

# TRANSITIONING TO ELECTRIFICATION: FUNDING RESOURCES



Transportation is responsible for most air pollution in urban areas and produces the most greenhouse gases of any U.S. economic sector. To reduce these emissions, cities and businesses are considering deploying electric vehicles, which produce no tailpipe emissions that would otherwise impact public health in their immediate surroundings and have lower carbon footprints. Realizing the benefits of transportation electrification for all residents, including those in low-income communities, may require targeted policies and planning methods.

This paper describes funding resources for strategies described in “Electrified Transportation for All,” a brief that encourages planners and fleet managers to consider the potential costs and benefits of different types of electrified transportation in low-income communities. The brief helps estimate and explain total cost of ownership (TCO) and the differences in air quality and greenhouse gas emissions of electrified light-duty passenger cars, school buses, and transit buses.

The higher upfront cost of purchasing light- or heavy-duty electric vehicles (EVs) and their associated charging infrastructure is one of the most significant barriers to EV adoption, even though over the lifetime of the vehicles the total cost of ownership may be lower than traditionally-fueled vehicles. This fact sheet identifies potential funding mechanisms for electrified transportation that will reduce tailpipe and greenhouse gas emissions, such as federal and state government grant programs or funding through the Volkswagen 2.0 and 3.0-liter vehicle settlement. The following resources could be applied to reduce the upfront costs of light- and heavy-duty EVs and charging infrastructure, and could improve the accessibility of light-duty EVs, electric school and transit buses, and EV charging infrastructure. These multiple avenues for electrified transportation may help cities and businesses expand the benefits of electrification, such as reduced criteria air pollutant emissions, to low-income communities. For more information on electrified transportation strategies to benefit low-income communities, see the C2ES brief “Electrified

Transportation for All: How Electrification Can Benefit Low-Income Communities.”

## FEDERAL FUNDING FOR VEHICLES

Federal funding programs that contribute to the electrification of vehicles include:

- **Surface Transportation Block Grant (STBG) Program (23 U.S. Code 133):** The broadest funding program under the FAST Act, the STBG program provides states with financial assistance to develop new transit systems and improve, maintain, and operate existing systems. The program is relatively broad and flexible, allowing states and cities the leeway to identify and invest in shared surface transportation programs, including school buses and transit buses. Each state is apportioned a lump sum, and then each program within each state is given a share of the state’s lump sum. Annual allocations to the federal program exceed \$11 billion through 2020.
- **Congestion Mitigation and Air Quality Program**

(23 U.S. Code 149): The CMAQ program provides funding to areas in nonattainment, or areas that have been identified as exceeding limits for at least one criteria air pollutant defined by the National Ambient Air Quality Standards. CMAQ also funds areas that are in maintenance, which were in nonattainment but are now in compliance. States with areas in nonattainment or maintenance must use these funds to improve air quality and reduce criteria pollutants. States without nonattainment or maintenance areas may use a minimum apportionment of CMAQ's \$2.4 billion annual budget to spend on transit capital expenditures that have an air quality benefit. Eligible projects may include vehicle replacement and infrastructure investments for a range of vehicle and fuel types, including EVs, natural gas, and biofuels.

- **Low or No Emission Vehicle Program (49 U.S. Code 5339(c)):** The “Low-No” program provides funding to state and local government authorities for the purchase or lease of zero-emission and low-emission transit buses. The program will also fund the acquisition, construction, and leasing of required supporting facilities, including charging equipment. Federal cost-shares are capped at 85 percent of the purchase price of a new vehicle and 90 percent of the installation costs for equipment and supporting facilities. In 2016, 20 projects in 13 states were allocated \$55 million in Low-No funding. The FAST Act has authorized the same level of Low-No funding through 2020. According to a best practices webinar hosted by Federal Transit Administration featuring the Center for Transportation and Environment, successful applications will feature strong public and private partnerships, will commit resources beyond the most basic required cost share, and will commit to zero emissions transit beyond introductory pilot projects.
- **Urbanized Area Formula Program (49 U.S. Code 5307):** This program makes federal funding available to urbanized areas with differing requirements for urbanized areas with populations of at least 50,000 residents and for urbanized areas with populations exceeding 200,000 residents. The program specifies several goals for funding, including the planning, construction, and evaluation of new public transportation projects, overhauling

and replacing buses, and increasing mobility for disadvantaged populations. Funding is flexible and is based on formulas that account for bus revenue vehicle miles, bus passenger miles, population, and population density, as well as fixed guideway revenue and passenger miles. Federal share may not exceed 80 percent of the net project cost nor exceed 50 percent of the net project cost of operating assistance. The higher federal share for net project cost would benefit an all-electric bus project, given that the upfront costs are the biggest barrier to deploying all-electric buses. The program has an annual budget greater than \$5 billion annually through 2020.

- **Diesel Emissions Reduction Act (DERA):** The Clean Diesel program that provides support for projects that protect human health and improve air quality by reducing harmful emissions from diesel engines was created through this act. Clean Diesel program funding worth up to \$100 million annually was funded by DERA through 2016. Federal and state clean diesel programs will be funded in 2017 and may continue to receive allocations in the future. Electric school buses are eligible for funding under the EPA's dedicated School Bus Rebate program, which reserved \$7.7 million for 88 applicants in 2016. Transit buses are also eligible for funding as Class 5-8 highway vehicles.

## FEDERAL FUNDING FOR CHARGING INFRASTRUCTURE

Federal funding programs that contribute to expanding EV charging include:

- **Transportation Investment Generating Economic Recovery (TIGER):** TIGER grants have supported innovative transit projects, including multi-modal and multi-jurisdictional projects, with more than \$5 billion since 2009. The grants are highly competitive—2016 awards totaled nearly \$500 million for 40 projects in 32 states and 2 territories from a pool of 585 eligible applicants. EV charging infrastructure installations are eligible for funding under TIGER. In 2015, a \$9 million project in Rhode Island was approved that constructed a multi-modal highway travel plaza with publicly available charging stations. TIGER grants may favor Kansas City's multi-jurisdictional approach that incorporates several counties

across state lines. The Mid-America Regional Council received a grant in 2010 for \$50 million to make transportation improvements along several regional transit corridors and in the city's Green Impact Zone.

- **Title XVII Clean Energy Projects Loan Guarantee Program:** The Department of Energy's Loan Programs Office provides loan guarantees to accelerate the deployment of innovative clean energy technologies. Loan guarantees are made to qualified projects, which were expanded in 2016 to include up to \$4.5 billion for EV charging station installations. Guaranteed loans may help reduce the cost of capital and will create greater certainty for EV station investments. Greater funding access may improve the financial ability for businesses and charging service providers to electrify alternative fuel vehicle travel corridors identified by the FAST Act. These loans, however, are typically suited for large projects, as the application and certification process can cost hundreds of thousands of dollars.

## STATE FUNDING OPPORTUNITIES

Funding opportunities can vary greatly by state and may depend upon the level of funding or program deadlines. Examples of state funding programs for the purchase and installation of EVs and EV charging infrastructure include:

- **Missouri Alternative Fuel Infrastructure Tax Credit:** The state of Missouri Department of Economic Development provides tax credits for the purchase and installation costs of EV charging stations. Private citizens may apply for tax credits worth up to \$1,500, and businesses may apply for tax credits worth the lesser of \$20,000 or 20 percent of the project costs. No individual applicant may exceed \$1 million in tax credits per calendar year. Notably, the requirements do not require that the stations are made available for public charging. Tax credits are authorized for projects installed before January 1, 2018.
- **New York State Drive Clean Rebate for Plug-In Electric Cars:** The New York State Energy Research & Development Authority administers a rebate program for the purchase or lease of new EVs. The value of the rebate may be worth up to \$2,000

depending upon the electric range of a vehicle model. The rebate is structured as a point-of-sale rebate that allows consumers to take the program's savings directly when purchasing their vehicles, as opposed to tax credits that are applied against annual tax burdens when filing annual tax statements. Participating dealers can provide the rebate and apply for reimbursement from the program. The Drive Clean Rebate for Plug-In Electric Cars has more than \$50 million available to disburse to interested consumers.

## VOLKSWAGEN SETTLEMENT FUNDING OPPORTUNITIES

Funding from the Volkswagen Settlement can be applied to EV projects in the following fashions:

- **Mitigation Trust Funding:** In October 2016, the U.S. government approved a settlement that established \$2.7 billion in a Mitigation Trust (Appendix D) that can be used for heavy-duty vehicle projects that reduce NOx emissions. Funding from the settlement can be used to repower or replace several vehicle types, including class 4-8 school, transit, or shuttle buses that are from model year 2009 or older. Newer vehicles, from model years 2010-2012, may also be eligible if state regulations already required buses from years 1992 to be upgraded or replaced. Funding levels vary based on the type of fuel that will power a new vehicle, whether the older vehicle is being repowered or replaced, and if the vehicle is owned by a government agency or a private company. If a bus is government-owned, the mitigation funds will cover all vehicle costs for replacing or repowering an old diesel engine with a new equipment powered by diesel, alternative fuels including CNG, or electricity. Charging infrastructure costs for all-electric buses are also eligible for reimbursement under the Mitigation Trust. Non-government owned vehicle eligibility varies with rates provided below:
  - o 40 percent to repower with new diesel engines or alternate fuel vehicles (AFVs), including CNG and hybrid-electric;
  - o 25 percent to replace with new diesel engines or AFVs;

- o 75 percent to repower with all-electric drive-trains, including associated infrastructure; and
- o 75 percent to replace with all-electric drive-trains, including associated infrastructure.
- Light-Duty Zero Emission Vehicle Supply Equipment: Beneficiaries may spend up to 15 percent of their state’s allocated funding on EV charging equipment and installation. Eligible equipment includes Level 1, Level 2, and DC fast charging stations that are located in public locations, such as parking lots or in garages of multi-unit dwellings. Funding for this mitigation action may only be used for the purchase, installation, and maintenance of the EV charging equipment. The full cost for government-owned publicly available charging infrastructure may be covered under this mitigation action. Non-government-owned or sited charging equipment eligibility varies with rates provided below:
  - o 80 percent for publicly available equipment at non-government owned property;
  - o 60 percent for workplace locations that are not available to the public; and
  - o 60 percent for multi-unit dwelling locations that are not available to the public.
- Diesel Emissions Reduction Act (DERA) Option: Appendix D of the VW settlement specifies nine eligible mitigation actions, as well a separate tenth category specifically reserved for specific actions eligible under the DERA program, referred to as the

“DERA Option.” States can apply VW funds to cover a percentage of their DERA non-federal voluntary matching costs. For example, a state receiving \$200,000 in DERA funds could apply \$200,000 from the Mitigation Trust to earn an additional \$100,000 in DERA funding from the U.S. EPA. All-electric buses are eligible for funding up to 45 percent of the total replacement costs through the DERA option.

### Other C2ES Resources:

*Electrified Transportation for All:* <https://www.c2es.org/document/electrified-transportation-for-all-how-electrified-transportation-can-benefit-low-income-communities>

*Transitioning to Electrification: Case Studies and Strategies:* <https://www.c2es.org/document/transitioning-to-electrification-case-studies-and-strategies>

*Volkswagen Settlement Funding: What Cities Should Know:* <https://www.c2es.org/publications/volkswagen-settlement-funding-what-cities-should-know>

C2ES Webinar, *VW Settlement in Action: How Cities, States, and Businesses Can Get Involved:* <https://www.c2es.org/event/vw-settlement-in-action-how-cities-states-and-businesses-can-get-involved/>

*Federal and State Laws and Incentives:* <https://www.afdc.energy.gov/laws>

## ENDNOTES

1. “Respiratory Health & Air Pollution,” Centers for Disease Control, last modified November 16, 2009, <https://www.cdc.gov/healthyplaces/healthtopics/airpollution.htm>.
2. “U.S. energy-related CO2 emissions fell 1.7% in 2016,” U.S. Energy Information Administration, last modified April 10, 2017, <https://www.eia.gov/todayinenergy/detail.php?id=30712>.
3. “Surface Transportation Block Grant Program,” U.S. Department of Transportation, accessed May 15, 2017, <https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm>.
4. “Surface Transportation Block Grant Program Implementation Guidance,” U.S. Department of Transportation, accessed May 15, 2017, <https://www.fhwa.dot.gov/specialfunding/stp/160307.cfm>.
5. “Criteria nonattainment Counties for All Criteria Pollutants,” U.S. Environmental Protection Authority, accessed May 15, 2017, <https://www3.epa.gov/airquality/greenbook/ancl.html>.

6. “Low or No Emission Vehicle Program – 5339(c)” U.S. Department of Transportation, accessed 5/15/17, <https://www.transit.dot.gov/funding/grants/low-or-no-emission-vehicle-program-5339c>.
7. “Low-No Webinar,” U.S. Department of Transportation, accessed 5/15/17, <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA-CTE Low-No Webinar Feb 1, 2017 Transcript.pdf>.
8. “Urbanized area formula program: program guidance and application instructions,” U.S. Department of Transportation, accessed May 15, 2017, [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FINAL\\_FTA\\_circular9030.1E.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FINAL_FTA_circular9030.1E.pdf).
9. “Fact Sheet: Urbanized Area formula program grants,” U.S. Department of Transportation, accessed May 15, 2017, <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FAST Act Section 5307 Fact Sheet.pdf>.
10. “2016 School Bus replacement and Retrofit Rebates,” U.S. Environmental Protection Agency, accessed May 15, 2017, <https://www.epa.gov/cleandiesel/clean-diesel-rebates - 2016sb>.
11. “Clean Diesel National Grants,” U.S. Environmental Protection Agency, accessed May 15, 2017, <https://www.epa.gov/cleandiesel/clean-diesel-national-grants>.
12. “U.S. Transportation Secretary Foxx announces \$500 million in TIGER grants awarded to 39 projects,” U.S. Department of Transportation, accessed May 15, 2017, <https://www.transportation.gov/briefing-room/secretary-foxx-announces-500-million-in-39-tiger-grants>.
13. “TIGER Projects,” Kansas City Area Transportation Authority, accessed May 15, 2017, [http://www.kcata.org/transit-initiatives/tiger\\_projects](http://www.kcata.org/transit-initiatives/tiger_projects).
14. “Title XVII Renewable Energy and Efficient Energy Projects Solicitation,” U.S. Department of Energy, accessed May 15, 2017, [https://www.energy.gov/sites/prod/files/2016/07/f33/FactSheetforEVChargingSupplement\\_072116.pdf](https://www.energy.gov/sites/prod/files/2016/07/f33/FactSheetforEVChargingSupplement_072116.pdf).
15. “Positive Steps on the Road to more EV Charging,” Center for Climate and Energy Solutions, accessed May 15, 2017, <https://www.c2es.org/blog/welchd/positive-steps-road-more-ev-charging>.
16. Colin McCormick, former Senior Adviser for Research & Development, U.S. Department of Energy, in personal discussions, May 2017.
17. “Missouri Alternative fuel Infrastructure Tax Credit,” Missouri Department of Energy, accessed 5/5/17, <https://energy.mo.gov/energy/communities/assistance-programs/missouri-alternative-fuel-infrastructure-tax-credit>.
18. “How the Drive Clean Rebate Works,” New York State Energy Research and Development Authority, accessed October 30, 2017, <https://www.nyserda.ny.gov/All-Programs/Programs/Drive-Clean-Rebate/How-it-Works>.
19. “Order Granting the United States’ Motion to Enter Proposed Amended Consent Decree,” United States District Court Northern District of California, filed October 25, 2016, <http://www.cand.uscourts.gov/filelibrary/2869/Order-Granting-Entry-of-Consent-Decree.pdf>.
20. “VW Settlement Webinar, DERA Option,” U.S. Environment Protection Agency, accessed May 15, 2017, <https://www.epa.gov/sites/production/files/2016-12/documents/vw-settlem-dera-option-webinar-2016-12-16.pdf>.
21. “The DERA Option: Eligible Mitigation Action #10 under the Volkswagen Partial Settlement, Appendix D,” U.S. Environment Protection Agency, accessed 5/15/17, <https://www.epa.gov/sites/production/files/2017-01/documents/vw-dera-option-factsheet-2017-01.pdf>.



The Center for Climate and Energy Solutions (C2ES) is an independent, nonpartisan, nonprofit organization working to forge practical solutions to climate change. We advance strong policy and action to reduce greenhouse gas emissions, promote clean energy, and strengthen resilience to climate impacts.