-30D---Plug-In-Electric-Drive-Motor-Vehicle-Credit-Quarterly-Sales>.



## Ratings Summary

Equity and Fairness	Horizontal + Vertical -
Certainty	+
Convenience of Payment	-
Economy in Collection	-
Simplicity	-
Neutrality	+
Economic Growth and Efficiency	-
Transparency and Visibility	-
Minimum Tax Gap	+
Appropriate Government Revenues	+

## Conclusion

When evaluated against the principles of good tax policy, the EV tax credit meets four: Certainty, Neutrality, Minimum Tax Gap and Appropriate Government Revenues. The EV tax credit does not fully meet the requirements for Equity because the negatives of the Vertical Equity outweigh the positives of the Horizontal Equity. The tax credit fails the other five principles of a good tax policy: Convenience of Payment, Economy of Collection, Simplicity, Economic Growth and Efficiency, Transparency, and Visibility.

The current tax credit effects are evaluated within the timeframe of a few years following the 2009 debut of the tax credit as an incentive to encourage sales growth of electric vehicles produced by an infant and emerging electric vehicles industry. Although the express tax credit goal of increasing current green electric vehicle purchases has failed a number of principles of good tax policy, one cannot necessarily establish the EV tax credit as a dismal long-term tax policy choice because it indirectly promotes other long-term national policy initiatives. These are national policy initiatives that benefit the public, such as the reduction of the U.S. transportation sector's reliance on petroleum and the improvement of air quality due to GHG emissions, both of which take a long time to achieve.

Other Approaches: The EV tax credit supports zero emission vehicles in an attempt to reduce carbon-intensive travel activity in the transportation sector that is highly reliant on petroleum. Two alternate approaches complement the federal subsidy by also reducing the carbon footprint of the U.S. commuter: Increase the federal per gallon excise tax on gasoline (gas tax) and promulgate a nationwide Pay-As-You-Drive (PAYD) insurance initiative.<sup>33</sup>

**1) Federal Gas Tax Increase Initiative:** The federal excise tax on gasoline is currently levied on producers, refiners, and importers of petroleum and deposited in the Federal Highway Trust Fund, from which it is periodically distributed to states to finance various highway programs. Because the federal gas tax is levied directly on petroleum businesses, a large

<sup>33</sup> The U.S. Department of Transportation has considered various strategies, including the Pay-As-You-Drive (PAYD) insurance initiative and the Vehicle Miles Traveled (VMT) tax initiative with the goal of reducing carbon-intensive travel activity related to GHG emissions. The VMT Tax is a proposed pricing strategy that, if implemented, makes travel more expensive and less desirable for consumers while raising revenue for the Department. In this author's opinion, it is unlikely that a federal VMT tax will be implemented, which is why the PAYD insurance initiative appears to be a better alternative.

number of taxpayers are uninformed about it. Ever since the last gas tax increase of 1993, the fixed-rate federal gas tax has been set at 18.4¢ per gallon on gasoline fuel and 24.4¢ per gallon on diesel fuel.

The federal gas tax is not indexed to either the price of crude oil or inflation; it has lost one-third of its buying power<sup>34</sup>; and its contribution to state coffers has been steadily declining. To fund state infrastructural projects, all fifty U.S. state governments now place some form of a fixed-rate or inflation-indexed state excise gas tax on taxpayers who rely on conventional vehicles.<sup>35</sup> Florida levies 4¢ per gallon, California assesses 36¢ per gallon, and North Carolina and Washington both tax at the highest rate of 37.5¢ per gallon.<sup>36</sup>

Some cite the revenue generating potential of the federal gas tax as a reason to adjust it for the effects of inflation: Each 1¢ per gallon increase in federal gas tax will raise approximately \$1.8 billion in much needed revenues.<sup>37</sup> An increase in the existing federal gas tax poses minimal administrative costs to the federal government, and higher gas prices potentially encourage taxpayers to seriously consider owning fuel-efficient and green vehicles.<sup>38</sup> However, an increase in the federal gas tax is not a popular idea with federal legislators or their constituents. Representative Fred Upton, chairman of the House Energy and Commerce Committee, objects to increasing the federal gas tax, because it is an excise tax with regressive income effects, “Higher gas prices hit those who can least afford it the most as American families are forced to pay a larger percentage of their income on higher energy prices, and further price increases at the pump could be devastating to low- and middle-class families and disastrous to our economic recovery”.<sup>39</sup> Although the immediate outlook for a federal gas tax hike is downbeat, most U.S. states are expected to expand state revenues by increasing their selection of gas taxes as part of a wide array of environmental initiatives.

Given that a federal gas tax increase is not possible in the current economic climate,

<sup>34</sup> Larry Copeland, “Gas tax Falling Short in Paying For Transportation Needs,” USA Today, Feb 24, 2012, <http://usatoday30.usatoday.com/news/nation/story/2012-02-07/gas-tax-not-enough-to-fund-roads/53228510/1>.

<sup>35</sup> Institute on Taxation and Economic Policy, “State Gasoline Taxes: Built to Fail, But Fixable”, May 2012, <http://itepnet.org/pdf/pb44stategastax.pdf>.

<sup>36</sup> American Petroleum Institute, “State Motor Fuel Taxes 2013”, April 23, 2013.

<sup>37</sup> Institute on Taxation and Economic Policy, “State Gasoline Taxes: Built to Fail, But Fixable”, May 2012, <http://itepnet.org/pdf/pb44stategastax.pdf>.

<sup>38</sup> Report to Congress by U.S. Department of Transportation, “Transportation’s Role in Reducing U.S. Greenhouse Gas Emissions,” Vol. 1 & 2, April 2010, p. 3-24. See Table 2.1: U.S. Environmental Protection Agency (2009) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008, [http://ntl.bts.gov/lib/32000/32700/32779/DOT\\_Climate\\_Change\\_Report\\_-\\_April\\_2010\\_-\\_Volume\\_1\\_and\\_2.pdf](http://ntl.bts.gov/lib/32000/32700/32779/DOT_Climate_Change_Report_-_April_2010_-_Volume_1_and_2.pdf).

<sup>39</sup> David Zeiler, “These Gas Tax Hikes Will Make Driving A Lot More Expensive”, Money Morning, May 10, 2013, <http://money.com/2013/05/10/these-gas-tax-hikes-will-make-driving-a-lot-more-expensive/>

non-fiscal pricing policies, such as the PAYD insurance initiative, would complement the EV tax credit by potentially reducing GHG emissions in the short-term by up to 3% in the transportation sector.

**2) Proposed PAYD Insurance Initiative:** The Department of Transportation, in a report to the Congress, has proposed enactment of federal legislation requiring states to allow or mandate a PAYD insurance initiative.<sup>40</sup> By comparing the possible effects of federal gas tax price increases with pricing strategies that affect passenger travel, such as the PAYD insurance approach, it is estimated that a gas tax increase of approximately 40¢ to \$1.00 per gallon is equivalent to a pricing strategy that costs as little as 2¢ to 5¢ per mile.<sup>41</sup>

The PAYD insurance initiative would affect all conventional vehicles, while exempting fuel efficient and zero emission electric vehicles. The PAYD insurance approach involves variable costs of crash risk that are proportional to measured vehicle driven distances that are measured by readings of vehicle odometer or similar electronic devices. The crash risk costs are converted into a per-mile PAYD insurance premium cost assessed on insured vehicle owners. Because crash risk is directly related to a conventional vehicle owners’ driving distance, those who travel less potentially incur lower insurance premiums.<sup>42</sup>

The federal government generally views the PAYD insurance initiative as cost-effective to implement through federal and state mandates that would directly benefit the revenue potential of the private automobile insurance industry, while indirectly discouraging taxpayers from owning costly conventional vehicles. However, governments will need to amend regulations related to the automobile insurance industry and provide for the increase in related costs of administration. Several state government insurance regulations are in dire need of modernization and should expand the definition of long-standing annual policy premiums to include mileage-based premiums. The legal technicalities of many outdated state insurance regulations often prevent private insurance carriers from offering mileage-based automobile insurance coverage. By modernizing state insurance regulations, state legislators would enhance the transparency of their insurance rules and effectively endorse the federal PAYD initiative, thereby encouraging the widespread regulatory implementation of the initiative in the private automobile insurance industry.

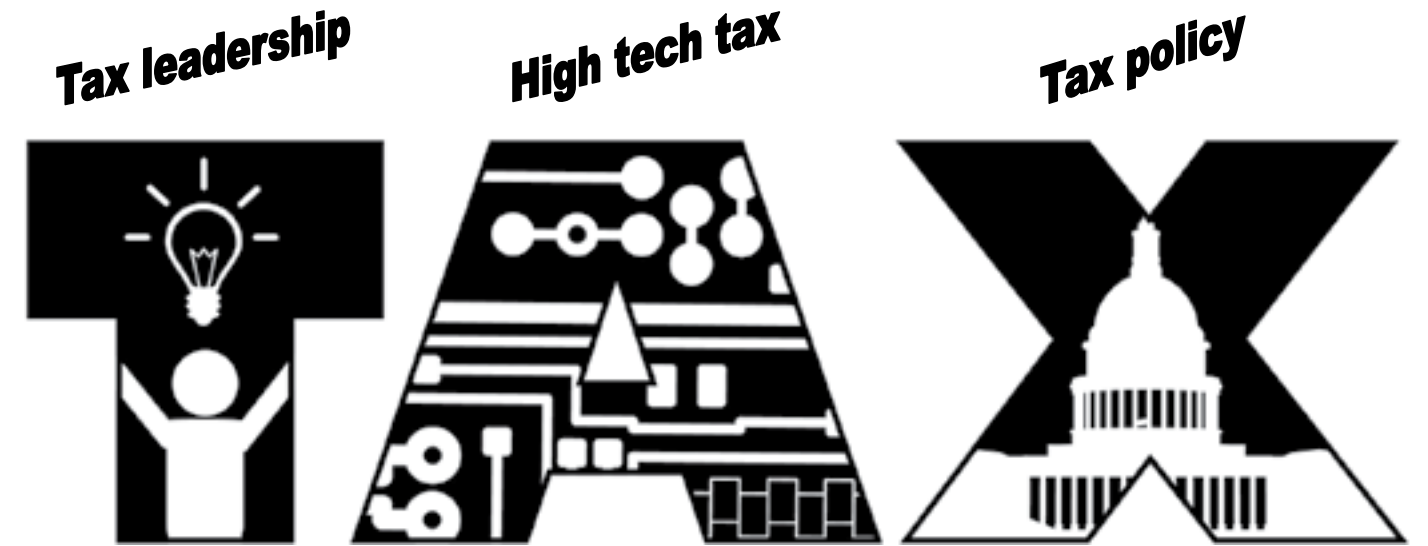
The U.S. faces a national energy security issue, and as an EVI founding member,

<sup>40</sup> An increased gas tax has the benefit of helping the Highway Trust Fund which is not generating enough funds for maintenance and construction.

<sup>41</sup> *Ibid*, p. 3-18.

<sup>42</sup> *Ibid*, p. 5-22.

over the next decade, the federal government is expected to continue subsidizing the growth of its fledgling electric vehicles industry until it achieves wide-spread market penetration and becomes self-sustaining. U.S. energy policy is supported by the continued long-term provision of the EV tax credit along with the implementation of approaches, such as incrementally increasing gas taxes and launching a nationwide PAYD insurance initiative. Nonetheless, taxpayers will experience the harmonized effects of these three policies through direct price increases in their gasoline purchases and monthly automobile PAYD insurance premiums. Rational Americans will have to evaluate cost-effective travel options, such as curtailing unnecessary and expensive driving distances and examining cost-effective ownership decisions that include leasing or owning zero-emission vehicles. Harmonized green tax policies should send consistent messages to taxpayers.



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