**Ground-Based Transportation Solutions**
**To Improve Public Health and Fight Climate Change**

**Environmental Defense Fund Recommendations**
**March 2020**

## I. Background

The transportation sector is now the largest contributor to climate pollution in the United States, and it is a major source of other pollutants that harm the health of communities and families. Without immediate action to reduce emissions from this sector, it will become increasingly difficult and expensive to meet national climate, clean energy, and public health goals.

One of the most promising pathways for bringing about major emissions reductions in the transportation sector is through electrification. Not only can vehicle electrification reduce climate emissions, it can also reduce local air pollution and thereby improve public health.

A variety of policies can help accelerate progress in this sector. For example, stronger EPA greenhouse gas standards would help ensure a cleaner vehicle fleet, tax credits can encourage the adoption of electric vehicles by bringing down upfront costs, and public investment in charging infrastructure can overcome range anxiety and facilitate greater penetration of electric vehicles.

To speed emissions reductions, reduce compliance costs, cut pollution and make progress towards achieving climate and public health goals, Environmental Defense Fund recommends the following policies.

## II. Measures to Accelerate the Market Penetration of Light-Duty Electric Vehicles

- Strengthen EPA greenhouse gas standards for light-duty vehicles. EPA standards have played a crucial role in reducing pollution from cars and trucks, but the Trump Administration is attempting to roll them back. Congress should direct EPA instead to put in place more ambitious and longer-term standards, which are needed to meet the scale of the challenge at hand and to send a long-term, stable investment signal to automakers.

- Expand EV tax credits. Congress should extend and expand tax credits for the purchase of light-duty EVs, including raising the cap on the number of credits available per manufacturer. This will ensure continued growth in the number of electric vehicles on the road, improving air quality and cutting carbon emissions.

## III. Development of a National Charging Infrastructure Plan

Congress should direct the Departments of Transportation and Energy to develop collaboratively a national charging infrastructure plan. The plan should include a charging station deployment strategy for light-duty electric vehicles (EVs) reflecting the explicit goal of encouraging the build-out of fast charging stations throughout the United States. The strategy should include an initial goal of creating charging opportunities for EVs along federal highways nationwide. It also should address the unique needs and circumstances of urban, suburban, and rural areas. In developing the plan, the federal government should

consult with interested state and local governments to ensure that local conditions are considered.

To the greatest extent possible, the plan should reflect the following attributes for all EV infrastructure:

- Grid interactive, to enable real-time incentives for charging at off-peak times and at times of higher renewable energy availability.

- Strategically sited in locations that are convenient given driver behavior and that enhance range security. Especially important is siting them in places where deployment has traditionally been lower, such as in workplaces and multi-unit dwellings.

- Easily accessible, with sufficient size and distribution of charging stations, such that drivers can feel confident embarking on any travel distance.

## IV. Additional Measures to Support Transportation Electrification

In addition to the measures discussed above, Congress should:

1. Provide planning grants to states and municipalities: States and municipalities need financial support to allow them to work with the federal government in developing the national plan described above. In addition, DOT should provide grants to states to help them plan for, and implement, electrification programs, and to allow them to work with federal agencies and other states in developing their own electrification initiatives, including making charging infrastructure deployment decisions. The goal should be to develop working partnerships among the federal government and states as they develop plans that reflect their unique needs and that can serve as a basis for collaboration during multi-year federal, state and local efforts to encourage widespread deployment of charging infrastructure.

2. Provide technical assistance to states: Direct the Departments of Energy and Transportation to provide technical assistance to states regarding technology choices, purchasing practices, infrastructure options, and siting.

3. Provide grants to commercial fleet operators: Create a matching grant program to incentivize commercial fleet operators to install charging stations for their vehicle fleets.

4. Provide tax incentives for private companies: Establish tax incentives or matching grants for private companies to incentivize the deployment of charging infrastructure for use by employees and customers. Reward companies that tie their charging networks to renewables, local storage, and utility providers' demand response programs.

5. Prioritize disadvantaged communities: Any programs designed to increase charging infrastructure deployment should provide particular focus on the disadvantaged communities that stand to benefit the most from clean transportation. The communities that historically have been hardest hit by pollution should have preferred access to

charging infrastructure and to electric buses, refuse trucks, and other heavy-duty vehicles.

6. Enact an investment tax credit for large-scale storage. Opportunities to enhance the use of renewables-based charging and to facilitate and encourage grid integration can be multiplied exponentially if Congress were to increase incentives for the deployment of large-scale storage. The goal would be to develop and advance in Congress and in willing states policies to achieve additional emissions reductions through the integration of electric charging infrastructure with local grids. Such initiatives would focus on policies that:

    - Encourage the use of renewable energy and storage solutions to power charging stations. This work is a critical component of ensuring that electrification actually delivers the maximum potential emissions reductions; and

    - Demonstrate the use of charging infrastructure, storage, and EV batteries to reduce utility peak demand requirements ("virtual power plants"), another strategy for leveraging electric vehicles as part of a smarter, cleaner, and more efficient grid.

## V. Special Focus on Electric Trucks and Buses

Large trucks and buses have a significant negative effect on air quality and human health, and are a large and growing source of climate pollution. The emergence of viable zero-emissions options for these vehicle classes provides a pathway to reduce these harms while continuing to provide benefits from the use of large trucks and buses.

Congress should enact policies with the goal of ensuring that zero tailpipe emission vehicles account for at least 30% of new heavy-duty vehicles sales by 2030.

Well-designed policy can advance four objectives that collectively will determine the impact and pace of adoption for zero emission trucks and buses. Those objectives are:

- Encourage the production of zero-emission medium- and heavy-duty vehicles.
- Increase the demand for zero-emission medium- and heavy-duty vehicles.
- Ensure public expenditures drive just and equitable outcomes.
- Support the development of appropriate charging infrastructure.

Specific recommended actions include:

1. Encourage the production of zero-emission medium- and heavy-duty vehicles. Policy can create the long-term certainty necessary to stimulate production investments from truck manufacturers and component suppliers. The federal government also has an important role in catalyzing the development and scaling of advanced technology solutions through robust R&D investments. Congress and the Administration should:

- Strengthen EPA greenhouse gas standards for medium- and heavy-duty vehicles. The EPA regulates greenhouse gas and criteria emissions from medium- and heavy-duty vehicles. The current GHG program standards increase in 2021, 2024 and 2027. However, criteria emissions standards have not changed since 2010. Technology advancements, including the emergence of zero-emission solutions, necessitate a significant strengthening of this program.

- Launch a heavy-duty version of the Advanced Technology Vehicles Manufacturing Direct Loan Program. Through the Advanced Technology Vehicles Manufacturing Direct Loan Program, the U.S. Government provided direct loans for light-duty vehicle manufacturers to produce fuel-efficient cars. This program supported the production of over 4 million advanced technology vehicles and invested $8 billion into American auto manufacturing. The program should be expanded to provide similar support to manufacturers of ZEV trucks and buses.

- Increase and expand federal R&D funding for medium- and heavy-duty vehicle technologies. Through the DOE Office of Energy Efficiency and Renewable Energy, the U.S. Government supports critical research into advanced vehicle technology. The Super Truck program, for example, has played a critical role in accelerating the introduction of vehicle efficiency solutions, such as engine waste-heat recovery and trailer aerodynamics. Increased funding should be targeted at technology advancements such as enhancing charging systems and advancing battery design to enable lighter, more energy-dense, and cheaper battery options.

2. Increase the demand for zero-emission medium- and heavy-duty vehicles. Along with policies to incentivize production of ZEVs, another critical policy lever is to bolster market demand for those vehicles. Congress should:

    - Expand the Low- or No Emission Vehicle Program. Transit buses are largely purchased with funding contributions from DOT's Federal Transit Administration (FTA). FTA's Low or No Emission Vehicle Program provides competitive grants for state and local governments to purchase zero- and low-emission transit buses and infrastructure. Given that electric buses are a cost-effective option for much of the fleet and will further expand their appeal as battery costs continue to fall, this program should be expanded significantly. EDF supports the Green Bus Act, introduced by Rep. Brownley, which would increase the funding for this program from $85 million in 2019 to $900 million in 2029 and require all new transit buses to be zero-emission by 2029.

    - Expand the Diesel Emissions Reduction Act (DERA). The Diesel Emissions Reduction Act, which was first enacted in 2010, funded a highly popular set of projects that protect public health and improve air quality by curbing diesel emissions – for example through the replacement of old school buses. It is currently funded at $75 million a year. Congress should provide significant additional funding to support the replacement of old diesel vehicles with less polluting alternatives including ZEVs. Such action would help increase fleet

turnover and further reduce harmful air pollution in America's communities as quickly as possible.

- Suspend the federal excise tax on zero-emission trucks. New medium- and heavy-duty (MHD) trucks pay a 12% federal excise tax to provide funding for the Highway Trust Fund. This tax is based on the purchase price of the vehicle and, because the initial cost of MHD trucks is generally higher than that of similar-sized diesel trucks, the tax creates a disincentive to the purchase of zero-emission trucks. Suspending the excise tax for zero-emission trucks – even for a limited period of time -- would boost demand for those vehicles by creating pricing parity between zero-emission and diesel trucks. Over time, the operating and maintenance costs of zero-emission trucks are lower than for equivalent diesel trucks, a fact that will further contribute to their growing market competitiveness, especially as technology continues to improve.

- Enact the Clean School Bus Act. The Clean School Bus Act – which has been introduced in both the House (Rep. Hayes) and the Senate (Sen. Harris) – would authorize $1 billion over five years at the Department of Energy to fund a Clean School Bus Grant Program. This program would award funding on a competitive basis to replace existing school buses with ZEV models. Several manufacturers are already producing quality ZEV school buses, including Thomas and Blue Bird. EDF encourages these policies because the electrification of these vehicles will help reduce children's exposure to harmful diesel emissions while reducing GHG emissions.

3. Ensure that public expenditures drive just and equitable outcomes. The pernicious health impacts of diesel trucks disproportionately impact low income communities and communities of color, so policies should prioritize replacing combustion vehicles with ZEVs in these communities. Congress should:

    - Prioritize deployments within front-line communities. Grant programs that support the adoption of ZEVs, such as the Low/No Emissions Vehicle Emission program for transit buses and the Diesel Emissions Reduction Act should give preference to vehicle and infrastructure deployments within communities most impacted by adverse air quality-related, health impacts.

    - Develop strategies to transition drayage trucks to ZEVs. Drayage trucks – which transport goods over short distances, for example, hauling cargo in and out of ports and rail yards to local drop-off locations – are often old and poorly maintained. The low-speed, high-idling operation of these vehicles exacerbates the shortcomings of diesel emission control equipment. These vehicles typically operate in densely populated areas, and they usually travel relatively short distances. The combination of these factors results in drayage trucks being a significant contributor to poor air quality in numerous major metro areas. ZEV demonstrations are currently underway, but while the technology has evolved rapidly, several systemic barriers remain to the widespread adoption of ZEVs for drayage. These include the lack of charging infrastructure to serve the specific patterns of drayage drivers and few financing options for drayage operators interested in moving to ZEVs.

4. Provide DOT grants to municipalities to incentivize them to incorporate charging facilities in municipal vehicle depots and lots. On a pilot basis, DOT should test the feasibility of state and municipal lots for short-term charging of non-government-owned medium- and heavy-duty trucks. Charging stations located at municipal maintenance and other transportation-related yards and depots will improve the economic proposition for both local governments and area businesses wanting to incorporate medium and heavy-duty vehicles into their fleets.

5. Provide support for research and development into best practices for depot charging: Given their distinct needs and patterns relative to light-duty vehicles, medium and heavy-duty zero-emission vehicle (ZEV) deployment would benefit from dedicated research into how to manage the charging load of these vehicles. DOE should identify opportunities for medium- and heavy-duty vehicle electrification through a report similar in scope to the National Plug-In Electric Vehicle Infrastructure Analysis it conducted in September 2017. DOE should then make grants available to capitalize on the opportunities identified in that report.