

# IT'S ELECTRIC: A REVIEW OF FLEET ELECTRIFICATION EFFORTS

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(118-54)

HEARING  
BEFORE THE  
SUBCOMMITTEE ON  
HIGHWAYS AND TRANSIT  
OF THE  
COMMITTEE ON  
TRANSPORTATION AND  
INFRASTRUCTURE  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED EIGHTEENTH CONGRESS

SECOND SESSION

APRIL 30, 2024

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U.S. House of Representatives  
Washington, DC 20515

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APRIL 26, 2024

**SUMMARY OF SUBJECT MATTER**

TO: Members, Subcommittee on Highways and Transit  
FROM: Staff, Subcommittee on Highways and Transit  
RE: Subcommittee Hearing on “*It’s Electric: A Review of Fleet Electrification Efforts*”

I. PURPOSE

The Subcommittee on Highways and Transit of the Committee on Transportation and Infrastructure will meet on Tuesday, April 30, 2024, at 10:00 a.m. ET in 2167 Rayburn House Office Building to receive testimony at a hearing entitled, “*It’s Electric: A Review of Fleet Electrification Efforts*.” The hearing will provide an opportunity for Members to hear from stakeholders regarding the Administration’s efforts to increase the number of electric vehicles on the Nation’s roadways and discuss the implementation of electrification policies included in the Infrastructure Investment and Jobs Act (IIJA) (P.L. 117–58). At the hearing, Members will receive testimony from witnesses on behalf of NATSO, America’s Travel Centers and Truckstops (NATSO) and SIGMA: America’s Leading Fuel Marketers (SIGMA), the Community Transportation Association of America (CTAA), the American Trucking Associations (ATA), and Atlas Public Policy.

II. BACKGROUND

The Biden Administration has set a goal of achieving net-zero emissions by 2050, with a target for 50 percent of all new car sales to be electric vehicles (EVs) by 2030.<sup>1</sup> The Administration also pledged to build a National network of 500,000 EV chargers along United States highways and communities to meet this goal.<sup>2</sup> IIJA included \$7.5 billion for EV charging infrastructure efforts and an additional \$10 billion for electrification and carbon reduction efforts across other transportation programs, and over \$7 billion in EV battery components and critical minerals.<sup>3</sup> IIJA also created the Joint Office of Energy and Transportation (Joint Office) for collaboration between the Department of Transportation (DOT) and the Department of Energy (DOE) in the deployment of EV charging infrastructure.<sup>4</sup>

<sup>1</sup> Press Release, THE WHITE HOUSE, *FACT SHEET: Biden-Harris Administration Announces New Standards and Major Progress for a Made-in-America National Network of Electric Vehicle Chargers*, (Feb. 15, 2023), available at <https://www.whitehouse.gov/briefing-room/statements-releases/2023/02/15/fact-sheet-biden-harris-administration-announces-new-standards-and-major-progress-for-a-made-in-america-national-network-of-electric-vehicle-chargers/>.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

<sup>4</sup> Infrastructure Investment and Jobs Act of 2021, Pub. L. No. 117–58, 135 Stat. 1425.

Currently, China leads the world in EV infrastructure investment, with EV sales more than double the global average, and over 760,000 public fast charging points and one million public slow charging points.<sup>5</sup> On March 27, 2024, Treasury Secretary Janet Yellen warned that China’s rapid ramp-up of solar energy, electric vehicles and lithium-ion batteries promotes unfair competition and “distorts global prices”<sup>6</sup> and “hurts American firms and workers, as well as firms and works around the world.”<sup>7</sup> Similarly, the European Union launched its own investigation into Chinese subsidies for EVs last year, worried about the threat to its own auto industry.<sup>8</sup>

According to the DOE, as of 2022, EVs accounted for less than one percent of all registered light-duty vehicles in the United States.<sup>9</sup> The United States Energy Information Administration (EIA) found that in the third quarter of 2023, sales of hybrid, plug-in hybrid, and battery-electric vehicles (BEV) in the United States rose to 17.7 percent of new light-duty vehicle sales, with about eight percent of those being BEVs. but slowed in recent months.<sup>10</sup> According to Kelley Blue Book, there were nearly 1.2 million EVs sold in the United States in 2023.<sup>11</sup> Following the enactment of expanded tax credits for EVs in 2021, the tax credits became available as a point-of-sale discount at the start of 2024.<sup>12</sup> EV sales went down 7.3 percent in the first quarter of 2024 when compared with the final quarter of 2023, although are up 2.6 percent when compared with the same time period last year.<sup>13</sup> Additionally, there is an excess of EV inventory, as the available inventory of EVs is 136 days, compared to the overall inventory of 78 days.<sup>14</sup>

The Joint Office estimates there are more than 67,000 EV charging stations across the country, with over 177,000 charging ports.<sup>15</sup> The National Renewable Energy Lab (NREL) estimates an investment between \$31 and \$55 billion in publicly accessible charging infrastructure would be needed to meet the Administration’s goals.<sup>16</sup> NREL found that “existing (investment) announcements put the United States on a path to meet 2030 investment needs.”<sup>17</sup> Through March 2023, an estimated \$23.7 billion of capital has been announced for publicly accessible light-duty charging infrastructure, including from private firms, electric utilities, and the public sector, which includes funding from Federal, state, and local governments.<sup>18</sup> However, a JD Power study from August 2023 found that despite the increase in public charging stations across the United States, customer satisfaction declined to

<sup>5</sup> Joel Jaeger, *These Countries Are Adopting Electric Vehicles the Fastest*, WORLD RESOURCES INSTITUTE, (Sep. 14, 2023), available at <https://www.wri.org/insights/countries-adopting-electric-vehicles-fastest>.

<sup>6</sup> Rebecca Picciotto, *Yellen warns China’s surplus of solar panels, EVs could be dumped on global markets*, CNBC (Mar. 27, 2024), available at <https://www.cnbc.com/2024/03/27/yellen-china-solar-ev-surplus-global-markets.html>.

<sup>7</sup> *Id.*

<sup>8</sup> *EU Announces an Investigation into Chinese Subsidies for Electric Vehicles*, AP NEWS, (Sep. 13, 2023), available at <https://apnews.com/article/eu-china-electric-vehicle-subsidy-investigation-15ec926e756a36a7612a66623ccea51f>.

<sup>9</sup> U.S. DEPT OF ENERGY, *Alternative Fuels Data Center, Vehicle Registration Counts by State* (2022), available at <https://afdc.energy.gov/vehicle-registration>.

<sup>10</sup> U.S. ENERGY INFORMATION ADMINISTRATION, *Electric Vehicles and Hybrids Grow to a Record-high 18% of U.S. Light-duty Vehicle Sales*, (Nov. 27, 2023), available at <https://www.eia.gov/todayinenergy/detail.php?id=61004>.

<sup>11</sup> Americans Buy Nearly 1.2 Million Electric Vehicles to Hit Record in 2023, According to Latest Kelley Blue Book Data, KELLEY BLUE BOOK (Jan. 16, 2024), available at <https://mediaroom.kbb.com/2024-01-16-Americans-Buy-Nearly-1-2-Million-Electric-Vehicles-to-Hit-Record-in-2023,-According-to-Latest-Kelley-Blue-Book-Data>.

<sup>12</sup> Greg Iacurci, *To get the \$7,500 electric vehicle tax credit, you may no longer have to wait until tax season*, CNBC (Feb. 9, 2024), available at <https://www.cnbc.com/2024/02/09/for-7500-ev-tax-credit-you-may-no-longer-have-to-wait-until-tax-time.html#:~:text=U.S.%20electric%20vehicle%20sales%20hit,That%20cost%20includes%20financial%20incentives>.

<sup>13</sup> J. Edward Moreno and Karl Russell, *E.V. Sales Are Slowing, Tesla’s Are Slumping*, THE NEW YORK TIMES (Apr. 15, 2024), available at <https://www.nytimes.com/2024/04/15/business/ev-car-sales-tesla.html>.

<sup>14</sup> Michael Wayland, *EV euphoria is dead. Automakers are scaling back or delaying their electric vehicle plans*, CNBC (Mar. 13, 2024), available at <https://www.cnbc.com/2024/03/13/ev-euphoria-is-dead-automakers-trumpet-consumer-choice-in-us.html>.

<sup>15</sup> See JOINT OFFICE OF ENERGY AND TRANSPORTATION, *Joint Office Vision: A Future Where Everyone Can Ride and Drive Electric*, (last accessed Apr. 1, 2024), available at <https://driveelectric.gov/>; see also, JOINT OFFICE OF ENERGY AND TRANSPORTATION, *Electric Vehicle Charging Stations*, (last accessed Apr. 18, 2024), available at <https://driveelectric.gov/stations>.

<sup>16</sup> NAT’L RENEWABLE ENERGY LABORATORY, *THE 2030 NATIONAL CHARGING NETWORK: ESTIMATING U.S. LIGHT-DUTY DEMAND FOR ELECTRIC VEHICLE CHARGING INFRASTRUCTURE*, (2023), available at <https://www.nrel.gov/docs/fy23osti/85654.pdf>.

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*



the lowest level since the study began in 2021.<sup>19</sup> This decline in public acceptance is due to the unreliability of public chargers and the speed and cost of charging.<sup>20</sup>

### III. SELECT DOT ELECTRIFICATION PROGRAMS

#### *EV CHARGING INFRASTRUCTURE*

The National Electric Vehicle Infrastructure (NEVI) formula program and the Charging and Fueling Infrastructure (CFI) discretionary grant program were created under IIJA to build out EV charging infrastructure across the country.<sup>21</sup> The NEVI program is funded at \$5 billion over the fiscal year (FY) 2022 to FY 2026 period and the Federal Highway Administration (FHWA) mainly distributes funding by formula to the states.<sup>22</sup> In order to receive the funds, states must submit an EV Charging Infrastructure Deployment Plan to the Joint Office.<sup>23</sup> NEVI funding must be used on projects that directly relate to the charging of a vehicle and are open to the public, or multiple commercial motor vehicle (CMV) operators.<sup>24</sup>

The CFI discretionary grant program is authorized at \$2.5 billion over the FY 2022 to FY 2026 period and receives funds from the Highway Trust Fund.<sup>25</sup> The program funds two categories of projects, Community Charging and Fueling grants and Alternative Fuel Corridor (AFC) grants, with the intent of deploying publicly available EV charging infrastructure.<sup>26</sup> The Community Charging and Fueling program prioritizes underserved, low-income, rural, and high-density communities.<sup>27</sup> AFC grants are awarded to projects that deploy alternative fueling infrastructure, like hydrogen, propane, and natural gas, in addition to EV charging stations along the AFC.<sup>28</sup>

In February 2023, FHWA published its final rule relating to minimum standards and requirements for NEVI projects.<sup>29</sup> In response to a similar notice of proposed rulemaking (NPRM) to set such standards for the program, the American Association of State Highway and Transportation Officials (AASHTO) submitted comments raising the need for uniform cybersecurity guidance for the program to help inform the states and protect information.<sup>30</sup> In September 2023, several Members of Congress wrote to DOT Secretary Pete Buttigieg expressing concerns regarding the lack of effective standards and encouraging DOT and FHWA to adopt stringent, minimum cybersecurity standards to ensure the safety of the United States' electric grid and Americans' personal data.<sup>31</sup>

According to the Joint Office, the first NEVI-funded charging station opened in Ohio in December 2023.<sup>32</sup> Since then, one NEVI-funded station has opened each in Pennsylvania, Hawaii, Maine, and Vermont, and three NEVI-funded stations have

<sup>19</sup> Press Release, J.D. POWER, *Public Charging Issues May Short-Circuit EV Growth*, J.D. Power Finds, (Aug. 16, 2024), available at <https://www.jdpower.com/business/press-releases/2023-us-electric-vehicle-experience-evx-public-charging-study>.

<sup>20</sup> *Id.*

<sup>21</sup> Division J, Title VIII, Highway Infrastructure Program Heading, Paragraph (2), IIJA, Pub. L. No. 117–58 §§, 135 Stat. 429.

<sup>22</sup> U.S. DEPT OF TRANSP., FHWA, *National Electric Vehicle Infrastructure Formula Program*, (last updated Feb. 10, 2022), available at [https://www.fhwa.dot.gov/bipartisan-infrastructure-law/nevi\\_formula\\_program.cfm](https://www.fhwa.dot.gov/bipartisan-infrastructure-law/nevi_formula_program.cfm).

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> U.S. DEPT OF TRANSP., FHWA, *Charging and Fueling Infrastructure Discretionary Grant Program*, (last updated Mar. 4, 2024), available at <https://www.fhwa.dot.gov/environment/cfi/>.

<sup>26</sup> *Id.*

<sup>27</sup> U.S. DEPT OF ENERGY, ALTERNATIVE FUELS DATA CENTER, *Charging and Fueling Infrastructure Grants*, (last accessed Apr. 1, 2024), available at <https://afdc.energy.gov/laws/12732>.

<sup>28</sup> U.S. DEPT OF ENERGY, ALTERNATIVE FUELS DATA CENTER, *Alternative Fuel Corridor (AFC) Grants*, (last accessed Apr. 1, 2024), available at <https://afdc.energy.gov/laws/12730>.

<sup>29</sup> NEVI Formula Program Minimum Standards and Requirements Rule, 88 Fed. Reg. 12757 (Feb. 28, 2023), available at <https://www.federalregister.gov/documents/2023/02/28/2023-03500/national-electric-vehicle-infrastructure-standards-and-requirements>.

<sup>30</sup> Letter from Shawn D. Wilson, President, AASHTO, to Gary Jensen, Director of the Office of Nat'l Environment, FHWA, (Aug. 20, 2022), available at <https://transportation.org/ev/wp-content/uploads/sites/79/2023/05/AASHTO-Comments-to-FHWA-on-NEVI-NPRM-2022-08-20-FINAL1-1.pdf>.

<sup>31</sup> Letter from Sam Graves, Chairman, H. Comm. on Transp. and Infrastructure, et. al. to Pete Buttigieg, Secretary, U.S. Dep't of Transp., (Sep. 12, 2023), available at <https://transportation.house.gov/news/documentsingle.aspx?DocumentID=406860>.

<sup>32</sup> Email from Staff, U.S. DEPT OF TRANSP., FHWA to Minority Staff, H. Comm. on Transp. and Infrastructure (Apr. 18, 2024) (on file with Comm.).

opened in New York.<sup>33</sup> During a December 2023 Highways and Transit Subcommittee hearing, Members questioned FHWA Administrator Shailen Bhatt regarding implementation of the program, including the slow pace that NEVI-funded charging stations were coming online.<sup>34</sup>

#### *ELECTRIFICATION OF BUSES*

The Federal Transit Administration (FTA) administers the Low- or No- Emission Vehicle grant program which “provides funding for the purchase or lease of zero-emission and low-emission transit buses, as well as for the acquisition, construction, or leasing of supporting facilities and requirements.”<sup>35</sup> Funding awarded through this program has grown significantly from a total of \$55 million in FY 2016 to over \$1.2 billion in FY 2023, a nearly 2000 percent increase.<sup>36</sup> As funding for the Low- or No- Emission and Bus and Bus Facilities Program increased via IIJA, so did the number of applications, reaching \$7.71 billion in combined funding requests in FY 2022.<sup>37</sup> Applicants who apply for the zero-emission vehicle grant must submit a Zero-Emission Fleet Transition Plan.<sup>38</sup> The plan must address long-term fleet management plans, existing and future facilities, current and future resources, fueling partnerships, emerging technologies, and the impact on the applicant’s workforce.<sup>39</sup>

IIJA included a 25 percent set-aside for the low-emission provisions of this grant program to ensure that low-emission vehicles, such as hybrid electric, compressed natural gas, or alternative fuel buses, would receive funding.<sup>40</sup> Transitioning bus fleets to electric or low-emission propulsion vehicles entails additional challenges due to the diminishing domestic bus manufacturing marketplace, higher costs per vehicle, the need for increased technical and mechanical training of workforce, limited EV-bus range capacity, and weather degradation.<sup>41</sup>

FTA also imposes a ‘spare ratio’ requirement for public transit agencies that caps the percentage of a transit agency’s total bus fleet that can be held in reserve to be used in the event of breakdowns, maintenance needs, or a temporary surge in operations.<sup>42</sup> As transit agencies adapt to the range limitations of higher cost electric or alternative fueled buses, and concurrent fleet volume growth, this ratio remains a consideration by FTA in award reviews and can present additional challenges.<sup>43</sup>

#### *ADDITIONAL PROGRAMS WITH ELECTRIC ELIGIBILITIES*

In addition to the programs dedicated to electrification, IIJA authorized a number of transportation programs with eligible activities that include electrification projects. For example, the law reauthorized the Congestion Mitigation and Air Quality (CMAQ) Improvement Program and broadened eligibility to include projects such as replacing diesel vehicles with medium-duty and heavy-duty zero emission vehicles and funding the related charging equipment.<sup>44</sup> IIJA also created the Carbon Reduction Program, which funds projects that reduce transportation emissions from

<sup>33</sup> JOINT OFFICE OF ENERGY AND TRANSP., *2024 Q1 NEVI Progress Update*, (Feb. 16, 2024), available at <https://driveelectric.gov/news/nevi-update-q1>.

<sup>34</sup> *Oversight of the Infrastructure Investment and Jobs Act: Modal Perspectives: Hearing Before the Subcomm. on Highways and Transit of the H. Comm. on Transp. and Infrastructure*, 118th Cong. (Dec. 13, 2023).

<sup>35</sup> U.S. DEPT OF TRANSP., FTA, *Low or No Emission Vehicle & Grants for Buses and Bus Facilities Competitive Program Webinar* (February 2023), available at [https://www.apta.com/wp-content/uploads/FTA\\_Low-No\\_and\\_Bus\\_Competitive\\_Grant\\_Programs\\_Webinar\\_Presentation\\_02-16-2023.pdf](https://www.apta.com/wp-content/uploads/FTA_Low-No_and_Bus_Competitive_Grant_Programs_Webinar_Presentation_02-16-2023.pdf).

<sup>36</sup> U.S. DEPT OF TRANSP., FTA, *Low or No Emission Grant Program—5339(c)*, (last accessed Apr. 1, 2024), available at <https://www.transit.dot.gov/lowno>.

<sup>37</sup> U.S. DEPT OF TRANSP., FTA, *Low or No Emission Vehicle & Grants for Buses and Bus Facilities Competitive Program Webinar* (February 2023), available at [https://www.apta.com/wp-content/uploads/FTA\\_Low-No\\_and\\_Bus\\_Competitive\\_Grant\\_Programs\\_Webinar\\_Presentation\\_02-16-2023.pdf](https://www.apta.com/wp-content/uploads/FTA_Low-No_and_Bus_Competitive_Grant_Programs_Webinar_Presentation_02-16-2023.pdf).

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

<sup>40</sup> *Id.*

<sup>41</sup> TENIX, *10 Complications of Switching to Electric Buses*, (May 23, 2023), available at <https://www.tenix.eu/2023/05/23/complications-with-electric-buses/>.

<sup>42</sup> U.S. DEPT OF TRANSP., FTA, *Spare Ratio* (Jan. 9, 2024), available at <https://www.transit.dot.gov/funding/procurement/third-party-procurement/spare-ratio>.

<sup>43</sup> U.S. DEPT OF TRANSP., FTA, *Low or No Emission Vehicle & Grants for Buses and Bus Facilities Competitive Program Webinar* (February 2023), available at [https://www.apta.com/wp-content/uploads/FTA\\_Low-No\\_and\\_Bus\\_Competitive\\_Grant\\_Programs\\_Webinar\\_Presentation\\_02-16-2023.pdf](https://www.apta.com/wp-content/uploads/FTA_Low-No_and_Bus_Competitive_Grant_Programs_Webinar_Presentation_02-16-2023.pdf).

<sup>44</sup> U.S. DEPT OF TRANSP., FHWA, *Congestion Mitigation and Air Quality (CMAQ) Improvement Program*, (Feb. 8, 2022), available at <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/cmaq.cfm>.

on-road sources and includes projects that support deployment of alternative fuel vehicles, including the acquisition and installment of EV chargers and hydrogen, natural gas, or propane fueling infrastructure.<sup>45</sup>

#### IV. RECENT SELECT ADMINISTRATION ACTIONS

##### LIGHT DUTY VEHICLES

FHWA announced a Request for Information (RFI) on March 6, 2024, to hear from stakeholders on updating minimum standards and requirements for EV charging stations, to consider new and innovative technologies, such as the SAE J3400 charger.<sup>46</sup> The J3400 charger was developed by Tesla, under their North American Charging Standard (NACS), and has been used exclusively in Tesla’s Supercharger network.<sup>47</sup> However, in the fall of 2022, Tesla opened the NACS to other EV manufacturers who were using the Combine Charging System (CCS).<sup>48</sup> SAE International created a task force in June 2023 to standardize the J3400, and on December 18, 2023, the SAE J3400 EV Coupler Standard was released.<sup>49</sup>

On March 20, 2024, the Environmental Protection Agency (EPA) announced the “Multi Pollutant Emissions Standards for Model Years (MY) 2027 and Later Light-Duty and Medium-Duty Vehicles.”<sup>50</sup> While outside of the Committee’s jurisdiction, the new standards aim to cut more than seven billion tons of carbon emissions and push EVs into the market.<sup>51</sup> The EPA estimates these goals can be met in the “Higher Battery Electric Vehicle Pathway” if 56 percent of the market for new vehicle sales in 2032 is electric and as least 13 percent are hybrid vehicles.<sup>52</sup> Other compliance pathways include lower percentages of battery electric vehicles and higher percentages of hybrid and plug-in hybrid vehicles.<sup>53</sup>

##### HEAVY DUTY VEHICLES

On March 12, 2024, the Biden Administration released the National Zero-Emission Freight Corridor Strategy to further the Administration’s commitment to promote 30 percent of medium and heavy-duty vehicle (ZE-MHDV) sales being zero-emission by 2030, with a goal of 100 percent sales by 2040.<sup>54</sup> The strategy designates National EV Freight Corridors along the National Highway Freight Network to guide the deployment of “expansive and convenient access to electric vehicle charging and hydrogen refueling.”<sup>55</sup> The strategy consists of four phases:

- Phase 1, which would establish hubs across the country based on freight volume;
- Phase 2, which would connect hubs via corridors;
- Phase 3, which would expand the network outside of Phase 2 connections; and,

<sup>45</sup> U.S. DEPT OF TRANSP., FHWA, *Carbon Reduction Program (CRP)*, (Apr. 20, 2022), available at [https://www.fhwa.dot.gov/bipartisan-infrastructure-law/crp\\_fact\\_sheet.cfm](https://www.fhwa.dot.gov/bipartisan-infrastructure-law/crp_fact_sheet.cfm).

<sup>46</sup> Request for Information on the J3400 Connector and Potential Options for Performance-Based Charging Standards, 89 Fed. Reg. 16081, (Mar. 6, 2024), available at <https://www.federalregister.gov/documents/2024/03/06/2024-04750/request-for-information-on-the-j3400-connector-and-potential-options-for-performance-based-charging>.

<sup>47</sup> Lee Goldberg, *EV-Pluribus Unum: An Introduction to the SAE J3400/NACS EV Charging Interface (Part 1)*, ELECTRONIC DESIGN (Mar. 7, 2024), available at <https://www.electronicdesign.com/markets/automotive/article/21284134/electronic-design-ev-pluribus-unum-an-introduction-to-the-sae-j3400-nacs-ev-charging-interface-part-1>.

<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> ENVIRONMENTAL PROTECTION AGENCY, *Final Rule: Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles* (last updated Apr. 1, 2024), available at <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-multi-pollutant-emissions-standards-model#:~:text=On%20March%2020%2C%202024%2C%20EPA,starting%20with%20model%20year%202027>.

<sup>51</sup> Matthew Daly and Tom Krisher, *EPA Issues New Auto Rules Aimed at Cutting Carbon Emissions, Boosting Electric Vehicles and Hybrids*, AP NEWS, (Mar. 20, 2024), available at <https://apnews.com/article/epa-electric-vehicles-emissions-limits-climate-biden-e6d581324af51294048df24269b5d20a>.

<sup>52</sup> Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles, 89 Fed. Reg. 27842, (Apr. 16, 2024), available at <https://www.govinfo.gov/content/pkg/FR-2024-04-18/pdf/2024-06214.pdf>.

<sup>53</sup> *Id.*

<sup>54</sup> JOINT OFFICE OF ENERGY AND TRANSPORTATION, *Biden-Harris Administration, Joint Office of Energy and Transportation Release Strategy to Accelerate Zero-Emission Freight Infrastructure Deployment*, (Mar. 12, 2024), available at <https://driveelectric.gov/news/decarbonize-freight>.

<sup>55</sup> JOINT OFFICE OF ENERGY AND TRANSPORTATION, *Biden-Harris Administration, Joint Office of Energy and Transportation Release Strategy to Accelerate Zero-Emission Freight Infrastructure Deployment*, (Mar. 12, 2024), available at <https://driveelectric.gov/news/decarbonize-freight>.

- Phase 4, which seeks to complete the proposed network and cover 49,000 connected miles by 2040.<sup>56</sup>

The goal of the program is to “catalyze public and private investment”<sup>57</sup> into electrified freight movement. A recent Roland Berger report estimates that “full electrification of the United States commercial truck fleet would require nearly \$1 trillion in infrastructure investment alone.”<sup>58</sup>

Most recently, on March 29, 2024, the EPA issued new greenhouse gas (GHG) emissions standards for MY 2032 and later heavy-duty vehicles that the Administration estimates will eliminate one billion tons of carbon dioxide through 2055.<sup>59</sup> While outside of the Committee’s jurisdiction, ATA stated that the goal is “unachievable given the current state of zero-emission technology, the lack of charging infrastructure, and restrictions on the power grid.”<sup>60</sup>

#### V. WITNESSES

- Ms. Kim Okafor, General Manager of Zero Emission Solutions, The Love’s Family of Companies, *on behalf of* NATSO, America’s Travel Centers and Truckstops (NATSO) and SIGMA: America’s Leading Fuel Marketers (SIGMA)
- Mr. Kevin Coggin, Executive Director, Coast Transit Authority, *on behalf of the* Community Transportation Association of America (CTAA)
- Mr. Taki Darakos, Vice President of Vehicle Maintenance and Fleet Services, PITT OHIO, *on behalf of the* American Trucking Associations (ATA)
- Mr. Nick Nigro, Founder, Atlas Public Policy

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<sup>56</sup> *Id.*

<sup>57</sup> *Id.*

<sup>58</sup> *New Report Pegs Cost of Electrifying U.S. Commercial Truck Fleet at \$1 Trillion*, CLEAN FREIGHT COALITION (Mar. 19, 2024), available at <https://www.cleanfreightcoalition.org/new-report-pegs-cost-electrifying-us-commercial-truck-fleet-1-trillion>.

<sup>59</sup> ENVIRONMENTAL PROTECTION AGENCY, REGULATIONS FOR GREENHOUSE GAS EMISSIONS FROM COMMERCIAL TRUCKS & BUSES (Mar. 29, 2024), available at <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-commercial-trucks>.

<sup>60</sup> Alex Guillén, *EPA rule pushes heavy-duty trucks to slash carbon emissions*, POLITICO, (Mar. 29, 2024), available at <https://subscriber.politicopro.com/article/2024/03/epa-rule-pushes-heavy-duty-trucks-to-slash-carbon-emissions-00149644?source=email>.

## **IT'S ELECTRIC: A REVIEW OF FLEET ELECTRIFICATION EFFORTS**

**TUESDAY, APRIL 30, 2024**

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON HIGHWAYS AND TRANSIT,  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,  
*Washington, DC.*

The subcommittee met, pursuant to call, at 10 a.m. in room 2167 Rayburn House Office Building, Hon. Eric A. “Rick” Crawford (Chairman of the subcommittee) presiding.

Mr. CRAWFORD. The Subcommittee on Highways and Transit will come to order.

I ask unanimous consent that the chairman be authorized to declare a recess at any time during today’s hearing. Without objection, so ordered.

I also ask unanimous consent that Members not on the subcommittee be permitted to sit with the subcommittee at today’s hearing and ask questions. Without objection, so ordered.

As a reminder, if Members wish to insert a document into the record, please email it to DocumentsTI@mail.house.gov.

Before we get into the hearing, I would like to take a moment of personal privilege to remember our colleague, Congressman Donald Payne, Jr., who passed away last week. Donald and I have served together on the Transportation and Infrastructure Committee for over a decade. As his ranking member on the Railroads, Pipelines, and Hazardous Materials Subcommittee, I had the opportunity to learn more about his commitment to this institution, his constituents, and to the United States. It was always clear to me that his family background in Congress had instilled a love for the House that could not be dimmed. I will miss his presence on the committee. And on behalf of all of us here, I want to send my prayers and condolences to his family, friends, and staff for dealing with this loss.

I now recognize myself for the purposes of an opening statement for 5 minutes.

### **OPENING STATEMENT OF HON. ERIC A. “RICK” CRAWFORD OF ARKANSAS, CHAIRMAN, SUBCOMMITTEE ON HIGHWAYS AND TRANSIT**

Mr. CRAWFORD. We are here today to discuss the Biden administration’s efforts to increase the number of electric vehicles, or EVs, on our Nation’s roadways, and the infrastructure challenges stemming from that goal. But this hearing is also about much more than that. I believe in consumer choice, the choice to decide where

you want to go and how you want to get there. Sadly, the Biden administration doesn't seem to share that view.

The President campaigned on a pie-in-the-sky goal of reaching net-zero carbon emissions by 2050. We all know that is unachievable without massive economic hardship on working Americans. He is committed to that vision regardless of what that means for the moms and dads who simply want to buy a new car, minivan, or pickup to make it easier to get to work or to take their kids to school.

A key part of this goal includes President Biden's pledge to have 50 percent of all new car sales be EVs by 2030 and to build out a national charging network with 500,000 public EV chargers. And that's not to mention the regulatory onslaught from the EPA. The EPA just released new tailpipe emission standards for light-duty vehicles and medium- and heavy-duty vehicles that will balloon the cost of a vehicle. This, of course, follows the EPA reinstating a waiver of California's CARB standards that 17 States have sued the administration over.

I am, frankly, shocked at this administration's insistence on re-making the domestic vehicle industry in a top-down, Soviet-style 5-year plan that is devoid of commonsense market-driven data.

I am not opposed to EVs. I am not opposed to any alternative energy vehicle, but the Government shouldn't try to control the market and shouldn't stack the deck in favor of one vehicle over another. The fact is, the EVs are sitting on car lots an average of 58 days longer compared to their conventional counterparts, and according to the Kelley Blue Book, they cost at least \$5,000 more.

Americans are hurting with runaway inflation thanks to this administration's economic failures. I'm not sure they can afford an additional \$5,000 for a vehicle they don't really want and that doesn't give them the reliability they need.

Under this subcommittee's jurisdiction, the Infrastructure Investment and Jobs Act, or IIJA, contained \$7.5 billion for programs intended to build out charging networks. Yet to date, only eight charging stations have been opened. Eight. It has been about 2½ years since IIJA was enacted, and we have eight charging stations to show for this multibillion-dollar investment. I am sure our witnesses will talk more about that today.

I also remain concerned that there appears to be a lack of minimum Federal cybersecurity standards for these chargers, which create access points for hackers into our electric grid in a way that traditional fueling stations simply do not. Separately, I am concerned that China controls the market for the majority of the critical minerals and refineries needed to produce EV batteries. And just like there hasn't been anything that I would call a real plan to deal with increased cyber vulnerabilities, I have yet to see the administration make any proposals that will address the future of our Nation's Highway Trust Fund, which is dependent on user fees generated by excise taxes on gasoline and diesel.

The Highway Trust Fund provides the long-term certainty necessary for State departments of transportation to plan roadway and mass transit projects. More vehicles on the road that do not pay into the Highway Trust Fund is going to have an impact. In fact, in February, the Congressional Budget Office released an updated

10-year baseline which estimates a delta of \$280 billion by 2034, but understates the full impact of the new tailpipe regulations.

The Biden administration is so focused on the President's promise of achieving net zero by 2050 that it is not listening to consumers who actually purchase vehicles, nor is it factoring in the realistic challenges of electrification at the expense of other viable fuel options.

Innovation within the marketplace is important, and we should encourage it. In fact, just the other week, I was the first Member of Congress to drive Tesla's newest model of the Cybertruck on the Capitol plaza. Private investment and innovation should be encouraged. However, I do not support the Federal Government mandating where the market goes, picking winners and losers by prioritizing one type of alternative fuel over others.

For example, last week, the Department of Energy's National Petroleum Council found that the hydrogen industry is not growing fast enough to meet the administration's climate goals, and the American Transportation Research Initiative released a report analyzing the benefits of renewable diesel compared to battery-electric trucks.

Consumers and businesses should have the choice about what types of cars, trucks, or buses they want to buy that make the most sense for their bottom line.

Another concern with respect to the Biden administration's pursuit of EVs for all: the United States does not have infrastructure that can, at this time, support the levels of electrification the administration is pushing. A study out of Princeton University estimates that domestic energy levels are supposed to increase 18 percent from 2022 to 2030; however, the study notes that in order to meet the demand for just light-duty vehicles, there would need to be a 3,360-percent increase by 2035.

There are even more challenges with trucks. The technology needed to electrify the trucking industry just simply isn't ready. A Roland Berger study commissioned by the Clean Freight Coalition found that a \$1 trillion investment is necessary to electrify the U.S. commercial truck fleet. This includes \$620 billion for charging infrastructure and \$370 billion to upgrade the power grid.

Setting aside those massive needs, even if you can find an electric truck, they are cost prohibitive for many in the industry. The average battery-electric Class 8 truck costs over \$400,000 compared to a diesel running close to \$180,000 currently.

I respect the rights of a company to decide if it is in the company's best interest to electrify their fleet, just like I respect their ability to choose to go in another direction, like natural gas. But it is also important to recognize that many fleets, including owner-operators, will be put at a competitive disadvantage and simply can't afford to purchase new vehicles, let alone a \$400,000 rig.

To add to these challenges, the batteries in these trucks can weigh up to 16,000 pounds, roughly one-quarter of the total allowable weight. That will make already slim margins for payload offset even slimmer. Add in the fact that it takes between 2.9 to 5.7 hours to recharge the battery—that is, if you can find an open and functioning charger. That's on top of the current challenge we know exists with the truck parking shortage. Less product will move on

each truck, and each truck will take longer to get to its destination. That is not a recipe for success.

Similar issues exist for local transit agencies moving to battery-electric propulsion buses, which can't spend hours recharging with passengers aboard, nor can existing electric buses meet the distance ranges needed for many local agency routes, especially those in rural areas. The bus manufacturing market has consolidated over the past several years such that only two companies currently make electric buses domestically. The result is a lengthy production to delivery timetable and a marketplace with little room for smaller EV bus orders, compounding the competition challenges.

And similar to the heavy-duty truck sector, battery-electric buses often run as much as double the cost of a traditional diesel bus. Altogether, this means more expensive buses that take longer to procure and that can't drive as far or as often as the diesel equipment in use today.

You must also factor in bad weather and extreme temperatures' effect on battery-electric vehicles and the limited ranges that batteries can operate. These are just some of the concerns I have with rushing to electrify our transportation sector in this top-down, mandated way.

I look forward to hearing from our witnesses today. A number of you can provide valuable firsthand experience on adding battery-electric vehicles to your fleet.

[Mr. Crawford's prepared statement follows:]

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**Prepared Statement of Hon. Eric A. "Rick" Crawford, a Representative in Congress from the State of Arkansas, and Chairman, Subcommittee on Highways and Transit**

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A key part of this goal includes President Biden's pledge to have 50 percent of all new car sales be EVs by 2030, and to build out a national charging network with 500,000 public EV chargers.

And that's not to mention the regulatory onslaught from the EPA. The EPA just released new tailpipe emission standards for light duty vehicles and medium and heavy duty vehicles that will balloon the cost of a vehicle. This of course follows the EPA reinstating a waiver of California's CARB standards that 17 states have sued the Administration over. I'm frankly shocked at this Administration's insistence on remaking the domestic vehicle industry in a top-down, Soviet style five-year plan that is devoid of common-sense, market-driven data.

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the past several years such that only two companies currently make electric buses domestically. The result is a lengthy production to delivery timetable and a marketplace with little room for smaller EV bus orders, compounding competition challenges.

And similar to the heavy-duty truck sector, battery-electric buses often run as much as double the cost of a traditional diesel bus. Altogether, this means more expensive buses that take longer to procure and that can't drive as far or as often as the diesel equipment in use today.

You must also factor in bad weather and extreme temperatures' effect on battery-electric vehicles and the limited ranges the batteries can operate. These are just some of the concerns I have with rushing to electrify our transportation sector in this top-down, mandated way.

I look forward to hearing from our witnesses today. A number of you can provide valuable firsthand experience on adding battery-electric vehicles to your fleets.

Mr. CRAWFORD. I now recognize Ranking Member Holmes Norton for 5 minutes for an opening statement.

**OPENING STATEMENT OF HON. ELEANOR HOLMES NORTON  
OF THE DISTRICT OF COLUMBIA, RANKING MEMBER, SUB-  
COMMITTEE ON HIGHWAYS AND TRANSIT**

Ms. NORTON. Thank you, Mr. Chairman.

Before I address the topic of this hearing, I would like to take a moment to remember my friend, Congressman Donald Payne, Jr. He and I worked together in the Congressional Black Caucus and on this committee. His leadership and his commitment to public service will be deeply missed.

I would like to thank subcommittee Chair Rick Crawford for holding this hearing on electric vehicles.

We are in the midst of a substantial change in our transportation system. For years, cars, trucks, and transit lines have run primarily on gas and diesel. While these fuels powered our economy and our mobility, we have also paid a high price for our reliance on fossil fuels.

Transportation pollution causes heart attacks, asthma, low infant birth rates, and premature death. It also contributes significantly to the warming of our planet. Transportation is responsible for 29 percent of U.S. greenhouse gas emissions. Over half of that comes from passenger cars and light-duty trucks. And almost one-quarter of that comes from medium- and heavy-duty trucks.

That means this subcommittee has significant responsibility in finding a path forward toward a cleaner future. Part of that means giving people more transportation choices—including rail, transit, walking, and biking—that produce fewer emissions than driving.

But many Americans rely on driving as their primary mode of transportation, and electric vehicles have a significant role to play as well.

Thanks to the strong environmental policies championed by this committee last Congress, the Infrastructure Investment and Jobs Act and the Inflation Reduction Act have put us on a better course. This includes the \$5 billion for the National Electric Vehicle Infrastructure Program, the \$2.5 billion for the Charging and Fueling Infrastructure Grant Program, and the \$5.6 billion for the Low- or No-Emission Bus Grant Program.

Congress gave the Biden administration a tall order in creating the new electric vehicle charging programs. We first required them to establish the Joint Office of Energy and Transportation to en-

sure coordinating of Federal investments and policies. We required them to issue detailed technical specifications to make sure that federally funded chargers met certain quality standards. And the Biden administration chose to issue stronger Buy America standards for electric vehicle chargers to ensure that our Federal programs are supporting jobs here in the United States.

We also required States to create plans to ensure investments are targeted wisely. All of this had to happen before the projects went out to bid. I know some had raised concerns about the pace at which these new programs are unfolding. It is important to deploy chargers as quickly as possible to help spur the transition to clean vehicles, but it is also important to get these programs right—and I appreciate the Biden administration’s commitment to doing so.

I look forward to hearing from our witnesses today about any recommendations to improve these programs. Also, I look forward to discussing the Low- or No-Emission Bus Grant Program. While the Infrastructure Investment and Jobs Act provided a significant funding increase for the program, demand for these grants still far exceeds available funding.

Electrification of our transit systems can provide a roadmap for electrifying other fleets, including our commercial motor vehicles. Moving to a cleaner transportation system will require a good-faith partnership between all levels of Government, manufacturers, shippers, utilities, and technology companies.

I hope all our witnesses will contribute to finding solutions, and I look forward to your testimony.

I would like to close by reiterating my strong opposition to H.R. 7526, the DC Consumer Vehicle Choice Protection Act, which would repeal the District of Columbia’s regulation adopting Advanced Clean Cars 2. This bill, which the Committee on Oversight and Accountability passed last month, is an attack on DC home rule, the environment, and public health.

Thank you, Mr. Chairman.

[Ms. Norton’s prepared statement follows:]

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**Prepared Statement of Hon. Eleanor Holmes Norton, a Delegate in Congress from the District of Columbia, and Ranking Member, Subcommittee on Highways and Transit**

Before I address the topic of this hearing, I would like to take a moment to remember my friend, Congressman Donald Payne, Jr. He and I worked closely together in the Congressional Black Caucus and on this Committee. His leadership and his commitment to public service will be deeply missed.

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Mr. CRAWFORD. I thank the gentlelady.

I now recognize the ranking member of the full committee, Mr. Larsen, for 5 minutes for an opening statement.

**OPENING STATEMENT OF HON. RICK LARSEN OF WASHINGTON, RANKING MEMBER, COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE**

Mr. LARSEN OF WASHINGTON. Thank you, Chair and Ranking Member, for holding this hearing.

I, too, want to take a brief opportunity to express sadness at the loss of my friend and colleague, Don Payne, Jr. He was a fierce advocate for the traveling public. He was a friend to everyone who knew him. I will miss him as well.

Turning to today's hearing, electric vehicles are steadily increasing on the Nation's roadways, moving both people and goods. Today's hearing focuses on fleet electrification efforts across the passenger vehicle, trucking, and transit sectors. Each of these modes has unique needs and challenges that must be addressed to sup-

port a smooth transition to a cleaner and greener surface transportation system.

I would note, perhaps minus some of the rhetoric from the chair, I agree with a lot of his criticisms about how quickly things are moving. We might also differ on solutions, but I don't disagree with some of the challenges that you have laid out. But I would note that fleet electrification is not only good for the climate, it is critical to enhancing our Nation's economic competitiveness.

The International Energy Agency reports that the number of electric cars sold globally in the first 3 months of this year is roughly equivalent to the number sold in all of 2020.

In 2024, EVs could reach up to 45 percent of new car sales in China and 25 percent in Europe. In the U.S., that projection is just over 10 percent. And America's economic competitors are investing in EVs. The U.S. can't take a backseat in this race.

Electric and plug-in hybrid vehicle registrations reached record levels in my home State last year, with Washington State seeing the biggest increase in EV market share of any State.

The Bipartisan Infrastructure Law is supporting the adoption of EVs in Washington State and nationwide by providing funding and supporting domestic manufacturing and supply chains for critical minerals, including \$7.5 billion for EV charging infrastructure, \$10 billion for electrification across other transportation modes, and \$7 billion in EV battery components and critical minerals.

This funding is critical to filling initial market gaps, supporting broader deployment, and enhancing domestic supply chains. Policy changes in the BIL, including new, stronger Buy America standards for EV chargers, are ensuring this funding goes further to support domestic manufacturing.

Just 3 years ago, the production of fast chargers was almost non-existent. Now, there are at least 26 companies manufacturing these products within the U.S.

Last week, I attended an EV charger installation and training event at the Mount Vernon Library Commons in my district. This event showcased how \$12.5 million from the BIL Charging and Fueling Infrastructure Grant Program is being used to install 78 public EV charging ports at the Library Commons project. This event also featured an installation demonstration in partnership with the International Brotherhood of Electrical Workers Local 191 and the private-sector National Electrical Contractors Association Cascade Chapter.

These organizations partnered to provide training for journeymen, apprentices, and other electrical workers under the collective bargaining agreements in the EV industry. It is an example that shows that investing in fleet electrification can benefit U.S. workers and create jobs that pay well.

Also in my district, major truck manufacturer PACCAR is using their test center, which is located at the Port of Skagit and which Chair Graves and I visited, along with Representatives Brownley and DeSaulnier last year. They are using their test center to validate the next generation of clean commercial vehicles, and I am sure that they would love to have any other Member of Congress visit their facility to see what this major truck manufacturer is doing on clean commercial vehicles. Today, they offer six battery-

electric truck models and are developing technologies, including hydrogen fuel cell electric trucks and internal combustion engines running on hydrogen, to get ahead of the market.

While access to EV chargers has grown significantly, up nearly 85 percent in 3 years, almost all of this growth, though, has been driven by private investment.

A lot of work remains to ensure communities receive the full benefit of BIL funding.

To date, States have opened, and the chair recognizes this, have opened only eight charging stations through the National Electric Vehicle Infrastructure, or NEVI, Program, leading to legitimate questions and criticism of publicly funded charger deployments, ones that can be answered. The slow pace of deployment is partly because the administration took time to ensure these chargers will be made in the U.S. by U.S. workers and to establish standards to create a consistent user experience at the stations.

However, as we will hear in today's testimony, because NEVI projects are delivered by State DOTs, the District of Columbia, and Puerto Rico, a patchwork of program requirements has complicated deployment. Private businesses looking to build out EV chargers must navigate 52 unique programs, which has slowed deployment and caused confusion. So, I urge the Federal Highway Administration and the newly created Joint Office of Energy and Transportation to update their guidance to make this process more uniform.

Electrification challenges are not unique to passenger vehicles. The trucking and transit sectors are working to transition their fleets and face challenges with the range, cost, and the limited number of manufacturers. On the other hand, and certainly in transit, they seem to be navigating this fairly well.

Through innovation and collaboration between the public and private sector, I believe the U.S. can overcome these challenges and deliver benefits for the economy, the environment, and for U.S. workers.

So, we are still in the early stages of this major transition. It won't be as simple as flipping a switch—I apologize for that pun—and the Federal Government will continue to play an important role.

BIL initiatives are starting to fill in gaps in the market and support the onshoring of the manufacturing process. Congress and the administration must work with global partners to secure supply chains for critical minerals that are essential to EVs and infrastructure; for instance, a newly announced effort between the U.S. and Norway to get a critical minerals agreement.

Without continued Federal support and action, the U.S. risks falling further behind our competitors in a crucial industry, something no one wants.

So, I thank the witnesses for being here today, and I look forward to the discussion.

With that, I yield back.

[Mr. Larsen of Washington's prepared statement follows:]

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**Prepared Statement of Hon. Rick Larsen, a Representative in Congress from the State of Washington, and Ranking Member, Committee on Transportation and Infrastructure**

Thank you, Chairman Crawford and Ranking Member Norton, for holding this hearing.

I too would like to take this opportunity to express sadness at the loss of my friend and colleague, Congressman Donald M. Payne, Jr. He was a fierce advocate for the traveling public and a friend to everyone who knew him. He will be dearly missed.

Turning to today's hearing, electric vehicles are steadily increasing on the nation's roadways, moving both people and goods.

Today's hearing focuses on fleet electrification efforts across the passenger vehicle, trucking and transit sectors.

Each of these modes has unique needs and challenges that must be addressed to support a smooth transition to a cleaner and greener surface transportation system.

I will note some of the rhetoric from the Chairman, I agree with a lot of his criticisms about how quickly things are moving. We might also differ on solutions, but I do not disagree with some of the challenges he laid out.

I will note fleet electrification is not only good for the climate; it is critical to enhancing the nation's economic competitiveness.

The International Energy Agency reports that "the number of electric cars sold globally in the first three months of this year is roughly equivalent to the number sold in all of 2020."

In 2024, EVs could reach up to 45 percent of new car sales in China and 25 percent in Europe. In the U.S., that projection is just over 10 percent.

America's economic competitors are investing in EVs. The United States cannot take a back seat in this race.

Electric and plug-in hybrid vehicle registrations reached record levels in my home state last year, with Washington seeing the biggest increase in EV market share of any state.

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- \$7.5 billion for EV charging infrastructure;
- \$10 billion for electrification across other transportation modes; and
- \$7 billion in EV battery components and critical minerals.

This funding is critical to filling initial market gaps, supporting broader deployment and enhancing domestic supply chains.

Policy changes in the BIL, including new, stronger Buy America standards for EV chargers, are ensuring this funding goes further to support domestic manufacturing.

Just three years ago, the production of fast chargers was almost non-existent. Now, there are at least 26 companies manufacturing these products within the U.S.

Last week, I attended an EV charger installation and training event at the Mount Vernon Library Commons in my district.

This event showcased how \$12.5 million from BIL Charging and Fueling Infrastructure grants is being used to install 78 public EV charging ports at the Library Commons project.

This event also featured an installation demonstration in partnership with International Brotherhood of Electrical Workers Local 191 and the private sector National Electrical Contractors Association Cascade Chapter.

These organizations partnered to provide training for journeymen, apprentices and other electrical workers under collective bargaining agreements in the EV industry.

This example shows that investing in fleet electrification benefits U.S. workers and creates jobs that pay well.

Also in my district, truck manufacturer PACCAR is using their test center, which is located in the Port of Skagit, and which Chair Graves and I visited along with Reps. Brownley and DeSaulnier last year. They're using their test center to validate the next generation of clean commercial vehicles and I'm sure that they would love to have any other Member of Congress visit their facilities to see what this major truck manufacturer is doing on clean commercial vehicles.

Today, they offer six battery electric truck models and are developing technologies including hydrogen fuel cell electric trucks and internal combustion engines running on hydrogen to get ahead of the market.

While access to EV chargers has grown significantly—up nearly 85 percent in three years—almost all of this growth has been driven by private investment.

A lot of work remains to ensure communities receive the full benefit of BIL funding.

To date, states have opened only eight charging stations through the National Electric Vehicle Infrastructure (NEVI) program, leading to legitimate questions and criticism of publicly funded charger deployments.

The slow pace of deployment is partly because the Administration took time to ensure that these chargers will be made in the U.S. by U.S. workers and to establish standards to create a consistent user experience at the stations.

However, as we will hear in today's testimony, because NEVI projects are delivered by state DOTs, the District of Columbia, and Puerto Rico, a patchwork of program requirements has complicated deployment.

Private businesses looking to build out EV chargers must navigate 52 unique programs, which has slowed deployment and caused confusion.

I urge the Federal Highway Administration and the newly-created Joint Office of Energy and Transportation to update their guidance to make the process more uniform.

Electrification challenges are not unique to passenger vehicles. The trucking and transit sectors are working to transition their fleets and face challenges with range, cost and the limited number of manufacturers. On the other hand, in transit, they seem to be navigating this fairly well.

Through innovation and collaboration between the public and private sector, I believe the U.S. can overcome these challenges and deliver benefits for the economy, the environment, and U.S. workers.

We are still in the early stages of this major transition.

This will not be as simple as flipping a switch—apologize for the pun—and the federal government will continue to play an important role.

BIL initiatives are starting to fill in gaps in the market and support the onshoring of the manufacturing process.

Congress and the Administration must work with global partners to secure supply chains for critical minerals that are essential to EVs and EV infrastructure, for instance, a newly announced effort between the U.S. and Norway to get a critical minerals agreement.

Without continued federal support and action, the United States risks falling further behind our competitors in a crucial industry—something no one wants.

Thank you to each of the witnesses for being here today, and I look forward to the discussion.

Mr. CRAWFORD. I thank the gentleman.

I want to welcome our witnesses and thank them for being here today.

Before we get started, I want to take a quick minute to explain our lighting system. Seems pretty self-explanatory, but there are three lights in front of you. Green means go. But unlike with our stoplights, yellow does not mean proceed with caution, as you might expect. It actually means hurry it up because it is fixing to change, you are running low on time. And when you get to the end of that time, you might hear a little reminder [tapping gavel] that your light has turned red. And we just want to make sure that your remarks are kept to 5 minutes.

I ask unanimous consent that the witnesses' full statements be included in the record. Without objection, so ordered.

I ask unanimous consent that the record of today's hearing remain open until such time as our witnesses have provided answers to any questions that may be submitted to them in writing. Without objection, so ordered.

I also ask unanimous consent that the record remain open 15 days for additional comments and information submitted by Members or witnesses to be included in the record of today's hearing. Without objection, so ordered.

As your written testimony has been made part of the record, the subcommittee asks that you limit your oral remarks to 5 minutes.



And with that, Ms. Okafor, you are recognized for 5 minutes.

**TESTIMONY OF KIMBERLY OKAFOR, GENERAL MANAGER OF ZERO EMISSION SOLUTIONS, THE LOVE'S FAMILY OF COMPANIES, ON BEHALF OF NATSO, REPRESENTING AMERICA'S TRAVEL PLAZAS AND TRUCK STOPS, AND SIGMA: AMERICA'S LEADING FUEL MARKETERS; KEVIN COGGIN, EXECUTIVE DIRECTOR, COAST TRANSIT AUTHORITY, ON BEHALF OF THE COMMUNITY TRANSPORTATION ASSOCIATION OF AMERICA; TAKI DARAKOS, VICE PRESIDENT OF VEHICLE MAINTENANCE AND FLEET SERVICE, PITT OHIO, ON BEHALF OF THE AMERICAN TRUCKING ASSOCIATIONS; AND NICK NIGRO, FOUNDER, ATLAS PUBLIC POLICY**

**TESTIMONY OF KIMBERLY OKAFOR, GENERAL MANAGER OF ZERO EMISSION SOLUTIONS, THE LOVE'S FAMILY OF COMPANIES, ON BEHALF OF NATSO, REPRESENTING AMERICA'S TRAVEL PLAZAS AND TRUCK STOPS, AND SIGMA: AMERICA'S LEADING FUEL MARKETERS**

Mrs. OKAFOR. Thank you, Chairman Crawford, Ranking Member Holmes Norton, and members of the subcommittee. It is a pleasure to be testifying before you this morning.

My name is Kim Okafor. I am an electrical engineer by training, and I have worked for the Love's Family of Companies, building out our EV charging network, as well as other low-carbon building solutions. I am testifying today on behalf of NATSO and SIGMA, the leading national trade associations representing transportation energy retailers.

Although Love's is the second largest truckstop company in the country, we do more than just sell fuel. We also provide services, amenities, and security that drivers want when they refuel their vehicles. We are agnostic to what type of fuel we sell. We sell gasoline or ethanol or diesel or biodiesel or electricity, just like we sell Coke or Pepsi or coffee or tea. We sell whatever the driver wants.

At the risk of stating the obvious, we found that our customers want the most reliable, convenient, lowest cost fuel available. Our job as fuel retailers is to identify that fuel and to deliver it to every community across this country. We have supported policies that encourage investments in alternative fuels and reward businesses that make those investments.

We are, first and foremost, a real estate company. We derive our greatest value from identifying prime locations across the country where drivers are most likely to stop when they refuel. From there, we simply sell drivers the fuels and products that they want in a fast, secure, and convenient setting.

The best way to lower the carbon footprint of transportation fuel is through policies that both encourage businesses, such as Love's, to offer more alternatives, and also make those alternatives more attractive to consumers.

I cannot emphasize enough how important it is to prioritize the consumer in this conversation. Consumers will not purchase EVs if they are not confident in the charging network, not just how many chargers there are, but where those chargers are located.

Many seem to think that EVs need an entirely new refueling network, and that is just not the case. Our industry has spent the last

60 years building out a competitive refueling network that has adapted over time to align with driver preferences, and we want to do this well into the future.

We have supported and are actively engaged in EV charging grant programs such as NEVI. I am happy to say that more than half of the NEVI awards awarded to date have gone to fuel retail sites. Love's has won approximately \$30 million to install EV charging stations across our network, and we are extremely grateful for this opportunity and take seriously the responsibility that comes along with it.

Public investments in EV charging stations should require site hosts to be financially motivated to provide a positive consumer experience. This motivation should come from anticipated revenue that is realized when the charging stations are utilized and not just deployed. Public funds go the furthest when they mobilize grant recipients not just to install the charging stations, but to provide an ongoing positive consumer experience, even after the public investment program ends.

Beyond NEVI, there are other policies that need to be reexamined. The rate that I pay for electricity from my charging station should be the rate that any other business pays. No one should have a leg up on anyone else. This is not the case today. Creating a level playing field will invite additional investments in EV charging stations and ultimately make consumers more willing to buy EVs.

If I leave you with one thought, let it be this: Any changes to the transportation energy market in this country must work for the American consumer. If Congress ensures there are competitive market dynamics governing EV charging, then electrified transportation will be available, affordable, and attractive to the driving public. This can be done by leveraging the existing refueling network, ensuring that Federal incentives are not squandered, and addressing the structural electricity market impediments to EV charging.

Again, I am honored to be testifying before you this morning. I appreciate the opportunity. I look forward to working together on these important policies and welcome any questions that you may have.

Thank you.

[Mrs. Okafor's prepared statement follows:]

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**Prepared Statement of Kimberly Okafor, General Manager of Zero Emission Solutions, the Love's Family of Companies, on behalf of NATSO, Representing America's Travel Plazas and Truck Stops, and SIGMA: America's Leading Fuel Marketers**

I. SUMMARY OF TESTIMONY

Chairman Crawford, Ranking Member Holmes Norton, and distinguished members of the House Transportation and Infrastructure Subcommittee on Highways and Transit. Thank you for the opportunity to testify at this important hearing reviewing fleet electrification efforts.

NATSO and SIGMA members are responsible for more than 80 percent of retail sales of motor fuel in the United States. Our industry is extraordinarily attuned and responsive to our customers' preferences and proclivities. As new fuels enter the market, NATSO and SIGMA members want to be able to sell those fuels lawfully,

with manageable risk, and a clear opportunity to generate a return on investment. While agnostic as to what types of fuel we sell to satisfy customer demand, fuel retailers do have a bias: we believe low and stable energy prices are best for the American consumer and America's industrial and geopolitical position across the world.

When it comes to transportation energy, we have found that our customers want the most reliable, convenient, lowest-cost fuel available.<sup>1</sup> Our industry's function is to identify that fuel and deliver it to every community in the country. In so doing, we compete with one another on price, speed, and quality of service. The retail fuels market is the most transparent, competitive commodities market in the United States.

The Love's Family of Companies ("Love's"), along with the broader retail fuel industry, has over the years integrated a variety of alternative fuels into the fuel supply. These investments were made in direct response to policy incentives. Our experience has equipped us to help policymakers understand—and overcome—the impediments to an increasingly electrified passenger fleet.

NATSO and SIGMA support policies that incentivize fuel retailers to invest in alternative fuels, and reward businesses that make those investments. Because fuel retailers are fuel agnostic, we are invaluable partners to policymakers whose objectives include increasing the consumption of alternative fuels at lower prices. With the right alignment of policy incentives, fuel retailers are best equipped to facilitate a fast, cost-effective transition to alternative fuels—including electricity—in the coming years. *The optimal way to lower transportation fuels' carbon footprint is through policies that (i) encourage businesses such as Love's to offer more alternatives, and (ii) make those alternatives more attractive to consumers.*

Consumers will not purchase electric vehicles ("EVs") if they do not feel confident in the charging network. American drivers expect a seamless, predictable public charging experience not unlike their current refueling experience, which is grounded in safe, convenient, accessible amenities and affordable, competitive pricing. Replicating the market dynamics that govern today's liquid retail sector is the optimal approach to facilitating greater EV adoption.

Many seem to think that an electrified passenger fleet requires creating an entirely new refueling network. That is not the case. Our industry has spent the last sixty years building out a competitive refueling infrastructure system that optimizes logistics and maximizes customer benefits, and we want to be able to do this long into the future.

Love's and our fellow NATSO and SIGMA members are actively engaging in the National Electric Vehicle Infrastructure ("NEVI") grant program, which was created as part of the bipartisan Infrastructure Investment and Jobs Act ("IIJA"). Under the NEVI program, federal dollars are distributed to states, which in turn develop a grant solicitation process and award criteria, and then distribute and oversee the funds. If implemented properly, the NEVI program will prompt investments that will enable recharging to look and feel similar to the existing on-the-go refueling experience. If implemented poorly, it will lead to chargers being installed in places that consumers have no interest in refueling.

The NEVI program, along with broader market developments, has prompted Love's and others in our industry to invest in EV charging infrastructure because we think our customers will increasingly elect to purchase electric vehicles in the future. Our industry has therefore invested in the personnel necessary to navigate states' different application processes and criteria, along with the intellectual capital necessary to engage in opaque electricity markets and regulatory regimes that were not designed to drive private capital toward EV charging stations.

With a full year of experience navigating the NEVI program, it is clear that the program would be more successful if the Federal Highway Administration ("FHWA") strongly encouraged states to: (i) prioritize driver amenities and the consumer experience; (ii) require executed site host agreements; (iii) prohibit caps on rates of grantees' returns; (iv) refrain from overly restricting evaluation areas; and (v) ensure adequate time for grant solicitations.

Even amid federal grant funding for EV charging, there are several impediments that make it challenging for fuel retailers to identify a pathway to profitability with respect to EV charging. Most of these impediments involve an electricity market structure that functions very differently than the retail fuel market. As recently as ten years ago, for example, approximately 80% of states prohibited anyone other

<sup>1</sup>Fuel marketers and retailers prefer long markets with a diverse array of supply options at our disposal. This dynamic tends to enhance consumer choice and inject an additional layer of competition into the market. This leads to downward pressure on retail fuel prices, which is good for both our customers and the American economy.

than a regulated utility from selling electricity to EV drivers. This made it virtually impossible to generate a return on EV charging station investments. Those laws have all been reexamined over the last decade, and today every state permits EV charging station operators to charge EV drivers for electricity.

More updates are necessary. Changes must be made to electricity pricing structures. Most retailers with EV chargers today are forced to pay retail prices for electricity with excessive demand charges. There is no business case for buying at retail prices and selling at retail prices. For the private market to work, there must be a pathway for retailers to buy electricity at wholesale prices (i.e., the internal transfer cost that utilities have to deliver electricity) without punitive demand charges. That would make the economics work not only for retailers but, more importantly, for consumers.

In addition, federal EV charging incentive policies are generally limited to relief from upfront capital expenditures associated with installing the physical charging equipment. There are no incentives to lower station owners' ongoing costs for acquiring and dispensing electricity into EVs. This distinguishes electricity from other alternative fuels that have had more success gaining commercial acceptance: those fuels have federal incentives that *make the fuel less expensive* (such as blending or production tax credits), in *addition* to incentives that make *installing the refueling infrastructure* less expensive.

If Congress is interested in resolving challenges to fleet electrification in the United States, it should proactively redress these obstacles rather than assume they will dissipate on their own under unachievable mandates that forgo consumer choice.

*Any changes to transportation energy must work for American consumers. If Congress ensures there are competitive market dynamics governing refueling—including alternatives like electricity—electrified transportation will be available, affordable, and attractive for the driving public. Congress can do this by (i) recognizing the importance of harnessing the existing refueling network to mitigate so-called “range anxiety”; (ii) ensuring that existing federal incentives for charging infrastructure are not squandered; and (iii) addressing structural electricity market impediments to public EV charging.*

## II. INTRODUCTION

My name is Kimberly Okafor, and I am the General Manager of Zero Emission Solutions at Trillium Energy Solutions and the Love's Family of Companies. In this capacity, I oversee our development and management of EV charging, hydrogen fueling and solar businesses. I am testifying today on behalf of NATSO, Representing America's Travel Centers and Truck Stops, and SIGMA: America's Leading Fuel Marketers.<sup>2</sup> NATSO and SIGMA are the leading national trade associations representing transportation energy retailers, representing more than 80 percent of retail sales of motor fuel in the United States. In addition to transportation energy, our industry provides the services, amenities, and security that American motorists want when they refuel. This is due to the convenient locations of our real estate and the highly competitive and transparent pricing we offer. On behalf of NATSO and SIGMA, we are eager to work with the Committee to continue to support the nation's motorists in the coming decades.

### A. The Love's Family of Companies

Founded in 1964 and headquartered in Oklahoma City, Love's Travel Stops and Country Stores and its affiliated companies employ over nearly 40,000 Americans and is still family-owned and operated. Our core business is travel stops and convenience stores, with 643 locations (translating to approximately 50,000 truck parking spaces) in 42 states. Each year the company adds between 20–25 new locations and between 55–125 jobs to each community we join. Love's is a significant economic contributor to the communities in which we operate and is often the largest taxpayer in those communities. Love's starts giving back to the communities that it joins the day a new store opens. Team members, who live locally, choose a non-profit organization to which Love's donates \$5,000 and each district has an annual donation budget moving forward. Through the annual Children's Miracle Network Hospitals campaign, and recently added year-round giving at the pin pad, Love's has raised more than \$54 million for sick and injured children.

<sup>2</sup>NATSO represents more than 5,000 travel plazas and truck stops nationwide, comprised of both national chains and small, independent locations. SIGMA represents a diverse membership of approximately 260 independent chain retailers and marketers of motor fuel.

In 2016, Love’s acquired the Trillium alternative fuels company and has made it a member of the Love’s Family of Companies. This year, Trillium Energy Solutions celebrates its 30th year. For the first 20 years, Trillium projects mostly involved designing, building, and operating a network of compressed natural gas fueling stations for Fortune 500 companies’ trucking fleets and public entities (such as transit agencies). Since the Love’s acquisition, we have aggressively grown our renewable natural gas and hydrogen businesses and, for the last several years, have been developing EV charging infrastructure at Love’s locations across the country. Love’s expects to add multiple fast chargers at approximately 100 of its locations over the next few years.

Love’s locations provide professional truck drivers and passenger vehicles with 24-hour access to purchase transportation energy, coffee, and restaurant offerings, along with more than 430 truck service centers for professional drivers. Our locations are open 24 hours a day, seven days a week, and provide restrooms, food and beverage options, sufficient lighting, and security. We always have on-site employees whose responsibilities include contacting law enforcement or EMS in the event of an emergency. After natural disasters occur, our stores are often the first up and running to provide necessary services to motorists and first responders.

#### *B. Our Experience Bringing Alternative Fuels to Market*

Over the past twenty-five years, Love’s and our broader industry have made significant investments in bringing alternative fuels to market. Many seem to think that a transition to electric transportation energy requires creating an entirely new refueling network. That is not the case. The U.S. already has in place a robust, highly competitive refueling network. Fuel retailers are in the business of providing competitively priced fuel and services to their customers. Unlike power generators, refiners, or biofuels producers, fuel retailers are agnostic to the type of fuel they sell at their locations; their goal is to provide customers *what they want, where they want it, when they want it, and at a price they are willing to pay.*

For any alternative fuel solution to work, it must promote competitive market dynamics and work within (not against) consumers’ existing behavioral patterns and proclivities. Policies designed to encourage private sector investment in alternative fuel infrastructure, including (but not limited to) EV charging stations, must be predicated upon unambiguous policy signals that such alternatives create attractive economic propositions for our industry and for our customers.

Love’s and the industry’s investments in alternative fuels have been the direct result of federal and state policies that are designed to make the alternatives more attractive to consumers. Below is a brief overview of some of these investments and incentive schemes:

##### *i. EV Charging*

Love’s offers publicly accessible EV charging infrastructure at dozens of our locations and is actively investing in this space. We have also supported fleets with EV charging design and installation from California to Florida. Love’s customizable power portfolio enables fleets to source electricity as a “fuel” from the grid, solar panels, energy storage, or an on-site generator powered by RNG.

At the federal level, the Department of Transportation’s (“DOT’s”) NEVI and Charging and Fueling Infrastructure (“CFI”) grant programs, and the “30C” refueling infrastructure tax credit, help offset certain upfront capital expenditures associated with installing EV charging infrastructure.

##### *ii. Ethanol, Biodiesel and Renewable Diesel*

*Ethanol* is a renewable fuel made from corn that can be blended into gasoline as an octane booster and to reduce a vehicle’s GHG emissions. *Biodiesel* is made from animal fats, vegetable oils, or recycled restaurant grease. It can be blended with diesel up to 20% (“B20”) and used as a *drop-in fuel* in diesel vehicles. *Renewable diesel* is also made from animal fats, vegetable oils, or recycled restaurant grease, but the production process makes it chemically identical to petroleum diesel. This enables it to be used as a *substitute*, rather than a *blend*. Biodiesel and renewable diesel achieve between a 50% and more than 80% lifecycle reduction in greenhouse gas emissions. Love’s is an industry leader in blending and selling all of these low-carbon fuels.

At the federal level, incentives for these fuels consist of: Financial support from the Department of Agriculture under the Higher Blends Infrastructure Incentive Program (“HBIIP”) for the infrastructure (storage tanks, blending equipment and dispensers) necessary to bring these fuels to market; the Renewable Fuel Standard (“RFS”); and the biodiesel tax credit. The RFS is a permanent program administered by the Environmental Protection Agency (“EPA”), whereas the biodiesel tax credit expires at the end of 2024. *It is essential that Congress extend the biodiesel tax credit*

before the end of this year to avoid surrendering the emission reductions that technology provides.

*iii. Diesel Exhaust Fluid (“DEF”)*

Diesel engine manufacturers use DEF in conjunction with Selective Catalytic Reduction (“SCR”) technology to reduce nitrous oxide (“NOx”) emissions from exhaust gases. Love’s sells DEF at all of our truckstops and operates more than a dozen DEF production terminals across the United States. At the federal level, incentives for DEF consist primarily of Clean Air Act and EPA requirements for mitigating NOx and particulate matter from heavy-duty trucks.

*iv. Compressed Natural Gas (“CNG”) and Renewable Natural Gas (“RNG”)*

CNG is a clean-burning fuel produced by harnessing methane from shale formations throughout the United States. RNG is a renewable fuel made from the methane that is released when organic waste (e.g., livestock manure, food waste, etc.) breaks down. CNG and RNG are utilized to fuel vehicles that are designed to run on natural gas. Love’s is an industry leader in marketing, selling, and helping fleets manage CNG and RNG vehicles. At the federal level, incentives for these fuels consist primarily of the Alternative Fuels Excise Tax Credit (“AFTC”) and the RFS.

*v. Solar and Onsite Power Generation*

Love’s provides full-service design, installation, and maintenance for on-site solar and power generation projects, enabling customers to reduce their energy bills and improve resiliency. At the federal level, the Investment Tax Credit (“ITC”) is the most important incentive for solar technology. Additionally, “net metering” throughout the country drives solar economics by crediting solar energy system owners for the electricity they add to the grid.

*vi. Clean Hydrogen*

Hydrogen is a zero-emission fuel that is used in fuel cell vehicles. Love’s is an industry leader in developing hydrogen vehicle fueling stations and is continuing to expand its portfolio. At the federal level, the “45V” clean hydrogen production tax credit, along with the DOT’s CFI grant program and the Department of Energy’s “Hydrogen Hubs” investments comprise the primary financial incentives for hydrogen investment.

Our experience at Love’s is similar to that of dozens of other retail fuel companies across the United States. As an industry, we have adapted in response to policy incentives to sell lower carbon intensity fuels. Our customers have benefited from our industry’s ability to offer a suite of refueling options.

### III. FUEL RETAILERS ARE EAGER TO BE COLLABORATIVE PARTNERS IN DECARBONIZING TRANSPORTATION

To be most effective and expeditious, decarbonization efforts should incentivize (rather than mandate) the private sector to invest in the desired refueling technologies. Any alternative, including electricity, should be offered in an open, competitive market that gives American consumers the fullest economic benefits of robust price competition. The market is extraordinarily capable of efficiently and expeditiously bringing the lowest-cost fuels to market. Conversely, it is stubbornly reluctant to consume more expensive or less convenient alternative fuels.

Because we are fuel agnostic, fuel retailers are surrogates for the consumer and invaluable partners for policymakers whose objectives include increasing consumption of alternative fuels. We believe more of our consumers will demand electricity as a fuel over the coming years, and we want to be able to sell consumers whatever fuel they want to purchase.

*A. Technology-Neutrality*

Our industry has ample experience bringing alternative fuels (including electricity) to market. Based on that experience, it is abundantly clear that clean fuel policies must assess low-carbon fuels and vehicle technologies comprehensively. Different technologies should compete with one another to reduce emissions *and* appeal to consumers. This will maximize our chances of expeditiously achieving desired environmental and economic outcomes. Proven decarbonization technologies such as biofuels, for example, can deliver material emissions and fuel economy improvements using existing infrastructure, existing vehicles, and working within consumers’ existing behavior. We cannot ignore policies that incentivize these low carbon solutions.

NATSO and SIGMA encourage policymakers, including federal agencies, to take a technology-neutral approach to decarbonization. Incentives for alternative fuel

technologies should be tied to those technologies' lifecycle environmental attributes rather than the underlying technology itself. No one solution will decarbonize transportation energy. The best solution today may be surpassed by subsequent ingenuity and innovation. Mandating a specific technology will ultimately stifle innovation and progress rather than advance it. A single technology approach also undermines energy security.

Less expensive, low-carbon solutions for *today* can be pursued alongside more aspirational objectives for the future. Policymakers should leverage existing infrastructure to encourage customers to gravitate to new types of fuels and vehicles.<sup>3</sup> Love's and the rest of NATSO and SIGMA's membership and our upstream partners in the pipeline and terminal industries have spent more than sixty years building out a refueling infrastructure that optimizes logistics and maximizes consumer benefits. Deployment of new technology that compliments, rather than competes with, this infrastructure will (all else being equal) be less expensive and thus more likely to ensure consumer satisfaction.

In the heavy-duty long-haul space, for example, we believe that the commercial and emission-reduction opportunities in *hydrogen* are more crystallized and compelling than is the case with *electricity*. Transitioning to battery electric trucks would adversely impact commercial trucking operations by extending refueling times and injecting a patchwork of electricity tariffs and regulations into what today is an efficient private commercial trucking market. It also requires expensive grid upgrades, with uncertain time horizons and fluid cost projections. Hydrogen used in over-the-road trucking, on the other hand, could leverage existing refueling infrastructure and a supply chain familiar to the industry—centralized production, transportation to market and retail fuel sales through a nationwide network of well-functioning and convenient refueling locations. In addition, the time it takes to refuel a hydrogen truck is similar to the time it takes to refuel a diesel truck, causing minimal operational disruptions compared with battery electric trucks that take longer to refuel.

When addressing transportation emissions and their contribution to climate change, there are no perfect answers. All vehicles have emissions associated with their manufacture and use. In order to understand the benefits and costs of any clean fuel policy, we need to examine and account for the full lifecycle emissions of all alternative fuels and vehicle technologies and where possible harness the infrastructure that is at our disposal.

#### IV. BARRIERS TO EV CHARGING INVESTMENTS AND FEDERAL EFFORTS TO OVERCOME THEM

##### A. Fuel Retailers are the Solution to Range Anxiety

Observers of vehicle trends and consumer behavior agree that one of the major factors deterring consumers from transitioning to EVs is concern about where they will (and will not) be able to “refuel” those vehicles.<sup>4</sup> This “range anxiety” is such a strong sentiment that consumers often decidedly underestimate the availability of EV charging infrastructure that already exists today. The widespread availability of EV charging advertised on the familiar large price signs at fuel retailers' locations as motorists drive down the streets in their communities and traverse America's highways will effectively relieve EV range anxiety.

To have any chance at success, the refueling experience for alternative fuels should be as similar as possible to today's refueling experience and offer the services and amenities that consumers have come to expect alongside such a network (e.g., security, foodservice facilities, restrooms, lighting, etc.). Fuel retailers are best positioned to provide alternative sources of transportation energy because we have a

<sup>3</sup>This applies both to real estate sites for EV charging stations—where it is more efficient to leverage existing refueling sites and driver amenities rather than building new ones—as well as the broader energy and supply chain landscape (e.g., leveraging the existing energy pipeline network rather than building a new one).

<sup>4</sup>The extent to which EV penetration is outpacing public charging station deployment is changing the landscape of the EV market. A 2022 national, representative survey by Consumer Reports and the University of Chicago found that 61 percent of Americans point to “not enough public charging stations” as the primary issue preventing them from buying or leasing an EV. In fact, 2022 was the first year in which the study found that “access to charging” exceeded “up-front cost” as the greatest barrier to consumers purchasing an EV. The same survey found that 45 percent of Americans say that easy access to public fast-charging stations would be the most likely variable to affirmatively *encourage* them to buy or lease an EV. See Consumer Reports, “Battery Electric Vehicles and Low Carbon Fuel: Overview of Methodology,” April 2022, *available at* [https://article.images.consumerreports.org/prod/content/dam/surveys/Consumer\\_Reports\\_BEV%20AND%20LCF%20SURVEY\\_18\\_FEBRUARY\\_2022](https://article.images.consumerreports.org/prod/content/dam/surveys/Consumer_Reports_BEV%20AND%20LCF%20SURVEY_18_FEBRUARY_2022).

keen understanding of on-the-go refueling preferences based on decades of studying them. This fact is essential when it comes to adoption of EVs or other alternative fuel vehicles, where what has been a quick “fill-up” becomes a 30-minute charging experience.<sup>5</sup> Fuel retailers who seek to maintain their share of the market will be forced to compete on the services and amenities they offer during this experience. This is a positive market dynamic for consumers.

#### *B. EV Charging Needs Price Competition*

Our industry provides approximately 125,000 locations across the country for drivers to refuel. This refueling capacity drives aggressive price competition which, in turn, keeps prices as low as possible for consumers. Consumers know how much a gallon of gas costs at a location—either due to a big price sign on the street or some type of fuel price comparison resource on a mobile device—before they decide to refuel. This forces retailers to shave every penny they can off of the price of a gallon of fuel to compete for market share. EV drivers should get the benefits of that remarkable price competition.

Recently enacted federal incentives have prompted fuel retailers to devote increasing resources to exploring EV charging business opportunities. Through that process, we have engaged with electric utilities to ascertain the viability of installing the requisite electrical infrastructure to accommodate multiple fast chargers at a particular site. We have also engaged with automakers and commercial fleets to better understand the likely demand curve for EV charging services.

The unambiguous story we are being told by these various segments of the value chain is that the pace at which this new technology will penetrate the market is inconsistent with the timelines adopted by the Biden Administration. Although the obstacles present today can undoubtedly be overcome by innovation or other market developments, in our pursuit of clean energy we should resist the temptation to abandon realistic timelines and expectations. Congress cannot disregard less comprehensive yet nevertheless environmentally compelling solutions that can be pursued while a longer process unfolds.

At the moment, there are several impediments that make it challenging for private businesses to identify a pathway to profitability with respect to EV charging. Most of these impediments involve an electricity market structure that was not designed for—and is incompatible with—the retail fuel market. Foremost among these market impediments is antiquated electricity pricing schemes that many utilities are reluctant to modernize for purposes of EV charging stations. Some states are exacerbating this problem by allowing utilities to pass through the costs of EV charging stations to all of the utilities’ respective customers on monthly utility bills, rather than having EV drivers pay for the costs of refueling their own vehicles. On the other hand, several states are beginning to forbid this practice in order to catalyze private investment (comparable to the developments over the last decade by which states began permitting non-utilities to sell electricity to EV drivers).<sup>6</sup>

Perhaps of greatest import, *there are no purchasing options or pricing structures for retailers to provide electricity as a fuel.* There are generally no wholesale purchasing options or pricing structures for retailers to provide electricity as a fuel. Retailers with EV chargers today are forced to pay retail prices for electricity with very high demand charges.<sup>7</sup> There is no business case for buying electricity at retail prices and selling electricity at retail prices. If this continues and becomes the prevalent model, this country will risk replacing one of the most price-transparent and price-competitive consumer markets in the world (retail fuel pricing) with one of the least price-transparent and price-competitive markets in the United States (utility electricity pricing).

<sup>5</sup>Currently, it takes the driver of a passenger vehicle approximately two to three minutes to complete a refueling experience. It takes the driver of an EV, on the other hand, 20 to 40 minutes to recharge at a Direct Current Fast Charger (“DCFC”), depending upon the vehicle and the capacity of the charger available, as well as how many other EVs are recharging at the specific site.

<sup>6</sup>Recently, Nebraska became the final state to allow non-utilities to sell electricity to EV drivers and included in that legislation guardrails to prompt competition in electricity rate structures. NATSO and SIGMA support legislative efforts such as this and encourage FHWA to further leverage the NEVI program to not just invest public funds, but to drive policies that will shape the future of EV charging markets.

<sup>7</sup>A demand charge is an amount added to a monthly utility bill that is not based on the amount of electricity used by that business. Instead, the charge typically is based on the highest rate of usage the business has during the two 15-minute periods in a month in which the business draws electricity from the grid at the highest pace. Fast EV chargers inevitably prompt exceedingly high demand charges. This can add thousands of dollars to a fuel retailer’s monthly utility bill that it cannot possibly recover from drivers charging their cars.



Businesses in our industry are making these investments today, but we are struggling to make a profitable return on our investments. Instead, we are using this opportunity to learn about the market in anticipation of future growth. *It is a mistake to assume that the presence of EV chargers at our locations today means that market problems have been solved.* We have a long way to go to ensure there is a business case for EV charging investments such that the infrastructure can be built to the scale that is needed to support future EV drivers.

### C. Our Experience With the NEVI Program

The retail fuel industry supports the NEVI program and is actively participating in the program in almost every state. The industry’s collective experience with NEVI over the last year has varied greatly from state to state, however. The divergent approaches among the various states threaten NEVI’s long-term success. The market simply cannot build an efficient network of charging stations across the continental United States if the business case for installing chargers varies drastically from state-to-state. We believe Federal Highway Administration (“FHWA”) should be far less accommodating of such a balkanized approach to EV charging markets; instead, it should more assertively demand consumer-centric uniformity across the states as it considers each respective state’s EV charging plan. FHWA should use the NEVI program as an opportunity to prompt state-level policy reforms that are necessary to create a robust, ubiquitous market for EV charging.

Specifically, public investments in fast charging stations should require site hosts to be financially motivated to offer positive consumer experiences. This incentive to provide a positive consumer experience should emanate from revenue that is realized when charging stations are *utilized* (as opposed to *deployed*). NEVI dollars can go the furthest when they mobilize grant recipients to not only *install* charging stations but to provide an *ongoing, positive consumer experience* for EV drivers even after the NEVI program lapses.

#### a. Importance of Prioritizing Amenities

The more attractive and ubiquitous this experience is for consumers, the more comfortable they will be buying EVs. This, in turn, will further incentivize charging station investments even in the absence of government support. States that recognize and prioritize the importance of the consumer experience (e.g., Ohio, Pennsylvania) are installing chargers alongside driver amenities. Other states conducted only high-level assessments of surrounding amenities; in those states far fewer of the awards were co-located with 24–7 amenities, despite being sited in close proximity to 24–7 locations. There is no reason for such disparate approaches and outcomes to be embedded in a grant program that is designed to create a *single*, harmonious network of EV charging stations.

#### b. Executed Site-Host Agreements

It is also essential that states do not issue grant awards to applicants without committed site host agreements with site owners. States have seen proposals with candidate sites that rely upon *future* infrastructure or development; this creates a significant risk that those developments may not advance as anticipated.<sup>8</sup> Instead, states should be required to conduct detailed, in-person assessments of a grantee’s proposed site. Awarding grants to applicants without executed site agreements not only risks allotting funding to projects that will not come to fruition, it encourages entities like charging station companies (including Tesla) to find less stable, but more passive, site host arrangements to simplify commercial relationships. (In one instance, a NEVI grant was awarded to an applicant who plans to site the chargers at a liquor store.)

#### c. Capping Rate of Returns

FHWA should not allow states to issue caps on rate-of-return. Some have instituted an artificial cap on returns on investment (with “excess” funds remitted to the states’ respective department of transportation). These guardrails might make sense for traditional infrastructure projects, but they do not for programs designed to incentivize private investment to flow to a nascent market. Caps on the rate of return are dissuading private businesses from applying for NEVI grants in states that institute them. A competitive market does not accommodate uncompetitive pricing;

<sup>8</sup>See, e.g., Ohio Department of Transportation RFP #556–23, Proposal Debrief (August 1, 2023) (“Claims regarding hours of accessibility to restrooms for certain businesses (e.g., hotels) were not accurate due to time and manner restrictions (e.g., doors were locked at certain times and required room keys for access). . . . Proposed site amenities were often at “off-site” businesses that were not accessibly using pedestrian-friendly infrastructure (e.g., sidewalks, signalized crossings, etc.).”)

such pricing would invite new market entrants to offer a more attractive proposition to consumers. (This, incidentally, is how the existing retail fuel industry was built.) When charging becomes more profitable as utilization rates increase, NEVI award-ees will be at a competitive disadvantage relative to privately funded chargers. Placing a cap on returns will also mean that less revenue will be available for future upgrades and dissuade the retailer from reinvesting profits back into charging capacity to keep up with competition (e.g., investing in faster charging speeds or the installation of additional chargers.)

*d. Overly Restrictive Evaluation Areas*

FHWA should dissuade states from unnecessarily restricting evaluation areas. Some states, for example, use a “grouping” approach to their NEVI awards: Instead of rewarding the best individual sites, these states will award a whole highway segment to one bidder. This approach makes it virtually impossible for consumer-oriented fuel retailers who are inextricably tethered to fixed real estate to apply; grants will inevitably be awarded to charging station networks and/or public utilities that will have little financial incentive to create a positive consumer charging experience.

*e. Adequate Response Time*

Finally, FHWA should ensure that states provide adequate response time for grant solicitations (90–120 days is appropriate); establish clear grant application expectations and engage in open communication with potential applications in advance (e.g., hosting webinars before releasing a grant solicitation); offer one-on-one meetings before, and throughout, the grant solicitation process; and provide easy access to maps of locations being evaluated for potential awards. There should be as much uniformity as possible between the grant application processes from state-to-state.

## V. CONCLUSION

Thank you for the opportunity to testify before you today. On behalf of NATSO and SIGMA, I look forward to continuing to work with Congress on these issues, and am happy to answer any questions you may have.

Mr. CRAWFORD. Thank you, Ms. Okafor. Very well done.

Before we introduce our second witness, I want to recognize Representative Ezell to give a short introduction.

Mr. EZELL. Thank you, Mr. Chairman.

I am excited about today, being here, and pleased to honor and introduce one of our witnesses, a lifetime resident of Mississippi’s Fourth Congressional District with over 47 years of private and public experience in ground transportation, my friend, Mr. Kevin Coggin.

Mr. Coggin has a passion for improving transit across the country and has worked in the industry since his high school graduation. In 1989, he joined the Coast Transit Authority as director of the maintenance department, where his leadership skills and personality quickly made him a company standout. It took less than two decades before he would be picked by his peers to run the Coast Transit Authority, CTA, as the executive director.

Today, Mr. Coggin boasts 47 years of experience—he is only 50—in the industry, and he has just done a wonderful job. As anyone familiar with south Mississippi knows, this includes experiences essential for navigating devastating natural disasters, operating tight financial budgets, and finding ways to connect individuals across our hospitality State.

I am excited my colleagues on this committee can learn from leaders in my home district. Again, I would like to welcome Mr. Coggin and thank him for agreeing—and thank the committee for inviting him here—to testify at the subcommittee hearing today.

Thank you, Mr. Chairman. I yield back.

Mr. CRAWFORD. Thank you, Mr. Ezell.  
Mr. Coggin, you are recognized for 5 minutes.

**TESTIMONY OF KEVIN COGGIN, EXECUTIVE DIRECTOR, COAST  
TRANSIT AUTHORITY, ON BEHALF OF THE COMMUNITY  
TRANSPORTATION ASSOCIATION OF AMERICA**

Mr. COGGIN. Subcommittee Chairman Crawford and Ranking Member Norton, thank you for this opportunity to discuss public transit fleet electrification efforts.

I am Kevin Coggin, executive director of Coast Transit Authority in Gulfport, Mississippi.

Coast Transit is a midsized urban transportation system serving the three coastal counties of Mississippi, in addition to connecting three bordering States. I am here representing more than 1,200 Community Transportation Association of America members, the majority of which operate rural, small city, and Tribal transit systems.

In my 47 years of experience in the private and public transportation industry, including 35 years managing alternative fuel vehicle operations, I have been through hurricanes, economic recessions, oil spills, and the pandemic. I have served in my current role for 21 years and was director when Hurricane Katrina made landfall in the middle of our service area.

Coast Transit provides fixed route, on demand, and work commute services commonly known as vanpool. This year, ridership in our system is back to pre-pandemic levels. We are projected to provide 775,000 trips in fiscal year 2024. Operations are funded by the FTA, local and State governments, and self-generated income. We operate our agency without an annual operating deficit.

Coast Transit plays a vital role in the daily lives of our ridership. Our riders rely on our system to bring them to work, school, medical facilities, essential locations like supermarkets, and tourism attractions.

Coast Transit has a mixed fleet of 54 vehicles. We choose low-emission propane in our small to midsized vehicles and hybrid or zero-emission battery-electric for our large heavy-duty buses. We are currently replacing all of our aging diesel buses with cleaner alternatives.

A mixed fleet is our solution to balancing cost, system effectiveness, and resiliency in reaching our sustainability goals. And that is the most important message I will bring to you today.

Smaller transit operators like mine and those represented by CTAA all around the country need flexibility to make decisions at a local level based on geography, weather, and service. Coast Transit will meet a 50-percent emission reduction by 2030 with our mixed fleet of vehicles. Electric is part of our plan, but we cannot commit to pure electric.

In 2021, we purchased one 35-foot battery-electric bus for \$800,000. The same vehicle today would cost my agency \$1.2 million. We have 12 small buses currently on order to arrive in the next year, all of which are propane-fueled.

Systems need choices. Our battery-electric buses work well within the confines of our fixed route, but current price and range

issues make this technology much less effective and unsustainably expensive for the other parts of our service.

Public transportation is already reducing overall emissions by lowering the number of vehicles on the road. We must avoid any Federal mandates requiring the adoption of only zero-emission technologies and continue to allow eligibility for low-emission vehicles that make sense in my community and thousands more like it across the Nation.

The Bipartisan Infrastructure Law's investment in public transit, as well as the flexibility and funding, both low- and zero-emission buses, has helped us build back our ridership, acquire new equipment, and complete important local capital projects.

As Congress begins to look at surface transportation policy to follow the BIL, I ask that you consider the impact of the extraordinary price increases of zero-emission technologies on local support for vital public transit in smaller cities and rural areas.

Coming up with 15 percent or 20 percent local match on buses, both large and small, when prices have nearly doubled in the past few years is a big challenge for CTA and many other CTAA members. It strains the local budgets of the communities we serve. Most of our riders are not interested in the specifics of our buses, but they value reliability, reduced noise, especially in those coastal routes, and our dedication to promoting a healthy environment and community through readily available flexible public transportation.

Thank you for the opportunity to discuss fleet electrification and public transit with you today. I look forward to answering questions from committee members.

[Mr. Coggin's prepared statement follows:]

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**Prepared Statement of Kevin Coggin, Executive Director, Coast Transit Authority, on behalf of the Community Transportation Association of America**

Coast Transit Authority (CTA) is a mid-sized 5307 urban public transit agency providing various types of transportation services in the Gulf Coast region of Mississippi. CTA serves the Gulfport Urbanized Zone Area (UZA) that has a population of 215,000+ and encompasses three counties and seven cities. CTA also serves the Pascagoula UZA with a population of 50,000+. CTA is the direct recipient of Federal Transit Administration (FTA) 5307, 5310, and 5339a funding for the Gulfport Urbanized Zone Area. CTA is the designated recipient FTA 5307 and 5339a funding for the Pascagoula UZA. The CTA service area does not have serious air quality issues and is not in a non-attainment area.

Mr. Kevin Coggin, the current Executive Director, has been managing fleet acquisition, maintenance, and operations since his employment at CTA began in September 1989. He was named Executive Director of CTA in 2003 and helped steer the agency through Hurricane Katrina's devastating impact in 2005, while supporting the areas evacuation and relief efforts. CTA's approach to fleet acquisition is to acquire vehicles that will meet the operational service needs and implement alternative fuel technologies to gradually reduce emissions over time. During this time span CTA has closely watched the advancement of engine and alternative fuel technologies and assessed what technologies are appropriate for CTA. The initial acquisition cost; and life cycle operating costs of vehicles are key. The cost of building and operating on-site fuel facilities is also a major consideration.

The Community Transportation Association of America (CTAA) is a national non-profit association of more than 1,200 organizations and individuals who believe that mobility is a basic human right. Mobility directly impacts the quality of life of people in communities across the nation by providing access to work and education to life-sustaining health care and human services programs to shopping and visiting with family and friends. CTAA members are in the business of moving people effi-

ciently and cost-effectively. CTAA staff, board and state/tribal delegates are dedicated to ensuring that all Americans, regardless of age, ability, geography or income, have access to safe, affordable and reliable transportation.

#### FIXED-ROUTE BUS SERVICES

CTA currently operates a fixed-route bus service system along eight routes using 15 buses that operate seven days a week serving the St. Martin community in Jackson County, the cities of Ocean Springs, D'Iberville, Biloxi, and Gulfport. The fixed-route bus service is projected to provide 665,000 trips in FY 2024. CTA fixed-route ridership is 55 percent daily riders, 25 percent work-related, 23 percent shopping. Eighty percent of our passengers do not own a car, and 71 percent earn less than \$25,000 a year. CTA has a diverse ridership base consisting of workers, retirees, seniors, and tourists. The majority of CTA fixed-route local citizen ridership are the working poor that do not own a car.

#### DEMAND-RESPONSE SERVICES

CTA provides a variety of transportation services in the demand-response category. Eighteen vehicles of various sizes and types are used to provide these services. Within this demand-response service, CTA provides senior citizen transportation for the Harrison County and Hancock County seniors programs. Transportation is provided for daily trips to Senior Citizen Centers, medical appointments, and grocery shopping. This service is projected to provide 31,500 trips in FY2024. These services allow our senior citizens to maintain independence and wellbeing.

CTA provides fixed-route related complimentary ADA paratransit service. Riders living within three-quarters of a mile of an existing fixed route who have a disability that prevents them from using fixed-route service are eligible to use this curb-to-curb service. This service is projected to provide 6,100 trips in FY2024.

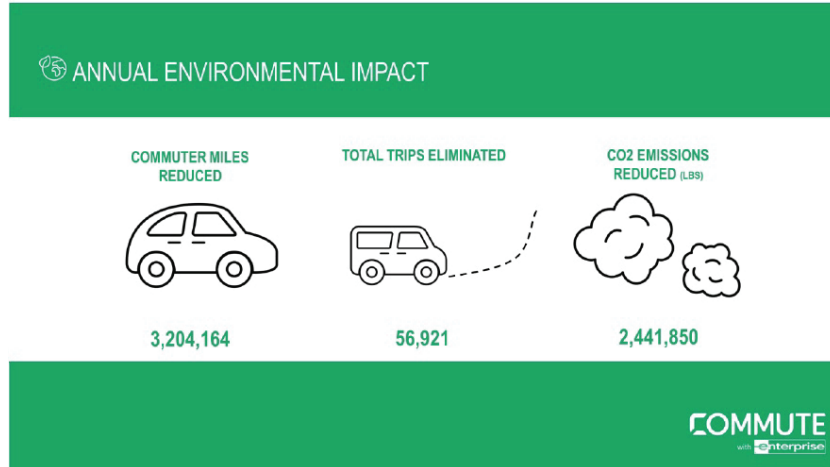
CTA provides an ADA Plus service. In addition to the complimentary ADA service, CTA provides service for people with disabilities who live in the rural areas of Jackson and Harrison counties. This service is projected to provide 4,800 trips in FY2024.

CTA provides contract services for access to health care. CTA contracts with local mental and physical health care providers to transport their patients to and from health care facilities. This service is projected to provide 22,500 trips in FY2024.

CTA provides hurricane evacuation services. CTA is a member of the Harrison County Emergency Management Agency and is the designated ESF-1 manager in the Emergency Operations Center. Emergency Support Function 1 (ESF-1) plays a crucial role in coordinating transportation-related activities during emergencies and disasters. CTA is responsible for providing evacuation transportation for all residents of Harrison County in the event of a hurricane or tropical storm.

#### WORK COMMUTE SERVICES

The CTA Coast Commuter work commute service is a transportation service provided by private contractor Enterprise Commute. It is a turnkey service with Enterprise providing all management, operations, and vehicles. Coast Commuter provides work commute service along the I-10 corridor bringing workers into Mississippi and reverse commute out of Mississippi in the areas of the panhandle of Florida and the lower areas of Alabama, Mississippi, and Louisiana. Thirty-three vehicles are currently in operation consisting of a combination of SUVs, minivans, and 15-passenger vans. Coast Commuter is projected to provide 75,000 work related trips in FY2024. In addition to providing work commuters with a low-cost, safe, dependable work transportation option, it has a positive impact on reducing vehicle pollution.



#### CTA'S VEHICLE FLEET

To meet all of its operational demands CTA operates a fleet of 46 revenue vehicles and 8 support vehicles. The fleet includes various vehicle sizes and types of fuel. The revenue fleet consists of vans, small cut-a-way (body-on-chassis) buses, medium-sized trolley buses, and 30', 35', 40' heavy-duty buses. The current fuels used are gasoline, diesel, propane hybrid electric, diesel hybrid electric, and battery electric bus. Today, 20 percent of the fleet is gas engine, 52 percent are diesel engine, 27 percent are propane fuel engine, and 1 percent is battery electric. Twelve new propane buses are currently on order to replace diesel buses. The reason for this diversity of vehicle types and fuels is due to budgetary constraints, historical phase-in of alternative fuel technologies, and, more recently, lack of availability of vehicles due to supply chain issues.

#### THE FUTURE CTA FLEET

CTA's long-range plan is to phase out all diesel-engine and gasoline-engine revenue vehicles. They will be replaced with either low-emission or zero-emission vehicles. Small cut-a-way (body-on-chassis) buses and trolley buses will be propane-fueled and large heavy-duty buses will be either hybrid electric or battery-electric zero emission.

CTA chose propane for support and small medium sized revenue vehicles for the following reasons.

- The initial cost is less than battery electric vehicles (BEB). BEB vehicles cost significantly more than low-emission buses; they require expensive chargers; and improved (and costly) main electric supply feeds to chargers.
- There are no range issues like those associated with battery electric.
- There is no cost to CTA for the on-site fueling infrastructure.
- Life cycle operating costs of fuel and maintenance are significantly less than diesel engine vehicles.
- It allows CTA to fully meet its goal of reducing tail pipe emissions by 50 percent by 2030 in a cost-efficient manner.

#### CONSIDERATIONS FOR THE SUBCOMMITTEE

As the House Transportation and Infrastructure Committee's Highways and Transit Subcommittee begins to look at reauthorizing the nation's surface transportation policies, Mr. Coggin and the Community Transportation Association of America ask that the following policy recommendations be considered.

*Public Transit has Always Been a Leader in Emissions Reduction*—Increased investment in all forms of public transit is the best way to lower emissions. Every day, Coast Transit Authority reduces the number of personal vehicles on the roads throughout its service area. CTA's ability to lower local tailpipe emissions is best demonstrated by filling up the seats on our vehicles.

*No Federal Mandates*—Please continue to allow for local decision making by public transit systems whose leadership and Boards best understand their communities and their passengers. There are a variety of ways that transit agencies of all sizes can (and do) lower emissions. One-size-fits-all approaches that mandate any single type of zero or low-emission technology disregards system budgets, local emergency management requirements, local energy availability, rolling stock availability and many additional factors.

*Continue Investing in Both Low- and Zero-Emission Buses*—Small and mid-sized transit agencies around the nation like CTA need viable vehicle options. Operationally, many transit agencies operating outside dense, urban areas routinely provide trips that exceed the current range of battery-electric vehicles; smaller city, rural and tribal areas do not yet have adequate charging infrastructure; and, cost-effective battery electric smaller buses are not widely available today. Please continue to set aside a minimum of 25 percent of Section 5339c grant funds for propane, CNG and hybrid vehicles that allow smaller transit operators the ability to reduce emissions in cost-effective, operationally-sound ways. CTAA is concerned that the availability of low-emission vehicles, which many of its members effectively operate around the country, is threatened by the dramatic reduction in transit vehicle manufacturers. Additionally, it is vital to not only continue—but to grow—dedicated federal investment in bus purchases. In the past two funding cycles, the Federal Transit Administration has received a total of more than \$16 billion in bus funding requests for \$3.3 billion in available funding.

*Help with Local Match*—Smaller city, rural and tribal transit operators are struggling to find the required local share to match the federal investment to properly maintain a state of good repair within their vehicle fleets. The extraordinary price increases the industry has seen, particularly for zero-emission buses, places even greater strain on already strained local funding sources.

Mr. CRAWFORD. Excellent. Very well done. Right on time. Probably not by accident, right?

Mr. Darakos, you are recognized for 5 minutes for your testimony.

**TESTIMONY OF TAKI DARAKOS, VICE PRESIDENT OF VEHICLE MAINTENANCE AND FLEET SERVICE, PITT OHIO, ON BEHALF OF THE AMERICAN TRUCKING ASSOCIATIONS**

Mr. DARAKOS. Chairman Crawford, Ranking Member Norton, and members of the subcommittee, thank you for the opportunity to testify today. My name is Taki Darakos, and I am the vice president of vehicle maintenance and fleet service at PITT OHIO.

PITT OHIO is a freight transportation provider that operates in 14 States out of 25 depots and employs more than 3,500 people. Our fleet consists of over 1,550 company-owned tractors and boxtrucks.

Trucking has a positive story to tell about the progress we have made to reduce emissions, and PITT OHIO is tremendously proud to be a part of it. We have a longstanding commitment to environmental responsibility on behalf of our employees, customers, and the communities where we operate.

Over the past several decades, trucking has cut nitrogen oxide and particulate matter tailpipe emissions by a stunning 99 percent. As a result, 60 of today's trucks emit what just 1 truck did in 1988. This progress was made possible through innovation and collaboration. A joint effort between the EPA and the trucking industry established aggressive yet achievable targets on realistic timelines.

For this reason, PITT OHIO joined many industry stakeholders in supporting the Federal phase 1 and phase 2 greenhouse gas emissions regulations. These rules achieve carbon emissions improvements, as well as deliver real-world fuel savings by using

proven technologies. Regrettably, EPA's phase 3 regulations released this year break from that history of successful partnership. This unworkable mandate ignores operational realities and places a costly burden on trucking companies.

Currently, there are extremely limited quantities of battery-electric trucks on the road. In fact, less than 1 percent of trucks registered on the road today are zero-emission trucks. In 2022, after meticulous evaluation and planning with our truck manufacturer, we put into service our first battery-electric trucks. They cost 2½ to 3½ times more than traditional diesel-powered units, and that excludes charging infrastructure.

Although battery-electric trucks show promise in certain applications, it is apparent that they are not ready for broad deployment due to technology limitations. PITT OHIO clean-diesel tractors average 650 to 700 miles per day, and our boxtrucks average 150 to 200 miles per day. The range is not there to support our tractor fleet, which is where the majority of our vehicle-miles are driven.

These battery-electric vehicle trucks also require long periods of unproductive downtime to recharge, and transport less cargo due to the massive weight of their battery packs. These limitations contrast unfavorably with clean-diesel power trains that can refuel in 15 minutes anywhere in the country and drive 1,200 miles. Battery-electric trucks also require enormous amounts of energy. Just one truck depot could require the same amount of electricity needed to power an entire town.

Delivering this power is another challenge. Supporting a NEVI fleet would require the construction of numerous powerplants and transmission lines, not to mention the installation of at least 15,000 truck charging stations every month between now and 2032. For contrast, the fastest chargers cost \$100,000 each.

A recent study commissioned by the Clean Freight Coalition calculated full electrification of the commercial vehicle industry would cost \$1 trillion for charging infrastructure and utility investment. Fortunately, there are many alternatives that can be taken to zero emissions. Clean natural gas, hydrogen, renewable diesel, hybrids, and other bridge technologies can all be part of decarbonization.

Congress should prioritize the carrot-over-a-stick approach by incentivizing truck owners to upgrade to the newest, cleanest models. A newly manufactured truck produces half the CO2 emissions of one manufactured in 2010.

Trucking is accustomed to overcoming challenges, but we cannot address these problems if policymakers ignore them or mandate one straightjacket solution. PITT OHIO and our industry have demonstrated that we are wholeheartedly committed to reducing emissions, but it is important that we get this transition right.

Trucking is the backbone of our supply chain. Setting us up for failure will have dire consequences for our economy and American consumers.

Thank you for allowing me to speak today, and I look forward to answering your questions.

[Mr. Darakos' prepared statement follows:]

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**Prepared Statement of Taki Darakos, Vice President of Vehicle Maintenance and Fleet Service, PITT OHIO, on behalf of the American Trucking Associations**

INTRODUCTION

Subcommittee Chairman Crawford, Ranking Member Norton, and Members of the Subcommittee, thank you for the opportunity to testify today on behalf of the American Trucking Associations (ATA). ATA is a 90-year-old federation and the largest national trade organization representing the 8.4 million Americans working in trucking-related jobs. The organization is a fifty-state federation that encompasses 37,000 motor carriers and their suppliers, working in all sectors of the industry, from less-than-truckload (LTL) to truckload, refrigerated transport for food and beverage and life sciences, intermodal trucking, auto haulage, and household goods movement.

Members of ATA range in size from the nation's largest motor carriers to mom-and-pop one-truck operations. These companies move goods nationwide, in a competitive industry that is faced with steep regulatory cost increases stemming from new emission regulations implemented by the State of California and the U.S. Environmental Protection Agency (EPA), like the recently finalized Greenhouse Gas (GHG) Phase 3 regulation. The diversity of the industry means that successful regulations need to be technology-neutral and cannot be one-size-fits-all. ATA opposes the new GHG Phase 3 rule because the post-2030 targets are unachievable given the current state of zero-emission technology, the lack of charging infrastructure, and restrictions on the power grid.

The company I work for, PITT OHIO, is a regional motor carrier offering less-than-truckload, drayage, and logistics services. This family-owned company has roots that stretch back to 1919. More recently, in 1979, three brothers bought three trucks and leased a one-door warehouse in East Liverpool, OH, to facilitate freight movements between Pittsburgh and Ohio. Our company now employs over 3,500 people and provides first-rate freight services across the mid-Atlantic and midwestern U.S. As the company has grown from those humble beginnings, our mission for environmental sustainability has grown as well. We pride ourselves on being leaders in the movement towards cleaner, safer freight transportation.

Our sustainability goals are reflected in our core values: people, planet, and purpose. We believe that a focus on purpose—creating innovative solutions for our customers and improving efficiencies in our business—is good corporate citizenship. We are an active participant in EPA's SmartWay program and a recipient of the Excellence Award that recognizes the most fuel-efficient fleets in the country. We have received Leadership in Energy and Environmental Design (LEED) certifications for our warehouse facilities and have received multiple awards such as a Top Green Fleet from Heavy Duty Trucking and a Top Green Supply Chain Partner by Inbound Logistics magazines. In 2022 and 2023, the Ohio Environmental Protection Agency presented our company with a Gold award for Encouraging Environmental Excellence Stewardship.

As the Vice President of vehicle maintenance and fleet services, I am responsible for managing the vehicle specifications, acquisitions, and maintenance to support PITT OHIO's fleet of over 950 company-owned tractors, 2,900 trailers, 600 straight trucks, 16 chassis, and other vehicles. This is a demanding and fulfilling job that informs my perspective on the challenges of electrifying our nation's commercial trucking fleet. More than 80% of U.S. communities rely *exclusively* on commercial trucking fleets like PITT OHIO's to meet their freight transportation needs, and trucking currently moves more than 70% of the nation's annual freight tonnage.<sup>1</sup> Over the next decade, trucks will be tasked with moving 2.4 billion more tons of freight than they do today, and trucks will continue to deliver the vast majority of goods to American communities.<sup>2</sup> As we meet that growing demand, the industry will continue experimenting with new technologies that fit their business models and reduce overall emissions.

I am grateful for the chance to inform Congress, federal agencies, and stakeholders about the opportunities and challenges for PITT OHIO and our industry peers to reduce our environmental footprint while serving our customers. Our industry association, ATA, works on our behalf to spread the message that ambitious policy and regulatory goals can be accompanied by achievable timelines for fleets of all sizes to deliver emissions reductions without risking supply chain disruption.

<sup>1</sup> *U.S. Census Bureau Commodity Flow Survey*. U.S. Census Bureau, 2017.

<sup>2</sup> *Freight Transportation Forecast 2020 to 2031*. American Trucking Associations, 2020.

It is a privilege to sit before you today, and I welcome our discussion. The deployment of newer, cleaner heavy-duty trucks will provide environmental benefits. To achieve these reductions, federal policy and regulations need to reflect the unique operating and technology-adoption drivers that provide business benefits for fleets. To ensure adoption, technology must be proven with significant miles in real-world conditions to ensure durability, performance, and cost recovery of the investments. I hope that my testimony will be helpful as the Committee works on achievable paths forward on electrification and emissions reductions from the commercial vehicle industry.

#### OUR COMMITMENT TO THE ENVIRONMENT

PITT OHIO is not alone among our trucking peers in seeking to proactively reduce emissions from our trucking fleet. Our industry has a positive story to tell about the progress we have made. A new truck today emits 99% fewer particulate matter emissions than one in 1985, and 99% fewer nitrogen oxide (NOx) emissions than one in 1975.<sup>3</sup> In fact, 60 trucks today emit what one truck emitted in 1988. These cleaner trucks are meeting Americans' demands to move more freight than ever before. Since 2004, the Environmental Protection Agency's (EPA) SmartWay partners have saved billions of dollars in fuel costs, reduced oil consumption, and eliminated millions of tons of air pollutants. EPA estimates that the program has helped its partners save 379 million barrels of oil since 2004.<sup>4</sup> If one barrel of oil produces 11 to 12 gallons of diesel fuel, trucking companies participating in the SmartWay program have saved more than 4 billion gallons of fuel—over \$18 billion at current prices—in the last nineteen years.<sup>5</sup> Fuel savings have directly resulted in critical emissions reductions of nitrogen oxide (NOx) and particulate matter, in addition to millions of metric tons of CO<sub>2</sub>.

Trucking began phasing out harmful sulfur from diesel fuel in 2006, practically eliminating sulfur oxide emissions. ATA also championed two separate EPA and National Highway Traffic Safety Administration (NHTSA) regulations in 2011 and 2016, establishing the first-ever truck engine and vehicle greenhouse gas (GHG) emission and fuel consumption standards—known as Phase 1 and 2, respectively. In total, between 2014 and 2027, the combined Phase 1 and 2 GHG standards stand to cut CO<sub>2</sub> emissions by 1.37 billion metric tons, saving vehicle owners and operators \$220 billion in fuel costs and reducing oil consumption by up to 2.5 billion barrels of oil over the lifetime of the vehicles sold under the program.<sup>6</sup>

ATA and the trucking industry proactively engaged with the EPA throughout the drafting and comment period for the new Phase 3 GHG rulemaking. Setting ambitious, achievable, and technology neutral standards under that new regulation was a top priority. Requiring early-stage technology that has not been fully validated will fail to deliver environmental results in the expected regulatory timeframe under the current GHG Phase 3 finalized regulation. EPA's work should focus on the national needs and not on California, which will be forced to readjust its flawed regulations to reflect reality. Trucking is a willing partner in finding a path towards a zero emissions future that reflects the diversity of our industry, not a one-size-fits-all approach.

#### THE PROMISE AND CHALLENGES OF MEDIUM- AND HEAVY-DUTY ELECTRIFICATION

Over the past several years, PITT OHIO has taken steps to meet demand for lower-carbon deliveries. Beginning in 2014 we introduced compressed natural gas to our fleet. We have run over 21 million miles with our natural gas fleet and have a good understanding of that technology and what it takes to support it. We are looking forward to the new engine technology recently released due to the perceived improvement in performance, fuel economy and maintenance costs. PITT OHIO has also introduced battery electric vehicles into our fleet to better understand the technology. In 2022, we obtained our first Class 7 battery-electric trucks, which we operated on 100-mile regional routes as part of our testing and validation process. We recently in-serviced the second generation of these trucks and we are seeing improved ranges and payloads, but these figures still fall short compared to our ICE

<sup>3</sup> U.S. EPA, *Nonattainment Areas for Criteria Pollutants (Green Book)*. <https://www.epa.gov/green-book>

<sup>4</sup> *SmartWay Program Successes*, U.S. EPA, Available online at: <https://www.epa.gov/smartway/smartway-program-successes>.

<sup>5</sup> *Frequently Asked Questions*, U.S. EIA, Available online at: <https://www.eia.gov/tools/faqs/faq.php?id=327&t=10>

<sup>6</sup> U.S. EPA, "Final Rule for Phase 2 Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles," October 2016.

vehicles. Currently, the technology does not support our tractor operations. During the day our tractors operate in city operations running between 150–200 miles. At night they run linehaul operations, averaging over 500 miles an evening with some running over 600 miles. BEV technology will not allow for electrification of those vehicles today. Although we continue to be optimistic about the promise of electrification in medium- and heavy-duty vehicles, we continue to encounter challenges related to costs, vehicle range, durability, and charging infrastructure that complicate broader deployment of heavy-duty battery-electric trucks.

Zero Emission Vehicles' (ZEV) upfront acquisition costs are much higher than their diesel equivalent, making it difficult for fleets to embrace electrification until they see meaningful year-over-year upfront purchase price declines. Before incentives, a Class 7/8 battery electric truck can cost two to three-and-a-half times more than its comparable diesel model and a hydrogen fuel cell Class 8 truck can be as much as seven times more.<sup>7</sup> In our fleet, we have found acquisition costs to be roughly three-fifths of the total cost of operation.<sup>8</sup> For many fleets like ours, that calculation is often complex and cannot be done without significant trial and error and at great capital expense.

For our fleet, the process of adopting battery-electric trucks required meticulous evaluation, planning, and collaboration with our truck manufacturer partner before an order was even placed. After deliberation, we settled on box trucks due to their range and payload capacity. They were the closest fit to our current operation. We carefully positioned these vehicles to not go beyond their technological limitations. On some occasions, we were able to leverage offsite charging to extend the range, however this was done at retail sites not set up for truck parking/charging and not even close to ideal. Increased vehicle weight from the batteries reduced our payload and limited our usage of haul. These limitations have impacted the company's timeline on how and when to transition to ZEV.

ATA conducted a survey of fleets that found most fleet respondents were uncertain about ZEVs' residual value.<sup>9</sup> With the rapid technological changes in these vehicles, these early trucks will be dinosaurs. Given the continued uncertainty around factors such as energy prices, uptime, and residual value, the vehicle purchase price must be significantly reduced to make the total cost of operation comparable to using existing diesel engines. If fleets do not see the expected financial benefit, they will be forced to hold onto their existing equipment longer, resulting in an older fleet with a higher emissions profile.

Vehicle purchase incentives can help reduce costs, and robust and stable federal and state incentives that cover the entire cost of the vehicle or cover the cost differential between a ZEV and diesel truck can help support early adoption. Only a few states offer vehicle purchase incentives, however, and the federal government's Commercial Clean Vehicle Credit is capped at \$40,000 for a ZEV, covering the federal sales tax for vehicle purchases. In our case, we were able to leverage funding through the state for a ZEV demonstration project to help offset the increased vehicle costs and reduce some of our infrastructure expenses. That said, it has been an incredibly long process to add 3 megawatts of power at our Harrisburg, PA, facility. This effort has involved many calls, e-mails and follow-ups with the utility, along with engineering and construction firms that many smaller organizations may not have access to or wonder where to even start. When complete in early 2025 this power upgrade will have taken two years. Had we asked for more power it would have pushed the lead time to five years. And we are doing this ahead of the curve. Looking over our network, we have 12 facilities that would make sense to start the infrastructure upgrade process. At those 12 facilities, we will be working with 10 different utility partners to make this happen. Although incentives are sometimes available at the state level, wading through numerous pages of funding applications is incredibly complex for fleets and not simple or easy.

Despite our optimism about battery-electric vehicle technology, the availability and reliability of charging stations are inhibitors to adoption. Earlier this month, the Clean Freight Coalition (CFC) published findings from a study conducted by Roland Berger examining the required investment to fully electrify the trucking industry by 2040. Fleets would be expected to invest \$620 billion for charging infrastruc-

<sup>7</sup> Class 4–6 battery electric delivery vehicles can range from \$100,000 to \$200,000, while Class 8 over-the-road vehicles can cost \$400,000 or more before incentives. Diesel MDV is around \$75,000 and HDV is \$165,000.

<sup>8</sup> See, e.g., Volvo Trucks North America, Press Releases, "Volvo Trucks' New Electromobility Total Cost of Ownership Tool Demonstrates Financial, Environmental Benefits of Volvo VNR Electric," October 23, 2022; and Dana, Inc., Total Cost of Ownership Tool, n.d.

<sup>9</sup> ATA Technology and Maintenance Council, "Greenhouse Gas Phase 3 Member Survey," June 16, 2023

ture, with utilities needing an additional \$370 billion for grid upgrades.<sup>10</sup> These costs represent an unsustainable financial burden on trucking fleets to facilitate this technological transition.

The CFC study highlights some key realities for the trucking industry. First, a fleet’s optimal vehicle and charging profile largely depend on its duty cycle. Assuming improved technology allows for a 250-mile usable range and on-route charging enhancements, a robust on-route charging network will be essential for high-mileage medium-duty and heavy-duty vehicles. Second, serious constraints exist on the current grid, particularly concerning the power needs of medium- and heavy-duty BEVs. This necessitates substantial investment, from generation to distribution. As charging primarily occurs overnight, introducing on-site charging will significantly alter daily electricity load profiles, potentially straining current grid capacity—especially in areas distant from urban infrastructure, where necessary upgrades represent a greater cost and percentage of existing capacity.

Utilities will face challenges in upgrading infrastructure, particularly in areas requiring entirely new infrastructure. Last year, the American Transportation Research Institute calculated that electrification of the entire U.S. vehicle fleet would consume an astounding 40% of the country’s existing electricity generation and require a 14% overall increase in energy generation, yet our aging grid can hardly meet current demands.<sup>11</sup> In California, where rolling blackouts and brownouts are not uncommon, utilities would need to generate an additional 57% beyond their current output to support an electric vehicle fleet.<sup>12</sup> In some states, the staggering power demands for heavy-duty truck charging could increase even as sources of carbon-free power generation, such as hydropower facilities, are taken offline or during the implementation of complicated statewide clean power plans.

Conversations with utilities often reveal lengthy lead times for electrical infrastructure upgrades. Forty percent of fleets surveyed by ATA said that their utility estimated it would take at least a year before they could provide the electricity to support battery-electric trucks at their facilities, while 30 percent received wait time estimates of over three years.<sup>13</sup> We have facilities where without significant upgrades we only have the power to support limited Level 2 charging. As an example, that Level 2 charger would take 10 hours to charge a medium duty truck.

Current regulatory targets for the deployment of battery-electric vehicles are predicated on unprecedented advancements in battery range and capacity, as well as a significant buildout of the national power grid over years, not decades, which has historically been the case. Mandates and targets for decarbonization of the PITT OHIO fleet, and others across the industry, require acknowledgement of market realities that both keep supply chains moving and enable fleets like mine to affordably acquire and install infrastructure. Along with all my fleet management peers, I would note that for me to deploy more battery-electric or alternative fuel vehicles, it would require certainty that the infrastructure to support that investment is affordable, available, and compatible with my purchase.

#### THE VALUE OF ACHIEVABLE, NEUTRAL, FEDERAL STANDARDS

Trucking companies traverse state lines multiple times a day, and a strong *national* emissions framework ensures the continuity of our nation’s freight networks. ATA strongly advocates for federal emissions regulations to ensure that interstate commerce continues to move unimpeded. State-based emissions regulations that increase the cost of trucks—or mandate the deployment of zero-emission trucks—while the technology is still in early-stage development disrupt the business operations of our industry and make it harder for us to meet the needs of our customers—your constituents. Absent federal standards for emissions reductions, companies transporting freight interstate will be forced to reconfigure their business operations, which will increase complexity and the costs of doing business.

For this reason, ATA has opposed state-based regulations such as those promulgated by the California Air Resources Board and joined by other states that would mandate the sale and purchase of zero emission technology under aggressive timelines. California’s Advanced Clean Trucks (ACT) and Advanced Clean Fleet (ACF) rules are designed to move the commercial vehicle industry as quickly as pos-

<sup>10</sup>Clean Freight Coalition, “New Report Pegs Cost of Electrifying U.S. Commercial Truck Fleet at \$1 Trillion,” March 19, 2024.

<sup>11</sup>*Charging Infrastructure Challenges for the U.S. Electric Vehicle Fleet*, American Transportation Research Institute, December 2022. Available online at: <https://truckingresearch.org/2022/12/06/charging-infrastructure-challenges-for-the-u-s-electric-vehicle-fleet/>

<sup>12</sup>*Ibid.*

<sup>13</sup>ATA Technology and Maintenance Council, “Greenhouse Gas Phase 3 Member Survey,” June 16, 2023.

sible towards zero emission technology, ignoring the lack of supporting infrastructure. Therefore, these regulations are destined to fail. EPA’s decision to grant California’s Clean Air Act waivers to enforce policies that are unworkable for the trucking industry—policies developed via a process that wholly discounted and marginalized trucking industry participation—will result in unworkable regulations and undermine long-term cooperative efforts to reduce emissions.

EPA’s GHG 3 rule was an opportunity for the agency to reassert their leadership in setting harmonized national emissions standards that could provide certainty for the trucking industry. The final regulation acknowledges today’s challenges with ZEVs for model years 2027–2029. However, by 2030, EPA’s targets will spike to unrealistic levels.

Imposing unachievable state and federal mandates will reduce investment in alternative low-carbon technologies like ultra-clean renewable diesel (RD), renewable natural gas, and other low-carbon fuels, moving us further away from our goal to reduce emissions in the freight transportation sector. The new GHG 3 rule represents a missed opportunity to course-correct unworkable, aggressive proposals laid out by states like California that create a patchwork that complicates interstate supply chains.

PITT OHIO and our peer companies would benefit more from a technology- and fuel-neutral approach with timelines that allow for the buildout of infrastructure to support these new vehicles and for the technology market to mature so that fleets of all sizes can afford to deploy these cleaner trucks.

Unfortunately, forced zero-emission vehicle penetration rates in the later years of the GHG 3 rule as currently constructed fail to offer flexibility and will limit fleets’ choices with only early-stage technologies that are still unproven.

#### THE COST OF UNREASONABLE TIMELINES: UTILITIES, VEHICLES, TECHNOLOGY MATURITY

The Biden Administration’s multiagency *U.S. National Blueprint for Transportation Decarbonization* recognized battery-electric technology as having “limited long-term potential” in the long-haul segment.<sup>14</sup> It pointed to better-positioned opportunities with hydrogen and sustainable liquid fuels. These alternatives offer advantages in energy density, comparable refueling times to diesel fuel, and compatibility with many current internal combustion engine configurations, as seen with biodiesel and renewable diesel. Despite the ambitious timelines set by California to mandate battery-electric vehicle production and fleet sales, the Administration’s blueprint outlined longer, more manageable timelines extending to 2050.

Mandates that set the industry up for failure will not help to accelerate the deployment of zero carbon fuel technologies nationwide. Such standards, whether state-based or federal, distort the market for vehicle manufacturers and complicate decisions for purchasers of new heavy-duty trucks. Nearly half of the heavy-duty trucks on the road today are model year 2010 and older diesel engines, meaning they lack advanced emissions reducing technologies.<sup>15</sup> Replacing those trucks with current 2024 ultra-clean diesel trucks that are available on the market today would deliver environmental emissions reductions immediately. It could be done without subjecting fleets to the enormous expense of ZEV technology vehicles that are not readily available, and which lack the infrastructure to support their operations and maintenance as part of regional and national interstate trucking fleets.

So far, battery-electric is not more efficient for my operation than internal combustion. Currently, in just 15 minutes, a truck driver can refuel a new clean-diesel truck for a journey of up to 1,200 miles. Conversely, a two-hour charge can provide around 200 miles for battery-electric trucks, though this range may significantly decrease due to factors like cold weather, hilly terrain, or the use of HVAC systems. In the regions we serve, adverse weather conditions and congestion have the potential to further reduce this range. Even with adequate utility service capacity and investment in chargers, achieving the same range as a modern, clean-diesel truck in ideal conditions would still require over five hours. While faster direct current (DC) chargers can cut that recharging time in half, that equipment is expensive—roughly \$100,000 each.

<sup>14</sup>*The National Blueprint for Transportation Decarbonization: a Joint Strategy to Transform Transportation*, September 2022, U.S. Department of Energy, U.S. Department of Transportation, U.S. Environmental Protection Agency and U.S. Department of Housing and Urban Development. Available at: <https://www.energy.gov/sites/default/files/2023-01/the-us-national-blueprint-for-transportation-decarbonization.pdf>

<sup>15</sup>Diesel Technology Forum, [dieselforum.org](http://dieselforum.org)

Battery-electric trucks also require significantly heavier batteries (ranging from 6,000 to 17,000 lbs.), which results in lower payload capacity than an internal combustion engine vehicle. This reduced efficiency, combined with limited mileage range and charging downtime, necessitates deploying more trucks and drivers to move the same amount of freight. With the industry facing significant logistical hurdles, battery-electric truck deployment could require a ratio of three battery-electric trucks in some operations for every two diesel trucks. An increase in the number of drivers needed to move the nation's freight could exacerbate the ongoing nationwide driver shortage, which currently stands at 78,000 drivers and which will require the industry to hire over a million new drivers over the next decade to meet demand. Hydrogen refueling infrastructure to support hydrogen internal combustion engine (ICE) or hydrogen fuel cell trucks is even more nascent, and those technologies raise similar weight- and productivity-related concerns.

The transition to zero-emission trucks will require drivers and mechanics to be retrained on the new equipment, which will drive today's workforce investment costs higher. Additionally, while diesel fueling stations can handle four to five trucks per hour, charging stations would only accommodate two to three trucks per day. Each truck parking spot (excluding fueling) would need a charging station, exacerbating the shortage of truck parking capacity. Currently, there is only one truck parking spot available for every 11 trucks on the road.<sup>16</sup> Combined with the related and complicated issues surrounding hours of service, cargo securement, and cybersecurity, the industry will need time to validate approaches and identify the most efficient suite of fuels and technologies that perform according to our duty cycle and keep in line with our commitment to decarbonization.

#### HOW CONGRESS CAN HELP TODAY

Infrastructure can support the reduction of truck emissions in two ways: eliminating bottlenecks so that the trucks currently on the road can operate more efficiently, and building out the power generation, transmission, and charging infrastructure necessary to support battery-electric commercial trucks. As mentioned previously, electrification of trucking is going to require enormous investments and attention to areas that are not within the control of trucking. This transition will require utility upgrades, power transmission improvements, construction of additional space for truck parking, and modernization of our nation's workforce development programs to bring in a new generation of trucking workforce to drive and maintain these vehicles.

For today's environmental wellbeing, the greatest near-term reduction in emissions can be accomplished by careful oversight and distribution of Infrastructure Investment and Jobs Act (IIJA) funding to mitigate congestion and ensure the efficient movement of freight on our nation's highways. Reducing idling hours and time wasted in stop-and-go traffic on our nation's highway bottlenecks will make more efficient use of every gallon of fuel burned, as well as benefit our nation's truck drivers and highway safety. Congress should ensure that highway funding is directed to new construction that targets those chokepoints.<sup>17</sup>

Highway congestion adds nearly \$75 billion to the cost of freight transportation each year.<sup>18</sup> In 2016, truck drivers sat in traffic for nearly 1.2 billion hours, equivalent to more than 425,000 drivers sitting idle for a year.<sup>19</sup> This caused the trucking industry to consume an additional 6.87 billion gallons of fuel in 2016, representing approximately 13% of the industry's total fuel consumption and resulting in 67.3 million metric tons of excess carbon dioxide (CO<sub>2</sub>) emissions.<sup>20</sup>

Congestion serves as a brake on economic growth and job creation nationwide, and I see every day the maintenance and operational challenges that are created by stop-and-go traffic and the hazards of roads and bridges in disrepair.

Repealing the current federal excise tax on heavy-duty trucks and trailers would also make enormous strides in emissions reductions while utilities and other stake-

<sup>16</sup>U.S. Department of Transportation, Jason's Law Commercial Motor Vehicle Parking Survey and Comparative Assessment, December 1, 2022

<sup>17</sup>"After Capito, Graves Pledge to Formally Challenge Federal Highways Memo, FHWA Issues Substantially Revised Replacement," U.S. Senate Committee on Environment & Public Works, Press Release, 24 February 2023, Available online at: <https://www.epw.senate.gov/public/index.cfm/2023/2/after-capito-pledge-to-formally-challenge-federal-highways-memo-fhwa-issues-substantially-revised-replacement>.

<sup>18</sup>*Cost of Congestion to the Trucking Industry: 2018 Update*. American Transportation Research Institute, Oct. 2018.

<sup>19</sup>*Ibid.*

<sup>20</sup>*Fixing the 12% Case Study: Atlanta, GA*. American Transportation Research Institute, Feb. 2019.

holders evolve to meet the demands of heavy-duty trucking electrification. The current 12% tax is the highest excise tax on any good and reduces our ability to invest in cleaner, safer equipment. This tax adds roughly \$25,000 to the cost of a new clean-diesel tractor and can add \$40,000 to \$50,000 to the cost of a battery-electric or alternative fuel truck. This limits me every year when I am forced to buy twenty or twenty-one trucks instead of twenty-five newer, cleaner tractors. Along with my entire industry, I support and encourage the passage of H.R. 1440, the Modern, Clean and Safe Trucks Act, to eliminate this World War I-era tax and spur further investment in the trucks with the latest safety and emissions reduction technologies.

New clean-diesel trucks can further reduce their environmental footprint by burning sustainable fuels. However, while the Inflation Reduction Act (IRA) increased the tax credit for Sustainable Aviation Fuel (SAF) to a range of \$1.25 to \$1.75 per gallon, the credits for renewable diesel remain at \$1.00 per gallon. As a result, feedstocks for this valuable emissions-reduction tool for trucking are likely to be cannibalized for aviation. Restoring parity for tax credits for renewable diesel—and increasing the tax credit for renewable natural gas, which is used by some trucking companies and is currently eligible for a \$0.50 per gallon tax credit—can have immediate and sustainable environmental benefits.

Moreover, incentivizing alternative fuels can potentially offer significant, and potentially greater, benefits than electrification in more difficult to decarbonize segments of the industry. A recent ATRI report shows technologies like renewable diesel may yield larger emissions-reduction benefits than battery electric technology.<sup>21</sup> While BEV trucks offer a reduction of 30% in CO2 emissions compared to ICE trucks using petroleum diesel, renewable diesel (RD) powered trucks offer a more substantial reduction of 67.3%. This reduction includes emissions throughout the vehicle and battery production, energy consumption, and disposal phases.<sup>22</sup>

Further related to fuels, Congress and regulators also need to understand that ongoing price volatility for diesel, and state-based regulations increasing prices at the pump, continue to cost the industry tens of billions of dollars and make it harder to upgrade equipment to new, cleaner trucks. The trucking industry's fuel bill in 2019 was \$112 billion when prices were \$3.00/gallon. However, diesel prices rose throughout 2022, reaching a high of \$5.81/gallon—90% higher than 2019 average prices. This increase resulted in an annual diesel fuel bill exceeding \$200 billion for the American trucking industry, a nearly \$100 billion yearly increase.

According to a 2022 ATRI survey of the industry, fuel costs (22%), equipment and lease payments (15%), and repair and maintenance costs (9%) account for 46%, or nearly half of the overall operating costs for trucking companies nationwide. Surging fuel and truck prices, as well as the deployment of new technologies that are difficult for fleets to maintain, create enormous headwinds that stymie efforts to incentivize fleets to invest in newer, cleaner equipment.

As a practitioner, I would also recommend that Congress and agencies focus and prioritize distribution of funding through National Electric Vehicle Infrastructure (NEVI) grants, Charging and Fueling Infrastructure (CFI) grants, Qualified Commercial Clean Vehicles tax credits, and Alternative Fuel Vehicle Refueling Property tax credits for heavy-duty infrastructure projects to begin to provide momentum and set stakes in the group for fleets. These programs can have long-term impacts that will make it easier for PITT OHIO and our competitors to invest in decarbonization without putting our businesses at risk. This Committee in particular has a valuable role to play in overseeing management and funds distribution by those programs, and the industry is grateful to you for your leadership on that effort.

Finally, according to statistics from the U.S. Department of Transportation, 95.7% of private and for-hire motor carriers operate 10 or fewer trucks and 99.7% operate fewer than 100 trucks. I urge the Subcommittee to be aware of the challenges facing those small- and medium-sized trucking fleets, in particular, because they are the heart of our supply chains and face the biggest barriers to obtaining new, clean trucks.

#### IN CONCLUSION

Thank you for the opportunity to testify before you today. I am grateful for the opportunity to share my company's unique story and encourage others to join in our dedicated movement towards environmental sustainability.

<sup>21</sup> ATRI, "Renewable Diesel: A Catalyst for Decarbonization," April 2024.

<sup>22</sup> RD derived from various feedstocks exhibits significantly lower greenhouse gas intensity than petroleum diesel production.

On behalf of PITT OHIO, the American Trucking Associations, and the 8.4 million people in trucking-related jobs who power our nation's supply chains and keep the wheels of the economy turning, we look forward to working with the Subcommittee and Congressional leaders to support legislation that will help us meet ambitious energy and emissions goals. Thank you.

Mr. CRAWFORD. Outstanding. Thank you.  
Mr. Nigro, you are recognized for 5 minutes.

**TESTIMONY OF NICK NIGRO, FOUNDER, ATLAS PUBLIC  
POLICY**

Mr. NIGRO. Chair Crawford, Ranking Member Norton, and members of the committee, thank you for the opportunity to speak today about the electrification of U.S. transportation. My name is Nick Nigro, and I am the founder of Atlas Public Policy, a policy and data research firm based here in Washington, DC.

Atlas equips businesses and policymakers to make strategic, informed decisions that serve the public interest. I appreciate the opportunity to speak to you about the most important transportation challenge we face this century.

In the last 15 years, our innovative businesses, with support from Government and civil society, have made great strides to transition the country off oil to a more sustainable, secure, and economical fuel—electricity. Two thousand twenty-three was a banner year for electric vehicles with new U.S. sales exceeding \$1.4 million. For comparison, it took us nearly 8 years to reach the first million EV sales.

Passenger vehicles often steal the headlines, but truck and bus electrification is also underway. The number of electric trucks deployed nationwide jumped from only 1,200 in December 2021 to nearly 18,000 in June 2023, with trucks in every State. Fast-charging stations necessary to make an EV as easy to own as a gas vehicle are experiencing a similar surge. Twenty-five percent of all operational fast-charging ports were installed last year.

Make no mistake, this transition will take decades to complete, but we have too much at stake to lose the future of mobility to our competitors in China, in Europe, which made up 85 percent of global EV sales in 2023. The Alliance for Automotive Innovation estimates that the automotive sector supports nearly 10 million jobs in the United States. And the International Energy Agency estimates that global EV sales could reach 17 million in 2024, more than all passenger vehicles Americans purchased last year.

The need to advance EVs goes well beyond our economic interests. The American Lung Association estimates that zero-emission trucks could lead to 65,000 fewer premature deaths by 2050. Moreover, the National Oceanic and Atmospheric Administration estimates that climate-related disasters have cost us nearly \$2.7 trillion since 1980, with costs increasing every decade.

Lastly, all the evidence I have analyzed has led me to the conclusion that electrifying transportation is vital to our national security, and it is impossible to put a pricetag on that.

To complete the transition off oil, we must set up a policy framework that puts us on a better footing globally. Since the Infrastructure Investment and Jobs Act was signed into law in November 2021, we have tracked \$141 billion in announced investments in



EV manufacturing, with at least 80 percent of these investments flowing to Republican congressional districts. These investments will support 160,000 jobs, including 59,000 jobs in disadvantaged communities. As the clean economy ramps up, we are prioritizing those who have historically been left behind.

Combined, the National Electric Vehicle Infrastructure Program and Charging and Fueling Infrastructure Grants funded through IIJA is the largest investment in charging in U.S. history. These programs take a thoughtful complementary approach to building out charging infrastructure, helping to ensure all Americans can use their EV to go anywhere they want. In addition, the power, port count, and reliability requirements raise the bar for a nascent industry and provide certainty on how companies will deliver a customer experience akin to gasoline refueling. By the end of 2024, we expect NEVI-funded stations will be open or under construction in most States.

IIJA also supercharged the popular Low- or No-Emission Program. Last year, \$1.2 billion was awarded to projects in nearly all States, with 70 percent of funds going to zero-emission technology. The boost is timely as the seven largest transit bus fleets, making up 60 percent of the market, will purchase only zero-emission buses in the next 8 years.

Congress can use the surface transportation reauthorization to redouble its efforts to support electric vehicles. Specifically, Congress should renew the NEVI and CFI programs and update requirements to meet the near-term needs of EV drivers by doubling the poor power level per port and the minimum number of ports per station.

Second, Congress should support truck electrification by targeting charging along rights-of-way and at shared public sites to support small businesses. Congress should update the Low-No Program to focus funding on zero-emission technology as it is the best option for the environment, human health, and our economy.

Thank you for the opportunity to share my perspective today. I look forward to your questions.

[Mr. Nigro's prepared statement follows:]

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### **Prepared Statement of Nick Nigro, Founder, Atlas Public Policy**

#### INTRODUCTION

Chair Crawford, Ranking Member Norton, and members of the committee, thank you for the opportunity to speak today about the electrification of U.S. transportation. My name is Nick Nigro, and I am the founder of Atlas Public Policy, a policy and data research firm based right here in Washington, DC. Atlas equips businesses and policymakers to make strategic, informed decisions that serve the public interest. We build analytical tools and dashboards using accessible technology and offer advisory services to tackle the pressing issues of the day, with a particular focus on transportation electrification.

I greatly appreciate the opportunity to speak to you about the most important transportation challenge we face in this century. For more than one hundred years, powering our transportation system has depended largely on the extraction, refinement, and burning of petroleum-based products to move goods and people throughout our road network.

In the last 15 years, our innovative businesses, with support from all levels of government and civil society, have made great strides to take on a once-in-a-century

challenge to transition the country off oil to a more sustainable, secure, and economical fuel, electricity.

Make no mistake. This transition will take decades to complete, but we have too much at stake to sit on the sidelines and lose the future of mobility to our competitors in China and Europe, which collectively made up 85 percent of global EV sales in 2023[1].

The Alliance for Automotive Innovation estimates that the automotive sector supports nearly 10 million jobs and over \$700 billion in worker income every year in the United States[2]. Nearly 65 percent of car and light truck sales in 2023 were from companies who have committed to electrify all their vehicle offerings by 2035 or 2040. And the International Energy Agency estimates that global EV sales could reach 17 million in 2024[1], more than all passenger vehicles purchased in the United States last year.

Passenger vehicles often steal the headlines, but truck and bus electrification are well underway as well. By 2040, the three truck manufacturers that make up 70 percent of the medium and heavy-duty market—Daimler Truck, Volvo Group, and Navistar—aim to sell only zero emission vehicles. These manufacturers, along with large national fleets, logistics companies, charging infrastructure developers, and electric utilities, formed PACT, a comprehensive coalition focused on one of the most critical barriers to accelerating the uptake of zero emission commercial vehicles: the deployment of medium- and heavy-duty truck zero emission charging and refueling infrastructure[3].

We aren't just racing against foreign nations to lead the development of 21st century vehicle technology. We're also in a race to mitigate the worst effects of climate change on the planet and tailpipe pollution on human health. The American Lung Association estimates that transitioning trucks to zero emission could lead to \$735 billion in public health benefits and more than 65,000 fewer premature deaths by 2050[4]. Moreover, unmitigated climate change is a looming threat to the global economy. The National Oceanic and Atmospheric Administration estimates that climate-related disasters have cost us nearly \$2.7 trillion since 1980, with costs significantly increasing with each decade[5].

Finally, in terms of the drivers to an electric future, I'd be remiss if I didn't bring up the major factor that brought me to Washington nearly 15 years ago. You see, I studied electrical and computer engineering in the late 90s and took a job in the booming high-tech sector in Massachusetts in 2001. Applying my engineering education and building popular consumer products was a rewarding experience. But while I was sitting pretty in Boston, the country was in a deepening national security crisis, which I believe was driven in part by our dependence on oil. I was motivated to change the direction of my career, and my life, by going back to school, learning energy policy, and putting my engineering brain to better use. All of the evidence I've analyzed over the past 15 years has led me to the clear conclusion that electrifying our transportation sector is vital to our national security, and it's near impossible to put a price tag on that.

#### STATE OF PLAY

As I've summarized here with you today: the days of the combustion engine are numbered. We must finish the job by setting up a policy framework that puts the United States on a better footing globally and helps us regain a leadership position in this vital industry.

The good news is that in the last three years, investments have flooded into all parts of the country, in large part thanks to the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA). Since IIJA was signed into law in November 2021, investments in EV manufacturing facilities totaling about \$141 billion have been announced[6]. Notably, at least 80 percent of these investments are flowing to Congressional districts represented by Republicans. These investments are expected to support more than 160,000 jobs in manufacturing operations and cover activity across the EV supply chain, from minerals processing to produce precursor materials for battery production, all the way to EV production and end-of-life battery recycling to recover materials for reuse. To date, Georgia, North Carolina, and Michigan lead the country in announced investments, accounting for nearly \$58 billion combined.

Where these investments and jobs are sited, and who they are impacting, are also important factors in the EV transition. Twenty thousand announced manufacturing jobs will be in Energy Communities, defined by the federal government as places with former fossil fuel industrial sites, including power plants, mines, and oil and gas wells[6]. Additionally, more than 59,000 jobs announced will be located in dis-

advantaged communities. As the clean economy ramps up, communities that have historically been left behind are finally being prioritized.

The investments announced boast big numbers, but they go well beyond press releases. In fact, 66 percent of investments are at facilities currently in operation or under construction. At least 90 facilities are on track to go into operation by 2024 or 2025, representing 80,000 manufacturing jobs.

In the passenger vehicle market, 2023 was a banner year for electric vehicles. More than 1.4 million new EVs were registered last year. For comparison, it took the country nearly eight years to reach the first million EV sales[7]. Fast charging stations, a critical part of making an EV as easy to own as a gas vehicle, are experiencing a similar surge in popularity. More than 25 percent of all fast-charging ports currently operational were installed in 2023, reaching a rate of 250 per week in the fourth quarter[8].

It's not all smooth sailing though and we should expect the market to ebb and flow as the technology progresses, consumer interest evolves, and new and entrenched businesses are challenged. To illustrate, new EV sales for the three months from December 2023 to February 2024 are up 20 percent over the previous year's figures; however, these figures are down from the 50 percent growth we saw in all of 2023[9]. This is not evidence that the EV market is struggling per se, but it does reveal that vehicle offerings must meet consumer expectations and that auto-makers must continue to innovate to drive interest.

Economists describe "creative destruction" as the process where innovation delivers progress and new products make the existing ones obsolete. There are countless examples of this in consumer electronics, whereas until recently the vehicle market has experienced gradual progress over many decades. EVs are the first major disruption to how vehicles are built and powered in more than a century, and there will be winners and losers. I'm confident in American know-how and ingenuity, but we need to keep our eyes on the ball and manage our resources.

#### CHARGING INFRASTRUCTURE

For many Americans, charging an EV can be as easy as plugging in your cell phone every night. More than 65 percent of Americans live in single family homes, many of which have garages and easy access to power[10]. Electric utilities across the country have deployed charging programs to support consumers and encourage them to charge at times of day that are good for the electrical grid and their wallets. The convenience of charging at home and cost effectiveness of doing so, thanks in part to utilities, helps explain why most experts expect EV drivers to only rely on public charging for a small fraction of their trips, particularly as EV ranges continue to climb.

While most EV drivers won't use the infrastructure very often, they consistently cite a lack of reliable public charging as a primary barrier to EV adoption[11]. The lack of near-term demand for public charging services combined with the expectation of its widespread, reliable access make the charging business model challenging. The federal government has historically played a constructive role in addressing market transition opportunities like this and EVs are no different.

Combined, the National Electric Vehicle Infrastructure (NEVI) program and the Charging and Fueling Infrastructure Grants (CFI) funded through IIJA is the single largest investment in charging in U.S. history. These programs take a thoughtful, complementary approach to building out the nation's charging infrastructure, helping to ensure Americans can use their EV to go anywhere they want. Over the last two years, state departments of transportation (DOT) across the country have created strategic plans, built capacity, introduced themselves to their local utilities in some cases, and stood up this brand-new program that is quickly becoming an integral part of the DOT's operations. As of late April 2024, six states have stations open to the public, one state's first station is under construction, 13 states have issued awards, and 15 states are currently issuing or evaluating proposals. By the end of 2024, we can expect NEVI-funded stations to be open or under construction in most states.

State DOTs are largely engineering-focused institutions, and as an engineer, I can tell you that we like to plan and make sure we get everything right before committing major resources to a project. The first 12–18 months of NEVI were just that; many state DOTs had never funded an EV charging project and had to hire new staff or bring in outside help. All of this takes time, but these planning and capacity building activities are critically important to ensure the goals of NEVI are realized and that these and future funds are used in a way that is transparent, efficient, and equitable.

NEVI is doing more than building out fast charging along the Interstate Highway System. The requirements related to power, charger count, and reliability are transformational for the industry. At each NEVI-funded station, EV drivers can expect at least four ports, each delivering 150 kilowatts of power, that are available and operational nearly all of the time[12].<sup>1</sup> These requirements raise the bar for a nascent industry and provide much-needed certainty on where companies must go to deliver a customer experience akin to gasoline refueling.

While it's best for the grid and household budgets for EV drivers to charge overnight where they park, many households do not have this opportunity today. Millions of families rent, live in large apartment buildings, park on public streets, or otherwise don't have the ability to deliver power to where they park. A lack of public, fast charging can make it hard for those drivers to consider an EV. Here, NEVI and CFI are filling another important charging access gap.

Charging infrastructure will continue to be a challenge for the EV industry in the near term as more everyday Americans buy EVs. The bar for the charging experience will rise because these drivers will not be as forgiving as early adopters have been with regards to technical glitches or other unexpected issues. The good news is that programs like NEVI, CFI, and many state and electric utility programs nationwide, are fostering a vibrant private charging market. Future programs focused on fast charging should continue to raise the bar through higher power requirements and offering more ports per station.

#### ELECTRIFYING COMMERCIAL TRUCKS

Like passenger vehicles, the zero-emission commercial truck market in the United States is experiencing significant growth and transformation, driven by increasing demand for sustainable transportation solutions and the need to reduce greenhouse gas emissions in the logistics sector. As the market evolves, we must understand the status quo, key drivers, challenges, and the role of the federal government in supporting the accelerated deployment of zero-emission trucks.

Currently, as more models become available the zero-emission truck market is seeing a surge in sales. As of December 2021, only 1,215 zero-emission trucks had been deployed in the United States, but by June 2023 that number had climbed to over 17,500, including deployments in every state[13, 14].

Manufacturers are introducing a variety of battery-electric and hydrogen fuel cell trucks to cater to different applications, from last-mile delivery to long-haul transportation. For example, some urban delivery trucking fleets are already saving money by deploying zero-emission vehicles[15]. Health and climate benefits aside, the lower operating costs, reduced maintenance requirements, and improved driver experience have made zero-emission trucks an attractive option for last-mile delivery operations.

In new markets like this, incentive funding at the state and, particularly, the federal levels play a crucial role in offsetting the higher upfront costs and encouraging fleet adoption. Additionally, numerous demonstration programs across the country, such as the North American Council for Freight Efficiency's Run on Less Electric events, have showcased the real-world performance and benefits of zero-emission trucks[16]. These programs provide valuable insights into the operational capabilities and cost savings potential of zero-emission technologies. Furthermore, the increasing demand from shippers and logistics companies to reduce emissions across their supply chains has created a strong market pull for zero-emission trucks.

Despite this progress, the zero-emission truck market still faces several barriers to widespread adoption. One primary challenge is the lack of truck-specific recharging and refueling infrastructure, such as pull-through spots designed to accommodate larger vehicles. The absence of a comprehensive network of charging stations and hydrogen fueling facilities has hindered the deployment of zero-emission trucks, particularly for long-haul operations.

Moreover, the economics of zero-emission trucks remain challenging due to the higher upfront costs of vehicles and the need for significant, expensive investments in charging infrastructure.

User acceptance is another barrier, as the trucking industry is known for its risk-averse approach to adopting new technologies. Specifically, there is a misconception that zero-emission technologies are unproven in terms of durability and reliability, which has slowed down their adoption. Lastly, the lack of parking facilities for commercial trucks, especially tractor-trailers, presents an opportunity to address both the infrastructure and parking challenges simultaneously[17]. As a result, investing in the development of truck parking facilities equipped with chargers and amenities,

<sup>1</sup>NEVI requires an average annual uptime of 97 percent or greater for each port.

such as showers and convenience stores, can support the deployment of zero-emission trucks while improving driver comfort and safety.

The federal government plays a vital role in supporting the accelerated development and deployment of zero-emission trucks through several programs, such as those in IIJA and IRA. To ensure that we remain competitive in the global zero-emission truck landscape, we must focus on domestic manufacturing and supply chain development for both vehicles and infrastructure.

The federal government can continue to provide incentives, grants, and low-interest loans to encourage investments in zero-emission truck manufacturing and the establishment of a robust charging and refueling infrastructure network. Additionally, the government can support research and development efforts to improve battery and fuel cell technologies, enhance vehicle efficiency, and reduce costs. Programs like NEVI, CFI, and Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants help take equipment from the laboratory to the field and are essential to fostering a nascent market like electric trucks. Collaboration between the public and private sectors, along with targeted investments in workforce training and education, can help build a strong ecosystem for zero-emission trucks in the United States, such as in state-sponsored workforce development programs and the U.S. Department of Energy's Electric Drive Vehicle Battery Recycling and 2nd Life Apps Program.

As the zero-emission commercial truck market grows and evolves, we must address these barriers and leverage opportunities to accelerate the transition towards sustainable transportation. By implementing market-based policies, investing in infrastructure, and fostering domestic manufacturing capabilities, the United States can position itself as a leader in the zero-emission truck industry while creating jobs, reducing emissions, and driving innovation in the logistics sector.

#### TRANSIT BUS ELECTRIFICATION

Zero-emission transit buses have been deployed across cities and municipal regions throughout the United States to abate air pollution and greenhouse gas emissions in hard to decarbonize urban areas. A recent study by CALSTART found that the United States has 5,775 battery electric transit buses on the road as of September 2023, an increase of 12 percent since 2022[18]. More than half of these buses are operating in California (1,760), New York (737), and Florida (464). While the growth rate nationwide slowed compared to 2022, seven states (Illinois, Massachusetts, Missouri, New York, North Carolina, Ohio, and Oregon) saw their zero-emission bus deployment rise by at least 50 percent.

This marked growth in regions nationwide is expected to accelerate in the near term largely thanks to funding from IIJA. The law supercharged the popular Low and No Emission (Low-No) Program run by the Federal Transit Administration (FTA) with \$5.25 billion in funding over five years[19]. Last year, more than \$1.2 billion was awarded to 130 projects in 46 states. To put this in perspective, the Low-No funding awarded in the first two years of IIJA was 3.5 times the total amount awarded in the history of the program. Nearly 70 percent of that funding has gone to zero emission technology, and those buses will make a meaningful difference in the health and well-being of the transit workers who will operate them[8].

The transition to zero emission buses will take time. The technology available today, while steadily improving, may not yet meet every use case. For example, cold weather range loss is particularly challenging for regions with harsh winter seasons, and these losses are exacerbated at slower speeds. At 60 miles per hour or greater, on the other hand, recent analyses reveal that temperature has little or no effect[20]. Thus, transit agencies must account for this expected range loss in their route and charging planning. Technological solutions and operational strategies can be used to minimize these impacts, such as pre-heating the interior and battery, installing more efficient heating technology in buses, and creating strategic planning and adaptation guidelines for transportation authorities.

The funding boost from IIJA is coming at the best time as transit agencies nationwide are lining up to commit to a zero emission future. The nation's seven largest transit bus fleets, spanning from Los Angeles to Boston to right here in Washington, DC, make up more than 60 percent of our total transit bus fleet[21]. Each one of these agencies intends to purchase only zero emission buses in the next eight years.<sup>2</sup> It's an ambitious and laudable goal, and they will need continued help from Congress and state governments to deliver on these promises.

<sup>2</sup>Individual transit agency websites spell out agency goals or state requirements to transition to zero emission vehicles for all new purchases within the next 10 years.

## LOOKING AHEAD

Electrifying the transportation sector is an opportunity we cannot miss—too much is at stake. The health of Americans, our economy, and our planet demand we decarbonize vehicles as quickly as possible. And effective public policy, at all levels of government, is crucial to decarbonize.

We're in the middle of a global economic competition for the future of vehicle manufacturing. At the moment, the United States is playing catchup to China and Europe but there is still time for us to regain a leadership position, and we must, in order to continue supporting millions of U.S. jobs and an industry vital to our economy.

Congress's leadership through the IJA and IRA has generated a wave of positive momentum in the United States. We are seeing billions in new investments in manufacturing, thousands of new, good paying jobs, and the deployment of advanced vehicle and charging technology nationwide.

Surface transportation reauthorization is a rare opportunity for Congress to redouble its efforts to support electrifying U.S. transportation through continued and expanded funding for charging infrastructure and vehicle deployment. Specifically, Congress should renew the NEVI and CFI programs. Updating NEVI's requirements to meet the needs of current and future EV drivers is a crucial accessibility consideration, and can be done by increasing charger power levels to 350 kilowatts per port and doubling the minimum number of ports from four to eight per station. Second, Congress should support the burgeoning truck electrification market by targeting charging deployment along rights of way and at shared public sites to support small businesses who may not have ready access to a depot. Lastly, Congress should consider updating the Low-No Program to focus funding on zero emission technology, since electrified transportation is the best option for the environment, human health, and our economy.

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Mr. CRAWFORD. Thank you, Mr. Nigro.

I thank all of you for your testimony. We will now turn to questions from the panel. I recognize myself for 5 minutes for questions.

Let me start with Mr. Darakos. I appreciate you raising a number of the challenges that trucking fleets, both large and small, face as they consider how to respond to decarbonization policies without bankrupting their businesses. You also shared with the subcommittee the significant multiyear investments that the trucking sector has already made to reduce its environmental footprint.

Talk about more of the challenges associated with only running Class 7 or Class 8 battery-electric trucks and why PITT OHIO has chosen to have a fleet with different fuel options.

Mr. DARAKOS. Sure. Thank you, Chairman.

In terms of hurdles, I would say there are three buckets to consider. It is technology, infrastructure, and cost. So, from our experiences, the technology was not readily available until 2 years ago for initial demonstration projects. In fact, we were one of the early fleets to bring battery-electric medium-duty trucks into our operation. The range, the payloads, significantly less than the current conventional trucks that are on the road today.

So, when you think about what that does to our operation, it changes the dynamics of what we do and how we do it.

Infrastructure: significant hurdles. So, we have 25 depots. We have considered electrification in 12 of those depots. Ten different utilities that we have to work with. I can share stories with you that, you know, we did a lot of work on the facility side many years ago, Chairman. We electrified our forklift fleet. Today, we are 42 percent electrified. The reason we are not 100 percent: We do not have the power to support electrification in those facilities. So, those are small loads.

As we talk about medium-duty, heavy-duty, it is a very large load that we are bringing to the grid. And those projects to electrify our depots are taking a long time. We have an electrification project today that will have taken 2 years from start to finish to get 3 megawatts of power onsite, and that is just for a small project. And we are ahead of the curve.

And then lastly I would say is cost. So, what we have seen pre-incentives, 3½ to 4 times the cost of the conventional vehicle, we have seen significant cost increases over the last years, 2 years for conventional vehicles. And I just signed an order agreement for three trucks. One and a half million dollars is the equivalent of 10½ vehicles in internal combustion engine technology.

So, as I mentioned right now, our hurdles are centered around technology, and the technology is improving. It is the infrastructure which is a large challenge, and it is the cost of the technology moving forward.

Mr. CRAWFORD. Thank you. In your testimony, you highlighted the Roland Berger study that I mentioned in my opening comments. Can you give us a little bit more about the real-world electrification challenges raised by that study? And I guess I would like to know how difficult it would be for the trucking sector to meet both the Biden administration's carbon reduction goals in addition to what California wants to require.

Mr. DARAKOS. There are a lot of folks working really hard to move this forward. In terms of that study, a lot of the charging that has to happen for our fleet has to be behind-the-fence charging. So, that is a significant investment of resources. And we are a large organization. We are family-owned. But the majority of trucking companies today are small businesses. And the reality is, they do not have the infrastructure, the teams to kind of move this forward.

In our experiences over the last 3 years, it has taken a team to move these small projects forward. So, that is one aspect of it.

The other piece is from a duty-cycle standpoint in the Roland Berger study, there is a lot of investment that is going to have to happen in corridor charging. That is fine, but it is going to have a significant impact in terms of how we do business today.

During the day, our fleet does city deliveries. At night, they do line haul deliveries which are terminal to terminal. We average 520 miles a night. We have drivers that operate over 600 miles a night. That is not possible if we have to stop and recharge for 30 minutes to an hour. So, there are some significant hurdles.

I think the study out does a good job of shining the spotlight on the significant investment that is going to have to happen, but there are some challenges that I see with that study as how we move forward.



Mr. CRAWFORD. Thank you.

Mr. Coggin, real quick, you mentioned the inclement weather down the coast that you deal with. I am curious how that inclement weather would impact your ability to function if you were all electric, given the Katrina scenario, for example. Can you talk about that?

Mr. COGGIN. Yes, sir. Hurricane Katrina was a Cat 5 devastating hurricane who pretty much destroyed our entire community. Our public transit agency is a very important part of evacuation and recovery. During these events, we are part of the Harrison County Emergency Management Agency. We are totally responsible for Emergency Support Function 1—Transportation. So, we are called upon to meet all of the needs of the community when these events happen. And so, we provide evacuation transportation. That is the easy part.

After the storm, if it is devastating, people lose their homes, their cars, power—it could be out for weeks at a time, like Hurricane Katrina. If we were 100 percent electric, we would not be able to support the community in that type of a power outage. So, that is a critical issue for us being able to meet those needs.

Mr. CRAWFORD. Thank you. My time has expired.

Ranking Member Holmes Norton.

Ms. NORTON. Mr. Nigro, we have heard some discussion today about the cost of transitioning to cleaner vehicles. Congress has a role to play in alleviating those costs. But we would be remiss not to also speak about the significant benefits of a cleaner transportation system.

What are the benefits of electrification both in terms of human health and avoiding environmental catastrophe?

Mr. NIGRO. Thank you for the question.

So, let me start with the tailpipe. With no tailpipe, we see huge local air emission benefits immediately in all the areas where an EV operates. I mentioned earlier that the American Lung Association estimates that zero-emission trucks could lead to 65,000 fewer premature deaths by 2050. It performed a similar study for passenger vehicles, and they found that that combined with reducing emissions from the electricity sector where the power comes from could lead to 89,300 fewer premature deaths by 2050. So, that is a lot of human health benefits.

A new analysis from Bloomberg found that EVs produce about 70 percent less carbon dioxide equivalent emissions in gasoline vehicles over their lifetime. It is important to highlight the lifetime aspect of this because we have been actively decarbonizing the electrical grid for some time. There is an old adage in the EV space: The dirtiest days of your EV is the first day you take it off the lot. Because the grid is continually getting cleaner.

You also asked about the benefits of avoiding environmental disasters. I highlighted what NOAA does, and, frankly, at Atlas, we are quite jealous of their work in tracking climate-related disasters because it is all about making that data publicly accessible. They estimated that it cost us nearly \$2.7 trillion in climate-related disasters from all kinds of events since 1980.

Those costs, importantly, are increasing each decade. So, the problem is getting worse. And so, the sooner we act, the fewer costs we will have to endure in the long term.

Ms. NORTON. Well, Mr. Nigro, Federal electric vehicle charging programs have taken time to implement, as the Biden administration first had to follow congressional directives to create a new joint office and issue technical standards to ensure consistent charging experience nationwide. The administration also chose to issue a stronger Buy America standard for electric vehicle chargers. I believe the administration did the right thing.

Were those steps worth the extra time it took to get these programs implemented, Mr. Nigro?

Mr. NIGRO. So, that is a great question because for folks who don't work closely with State DOTs, from the outside looking in, the law was enacted. And for some time, not much money has been spent installing charging, at least from the outside looking in.

But as an engineer—similar to Ms. Okafor, I am also an electrical engineer—State DOTs are engineering-focused organizations. And what they want to do and what we like to do as engineers is plan and make sure that we get everything right before we commit resources. And the reality of NEVI, in particular, the first 12 to 18 months was just doing that, building up capacity within the States' DOTs to hire people. Many DOTs had never done any recharging program before. So, they had to either bring in outside help or hire new resources, and they had to submit plans for how they were going to implement their program. So, all of that takes time. But it's important because it's building long-term capacity within the DOTs.

And what has become evident, watching, again, from the outside on what is happening within DOTs, it is quickly becoming a core part of what they do as a department of transportation, not just building roads and bridges, but also making sure that mobility as a service is provided. And EV charging is an increasingly important part of that.

And so, in essence, these plans are essential because we want to make sure that the money that gets spent here from IIJA is transparent, it is sufficient, and it is equitable. And that is going to take time. And that is something that we have had to accept in the recent past.

On the other hand, I mentioned earlier, the funding is starting to go out the door. And so, by the end of this year, we expect that there are actually going to be stations open or under construction in most States. And now that the DOTs have—many of them have issued awards, I expect that we are going to see a lot more NEVI stations open up in the near term because these sites are actually relatively quick construction sites.

Ms. NORTON. Thank you, Mr. Nigro. My time has expired.

Mr. CRAWFORD. I thank the gentlelady.

Mr. Webster.

Mr. WEBSTER OF FLORIDA. Thank you, Mr. Chair.

Ms. Okafor, this is a pretty simple question. Where does the electricity come from that charges these batteries?

Mrs. OKAFOR. Thank you for the question.

There are a number of different ways that electricity is produced throughout the country. There are a number of production plants. And then the utility agencies throughout the country transmit that power out to the demand locations, which are EV charging stations.

Mr. WEBSTER OF FLORIDA. So, the Biden administration wants to have half a million stations opened up. There have only been eight built so far. So, pretty much they still want half a million. So, do you know if there is enough power somewhere out there being generated right now to support those 500 stations?

Mrs. OKAFOR. It is an extremely important question. The utilities throughout our country have a very significant job on their hands to make sure that there is enough power that gets transmitted to these EV charging stations. Quite honestly, they are our partner as we think about the value chain, to working together with the utility to help them understand when we are going to put in chargers and how much load we require, so that they can build the utility power production plant as quickly and as effectively as possible. It is a better question for a utility agency, but it will be a significant challenge throughout the country.

Mr. WEBSTER OF FLORIDA. Yes, because permitting is not the easiest thing in the world to do. And depending on what kind of powerplant you are permitting, for a nuclear plant, probably not going to happen in our lifetime. So, I just wondered—if that be the case, how much for an average battery-powered vehicle that runs—before the battery is run down, how much does it take in power to recharge those batteries?

Mrs. OKAFOR. Different OEMs have different battery packs in their systems. At our locations, we have seen that customers usually stay in charge at a fast charger between 20 and 40 minutes, and they take somewhere between 30 and 40 kilowatthours per charge.

Mr. WEBSTER OF FLORIDA. OK. So, if all 500,000 of those are operating at one time, that is a lot of juice.

Mrs. OKAFOR. It is certainly a significant amount of power, more power than we use right now. You are correct.

Mr. WEBSTER OF FLORIDA. So, how much does it—what would be the timeframe to permit and build an electric station? What does it take to do that?

Mrs. OKAFOR. For an EV charging station? The typical build time for an EV charging station altogether is 12 to 18 months. I would say the three long lead items in that schedule is, one, the procurement and manufacturing of the charger. Two, it is the utility upgrade. That by far is the portion of the schedule that's the hardest to predict. We don't get that much information from the utility early on. And then third is exactly what you are saying, permitting. Because we have no control on how long the AHJ takes to permit our stations, we are dependent on the AHJ to review it in a timely fashion and to get the permit out to us. On average, we see permitting taking anywhere between 1 and 3 to 4 months max.

Mr. WEBSTER OF FLORIDA. Do you have to get a permit if you are just adding on EV power?

Mrs. OKAFOR. You do, yes. So, at a location like Love's that is already a fueling station, you do have to get an additional permit to add chargers to our stations.

Mr. WEBSTER OF FLORIDA. So, would that be the same as if it were new? New or add-on, it would be the same amount of time, you think?

Mrs. OKAFOR. Say that one more time. Would you repeat the question for me, please?

Mr. WEBSTER OF FLORIDA. OK. So, you said that they have add-ons on stations that already exist, and then there are new stations that exist. Does it take the same amount of time to do either one, as far as electric power? I am not talking about the whole station.

Mrs. OKAFOR. For just the charge, it depends on what it is that you are building. But if you are—let's say you are building a new truckstop. Permitting the truckstop itself takes a significant amount of time. So, it does fall within—permitting the truckstop—permitting that EV charging station falls within the timeframe of permitting the truckstop.

Mr. WEBSTER OF FLORIDA. Is that two permits? Or do you just permit the whole station, and it could be or may not be an EV station?

Mrs. OKAFOR. For an EV charging station, you typically need a build permit and, I believe, a structural permit.

I wish I had my design-build manager up here with me. He would be able to answer that question much easier than I would.

But there are different sorts of permits that you need. For a truckstop, obviously, you would need much more than that.

Mr. WEBSTER OF FLORIDA. Thank you.

OK. Yield back.

Mr. CRAWFORD. The gentleman yields.

Mr. Larsen.

Mr. LARSEN OF WASHINGTON. Thank you, Mr. Chair.

Those are great questions outlining that most of these—there is a bucket of challenges that have nothing to do with the Federal Government and a lot to do with everybody else.

And one of the main issues—and I want to come back to you; I have a question for Mr. Nigro, but I want to come back to you—one of the main issues is you are dealing with local utilities that, basically, even though they wield the power or send the power, they own it. They own your access to it. So, it doesn't matter if you are building a charging station, a commercial facility, industrial facility, the utility is the gatekeeper on your power.

Mr. Nigro, I made the point, the chair made the point, the NEVI program has only funded 8 charging stations, soon to be 20, with the 12 that will be located immediately, and a total of 78 at the Library Commons project in Mount Vernon. But, still, it is a challenge, and it is not a great story.

Can you talk a little bit about how we can accelerate the Federal funding to get chargers funded?

Mr. NIGRO. So, when it comes to NEVI, there was just a significant amount of time required to stand up the program. I am actually quite confident that DOTs are going to be issuing funding opportunities in rapid succession. Many are actually already on their second round of funding.

And so, as I mentioned earlier, I think before the end of the year, I would expect more than half of the States to have either sites under construction or open at this point.

Mr. LARSEN OF WASHINGTON. Yes. But, to date, even though the number is eight, do you have an estimate of the number of chargers that are actually deployed, total, regardless of who has funded them?

Mr. NIGRO. Oh, you mean in addition to NEVI? How many—

Mr. LARSEN OF WASHINGTON [interrupting]. Eight, plus how many? Yes, right.

Mr. NIGRO. No, I don't have that number with me, but I can—

Mr. LARSEN OF WASHINGTON [interrupting]. Is it 100? Is it 200? Is it 1,000?

Mr. NIGRO. Fast chargers available to any American right now in the public, it's somewhere near 10,000.

Mr. LARSEN OF WASHINGTON. Somewhere near 10,000.

Mr. NIGRO. Yes.

Mr. LARSEN OF WASHINGTON. All right. Great. Thanks. Thanks.

So, back to Ms. Okafor, you mentioned some of the challenges. Are there things that we can do to clear the brush on these challenges?

Mrs. OKAFOR. Yes. What it really reminds me of is the biodiesel incentive structure. So, Love's is one of the leading blenders of biodiesel throughout the country, and the incentive structure that biodiesel had was a two-sided structure: One, you had incentives for infrastructure; on the other side, you had incentives for the energy or the fuel to go to the consumer.

On the EV charging side for NEVI, we have incentivized the infrastructure and haven't incentivized demand to get the consumer to be incentivized to buy these electric vehicles. So, increasing the demand for the charging stations would make the economics for the infrastructure much easier to bear. So, the help that we would be looking for is on incentives on incentivizing drivers to buy these EVs.

Mr. LARSEN OF WASHINGTON. Yes. Thanks.

And then, Mr. Coggin, Todd Morrow was here a few weeks ago—he is at Island Transit in my district—speaking on behalf of the CTAA, testifying on a separate set of issues. But they are also going to electric and propane, because they are a rural transit agency as well, and so, they are going to do a fuel mix as well.

We have seen quite a number of, at least in Washington State, and I am sure around the country, both urban, suburban, and rural transit agencies adopting low- and no-emission and working through that transition, as well, with their own sets of challenges.

So, when you are done, if you will, with your transition, what will be your fleet mix in terms of fuel?

Mr. COGGIN. Based on current technology and budgetary constraints, we are using propane for small and midsize vehicles, and we are using pure electric on the big buses.

The mix of our fleet, 54 vehicles, is currently 20 percent gasoline, 52 percent diesel, 27 percent propane, and only 1 percent electric. We only have one 35-foot heavy-duty bus. We have 12 buses on order now that are going to be propane to replace diesel, so, we are going to go from 27 percent to 39 percent propane by the end of the summer this year.

Going forward, we don't know what that is going to look like. We are looking at pure electric. Pure electric is more expensive than

the other technologies. There are costs to that. And we also are blessed to live in a community with clean air. We are not in a non-attainment area.

Mr. LARSEN OF WASHINGTON. Right.

Mr. COGGIN. But we—I personally think that federally funded public agencies should be taking the lead in alternative fuels. And there are a bunch of alternatives other than electric out there. If you have really bad air-quality issues, certainly electric is the way to go, but we don't.

So, our current strategy is, as I said, using propane. It is cleaner than diesel, less expensive to operate, and cheaper than electric. But electric is totally clean. So, it just depends on your weather, geography, operating requirements.

So, going forward, 20 years from now, who knows what the technology and the costs are going to be? And if we wind up having air-quality issues, it will certainly be electric for us. But right now the plan is not for pure electric.

Mr. LARSEN OF WASHINGTON. That is great. That is helpful.

And appreciate it, Mr. Chair. And I will follow up with Mr. Darakos on some questions on trucking, but—if I had time to yield back, I would do it.

Mr. CRAWFORD. All right.

The gentleman yields.

Mr. Bost.

Mr. BOST. Mr. Darakos, when I look over the panel, I am trying to figure out which person I could ask this of.

I was born and raised in a trucking business; actually dealt with a whole lot of hazardous material, including the ANFO for mines, gas, diesel, propane.

When you start working with electric vehicles, what is the higher danger of when you start moving hazardous material, when we are talking about charging stations, and the intersection of all of those? Do you know?

Mr. DARAKOS. Yes, I can comment on that.

From our standpoint, we move a lot of hazardous-material products through our LTL network. We also do flammables, explosives. So, there is a concern. In fact, the way we are structuring charging today, we do it away from our dock facility because of the risk and the potential hazards with thermal runaway on those electric vehicles.

So, we could reduce the impact of infrastructure stress on our facilities if we had confidence to plug those vehicles in at the dock as the units were being loaded, but today the charging happens away from the dock.

In fact, recently, there was a fire in Columbus, Ohio, where a partner LTL carrier had lithium batteries that were coming back, that were being sent back in, defective, and they had a thermal runaway that shut down a 1-mile radius in the Columbus area and shut down the terminal operations.

So, it's real. We are considering it and looking at it. And I think that is why we are walking into this slowly as the technology evolves.

Mr. BOST. I think there are some concerns that many of us have. You know what? We would all like to have clean vehicles. We

would all like to have the—where it's perfect. But what we don't say about the electric vehicle is the ability to create a grid powerful enough to handle that.

I worked for 20 years in the State legislature on the public utilities. And our base load would not handle increasing to the point of what we are talking about through this administration.

But, with that, Ms. Okafor, I know that Love's offers EV charging, hydrogen, compressed natural gas, renewable natural gas, biodiesel, to name just a few. You do provide all of it.

Now, in your opinion, if this administration focuses on electric, it's limiting investments in other types of alternative fuels.

Now, another problem that is out there is, China currently controls the EV charging market and a majority of the refineries for the critical minerals that are used to manufacture batteries.

Are there any alternative fuels that you deal with that you believe that we, as the U.S., can become energy-independent with and actually keep ourselves away from the big fear that we have of China?

Mrs. OKAFOR. Thank you for the question. It is a great question.

When I think about the incentive programs that we have in place today and, in some cases, mandates that we have in place, it strikes me that we may be doing this in the reverse order. Some of the challenges that you have mentioned are things that I believe that we should be focusing on: what are the solutions to those challenges.

So, as we move forward in determining what the energy transition should be in our country, focusing on solutions to challenges is what I think that we should be doing.

Mr. BOST. Yes.

And the only thing that I would also close out here—I don't want to drag on too long, but—the frustration that we feel.

This Nation has been really, really, really good on allowing the free market to work. And I am going to tell you something: that whenever the internal combustion engine was created in this Nation, guess what? Government didn't have to go out and set up gas stations. Who did it? We, the free people. What we did was, we had entrepreneurs that saw a golden opportunity.

If electric vehicles come to a point where all of a sudden you, yourself, along with your companies and everything like that, have put in—if you can use the electric vehicles. But taking existing taxpayer dollars to build an infrastructure that it's not time for yet seems a little confusing to most of the people out here.

Because, right now, we can't charge to the level we are talking about, as good as it may sound. And it is wonderful to quote statistics, as long as you are quoting your statistics that support you. And I think on this issue maybe we ought to wisen up and let the free-market system work.

And, with that, I yield back.

Mr. CRAWFORD. The gentleman yields.

Ms. BROWNLEY.

Ms. BROWNLEY. Thank you, Mr. Chairman.

Throughout our Nation's history, we have been at the forefront of transportation and transportation innovation.

When the first locomotive steam engine was developed, we innovated and adapted and built a coast-to-coast, nationwide network of interconnected railways for both passenger and freight movement.

When the combustion engine was invented, we innovated and adapted and built a nationwide network of highways and bridges and fueling infrastructure for automobiles and trucks.

When the airplane was invented, we innovated and adapted and built a robust, nationwide network of airports for passengers and freight transport.

So, I am a bit perplexed by those who question the United States ability to innovate and adapt and build a nationwide network of zero-emission-fuel infrastructure. I think instead of putting our collective heads in the sand, we should double down on investments to innovate and adapt and ensure the United States is on the cutting edge of innovation for our future.

So, my first question, Mr. Nigro, is to you. When this committee debates electric vehicles, we often hear concerns related to cost and range or technological barriers from those who oppose EVs. And these challenges are real, but I believe that American ingenuity has a role to play in solving them to address the broader goal of reducing carbon pollution and, certainly, sustaining life on our planet.

Your testimony notes that China and Europe together made up 85 percent of EV sales in 2023. If we don't act quickly, the U.S. risks falling further behind.

What will happen if the U.S. concedes the race on this new economic front to other countries?

Mr. NIGRO. That is a big question, and the answer is complicated, because it is going to depend, in part, on how the industry responds in the near term.

So, as I mentioned in my testimony, China and Europe are ahead of us right now when it comes to electrification. The other facts are, the industry is committed to zero-emission technology in part because they want to build vehicles for those markets.

And so, the U.S. is currently playing catchup. With the enactment of IIJA and IRA, we are catching up quite quickly. I mentioned earlier the more than \$140 billion of announced investments in manufacturing across the EV supply chain here in the United States in the last 4 years. So, that is a good sign.

But we are going to have to keep that going for at least the next several years in order to get to capacity where we can process minerals for batteries, assemble new vehicles, and, frankly, build all the types of vehicles that the American consumer wants.

For the most part, in the early days of the EV market, it was focused on some of the higher end, more expensive luxury vehicles. Slowly but surely, the market has started to offer more and more affordable vehicles. And, in fact, this year, the most popular conventional vehicles that were sold—think vehicles like the Toyota Camry, the Ford F-150—they have electric alternatives that, when you look at the whole ownership cost of owning that EV in that conventional vehicle, it is cheaper to own the EV.

And so, right now, we have vehicles that are out there that are competitive, but we still have a ways to go.



Ms. BROWNLEY. Thank you for that.

And so, also, I wanted to ask you: We have heard a lot today already about concerns about the trucking sector's ability to move forward with clean vehicles. Do you see reasons to be optimistic that the U.S. can succeed in transitioning to zero-emission commercial trucks?

Mr. NIGRO. Yes. Yes, I do. And it is in part because, again, the industry is stepping up. The three truck manufacturers that make up nearly three-quarters of the medium- and heavy-duty market—Daimler Truck, Volvo Group, and Navistar—they aim to only sell zero-emission vehicles by 2040.

And so, these manufacturers, along with a handful of fleets, logistics companies, charging developers, electric utilities, all the key players in this industry, formed an association just recently here in Washington called PACT, and it is focused entirely on trying to get more zero-emission infrastructure out there, which, frankly, appears to be the biggest barrier right now to truck deployment, is making sure the infrastructure can get deployed as quickly as the trucks can be built.

Ms. BROWNLEY. Thank you for that.

And, Mr. Chairman, I yield back.

Mr. CRAWFORD. The gentlewoman yields.

Mr. LaMalfa.

Mr. LAMALFA. Thank you, Mr. Chairman.

It just seems, about the only thing that we hear about, in committee, on the floor, is CO<sub>2</sub>, climate change, all the time—hounded, hounded, hounded.

And I like to go back to when California was incentivizing, via regulation, moving people out of the trucks and buses they had into cleaner vehicles, moving them to Tier 4. And there was this implied promise that, once you get everything updated, out of—2011 or newer engines, that once everything is Tier 4, we will leave you alone for a while.

Yet what happens? This kick to electrify everything kicks in during this administration. And now they want to electrify everything from your car or your truck to your barbecue, OK? Because it is just a fad now.

And I think that when we are mixing up what elements are actually pollutants versus someone's idea of inconvenience—for example, yes, we have to do better on methane, we have to do better on particulate matter, NO<sub>x</sub>, things like that. But CO<sub>2</sub> is not this problem. All the time, we hear CO<sub>2</sub> is the enemy.

So, I would like to ask the panel, what are we even shooting at here? What is our goal here?

So, Mr. Nigro, you first. What percent of our atmosphere is CO<sub>2</sub>?

Mr. NIGRO. So, I have to tell you right upfront, I am an engineer, not a climate scientist. And so, as an engineer, I just know I can't learn everything about everything; I really have to build my work on the shoulders of others. And, in this case—

Mr. LAMALFA [interrupting]. OK. Well, let me—you are in here, and you are part of a whole parade of people that comes through this committee and others that never seems to know what the target is.

For the rest of the panel, I will just save you. The percent of our atmosphere that is CO<sub>2</sub> is .04 percent. Yes, the average person on the street, with all the hype, they think it is somewhere between 20 and 50 percent. It is .04. Yes, it has crept up a little bit in the last decades. But if we go below .02 percent, plant life dies off. It is essential to plant life.

Yet we are turning our economy up on its head because of CO<sub>2</sub> and the hype that is being made by all the regulators on this. CO<sub>2</sub> is not a poisonous gas unless you breathe 100 percent of it. It is ridiculous, what is going on here.

And so, in converting everything to all this, we are doing a giant disservice to our school districts, to our truckers, to consumers that have to buy things that are delivered by things that cost much more—a truck, for example, or a schoolbus.

Now, I saw one of my local districts bought an electric schoolbus here. They are in the middle of farm country in northern California. There must have been some massive grants or incentive in order to do that, because they didn't just go out and buy it themselves. These buses cost anywhere from \$150,000 to \$220,000 is one of the figures I have. I hear higher figures from folks in the other part of my rural district, much higher numbers. They can't afford to do this.

So, panelists, anybody want to weigh in on how much is the subsidy on the average truck or bus in order for somebody to buy this?

Because we keep hearing we need to incentivize, we need to—the Government needs to play a role in this. And the point was made a while ago, the Government wasn't buying gas stations, the Government wasn't propping up internal combustion engines back when they first started really kicking in, in the 1920s and 1930s, whatever. People were doing it on their own. Yes, we built the Interstate Highway System after General Eisenhower saw how great that was in Europe and such.

But what is the real goal here, when we have had Tier 4 engines in California be the thing that we were supposed to shoot for and now they have completely changed the game?

So, Ms. Okafor, you have those Love's truckstops. Please weigh in on the impacts of truckers no longer being able to afford the trucks and all the infrastructure, especially when they are tearing out the infrastructure to generate electricity in California, such as hydroelectric dams.

Mrs. OKAFOR. It is a wonderful question. Our focus is providing the fuel that our customers need, and we believe that, in order to move customers or consumers into a different sort of fuel, they have to be incentivized to move in that direction.

Mr. LAMALFA. But that costs a lot of money to the taxpayers. We always say Government needs to do something. It is the taxpayers that pays for all of this.

And so, time and time again, when Government says, "well, we have set new goals," it means they have goals that cost the taxpayers money for something that, when I visit a Ford dealer, people don't seem to want, OK? They don't seem to want these. Ford is losing their rear end—like, \$130,000 is the figure I saw reported, per vehicle—because they have already reached their saturation point with those.

I will yield back, Mr. Chairman.

Mr. CRAWFORD. The gentleman yields.

Mr. Stanton.

Mr. STANTON. Thank you very much, Mr. Chairman.

Let me first say a brief word about the passing of our colleague, Donald Payne, Jr.

I have been in Congress for three terms now; I have had a chance to work with Congressman Payne as a leader here on the Transportation and Infrastructure Committee.

He was an impactful leader in this body, certainly an impactful leader inside the Democratic caucus. He was our leader on rail safety issues, and he did an outstanding job at an important time in America on the issue of rail safety.

He was an impactful leader on the issue of supporting and advocating for people suffering from diabetes and bringing down the cost of insulin and other pharmaceuticals that people suffering from diabetes need.

He was a quiet leader, but a really impactful leader, someone I respected greatly. And he will be greatly missed.

Arizona and my district have benefited from the electrification dollars that came through the Bipartisan Infrastructure Law.

In January, the city of Mesa received nearly \$12 million to install 48 electric-vehicle charging ports, charging docks for e-bikes and e-scooters, and solar canopies to support electricity generation at the stations. These initiatives will ensure that EV charging is accessible to all residents regardless of their location or employment.

Last June, Valley Metro, Arizona's transit agency, was awarded over \$13 million to purchase zero-emission buses. And, in 2022, the city of Phoenix received a \$16 million Low-No grant to buy hydrogen fuel cell buses, battery-electric buses, and charging equipment as part of the initial phase of the city's zero-emission transition plan.

These dollars are helping our local cities. Not only will transitioning to electric buses lower emissions, but it will significantly lower long-term fuel and maintenance costs, saving taxpayer dollars.

But we are on an aggressive timeline, and we need to be thinking strategically about how we use every tool in the toolbox to future-proof both our bus fleets and our heavy-duty fleets.

My bipartisan bill to reauthorize the Energy Efficiency and Conservation Block Grant Program will provide grants to State, local, and Tribal governments to support initiatives that will reduce fossil-fuel emissions and conserve energy. It would allow municipalities to use the funds to install fueling equipment, pumps, EV charging stations, et cetera, to enable the fueling of alternative-fuel vehicles, giving fleet managers alternatives to the use of gasoline and diesel. This could include providing equipment for refueling with bio-gas, compressed natural gas, and hydrogen.

Ms. Okafor, your day-to-day work is managing EV charging, hydrogen fueling, and solar businesses. You mention in your testimony that any changes to transportation energy must work for American consumers. I couldn't agree more. And that means it must work for you to distribute it.

Can you describe how Love's has been working to integrate electrification and hydrogen fueling into your business model?

Mrs. OKAFOR. Absolutely.

So, we started putting in our first EV charging stations over 7 years ago throughout the country. And over the last 7 years, we have installed them at about 30 to 40 locations across our network.

And what we have been doing for the last 7 years has been learning: learning about the market, learning about driver behaviors, utilization, how to charge for electricity as a fuel. And we have learned a lot.

And because of all of the work that we have done over the last several years, we have been able to attack NEVI as aggressively as we have been. And happy to say that we have won \$30 million to date to build 50 new EV charging stations. It has really been on the back of everything that we have learned thus far. And our hope is to win even more money to build out more of our network.

On the hydrogen fueling side of our business, we have taken a different approach, a different lane. The Trillium portion of the Love's Family of Companies, one of our major customer bases is transit agencies. And transits have been moving much faster on the hydrogen fuel cell side of the industry, of the market. So, to date, we have designed and built and operated and maintained five hydrogen fueling stations for transit agencies behind the fence.

And if and when our heavy-duty customers need hydrogen fueling at our Love's truckstops, we will be able to do so quickly because of everything that we have learned with our transit partners.

Mr. STANTON. That is really great.

You also talk about how bringing in alternative fuel does not necessarily mean revamping the entire market. Can you expand a little bit upon that?

Mrs. OKAFOR. Absolutely.

Our core is our customers. So, having a place for them to fuel their vehicles is exactly what we do for them today, no matter what the fuel type is.

What customers really want is reliable fuel, convenient, and lowest cost fuel available. They also want amenities that they are used to and that they need whenever they refuel their vehicles. These amenities include fresh foods and different items that they can purchase, places where they can sit and eat, dog parks, clean restrooms; for mothers that are traveling with children, diaper-changing areas. All of these. And most of all, secure locations, well-lit parking lots where they can charge and fuel their vehicle.

So, everything that our industry has been providing for the past 60, 70, 80 years is everything that EV drivers need today.

Mr. STANTON. Thank you so much.

And I yield back.

Mr. CRAWFORD. The gentleman yields.

Mr. Stauber.

Mr. STAUBER. Thank you very much.

Appreciate the testimony from you all.

Ms. Okafor, great to see you again.

You mentioned in your testimony that you are concerned with unfair competition, with utilities owning and operating charging stations on the back of ratepayers. I am also concerned about that.

Recently, we saw this debate play out in my State of Minnesota, where a utility proposed to build, own, and operate public charging sites. The project's multimillion-dollar pricetag would have come from its own ratepayers. As you can imagine, this received sharp criticism.

What would have happened to the market in Minnesota if the Public Utilities Commission had approved that proposal?

Mrs. OKAFOR. Absolutely. I really appreciate the question. And great to see you again as well.

The only way that we can get a return on our investment when we install EV charging stations, or any fuel, is to make sure that the customer experience is as positive as possible. Our goal is to have consumers return to our sites to get fuel as well as other amenities that they need when they stop to refuel their vehicles. We have to ensure that our experience is consistent and great every single time. That is the only way we get a return on our investment.

For utilities that deploy charging stations and get their return in other methods, that makes it such that there is an unlevel playing field. They do not have to prioritize consumer experience.

Mr. STAUBER. So, I believe in an all-of-the-above energy strategy and all the best will rise to the top.

Do you all agree that forcing the American consumer into purchasing an electric vehicle is the way, or should we allow the free markets to make that happen?

Does anyone want to comment on that?

Do you support the free markets and choosing—for the American people to choose their own vehicles?

Mr. DARAKOS. From my standpoint, I do, Congressman, I think, because it offers us flexibility, and it is going to allow for the appropriate technology to move forward to support whatever we are doing.

So, I think there is a great need to allow for that, moving forward. And that is why we have a fleet that operates on diesel. We are looking at renewable diesel. We have compressed-natural-gas vehicles that have run within our fleet, and we are looking at electric vehicles as well.

Mr. STAUBER. Mr. Coggin, free market?

Mr. COGGIN. Yes, sir. Current FTA regulations allow transit systems like us to provide the types of services that our community needs and operate the types of vehicles that meet those operational needs. So, there are two issues here: There is air quality, tailpipe emissions, and then there is budgetary constraints. And we feel like what we are doing meets our needs. We are reducing our tailpipe emissions in a cost-efficient manner.

So, there is this talk about internal combustion engines and the finances of that and the emissions. We chose to use propane—and I am not here today to just talk about propane, because we are operating a lot of things, and I am not anti anything. But a propane bus costs the same as a diesel bus, and propane is cheaper to operate. The cost per mile is cheaper because the fuel is cheaper. A bonus is, we are reducing our emissions. So, we are not fixated on CO2 and emissions. That is a bonus.

The diesel engine requires diesel emission fluid, which is very expensive, that you have to put in there. That goes into the operating cost. It has been our experience that the diesel emission control systems that are on these heavy-duty engines that we run are very expensive to maintain. They are cumbersome; they are not reliable. Frequently, the engines go into what is called “re-gen,” where they are burning off impurities—

Mr. STAUBER [interposing]. Yes.

Mr. COGGIN [continuing]. Because we do a lot of idling. Diesel is not a good option at all.

So, propane is—the upfront cost is as much, and the operating cost is much less.

Mr. STAUBER. And I think you are seeing a lot of school districts across the Nation going to propane buses just because of that.

Ms. Okafor, Love’s, where do they prioritize the location of the charging stations at the businesses? Where do they prioritize?

Mrs. OKAFOR. The priority is to have the charging stations in a place where customers and consumers can actively find the chargers and easily find the chargers.

I took a road trip from Oklahoma City to Houston in an electric vehicle because I wanted to understand the experience of an EV driver. And what I found is that, in a lot of cases, it is hard to even find the charger. And it is hard to find a charger that is co-located with amenities that I want because I am sitting there for 20 to 40 minutes.

So, finding the charger has been our priority.

Mr. STAUBER. Mr. Chair, if you would indulge me, I will tell you that this Government has paid \$7.4 billion for electric vehicle chargers, and they have so far installed seven of them, and it has been 2 years ago.

I yield back.

Mr. CRAWFORD. The gentleman yields.

The chair has been notified there is a series of votes. Before we break for votes, I am going to recognize Mr. García.

Mr. GARCÍA OF ILLINOIS. Thank you, Mr. Chairman. I am delighted, and thank you and the ranking member for hosting this hearing about transitioning to clean, sustainable electric vehicles.

In Chicago, Pace, one of our transit agencies, debuted its first electric bus this past January, and they have 22 more buses on order. This is not only a milestone for building a sustainable transportation sector, but also for meeting demands of rapid decarbonization.

There is concern over the limited number of bus manufacturers and the lack of capacity to produce electric buses needed in a timely manner.

Mr. Nigro, it is encouraging to see how many local transit agencies want to transition to electric buses. How can we ensure that our markets are prepared for this demand so that we can complete orders on time?

Mr. NIGRO. It is a great question. And industry will respond with market certainty. So, when you provide it with demand for a product like electric buses, they are going to ensure that the manufacturing capacity is expanded to meet that demand.

It is what we are seeing right now in passenger vehicles. The Inflation Reduction Act set up a framework to encourage domestic production and assembly of electric vehicles, and we have seen \$141 billion of announced investments as a result.

And so, as more transit agencies commit to zero-emission vehicles, I would expect the supply to be made readily available.

Mr. GARCÍA OF ILLINOIS. Thank you.

Electric vehicle technology and infrastructure is critical to a district like mine, surrounded by highways and industrial development. With some of the worst air quality in the country, cutting pollution from gasoline and diesel fuel would give my constituents years of their lives back.

No Republicans voted for the Inflation Reduction Act, and very few House Republicans voted for the Bipartisan Infrastructure Law. Yet their districts are reaping benefits of those laws through new electric vehicle manufacturing plants and the creation of jobs. And this is good.

Mr. Nigro, can you speak about the economic benefits and jobs that districts across the country are seeing in the electric-vehicle sector?

Mr. NIGRO. Yes. So, I mentioned earlier, this is a once-in-a-century transition. Going from internal combustion engines to electric drive is a huge undertaking, and it is going to require considerable investments in manufacturing across the country. That is a competitive opportunity.

As I mentioned earlier, of the \$141 billion that has been announced since November of 2021, 80 percent of those investments are flowing into Republican congressional districts. So, the evidence is signaling that those districts are setting up an environment that is attracting that kind of investment and jobs: 160,000 jobs.

You mentioned earlier this importance of equity, essentially reducing emissions for people who are experiencing transportation emissions and what it does to their health. Importantly, the jobs that are being created right now are also encouraging investments in disadvantaged communities. So, communities that have historically been left behind are now front and center. And I think that is another positive effect of what is going on right now.

Mr. GARCÍA OF ILLINOIS. Thank you.

And we have seen efforts to unionize amongst autoworkers opening new electric plants. Volkswagen workers in Chattanooga, Tennessee, voted last week to unionize—the first southern autoworkers to win their union in history.

Mr. Nigro, can we ensure that EV manufacturing benefits disadvantaged communities and is done so with fair labor contracts that support a new generation of sustainable careers?

Mr. NIGRO. One of the benefits of electrification is the amount of attention that is put on all aspects of building an EV, from every aspect of the supply chain to the labor force that is being put together to design, build, and deliver these vehicles.

I think it is no coincidence that what you are seeing right now in EV manufacturing facilities is greater interest in ensuring that the jobs that are created are fair-paying and good jobs that are really building new sustainable communities.

A lot of the facilities that are being built right now in different parts of the country, they don't have, necessarily, a tradition in the auto sector, so, this is a brandnew opportunity for them to create a new sustainable community. And with this increased attention, I think we are going to see more positive results.

Mr. GARCÍA OF ILLINOIS. Thanks again.

And, with that, I yield back, Mr. Chairman.

Mr. CRAWFORD. The gentleman yields.

Mr. JOHNSON.

Mr. JOHNSON OF SOUTH DAKOTA. Ms. Okafor, my questions will be for you, or my conversation will be with you.

Your really great policy team at NATSO and SIGMA have taught me that you all aren't in the gas-selling business; you are in the serving-travelers business. Am I putting that right?

Mrs. OKAFOR. You have got it right.

Mr. JOHNSON OF SOUTH DAKOTA. And in your testimony you talk about being technology-neutral, but you don't—I mean, you are not a partisan with regard to what fuel you are selling as long as your company can make money doing it, right?

Mrs. OKAFOR. Absolutely.

Mr. JOHNSON OF SOUTH DAKOTA. So, talk to me a little bit about the negotiations with public utilities. And, obviously, you have stores all over the place, so, I am sure you have a variety of stories. But give me a sense of how that normally goes.

Mrs. OKAFOR. Yes. You hit the nail on the head. We have over 640 stores in 42 States. And, with that, you have hundreds of utilities that we have to talk to, we have to partner with. And we have been talking to them a lot lately because of the work that we have been doing with NEVI.

And, really, the way the conversation goes is, we let them know that we want to build an EV charging station. We ask them for two things: How long will it take to get the power that we need to our station, and how much will it cost?

In some cases, they give you an answer. It is usually vague, because they haven't done the analysis themselves, which makes it extremely difficult because, for the investment, the utility portion is always a black box.

One example of that is, we were building out a charging station out in Coachella, California. We had originally thought that the utility upgrade there would cost \$50,000. Come to find out, the utility upgrade, whenever they did the engineering analysis, would cost over \$300,000 and take a year to install.

So, that uncertainty makes the investment challenging.

Mr. JOHNSON OF SOUTH DAKOTA. I think everybody realizes that the fuel part of your business is a pretty tight-margin business. I assume that is true whether you are selling electricity or gasoline. It is a little hard to recover a \$300,000 line extension fee, I would think.

Mrs. OKAFOR. It is difficult to recover that sort of investment, especially when utilization is low.

The other thing that is difficult to recover is demand charges. The demand charge is related to the number of kilowatts that's utilized—the highest number of kilowatts that's utilized over a 30-day period for 15 minutes. So, even if you have one car come for 15



minutes and use 100 kilowatts, you have a demand charge of \$10 per kilowatt, you are talking \$1,000 that you have to recover. Well, that customer leaves and pays \$15; we are left holding the bill.

So, with utilization being as low as it is and the electric rates for utilities across the country being challenging, it is hard to recover the investments that we make and even the operational costs that we incur.

Mr. JOHNSON OF SOUTH DAKOTA. So, a lot of these components, they are tarified. I assume in some jurisdictions the utilities have a little bit more flexibility than they do in others. But I would assume something like demand charges are filed in tariffs.

Do the public utilities commissions, do they provide a lot of flexibility to these public utilities on how they charge you for demand charge?

Mrs. OKAFOR. I am not particularly—I don't have very much detailed information on how rate structures are chosen.

What I will say about rate structures is, because we don't have any control over the rate that we pay, it can change without my knowledge.

For instance, there was a charging station that we have out in California. We reached a certain demand. And for certain rates, if you reach a certain demand for a number of months, they move you into a new rate structure, but they don't tell you that they move you into a new rate structure. So, I was looking at the P&L of our business, and I noticed that they moved us, but I hadn't moved the cost that I charged to the customer.

So, that lack of transparency, the lack of knowledge on when things are happening and how they are happening, and the lack of ability to choose a new provider puts us in a very tight spot, and it makes the investment extremely challenging.

Mr. JOHNSON OF SOUTH DAKOTA. Am I right in assuming, Ms. Okafor, that all of this unpredictability and relative lack of control puts some downward pressure on your interest in making these kinds of investments?

Mrs. OKAFOR. It certainly makes it extremely challenging. At the end of the day, our goal is to provide the fuel that our customers need, but, furthermore, the goal is to make a return on our investment. And if the utilization isn't high and the return is challenging, it makes it hard to make the investment.

Mr. JOHNSON OF SOUTH DAKOTA. Thanks very much for sharing that.

Mr. Chairman, I yield back.

Mr. CRAWFORD. The gentleman yields.

There is a floor vote called, a series of votes, so, I appreciate the patience of our witnesses. We are going to have to take a short recess to address that floor vote.

And so, the committee stands in recess, subject to the call of the chair.

[Recess.] [12:59 p.m.]

Mr. CRAWFORD. The Committee on Transportation and Infrastructure will reconvene from the previously recessed hearing.

The gentleman, Mr. DeSaulnier, is recognized for 5 minutes.

Mr. DESAULNIER. Thank you, Mr. Chairman. Thank you for this hearing.

Just a couple of things.

The idea that the free market dictates everything, I think, just—we really live in a mixed market, and the forces of trying to get this right is difficult.

But if we look at the rest of the developed world, the market has already determined what the energy future is, what we have to do for infrastructure. The Chinese are adding 100,000 battery-electric charging stations and fuel cell stations a month; the EU is about half of that.

California, which I am proud to represent—in 1994, I was appointed by a Republican Governor, when I was a Republican, to represent the Bay Area Air Quality Management District on the California Air Resources Board.

And the Clean Air Act that allows California to do what it has done, as I have mentioned to this committee before, was signed by Richard Nixon. The California Clean Act was signed by Governor Ronald Reagan. And the zero-emission vehicle mandate was mandated by Governor George Deukmejian, a conservative Republican from Fresno, where the fossil-fuel industry has significant investments.

So, when we get this right, we are at what we used to refer to on CARB in Republican administrations is, we were fuel-neutral; that the private sector, underneath the regulations, the laws, were allowed to incentivize and innovate to meet their reductions on traditional pollutants, and then we have been allowed to do that by the courts, so far, under carbon emissions.

So, having said all of that, to me, this is economic security. You don't have to read everything Daniel Yergin has written about the fossil-fuel industry and energy industry to understand that whoever controls energy has a disproportionate advantage for their economy and for their constituents. His book, "The Commanding Heights," talked about the British understanding wind and navigation or the U.S. and Europe understanding fossil fuels. But the fossil-fuel industry is not the free market.

I have a district where Chevron, the second largest petroleum company, is headquartered. I have five refineries in the area I represent, more or less, in the bay area. They are important. They contribute significantly. But they are subsidized.

Brookings did a study just a year ago that said that, in the U.S., the fossil-fuel industry gets direct subsidies, tax credits, of \$500 billion a year. And that is a decision we and others make because it is important, as employers, and is very much needed for the economy.

Having said that, we are transitioning. Most of the studies that I have read is, when we get the infrastructure done, not just for carbon, but in terms of efficiency, the car operations—trucks are more of a challenge, given the need for the power to generate big loads. But all of that thing is to say the Congress is important in figuring out how we transition effectively.

And, within that, if the fossil-fuel industry can come up with carbon capture or something that works, then so be it. But this idea that somehow the fossil-fuel industry just happened completely organically and John Rockefeller was a wonderful person who didn't have sharp elbows is just not accurate.

So, Mr. Nigro, in your experience—and I am proud of the fact that my bill, the Clean Corridors Act, got put in the Inflation Reduction Act. But placing these are no small—it is hard. And so were gas stations in the early 1900s. But getting this right and being efficient about it and letting the market to dictate within it fairly is a challenge, and not misrepresenting it.

But my question to you is: If the Chinese are 60 percent of the electric cars in the world, they have an advantage in terms of the chemicals that are needed. And the National Labs at Lawrence Livermore, near my district, has identified the Salton Sea, prospectively, as being a source of those critical elements, up to 375 million, but we have to do it the way we do it, environmentally safe.

So, briefly—that was a long introduction to a simple question—what happens if we don't do the right investments and we just keep going with fossil fuels the way that we always have?

Mr. NIGRO. Well, I will try to be respectful of the time here and say briefly that the costs of climate change have continued to rise within recent decades. That is the data from NOAA that is showing \$2.7 trillion in total cost since 1980. I think we can expect the cost from climate-related disasters to accelerate as a result of us not reducing emissions sufficiently.

The other flag I would give to you is the security implications of that. Part of the reason I moved to Washington a long time ago was what I perceived to be our dependence on oil and the national-security crises that resulted from that in the early 2000s. I don't think anyone in this room would want to repeat those experiences again.

And so, there are many facets of fossil-fuel dependency that are hurting us, whether it is the planet, our economy, or our safety.

Mr. DESAULNIER. Thank you.

Thank you, Mr. Chairman

Ms. MALOY [presiding]. Thank you.

The gentleman yields back.

And I recognize Mr. Owens from Utah for 5 minutes for questions.

Mr. OWENS. Thank you, Chair and Ranking Member and our witnesses here today, for taking time to hold today's hearing to highlight the delusion of the Biden administration's at-any-cost approach on electrification of our grid.

For almost 60 years, Americans have been driven by fear perpetuated by our climate theorists, authors, climate absolutists, and climate change activists, all who consider themselves experts—these experts who, for decades and with total confidence, set dates every 10 years for the end-of-the-world doom. Then, with no shame, as we run through those dates, they predict, with another 100 percent confidence, another 10-year decline.

For decades, we have witnessed American taxpayers supporting Government-generated wealth. This has been done by propping up industries through the power of bureaucratic mandates and subsidies, in direct contrast to best cost, most convenient, best value products offered through the free market.

Nothing has been more apparent with this tactic than the \$18 billion taxpayer funding of a mandated industry that America's pri-

vate citizens and business owners do not want to be forced down their throats.

This can be seen in the projections by the Biden administration on the growth demand of EVs over the next 6 years. Biden DC bureaucrats, absent any actual industry input, have decided what the American consumer must buy by 2030. That is in 6 years. They have decided that 50 percent of all American car purchasers will buy an EV, whether they like it or not.

The facts are that, as of 2023, only 7 percent of cars purchased by the American consumer were EVs. Yet this unrealistic leap to 43 percent in 6 years has not caused one moment of pause for the DC maestros.

We would think that the first steps to meet such an aggressive growth goal, one that impacts our U.S. economy in so many ways, would have been a roundtable discussion with industry experts. These experts would have included utilities stakeholders, cybersecurity experts, truckdrivers, State DOTs, and a swath of working Americans who stake their livelihood on predictable transportation.

Of course, this taking the industry's input never happened. If it had, the advice from the industry experts and stakeholders would have been: Put on the brakes. Your projection and mandates for this industry are premature at best, very dangerous at worst.

I look forward to hearing from our witnesses to learn how arbitrary and delinked-from-reality mandates and rules have affected everyday, working-class Americans. I would also like to see what this committee can do to mitigate the coming transportation one-size-fits-all nightmare that is being predicted by industry experts.

Mr. Darakos, trucking is already a high-risk industry with very slim margins. Can you speak to reliability and durability of electric vehicles and some of the challenges and limitations your drivers might face?

Mr. DARAKOS. Sure. Thank you for that question.

As the vice president of maintenance, my focus is on keeping the fleet rolling. So, operational uptime is really critical.

I think, where we are at today, we are early in the maturity of the technology in those vehicles. So, the trucks that we put in, they are more complex. We have seen some downtime with those vehicles. And as opposed to a day in the shop, it can be a much longer period of time to work through those repair processes. So—

Mr. OWENS [interrupting]. OK.

I am going to ask you another question. I also serve on the Education and Workforce Committee. So, from the labor perspective, what type of training and technologies would drivers be forced to utilize to meet the Biden administration's very aggressive goals?

Mr. DARAKOS. So, from a workforce training standpoint, at PITT OHIO, we are in the transition—we are a 45-year-old company, so, we have folks that are retiring every day. And, from a knowledge and education standpoint, I have technicians that are very diverse in terms of age, age diversity.

So, there is a heavy investment in electrical knowledge when we are dealing with high-voltage equipment. There is an absolute need to put resources into the tech programs, workforce development. The ecosystem has to be developed to support this.

The reality today is, when you look at electrification and this technology, dealers are certified if they have two technicians so that they can do the work. But the reality is, technicians don't always stay in one place, and life happens. So, we have to invest heavily in building this next generation of technicians that will support the technology.

Mr. OWENS. Yes.

Ms. Okafor, I would like to ask you real quickly, with the industry that you run and work within, why is it important to allow the consumer to be at the very front of making these choices, in terms of how we spend and where we spend our time and energies?

Mrs. OKAFOR. Absolutely. I appreciate the question.

The best way to get consumers to buy EVs is to make them what they want, to make the experience of owning the EV better than the alternative.

When we incentivize the market to move in that direction, the entire supply chain is consumer-based. When we mandate it, we take shortcuts, such as installing chargers in parking lots and other undesirable locations.

I understand the temptation to mandate EVs or to ban gas vehicles, but there are no shortcuts. We need to make sure that consumers have what they want and make it what they want it to be.

Mr. OWENS. Thank you.

I will yield back. Thank you so much.

Ms. MALOY. Thank you.

The gentleman yields back.

And I recognize Mr. Johnson of Georgia for 5 minutes for questions.

Mr. JOHNSON OF GEORGIA. Thank you, Madam Chair.

And I thank the witnesses for your forbearance. That was a long period where we were absent. And I appreciate your all's testimony and you all sticking around for this round of testimony.

I want to read to you something that comes out of a Bloomberg News article, dated March 28, 2024, written by Tom Randall. It goes as follows:

"New technologies have a tendency to blindside. When color TVs were introduced in the 1950s, for example, they seemed like a flop. The devices were expensive, programming was scarce, and after a decade on the market few homes had one. Then suddenly prices dropped, a ratings war ensued, and in just a few years most U.S. households were watching 'The Jetsons' in its futuristic palette.

"A comparable shift is currently underway with electric vehicles, according to a Bloomberg Green analysis of adoption rates around the world. By the end of last year, 31 countries had surpassed what's become a pivotal EV tipping point: when 5 percent of new car sales are purely electric. This threshold signals the start of mass adoption, after which technological preferences rapidly flip."

Mr. Darakos, in your testimony, you address the costs of transitioning to cleaner fuels, and you call for a slower transition. But if we fail to act soon, the clean-vehicle market is going to develop in other countries, particularly China.

Has the ATA considered the cost to the industry if, in the future, we become reliant on China or other foreign nations for our commercial motor vehicles?

Mr. DARAKOS. Could you repeat the last part?

Mr. JOHNSON OF GEORGIA. Yes. If we fail to act soon about adopting electric vehicle technology, we will be left behind. And has the ATA considered the cost to the industry if in the future we become reliant on other nations, particularly China, for our commercial motor vehicles?

Mr. DARAKOS. Thank you. I think when you look at the American Trucking Associations, even at PITT OHIO, I don't think anybody is putting the brakes on moving forward with the technology. I think what we are saying is that there is a diversity of technology needed to support supply chain. And when you look at how critical supply chain is to what we do on a day-to-day basis, we cannot put technology in place that is not going to allow your goods to get to your operation.

Mr. JOHNSON OF GEORGIA. If we slow down everything, we slow down everything. So, if we adapt as we move forward adapting, we will have the infrastructure that will rest or come to rest in place to support these commercial motor vehicles. So, I mean, I understand the fear of it not being there right now, but the technology and all of its attendant services and necessities will be there as it unfolds, just like it has been in the past.

Ms. Okafor, could you comment about this transition to EV technology and EV vehicles?

Mrs. OKAFOR. Absolutely. Thank you for the question.

Love's has supported policies that encourage investments in alternative fuels and reward businesses that make those investments. What it makes me think about is our biofuels business. Love's has been a leader in biofuel blending in the industry. And the way that that market has been incentivized is twofold. On one side there was an infrastructure incentive. On the other side there was an incentive on the energy or the fuel. So, it made the fuel lower cost to the consumer.

On the EV charging side, we have the infrastructure incentive, and we are aggressively going after it. What we are missing is the incentive on the demand, the fuel to get it low cost to the customers so that fleets can have an attractive option for their operations.

So, I believe once incentives are included on the demand side to incentivize customers to buy these new technologies, then the market will be consumer-oriented, consumer-driven, and it would move much faster.

Mr. JOHNSON OF GEORGIA. So, you think we should incentivize the acceleration of the conversion to EV vehicles rather than slow down?

Mrs. OKAFOR. I think that we—in order to move to new technology similar to what we did in the biofuel space, the way that—what made it move was making the alternative technology solution a better solution than the traditional solution. So, making it better than what the traditional solution is would provide an opportunity for fleets to continue with their operations.

Mr. JOHNSON OF GEORGIA. Thank you, and I yield back.

Ms. MALOY. Thank you. The gentleman yields back.

And I recognize Mr. Ezell from Mississippi for 5 minutes for questions.

Mr. EZELL. Thank you, Madam Chairman. And thank you all for being here today.

And we all want better. We all want better transportation. We all want a better environment. And I think we can figure this out with good old American know-how in a timely manner.

So, Mr. Coggin, thank you again for being here today. It is an honor for somebody from my district to be up. And all of you witnesses have just been—opened my eyes to a lot, especially since I—I do travel to the Love's stations quite regularly in my home State and going back and forth to see my granddaughter. So, thank you all.

Mr. Coggin, you have done a great job. And we all know what you have done for us on the coast, providing reliable service for many decades.

As the cost of fuel has risen, you have adapted by transferring a portion of your fleet to low-emissions propane fuel buses rather than all electric. This must have been a challenging decision, especially in more rural areas. Can you talk about some of the steps that you took before finalizing this transfer and how it has impacted your fleet?

Mr. COGGIN. Yes, sir. I have been doing this a long time. I have personally been really watching technology evolve for decades, trying to find the right fit for Coast Transit Authority. So, we have two issues that we consider at our transit system: the air/the environment and budget constraints.

So, we are phasing out all of our diesel because of emissions and the high cost of operating diesel. We have chosen to go with propane short term in the small and mid-sized vehicles because they are much cleaner. They cost about the same to purchase upfront, but the operating cost is much less than a diesel engine bus. Fuel consumption, the cost per mile is much, much lower than diesel, and we get the benefit of lowering emissions. So, we have clean air. We are not a nonattainment area. Thank goodness. Hopefully, we won't be.

But we also are looking at EV, full-electric buses. Technology is advancing on the small to mid-sized buses currently. What is on the market is not a fit because of cost. And mileage constraints range. We have those two things. Yes, they are zero emission. If we were in a poor-quality area, nonattainment, we would most definitely be looking at full electric EV. But EV is the most expensive solution to lowering emissions.

So, we think we have found the right mix for our community. And our community does expect us to be running alternative fuel vehicles. But we have cost constraints going—we are funded by five cities and three counties. And because we don't have bad air quality issues, I cannot go to our local governments and ask them to fund EV technology. But at this point in time, it is not a necessity for us. So, the funding is just simply not there.

Mr. EZELL. Very good. Thank you for that.

And the Biden administration seems to try to, what we see, continue this one-size-fits-all policies across industries. This is especially true in transportation. You know as well as I do: that works for someone in a large city, but it is not going to work in Gulfport, Mississippi.

You mentioned in your testimony you feel strongly about no Federal mandates. How can the Federal Government serve as a partner in enhancing the transportation goals in our communities and without Federal mandates?

Mr. COGGIN. We currently do not have a Federal mandate. There are goals set by the administrations, and we have agreed with 50 percent emission reductions by 2030. We are on track to do that, utilizing the technologies that I talked about. So, there currently is no mandate.

Federal Transit Administration does support alternative technologies other than zero emission. If you look at the low-no grant system, which is \$1 billion a year to 5339(c), it is called, there is a specific allocation in that dedicated to low-emission vehicles, and we take advantage of that. We currently have a \$1.8 million grant that we received under that program to buy these 12 propane-fueled vehicles.

And so, to answer your question, what could FTA do going forward is to keep the regs like they are, allow us the flexibility to operate the buses that we need to meet our service needs in our environment in a cost-effective manner, and continue to allow other than zero-emission vehicles to be purchased with Federal grants. We would appreciate that, and also, more money into that system. There is a lot more money requested in all of those grants to purchase vehicles than is currently available.

We are all struggling, and CTA is as well, with older fleets, trying to replace them, and there is just not enough Federal money in those programs to keep our vehicles in a state of good repair.

Mr. EZELL. Thank you very much.

And thank you, again, all of you, for providing us with input.

Madam Chair, I yield back.

Ms. MALOY. Thank you. The gentleman yields back.

And I recognize Mr. Menendez from New Jersey for 5 minutes for questions.

Mr. MENENDEZ. Thank you, Madam Chair.

In January, New Jersey received a \$6 million grant to improve EV charging reliability in the State. And last November, NJ Transit and New York Waterway received a nearly \$7 million grant from the FTA's past year ferry grant program funded by the IIJA to electrify two commuter ferries in New Jersey's Eighth Congressional District. I was thrilled to support these crucial investments in electrification in our region to help keep our air clean and our community moving.

We know that thanks to the historic funding from the Inflation Reduction Act, transit agencies across the country have received grants to kick-start their conversion to greener fleets. We also know that these transit agencies are often operating with limited budgets or even at a deficit.

Mr. Nigro, how important are these Federal dollars to help transit agencies acquire more climate-friendly vehicles?

Mr. NIGRO. It is absolutely essential. Right now, many transit agencies struggle to cover capital costs and rely on Federal programs from FTA in order to purchase new equipment, whether that be for buses or trains.



When we look at the transition to zero-emission vehicles, there is a considerable amount of upfront costs that is also needed in order to operate these vehicles and with respect to infrastructure. And that is another strong role for particularly the low-no program that has been mentioned a few times in order to support the build-out.

I just want to flag a couple of things just for your information on this trend here. So, zero-emission technology is—it is still in its, let's say, its first wave across the economy, even though there has been transit buses that have been electric on the road for some time. We still have a long way to go. But the trends that are clear, seven States had zero-emission bus deployments rise by about 50 percent in the last year. And the largest transit agency, seven largest transit agencies in the country that operate buses—so, L.A.'s transit agency, Boston's transit agency, WMATA here in DC—they make up more than 60 percent of the total fleet, and they have each committed to purchasing only zero-emission buses in the next 8 years. So, they are going to rely on low-no and similar programs from FTA in order to make that transition.

Mr. MENENDEZ. Absolutely. And we know that climate change and pollution have a disproportionate impact on environmental justice communities. We also know that while EVs stand to improve health outcomes for Americans across the country, access to charging infrastructure remains a challenge, as we discussed here today, especially for renters in underserved populations.

Mr. Nigro, how can we ensure equitable access to zero-emission vehicles for everyone, particularly in historically underserved communities?

Mr. NIGRO. I am glad you brought that up because part of the purpose of the NEVI program and the CFI program is to fill in infrastructure gaps. It is not entirely building on infrastructure from scratch. We have had thousands of charging stations deployed in the last 10 years before NEVI, before the IIJA was enacted.

A big part of what it is going to mean for consumers who don't get to charge at home, which is somewhere near 35 percent of the population of households don't have easy access to home charging, is going to be through public charging through—and some of that is going to be funded through CFI and through NEVI.

I want to just mention that while we are talking about this, without funding from public programs, it is likely that that charging wouldn't necessarily be deployed in disadvantaged communities in part because EVs aren't as popular in those areas at this time. And part of it is that we all talk about chicken and egg in a lot of scenarios. This is real.

If you park on the street or if you park in a parking facility that doesn't have easy access to home charging and you are a renter, you probably don't have an easy way to install a charging station at your home, and so, you are going to rely on public charging. And if there are no EVs there, there's not necessarily going to be a private push. And that is where Government can help lead the way, and also electric utilities. They have been an instigator in getting charging in a lot of disadvantaged communities in some areas.

Mr. MENENDEZ. And I appreciate that. And we represent one of the most densely populated districts in the country, and so, we

have a high number of renters, and making sure they have access to these EV charging facilities is critically important, because there is a move and there is a demand, especially in a place like New Jersey. So, we have to be a good partner here at the Federal level to ensure that we provide those resources to get those EV charging stations and infrastructure into all types of communities. And that is why this work is so critically important.

Thank you all for your testimony here today, and I yield back.

Ms. MALOY. Thank you. The gentleman yields back.

And I recognize Mr. Yakym of Indiana for 5 minutes of questions.

Mr. YAKYM. Thank you, Madam Chairwoman. And thank you to our witnesses for being here today.

Back in December, this subcommittee hosted top Department of Transportation officials for an oversight hearing. This included Shailen Bhatt, who heads the Federal Highway Administration, or FHWA.

The FHWA oversees the National Electric Vehicle Infrastructure Program, or NEVI, which is devoted to building out EV charging infrastructure. NEVI is flush with \$5 billion of cash, as it was, and yet is responsible for bringing only two charging stations online through the end of last year. This is something we talked about in the hearing last year.

I want to register my disappointment because I asked Administrator Bhatt in that hearing how many charging stations his agency projected that NEVI would bring online this year, in 2024. He didn't have an answer offhand. Fair enough. But he promised to, quote, "follow up with a very specific number."

Three months later, I finally received a response, but no, quote, "very specific number." Just a promise that NEVI and other related programs would, quote, "ensure that a rapidly increasing number of reliable EV chargers will be operational around the country this year", unquote.

I suppose in one sense NEVI has been bringing charging stations online at a rapidly increasing pace in 2024. There have been an additional six NEVI-funded charging stations placed in service thus far this year. But \$5 billion was supposed to be enough funding for 5,000 charging stations. And yet after 2½ years, we have 8.

It is clear to me that NEVI has become yet another example of the Federal Government wasting taxpayer dollars by gumming up a program with redtape. In this case, it is unworkable labor standards, confusing minimum operating standards, rigid mileage requirements that prompted at least one State to ultimately decline NEVI funds altogether. That's not mentioning permitting, transmission, and other hurdles that grantees may encounter along the way.

Ms. Okafor, what actions could FHWA take today to reduce redtape and streamline this process?

Mrs. OKAFOR. I appreciate the question.

The NEVI program that has been deployed is being passed out by State DOTs, State agencies. They come up with competitive solicitations, bids, for folks like Love's to bid on. To date, we have been awarded \$30 million for 50 new stations.

There is a pretty lengthy process to get from the bid phase to actually procuring the chargers. The bid itself takes time, contracting takes time, and then you have to go into the procurement of the chargers themselves.

The thing that is difficult with NEVI is that the Federal rulemaking gave quite a bit of leeway to States. So, each State analyzes or understands the Federal rulemaking differently. And because of that, they are deploying or awarding these funds differently. One of the goals of NEVI is to have a harmonious network across the country.

The most important thing from our perspective is to ensure that there is a positive consumer experience, which means co-location of amenities with these chargers and the requirement of co-location of amenities—

Mr. YAKYM [interrupting]. So, in that regard, again, what steps do you believe they should take when you talk about the regulatory environment, the rulemaking process? What specific steps should they take to make this more streamlined so that in 2½ years we can push out more than eight chargers on a \$5 billion program? Give me like maybe one specific thing that they could do to make this a little more efficient.

Mrs. OKAFOR. I think more straightforward rulemaking guidance that all States can take on. What I mean by that is, each State looks at the Federal rulemaking and comes up to their own interpretation of what it means. And because of that, each solicitation is completely different.

Mr. YAKYM. So, it is fair to say that the rulemaking that occurred created confusion with the States where no one actually understands what the rules are? Is that—does that sound like that is—am I hearing you correctly?

Mrs. OKAFOR. I can't speak for the States on what they understand or what they don't understand. What I will say is the differences and the interpretations between the States makes it so that the applicants—each solicitation is different, and it makes it so that the applicants take more time because each State is different.

Mr. YAKYM. So, on behalf of my constituents, the 750,000 people who are American taxpayers, do you believe that American taxpayers should accept the fact that there are only eight charging stations out there from \$5 billion?

Mrs. OKAFOR. I can't speak to that specifically. What I can say is that all of the solicitations that have come out that make sense for our organization, we have bid on those aggressively. We have been really competitive in that. Because of that we have been awarded, and we hope to continue to be awarded.

Mr. YAKYM. Thank you. And, Madam Chair, I yield back.

Ms. MALOY. The gentleman yields back.

And I recognize Mr. Molinaro from New York for 5 minutes for questions.

Mr. MOLINARO. Thank you, Madam Chair.

I think I am going to follow up a little bit on the last set of questioning. But I want to offer—and I come from New York where we have big expectations, but I don't necessarily mean on the deliverables when it comes to full build-out of EV capacity. And I

certainly embrace sort of the all-of-the-above approach without question.

I also think, however, it should be driven by consumer interest and the market. And, of course, at this point, when it comes to EV vehicles, we know that the demand is not moving as aggressively as was originally projected. And in communities like the ones I represent, there is a reason why. They seem unattainable in the capacity to access EV charging, whether it is stations themselves or the infrastructure just doesn't exist.

And so, Ms. Okafor, I know you have answered these types of questions all afternoon or day at this point. Where do you think we are in the total build-out nationwide in EV charging capacity, but in particular in rural communities?

Mrs. OKAFOR. I really appreciate the question. What it makes me think about is the network that our industry has built over the last 60 years and being able to leverage the refueling network that has been built by this industry and how it is going to be extremely useful.

The place that rural communities has to play in the EV charging market is extremely significant. For EV drivers, the majority of drivers either charge at home or at their workplace. But when they are traveling from—I live in Houston and I travel to Dallas, that is when I will need an EV charger. And I am going to charge in between Houston and Dallas in the rural communities. So, the rural communities have a very significant place in this market.

And our locations—Love's—the majority of our locations are in those areas. And it will be really important for this market to move forward with having those in-between sort of locations.

Mr. MOLINARO. Understood. But you would agree that meeting the expectations of the administration, the mandates that are being set, we are just not—this is not my observation—we are just not going to meet those expectations with the current infrastructure, in particular in rural communities. And I will move, though, specifically to what are, I think in many cases, a bit overly ambitious mandates.

How do rural communities not get forgotten? They will be averaged out, in other words, right? We will make great capacity expansion in urban centers, in more densely populated areas. But in the rural communities, they are just going to be a rounding error when it comes to whether or not the administration meets the mandate expectation. How do we meet the build-out capacity in the rural communities?

Mrs. OKAFOR. It is really going to be extremely dependent on getting the power to the rural communities that are needed for the EV charging stations. If I think about our network that we have today, one of our highest—we have two locations that perform very highly. One is in Quartzsite, Arizona; the other one is in Davenport, Florida. We are not talking about major metropolitan areas. We need rural communities. But making sure that we can get the power to these stations will be extremely important.

Mr. MOLINARO. So, that truly is the answer to the question. And certainly in a State like New York where, quite frankly, much of our electric infrastructure is, well, high demand and under great stress. The EPA recently issued a final rule which requires truck

manufacturers to accelerate production of electric trucks, obviously, beyond the massive upfront cost that small businesses will be required to shoulder. As a result of the new rule, we know there needs to be an increase in grid capacity. We know this—and the suggestion has been capacity needs to increase by over 3,000 percent by 2035 in order to meet just the electric light-duty vehicle load.

So, for any of you, from a place like the communities I represent, this just doesn't seem practical. And I am sort of a—I was a local government guy. We set expectations that we can meet, and it just doesn't seem that we can meet these expectations. With 30 seconds left, how do we meet an aggressive timeline like that?

Mr. NIGRO. The good news is we have a lot of actual grid capacity that is underutilized at night, which is when most folks are parked at home, particularly folks who live in rural communities. What we have seen so far with the deployment of some millions of EVs to date is there hasn't been a lot of issues with respect to the grid, in part because 65 percent of Americans live in single-family homes and have the easy access to power in their garage or near there. That is not to say that it is not going to be a lot work to get to 100 percent, but there is a large share of the market that can be accommodated with the existing grid capacity.

Mr. MOLINARO. I am over my time, and I will just say, respectfully, that is an oversimplification of the challenge in rural communities in accessing affordable electricity; let alone, adequate electricity for this purpose is far beyond the reach of many, many, in rural, in less than suburban communities.

With that, I will yield back.

Ms. MALOY. Thank you. I was afraid I was going to have to use my gavel, Mr. Molinaro. The gentleman yields back.

And I recognize Mr. Kiley from California for 5 minutes for questions.

Mr. KILEY. Thank you, Madam Chair.

I would just ask straight out—I am from California. We have this executive action that has banned gas-powered vehicles starting in 2035.

Mr. DARAKOS, do you think that that is feasible? And regardless of whether it is feasible or not, what will be the consequences for consumers of trying to reach that point within the next decade?

Mr. DARAKOS. I think it is aggressive in terms of the technology and where it is. And I think early adoption, participation now will start to drive some of the costs down. But based on what I see, it is going to increase consumer cost to all of us. When we look at the cost of the new technology, we are not talking about 0.5 or 0.6 more, we are talking 3X and 4X, and that is without the infrastructure investments—

Mr. KILEY [interrupting]. 3X and 4X meaning three times as many vehicles?

Mr. DARAKOS. Correct. That is correct. Well, three to four times the cost of a traditional vehicle.

Mr. KILEY. Three to four times the cost, right, of a traditional vehicle. And so, a significant cost increase for consumers.

Do you agree, Mr. Coggin, as far as the feasibility and the impacts?

Mr. COGGIN. Yes, I do. It is very costly. Electric is the most expensive solution. If you look at a 35-foot heavy-duty bus, which we are running, the diesel model is \$670,000. The hybrid, which is a diesel-engine driving hybrid, is currently \$855,000, 28 percent more. And the electric version is \$1,150,000, which is 35 percent more. That does not include the cost of the charger. We paid \$135,000 for a charger that will charge two buses. And we had to upgrade our power supply from the power company for \$40,000. So, it is very expensive upfront to implement these EV technologies.

Mr. KILEY. So, this is a big impact for folks in my State who are already struggling with the highest cost of living in the country, highest poverty rate in the country precisely because of the cost of living, so, to layer on all of those additional costs will pose a major hardship for drivers, which is why I am supporting the Preserving Choice in Vehicle Purchases Act, which says that we are not going to do these bans of gas-powered vehicles within these artificial timelines. It passed the House with bipartisan support, but it has yet to get a vote in the Senate. So, I think that I would strongly encourage the Senate to move on that bill in order to preserve choice. Because we all, I think, are excited about what the future holds in terms of clean energy.

And, Ms. Okafor, you work with a lot of clean energy technologies. Is it your experience that what drives innovation in the clean energy sector is more the work of innovators or mandates on the part of Government?

Mrs. OKAFOR. It really is—it more has to do with the consumer's choice. The consumer has to want to move to this new alternative, and we have to provide an environment where they want to move from what they traditionally are using to the new alternative.

Mr. KILEY. Thank you. I have always been of the view that the way that we can usher in the clean energy future that I think is in front of is through innovation rather than regulation. And I think that these flat-out bans within an arbitrary timeline are sort of the ultimate example of overbearing regulation.

I wanted to ask you about one other topic, Mr. Coggin, related to buses, because I have talked with several school districts within my district where they get extreme weather, where they get a lot of snow, and having electrified buses just isn't practical for them. Has that been your experience as well?

Mr. COGGIN. Well, we live in an area that does not have snow, so, we are fortunate there. But we have a lot of heat, extreme heat, and we run air conditioners. I have heard of the cold weather-related problems with EV vehicles. I don't have any personal experience with them. We do not in our area of the country have a problem with our EV vehicles.

In terms of range, I think it speaks to the point that, in our industry, public transit, we would like to continue to have the flexibility to operate the types of vehicles that meet our operational needs and our climate, with our weather and our geography, all things considered. I think that would be what I would point out. It is strictly a local decision, what works for the individual organizations.

Mr. KILEY. That is very well said. Because the school districts I am referring to are very rural, spread out areas, get a lot of snow,

and a one-size-fits-all mandate from a centralized bureaucracy just doesn't work for them.

Thank you very much. I yield back.

Ms. MALOY. Thank you. The gentleman yields back.

And I recognize Mr. Burchett from Tennessee for 5 minutes for questions.

Mr. BURCHETT. Thank you, ma'am. It is good to see some names up there that will be just as much butchered as mine will today. So, I just want to thank y'all for that.

Mr. Okafor? Did I get that right? Close?

Mrs. OKAFOR. Mrs. Yes.

Mr. BURCHETT. Mrs., yes, ma'am. OK.

It seems like truckstops in east Tennessee such as Pilot or Love's have alternative fuel types at their facilities. Is the Federal Government currently, in your opinion, standing in the way of development or deployment of alternative fuel types other than electricity?

Mrs. OKAFOR. Would you restate the question, please?

Mr. BURCHETT. Yes, ma'am. I will cut through all the fluff. It is about alternative fuel types at facilities, specifically in east Tennessee. I am wondering, is the Federal Government currently standing in the way of development or deployment of alternative fuel types other than electricity?

Mrs. OKAFOR. I wouldn't say they're standing in the way. The alternative fuel types that we—maybe I'll say two things. One, we deploy whatever our customers need. So, if our customers need electricity or renewable diesel, biodiesel, ethanol, then we deploy that infrastructure.

The second thing is that we follow policy extremely closely. So, we have supported other Federal Government-incentivized infrastructure, and we have invested in that, and we continue to support those sorts of investments. So, moving into alternative fuels, if the investment makes sense, we will continue to do that.

But what I will reiterate is a two-sided incentive structure is extremely important, not only incentivizing the infrastructure side, but also the demand side, the energy, the fuel that goes to the customer. If you don't incentivize that side, then you continue to have an economic structure that is extremely imbalanced and investment will cease.

Mr. BURCHETT. Thank you.

Mr. Nigro, our Nation is over \$34 trillion in debt, and it seems like many rural Americans are struggling. And given that the average American-produced EV costs \$53,000, why do you think this administration is pushing EV-related mandates on these hard-working folks?

Mr. NIGRO. I am very glad you brought that up. I think your stat probably is correct about the average price of an electric vehicle. The thing that is important for all Americans to keep in mind when they are buying a vehicle is most of the cost is in the owning, ownership cost of it, right, the cost of fuel, the cost of maintenance. We ran the numbers on the most popular vehicles of different types—the F-150, Toyota Camry, Toyota Corolla, and an electric vehicle equivalent—for sure, upfront, they cost more. But over time, through fuel cost savings, since most people can charge at

home at very low cost, you end up actually saving money in the long run over what is called the total cost of ownership.

So, counterintuitively, EVs are actually less expensive to own in general, particularly in passenger vehicles.

Mr. BURCHETT. I am going to follow up with that, if that is OK. In March, the EPA announced a final rule that would require up to two-thirds of new cars and trucks sold in the U.S. to be EVs in 8 years. The President's EV mandate, I feel like, is a little bit out there. We don't have the infrastructure, the power generation, nor the domestic supply chain to meet these demands. I am often wondering, too, is people, they don't take into consideration the slave labor that is involved with these batteries; the fact that these so-called rare earth minerals, that maybe we could get here if there weren't some of the restrictions that apply to us that don't apply to our friends and enemies overseas.

Mr. NIGRO. Right. Sorry, so, what is the—

Mr. BURCHETT [interrupting]. Would you like to comment on that?

Mr. NIGRO. On critical minerals?

Mr. BURCHETT. Yes, sir.

Mr. NIGRO. Sure. Yes, yes. I think that is a really critic—no pun intended, critically important issue. And it is really top of mind for anyone who is involved in EVs, in part because no one that works in this technology wants to repeat the mistakes that we had made with oil and all of the tragedies that resulted from human rights abuses and other things around the development and extraction of oil over the last 100 years, not to mention the harm it has caused the planet.

I think when we are thinking about critical minerals, there are two major things we have to keep in mind. One, batteries, obviously, go into EVs, but they also go into what is in our pockets, what is in our laptops. So, it is a much broader issue than just transportation. And secondly, nearly 95 percent of the critical minerals that go into a battery can actually be reused.

A recent study by Stanford University estimated that innovative homegrown recycling from a company based in California called Redwood Materials, they can cut the environmental cost by 80 percent. And they are expected—this company is expecting to recycle enough materials for 1 million EVs a year by 2025. So, not an immediate solution, but there is a pathway where we don't have to be as dependent on developing countries for that.

Mr. BURCHETT. As usual, when I get going down a good tunnel here, the time runs out. Madam Chairwoman, I yield back nothing to you.

Ms. MALOY. Thank you for nothing. The gentleman yields back.

And I recognize Mr. Duarte from California for 5 minutes for questions.

Mr. DUARTE. Well, perfect. I am going to pick up where Mr. Burchett left off.

Hope I pronounced your name right, Tim.

I represent a low-income district in California, a rural district in California with farmers, and I am very suspect of the social equity claims made by the electric vehicle industry, criticizing, as you did, oil production, where it is from. We have some of the tightest labor



markets, some of the best workforce opportunities in America for drilling of carbon fuels and delivery of carbon fuels today. It is undeniable. We have got plenty of work we could expand here and quit bringing in carbon fuels from around the globe where their environmental standards and workforce standards are much lower. But that is not the lowest we can talk about.

The absolute human tragedy happening in the Congo right now as we speak, mining cobalt mainly, in slave labor conditions, child slavery conditions, forced slavery conditions, by mainly Chinese firms, we can say, because that is where all the batteries are made, and that is mainly who is operating over there. But you and I both know, we all know, this is proxy imperialism. This is America's political appetite being served through an imperialistic group in China, going in, grabbing the cobalt through slave labor, running it through probably slave labor factories in China, and selling us batteries that our Federal Government is subsidizing to serve—yes, we want to talk about low-income households. They are not buying the electric vehicles.

Electric vehicles are being purchased by rich people, by high-income individuals here in America. If they were truly economic, I think that our working families would have enough common sense to buy them. They are not.

Tesla is selling vehicles. And just last year alone, they just reported \$1.78 billion in EV credits they sold to their competitors that produced a lot of gas vehicles that lower income families want to buy.

So, we have serious fair trade issues. We have serious economic equity issues with the forced expansion of the electric vehicle industry. And I don't even need to talk about the logistic difficulty/impossibilities of meeting these EV mandates. And we are also talking railroads, don't forget. I mean, so, this gets more ludicrous as we unravel it.

Mr. Nigro, am I wrong on this? Do we or do we not have forced slavery in Congo supplying this? Is this or is this not proxy imperialism through China? Do we not have slave labor embedded in every electric vehicle sold in America today that is subsidized by the Federal Government?

Mr. NIGRO. So, I have already mentioned the sort of context issues. So, let me just sort of pick up where you have left off here on the issue around batteries and critical minerals and dependency on countries who arguably do not share our values.

You brought up Tesla. So, they have been working with Panasonic. They have reduced the cobalt use in their batteries by 60 percent. And they actually have now a battery that is in many of their offerings from lithium-ion phosphate batteries that actually have no cobalt at all—

Mr. DUARTE [interrupting]. So, slave labor is OK for now because we might get past that later. Haven't we made that argument somewhere in our history?

Mr. NIGRO. In a nutshell, it is like so many problems we face in transportation: This is about trying to innovate our way out of it. And the industry itself has set up an initiative called the Initiative for Responsible Mining Assurance—

Mr. DUARTE [interrupting]. Do you have any faith that that is taking place in preventing slave labor-derived elements in the Congo from reaching American markets and consumers with Federal subsidies?

Mr. NIGRO. I think when it comes to resource extraction in general, it is about accountability and shining a light on these issues and making sure we set up a policy framework—

Mr. DUARTE [interrupting]. Do those exist? We have been at this for a while. Do those accountability mechanisms exist?

Mr. NIGRO. You are—

Mr. DUARTE [interrupting]. Yes, I am asking you. You're saying what we should do and what we might do, what the future might hold, but I am not hearing that we are holding ourselves to any humane standard whatsoever—I mean, we are in a country here that literally cares how a chicken lays an egg and how many piggies go in the pigpen so that people can buy pork and buy eggs, but we are subsidizing slave labor in foreign countries through proxy imperialism, with our geopolitical enemies, to force consumers to buy electric vehicles. This is ridiculous, isn't it?

Mr. NIGRO. I will just say a couple points here. This Initiative for Responsible Mining Assurance is recently joined General Motors, Ford, Volkswagen, Tesla, Rivian. This initiative had been around for almost 20 years—

Mr. DUARTE [interrupting]. It is failing.

Mr. NIGRO. Automakers are now joining because they want to bring that accountability.

Mr. DUARTE. The Federal Government hasn't required any kind of fair trade. See, I am dropping tomorrow—I am dropping the EV Fair Trade Act, which simply says, if you want to get a Federal check to subsidize your electric vehicle purchase, that's fine—I am sure you will look cute in it—it's going to be certified by the manufacturer not to involve constituents or components derived from slave labor.

Do you see the morality in that, or would you like us to ding along with these initiatives longer?

Mr. NIGRO. I am not sure of the details of this legislation, so, I can't really comment on it.

Mr. DUARTE. Thank you. I yield back.

Ms. MALOY. Thank you. The gentleman yields back.

And I recognize myself for 5 minutes for questions.

[Discussion off the record.]

Ms. MALOY. All right. I am going to take my 5 minutes.

Mr. DARAKOS, I want to go to you. I am concerned about the trucking industry and being able to move goods. I represent the Second Congressional District in Utah. We have two major freeways. A lot of goods move through my district. And I spend a lot of time driving. I have a very large district. I spend a lot of time at places like Love's and Maverik gas stations. And I know that trucks are only making money when they are moving.

Do you know how long it takes a medium-duty truck to charge?

Mr. DARAKOS. Thank you for that question. It depends. And by that I mean it depends on the charge rate of the vehicle, what it will accept. And it also depends on the charging rate of the charging infrastructure, the hardware. So, in my experience, we put in

two 75-kilowatt dc fast chargers 3 years ago. That was fast, relatively fast. For our medium-duty trucks, it takes a couple hours to charge.

Our new electrification project that we are putting in in Harrisburg, we are putting in a 600-kilowatt charging cabinet. The vehicles now can charge at 250 kilowatts, but it takes time.

My biggest concern is parking and having access to charge over the road, because it is a significant challenge and problem. And then also, when you look at the hours-of-service rules, I can't imagine what a driver is going to go through. There are 10 chargers at a site, they are pulling in the charge, and sometime during their rest area, they have to wake up and move their rig to allow someone else on. But it is improving, but it can be a challenge that is going to impact operations today.

Ms. MALOY. OK. I had four questions to ask you about that, and you answered all of them in that answer. That was very impressive. Thank you.

And before I wrap up, I just want to say thank you all for being here. I did this once. I came and testified in front of Congress way before I ever planned on running for Congress or knew I would ever sit on this side, and I know it takes a lot of preparation. And you guys have been sitting here answering questions for a long time. So, thank you for your preparation. Thank you for being here.

My friend, Mr. Ezell, talked about good old American know-how, and I agree with him, but I feel like in the conversation we are having, we are sort of talking around good old American know-how and ignoring some realities.

One of my favorite movies is "Top Gun," the original one, the 1986 one. And there is a line in there, he says, Your body is writing egos—or "Your ego is writing checks your body can't cash." And I am afraid what we are doing here is our goals and our policies are writing a future that our infrastructure can't live up to.

And I just want to finish with the same question for all of you. We will start with Ms. Okafor. Actually, let's start with Mr. Nigro and move the other way.

Mr. Nigro, can we actually meet the goals this administration has for electrification? Do we have the infrastructure, the capacity? Is it a realistic goal?

Mr. NIGRO. I am an eternal optimist, so, that is not a fair question.

Ms. MALOY. Go ahead and answer.

Mr. NIGRO. But, yes, I 100 percent believe that the engineering and capacity in this country and the know-how that we have with our businesses, with folks in the policy community, can come together and do this, yes.

Ms. MALOY. In the timelines that we have set?

Mr. NIGRO. Yes.

Ms. MALOY. OK. Mr. Darakos.

Mr. DARAKOS. I am an optimist, but I think I am trying to be a realist as we move forward. And I think there are going to be some significant headwinds as we move forward. I think there is a lot of energy. There are a lot of great organizations and people that are trying to move this forward, but it is heavy lifting. And

it is a challenge, and not everyone has the resources to move it forward, especially for small businesses and smaller organizations.

Ms. MALOY. Mr. Coggin.

Mr. COGGIN. I think to meet the goal of 50 percent emission reductions by 2030 is attainable very much so to get to zero emission by 2050. With current technology and current funding, I think it is going to be a really heavy lift.

Ms. MALOY. Thank you.

Ms. Okafor.

Mrs. OKAFOR. Absolutely. If I may, I did want to address the question that you asked earlier regarding the amount of power needed to charge a truck to—if we were——

Ms. MALOY [interrupting]. Do it quickly. I am almost out of time.

Mrs. OKAFOR. Very quickly. At a typical truckstop, you have 8 to 10 lanes to fuel a heavy-duty truck. In order to do that with an electric truck, you will need to put in megawatt chargers. You would need to put in 10 megawatt chargers. That is more power than the Empire State Building in New York. That is a significant amount of power in rural America. That would be extremely challenging.

To answer your question directly, in order to make this work, it has to be something that the American consumer wants to buy. If they don't want to buy it, if you don't have the demand, then you don't have the economic structure that investors would want to invest in. So, the challenge there is having both sides do this. We have done it before with the biodiesel market, having a two-sided incentive structure. Without that, I think it would be a challenge to get there.

Ms. MALOY. Thank you.

I am concerned that we have these goals, but a goal without a plan is just a wish, and a wish is not policy.

So, with that, thank you. The gentlelady yields back.

Are there further questions from any members of the committee who have not been recognized?

Seeing none, that concludes our hearing for today.

I would like to thank each of the witnesses for your testimony.

The committee stands adjourned.

[Whereupon, at 2:02 p.m., the subcommittee was adjourned.]

## SUBMISSIONS FOR THE RECORD

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**Letter of April 30, 2024, to Hon. Eric A. “Rick” Crawford, Chairman, and Hon. Eleanor Holmes Norton, Ranking Member, Subcommittee on Highways and Transit, from J. Clark Mica, President, Institute of Makers of Explosives, Submitted for the Record by Hon. Eric A. “Rick” Crawford**

APRIL 30, 2024.

The Honorable RICK CRAWFORD,  
*Chairman,*  
*Subcommittee on Highways and Transit, House Committee on Transportation and Infrastructure.*

The Honorable ELEANOR HOLMES NORTON,  
*Ranking Member,*  
*Subcommittee on Highways and Transit, House Committee on Transportation and Infrastructure.*

DEAR CHAIRMAN CRAWFORD AND RANKING MEMBER HOLMES NORTON,

The Institute of Makers of Explosives (IME) is a trade association founded in 1913 with the mission to promote the safe and secure manufacture, transport, distribution and use of commercial explosives. IME appreciates the subcommittee’s attention to the electrification of fleet vehicles through its hearing “It’s Electric: A Review of Fleet Electrification Efforts.” As you conduct your review, we would like to bring to your attention our unique concerns with the shipping of commercial explosives on zero-emission (ZEV) vehicles.

Manufacturers of commercial explosives contribute \$4 billion annually to the U.S. economy and employ nearly 10,000 workers in the U.S. Commercial explosives are essential to energy production, communications, technology manufacturing, highway and building construction, the health care delivery system, agriculture and the production of nearly all metals and mineral products. If you consume it, explosives make it possible.

The commercial explosives industry relies on all modes of transportation, including rail, truck, water and air to move our products safely and securely, not just nationwide but around the world. IME supports increased, innovative ways to transport explosives but is concerned with the use of ZEVs to transport those products until it can be proven safe.

Currently, commercial explosives and the power sources for ZEVs (including lithium-ion batteries and hydrogen-fuel cells) are believed to be incompatible and hauling explosives on these vehicles poses a potentially hazardous scenario. The incompatibility of the two is documented in U.S. transportation policy, as the U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration’s “Lithium Battery Guide for Shippers” explicitly states that Class 1 materials cannot be packed in the same outer packaging with lithium-ion batteries.<sup>1</sup> Further, the United Nations Working Party on the Transport of Dangerous Goods has raised concerns regarding transporting explosives with ZEVs and is currently examining the feasibility and safety of doing so.<sup>2</sup>

In order to ensure the safe transport of commercial explosives products, IME would request that fleet vehicles used to transport Hazard Class 1 Materials and other materials intermediate for blasting be excluded from any greenhouse gas emission standard mandates until ZEV technology for transporting commercial explosives is sufficiently studied and proven to be safe and reliable. In addition, as the subcommittee examines fleet electrification efforts, IME requests that PHMSA,

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<sup>1</sup> <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2021-09/Lithium-Battery-Guide.pdf>

<sup>2</sup> <https://unece.org/transport/events/wp15-working-party-transport-dangerous-goods-109th-session>

or the appropriate agency, study in greater detail the potential safety hazards created by shipping commercial explosives on ZEVs.

Thank you for considering our views and for your attention to this important matter. If you have any questions or would like to discuss further, please contact Julia Bogue, IME's director of government affairs.

Best Regards,

J. CLARK MICA,  
*President, Institute of Makers of Explosives.*

Cc: Subcommittee on Highways and Transit

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**Statement of the National Association of Small Trucking Companies,  
Submitted for the Record by Hon. Eric A. "Rick" Crawford**

The National Association of Small Trucking Companies (NASTC) applauds the subcommittee for holding this hearing on the Biden administration's pie-in-the-sky initiatives pushing all-electrification of American transportation, including large trucks.

NASTC is a member-based organization whose 15,000 member companies range from the single-power-unit, owner-operator operating under its own authority to carriers having more than 100 power units, averaging 12 power units. These companies mostly operate in the long-haul, over-the-road, full-truckload, for-hire, irregular-route sector of interstate trucking. NASTC's members come from the largest segment of America's long-haul trucking: small motor carrier businesses having fewer than 100 power units.

The recent study by Roland Berger estimates that infrastructure costs alone for fully switching trucking to electric power would cost \$1 trillion.<sup>1</sup> That is more than half a trillion for heavy-vehicle charging infrastructure and nearly half a trillion for bolstering the electric grid infrastructure. We don't question this research and analysis, but we do observe that well-founded, good-faith financial projections made at one point in time tend to underestimate actual costs, once the funding, planning, permitting, purchasing of supplies, contracting of labor, etc. are ultimately fulfilled and construction begins. Here we are talking about multiple projects, each one facing red tape and delays.

Additionally, projected costs are likely to rise given the adverse effects of inflation, which persists and has worsened lately. Inflation since President Biden took office has substantially reduced the purchasing power of the dollar; the consumer price index has risen about 20% since January 2021, with prices up sharply for gasoline, diesel, and groceries. On that basis, the projected cost to switch trucking to all electric is staggering and likely to significantly exceed \$1 trillion by the time costs come due.

The Biden administration's electric vehicle mandates and subsidies in the Inflation Reduction Act and the Infrastructure Investment and Jobs Act are matched by Environmental Protection Agency (EPA) emissions rules for light and heavy vehicles.

These initiatives make it clear that the administration's ultimate goal is the elimination of internal-combustion vehicles.<sup>2</sup> Regrettably, those driving these changes are using raw government power—rather than rational, informed, collegial lawmaking—to force American trucking, consumers, and others to give up the option of reliable forms of transportation and energy and to hope and pray that unreliable electric vehicles and power supply will miraculously meet the need.

This hearing delivers a reality check about electrification of U.S. transportation and the trucking sector. Extremist, unrealistic policies must be tempered by acknowledgement of progress already made at tremendous cost to taxpayers and the private sector. These gains include the tremendous clean-air strides our transportation industry has made over the past 40-plus years, such as the implementation of low-sulfur fuel, the implementation of ultralow-sulfur fuel, the diminution of idling time through the use of auxiliary power units (APUs), the implementation of catalytic converters and DEF, and a myriad of fuel efficiency practices in tires and aerodynamics.

<sup>1</sup> [https://www.cleanfreightcoalition.org/sites/default/files/2024-03/RB%20Study%20Report\\_final%5B111225%5D.pdf](https://www.cleanfreightcoalition.org/sites/default/files/2024-03/RB%20Study%20Report_final%5B111225%5D.pdf)

<sup>2</sup> [https://www.wsj.com/articles/joe-biden-electric-vehicle-mandate-gas-powered-cars-2032-epa-c2a72414?st=zpwhzjf3qa9p5v7&reflink=desktopwebshare\\_permalink](https://www.wsj.com/articles/joe-biden-electric-vehicle-mandate-gas-powered-cars-2032-epa-c2a72414?st=zpwhzjf3qa9p5v7&reflink=desktopwebshare_permalink)

Moreover, Chairman Crawford states it well, and NASTC associates itself with his opening statement, particularly this, regarding the gross lack of understanding of the recent legislative and executive unilateralism exhibited as to the practicalities:

I respect the rights of a company to decide if it's in the company's best interest to electrify their fleet, just like I respect their ability to choose to go in another direction, like natural gas. But it is also important to recognize that *many fleets, including owner-operators, will be put at a competitive disadvantage and simply can't afford to purchase new vehicles, let alone a \$400,000 rig.*

To add to these challenges, *the batteries in these trucks can weigh up to 16,000 pounds, roughly one-quarter of the total allowable weight. That will make already slim margins for payload offset even slimmer.* Add in the fact that it takes between *2.9 to 5.7 hours to recharge the battery*—that is, if you can find an open and functioning charger. That's on top of the current challenge we know exists with the *truck parking shortage. Less product will move on each truck. And each truck will take longer to get to its destination.* This isn't a recipe for success. (emphasis added)

The Biden administration way is not the American way. The EPA and other federal agencies are imposing a substantial financial and regulatory burden on American industry and citizens, and erecting hurdles to advancements such as building new, cleaner oil refineries and adequate truck parking. Proposed NOx and greenhouse gas (GHG) reduction goals and the timetables for achieving them are wildly overly ambitious, especially in light of the remarkable reductions our trucking sector has already achieved. Effectively, post-2010 heavy-duty trucks release cleaner air into the atmosphere than they take in.

If stated government orders are implemented, many carriers and truckers will opt to keep the vehicle(s) they have for longer than they otherwise would have. Already, small motor carriers and independent owner-operators are precluded from the new-truck market by price. New or used electric vehicles will cost significantly more than do new diesel trucks.<sup>3</sup> For the large percentage of carriers having 20 or fewer trucks, electric vehicles won't be an option for the foreseeable future. The expensive mandates will cause current vehicles to continue in use as long as possible. The price differential between older, used trucks and the more expensive, newer electric models, once on the used vehicle market, will be key factors in small carriers' purchasing decisions. The government-caused slower turnover of older commercial trucks and slower uptake of expensive EV models replacing diesel-powered ones through the used-vehicle market, coupled with predictably higher used truck purchase prices and slimmer profit margins, will translate into less reduction of NOx and GHG levels in the atmosphere. The projected health and environmental gains EPA and the White House proffer will not be achieved.

Meanwhile, private vehicles provide a cautionary tale that should be learned both for autos and commercial vehicles. American consumers are voting with their auto choices.<sup>4</sup> In the car, pickup, and SUV markets, less than 8% of last year's U.S. vehicle sales were EVs; more than 90% of 2023 autos sold were gas-powered or hybrid vehicles.<sup>5</sup> Auto dealers have stocks of EVs crowding the lot—middle-class consumers aren't buying them. Auto companies lose money on EVs.

Consumers reject EVs for a number of good reasons. EVs are not dependable. Consumers experience about 80% more problems with EVs than with autos run by internal-combustion engines, Consumer Reports found.<sup>6</sup> Consumers complain that electronic features stop working. Batteries die faster in cold weather and sometimes won't charge. The advertised mileage on an engine charge is often quite shorter in reality. EVs are expensive, even when government-subsidized. Charging batteries costs more than a tank of gas and is much slower. EV maintenance and repairs cost more. For instance, car EV batteries last 5–10 years, costing \$5,000 to \$15,000 to replace.<sup>7</sup> Resale value is uncertain. (Perhaps the EV makers could develop an

<sup>3</sup> <https://www.truckinginfo.com/10166691/what-fleets-need-to-know-about-electric-truck-batteries>

<sup>4</sup> [https://www.wsj.com/business/autos/ev-electric-vehicle-slowdown-ford-gm-tesla-b20a748e?st=cx7k7q61afuadk9&reflink=desktopwebshare\\_permalink](https://www.wsj.com/business/autos/ev-electric-vehicle-slowdown-ford-gm-tesla-b20a748e?st=cx7k7q61afuadk9&reflink=desktopwebshare_permalink)

<sup>5</sup> [https://www.wsj.com/business/autos/hybrid-car-sales-boom-b579bf21?st=tmvqnmw9p5he2nv&reflink=desktopwebshare\\_permalink](https://www.wsj.com/business/autos/hybrid-car-sales-boom-b579bf21?st=tmvqnmw9p5he2nv&reflink=desktopwebshare_permalink)

<sup>6</sup> [https://www.wsj.com/articles/ford-f-150-lightning-production-electric-vehicles-biden-administration-1c3fc8d0?st=oo0rjk4ydehlio3&reflink=desktopwebshare\\_permalink](https://www.wsj.com/articles/ford-f-150-lightning-production-electric-vehicles-biden-administration-1c3fc8d0?st=oo0rjk4ydehlio3&reflink=desktopwebshare_permalink)

<sup>7</sup> <https://www.edmunds.com/electric-car/articles/electric-car-battery-replacement-costs.html>

aftermarket for scrapped EVs' batteries to equip consumers' homes with sufficient electricity generation.)

Furthermore, EVs pose significant hurdles for lower-income people (as well as certain better-off city dwellers), who live in homes without a garage, a driveway, or dedicated or reserved street parking, including apartments or condominiums. Policies to deprive people living in these circumstances, poor or otherwise, of convenient, affordable internal-combustion-auto transportation will face the harshest consequences of an EV hegemony that has outlawed gasoline-powered vehicles.<sup>8</sup>

Their batteries make EVs substantially heavier than gas-fueled cars, making EVs a danger to lighter weight vehicles, human beings, and property in accidents. EVs pose greater risk of catching fire.<sup>9</sup> Being heavier, EVs degrade roads, adding to pollution.

EVs hog an unfair share of electricity and burden electric infrastructure, risking energy security and reliability while markedly increasing energy consumption.<sup>10</sup> EVs compete for electricity with cryptomining, booming artificial intelligence, and other significant draws on the electrical grid. Meanwhile, the Biden administration's heavy-handed forced closure of functioning power generator stations puts the United States at heightened risk of electricity demand quickly overwhelming supply. This manmade, self-imposed crisis is entirely avoidable and unnecessary. Yet, here we are.

There is serious competitiveness and security risk attached to the electric-or-bust political agenda. Mining minerals for and manufacturing EV batteries cause substantial particulate emissions, and come predominately from rival China or Chinese industry. Further, China continues to use Diesel 2, the precatalytic converter-grade diesel fuel that has long been in disuse in the United States. The current, cleaner-grade diesel fuel used in the United States costs trucking roughly \$1 more per gallon than would Diesel 2. Of course, U.S. diesel fuel today is better for the environment. But at this point, it is merely by nominal degrees of "cleaner" air rather than earlier gains already achieved. Presumably, our country's citizens regard the more expensive U.S. diesel fuel and the costs it adds to their cost of living worth the extra money. Yet, China benefits economically from its use of cheaper, dirtier diesel fuel. Still, the Biden administration and many in Congress continue to push unilateral disarmament, forcibly denying continued usage of readily available, abundant, U.S. fuel resources.

Congress should reject exorbitantly costly, unrealistic mandates to replace fossil fuels and to force foreclosing nearly every other fuel source except for unreliable "green" ones—all driven by government diktat rather than free-market forces and democratic means. The subsidies for EV, wind, solar, and battery solutions to our energy crunch have suffered documented failures.<sup>11</sup> "Green New Deals" and government largesse for electrification and corporate welfare have not and won't take the place of a free market-based, forward-thinking, ecofriendly evolution into using all power sources to get the job done.<sup>12</sup> In fact, the supposed green goals are pipe dreams: "[T]he vehicles you and I drive, while large in number, sit parked 95% of the time and play a minor role in U.S. transportation emissions. It elides the fact that U.S. transportation emissions themselves are a small and shrinking share of global emissions."<sup>13</sup>

Attempts to force U.S. economic sectors such as trucking into manipulated electrification risk sparking a debilitating crisis of wholesale electricity shortages, unreliable private and commercial transportation, and countless EVs without charge sufficient to function. That outcome would spell national crisis in the most unwelcome way. That is the path the current administration has recklessly set the country on. America can do better. This hearing marks a beginning.

<sup>8</sup> <https://www.motortrend.com/features/apartment-ev-charging-renters-rights/>,  
<https://www.myev.com/research/buyers-sellers-advice/what-if-you-want-to-drive-an-electric-vehicle-but-dont-have-a-garage>,

<https://www.wired.com/story/wait-so-where-will-urbanites-charge-their-evs/>  
<sup>9</sup> [https://www.wsj.com/us-news/lithium-ion-batteries-are-everywhere-fires-caused-by-shoddy-ones-are-on-the-rise-ef6fb633?st=ty08iiflhom9c4&reflink=desktopwebshare\\_permalink](https://www.wsj.com/us-news/lithium-ion-batteries-are-everywhere-fires-caused-by-shoddy-ones-are-on-the-rise-ef6fb633?st=ty08iiflhom9c4&reflink=desktopwebshare_permalink)

<sup>10</sup> [https://www.wsj.com/articles/can-we-power-the-epas-ev-fantasy-electrical-grid-energy-vehicles-a786d535?st=ekdp694f1sbl2eq&reflink=desktopwebshare\\_permalink](https://www.wsj.com/articles/can-we-power-the-epas-ev-fantasy-electrical-grid-energy-vehicles-a786d535?st=ekdp694f1sbl2eq&reflink=desktopwebshare_permalink)

<sup>11</sup> [https://www.wsj.com/business/autos/rivian-tesla-lucid-fisker-polestar-vinfast-ev-8676ec4c?st=oytg8ok7nb18sqm&reflink=desktopwebshare\\_permalink](https://www.wsj.com/business/autos/rivian-tesla-lucid-fisker-polestar-vinfast-ev-8676ec4c?st=oytg8ok7nb18sqm&reflink=desktopwebshare_permalink)

<sup>12</sup> [https://www.wsj.com/articles/gm-doesnt-tell-the-truth-about-electric-vehicles-auto-industry-climate-policy-92e25d01?st=nrorqya4tacglf&reflink=desktopwebshare\\_permalink](https://www.wsj.com/articles/gm-doesnt-tell-the-truth-about-electric-vehicles-auto-industry-climate-policy-92e25d01?st=nrorqya4tacglf&reflink=desktopwebshare_permalink)

<sup>13</sup> [https://www.wsj.com/articles/on-evs-theres-a-lot-of-hunter-in-joe-biden-election-policy-trump-re-election-a9b9e56b?st=oth022mr3asbfdi&reflink=desktopwebshare\\_permalink](https://www.wsj.com/articles/on-evs-theres-a-lot-of-hunter-in-joe-biden-election-policy-trump-re-election-a9b9e56b?st=oth022mr3asbfdi&reflink=desktopwebshare_permalink)



**Statement of the National Electrical Manufacturers Association, Submitted  
for the Record by Hon. Eric A. “Rick” Crawford**

Dear Chair Graves, Ranking Member Larsen, Chair Crawford, Ranking Member Holmes Norton, and members of the Committee:

The National Electrical Manufacturers Association (“NEMA”) is the largest trade association of electrical equipment manufacturers in the nation, representing nearly 325 member companies and 370,000 American manufacturing workers across all 50 states. Together, our industries are responsible for 1.65 million American jobs which contribute more than \$200 billion to the U.S. economy. Our members include manufacturers of electric vehicle (EV) charger stations and the electrical equipment needed to support public and private charging stations.

The Bipartisan Infrastructure Law (“BIL”) provided critical funding to fuel much needed investments into EVs and EV charging infrastructure. In addition, the bill made it clear that federal funding can cover the costs of the grid equipment that is needed when installing charging stations.

An important goal of the legislation is to drive new private investments in U.S. based manufacturing. Our members share this goal of fostering and strengthening our domestic manufacturing and supply chain capabilities for EV charging equipment via responsible right shoring techniques such as phasing in requirements, allowing for substantial transformation, and providing clear rules governing these requirements across all funding programs.

We would remind the Subcommittee that it takes time to build new manufacturing facilities: our members have already announced several new plants, have invested hundreds of millions of dollars in new U.S. manufacturing and are planning additional investments in the future.

Nevertheless, compliance with the Build America, Buy America (BABA) regulations set forth in the BIL does complicate and hinder manufacturers’ ability to quickly and efficiently deploy EV charging infrastructure under the National Electric Vehicle Infrastructure (NEVI) program due to the vague and opaque nature of the Made In America Office’s (MIAO) BABA guidance. Despite the significant investment by NEMA members in domestic manufacturing capabilities, EV charging infrastructure relies on a complicated global supply chain that does not easily adhere to cumbersome one-size-fits-all domestic content requirements. NEMA has provided detailed feedback to the MIAO on how the BABA guidance could be structured to enhance and strengthen domestic manufacturing of EV charging infrastructure.

NEMA BABA RECOMMENDATIONS:

1. Congress should themselves or ask MIAO to designate countries from which materials and components can be procured and waive the component test for products substantially transformed in one of these acceptable countries or the U.S.; similar to the established Trade Agreements Act rules for federal procurement. The following countries should be included in this group:
  - a. USMCA countries
  - b. European Union member states
  - c. The United Kingdom
  - d. Indo-Pacific Economic Framework countries
2. Congress should or ask MIAO to establish consistent criteria and definitions for domestic products across all agencies, programs, and funding methods.
  - a. Further, the administration should provide guidance on these criteria and definitions to implementing state agencies.
3. Congress should ask MIAO to ensure the component test includes all costs associated with the manufacturing of a product, such as labor, transportation, allocable overhead, and material.

As the Committee considers the progress made by the industry thus far, we would like to provide some key thoughts as it relates to future and ongoing efforts of fleet electrification in the U.S.

1. *NEMA recommends that EV charging infrastructure should be based on standardization and interoperability.* NEMA is strongly in favor of efforts to develop and sustain a nationwide EV charging infrastructure as part of global efforts to reduce emissions through electrification of the North American regional transportation system. This deployment should strive towards standardization and interoperability and allow for enhanced communication and coordination between the vehicle, the charging station, and the grid to maximize the benefit and convenience for vehicle owners while not overly stressing the grid. Standardization and interoperability will create a more stable environment for innovation, accelerate infrastructure rollout, and lead to faster consumer adoption.

2. *NEMA recommends that all publicly funded public charging locations should be interoperable with all electric vehicles.* For a charging system to energize a vehicle's battery, there must be a common physical connection point and "handshake" between the vehicle's Battery Management System ("BMS") and the charger. The BMS will need to communicate important parameters of the battery to the charger, such as state of charge, power capability, environmental conditions, and other data that are critical to safety, battery longevity, and commercial interoperability. The connection and communication between a vehicle and charger should be based on a common protocol and a language fluency that creates a seamless charging experience for all vehicles and all users.
3. *NEMA recommends that the Federal Highway Administration ("FHWA") be flexible in its approach to determining appropriate performance-based standards for connectors on EV chargers.* NEMA recognizes that in the market there are different standard protocols for interoperability between the vehicle and the charger. These include CHAdeMO, Combined Charging System ("CCS1"), and NACS. Another technology which is anticipated soon is the Megawatt Charging System ("MCS"). These are each supported by their respective connector that converts power from the charger before storing it in the vehicle's battery. AC Charging relies on the onboard charger in the vehicle to convert the AC power to DC where DC fast charging involves converting AC power to DC at the charging station before it flows into the vehicle. Specifying one type of connector over another could cause unnecessary confusion across the EV charging ecosystem. The NEVI program sets a good foundational set of minimum requirements for Public Charging Infrastructure. EV charging equipment manufacturers are then free to innovate off these requirements thereby further spurring market competition. As more and more of these get deployed across the country the market ultimately will decide on how these standards evolve. Therefore, NEMA would be supportive of removing the current requirement in the minimum standards for a minimum of four CCS connectors in favor of a technology neutral approach that enables the opportunity to deploy CCS or J3400 connectors for DC fast charging systems deployed under the program.

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**Letter to Hon. Eric A. "Rick" Crawford, Chairman, and Hon. Eleanor Holmes Norton, Ranking Member, Subcommittee on Highways and Transit, from Ariel Wolf, General Counsel, Powering America's Commercial Transportation, Submitted for the Record by Hon. Eric A. "Rick" Crawford**

The Honorable RICK CRAWFORD,  
Chairman,

*Committee on Transportation and Infrastructure, Subcommittee on Highways and Transit, U.S. House of Representatives, Washington, DC 20510.*

The Honorable ELEANOR HOLMES NORTON,  
Ranking Member,

*Committee on Transportation and Infrastructure, Subcommittee on Highways and Transit, U.S. House of Representatives, Washington, DC 20510.*

DEAR CHAIRMAN CRAWFORD AND RANKING MEMBER HOLMES NORTON,

Powering America's Commercial Transportation ("PACT") writes to thank you for holding the hearing titled: *It's Electric: A Review of Fleet Electrification Efforts*. PACT's mission is to accelerate the development and deployment of reliable nationwide charging infrastructure for medium- and heavy-duty zero emission vehicles. ("M/HD ZEVs")<sup>1</sup>. Our membership is comprised of stakeholders across the transportation electrification ecosystem, including leading truck manufacturers, charging infrastructure technology providers and developers, commercial fleets and fleet management companies, and utilities. PACT is committed to promoting productive cross-sector collaboration to advance policies and regulations that improve access to and reduce barriers for M/HD charging infrastructure. PACT members are committed to the transition to a zero-emission M/HD sector and ensuring U.S. leadership in ZEV technology deployment. We are optimistic about the future of M/HD ZEVs, and are

<sup>1</sup> PACT's membership: ABB E-mobility, BC Hydro, Burns & McDonnell, Chateau Energy Solutions, Cummins, Daimler Truck North America, EV Realty, Greenlane, InductEV, J.B. Hunt Transport Inc., Mortenson, Navistar Inc., Penske, Pitt Ohio, Prologis, Pilot, Voltera, Volvo Group North America, WattEV, and Zeem Solutions.

dedicated to converting policy goals into actionable policy solutions. We welcome the opportunity to collaborate with the Committee and its members on this important topic.

The medium- and heavy-duty trucking industry is at a crossroads: State and Federal regulations have placed stringent timelines on the transition to M/HD ZEVs, but the necessary refueling infrastructure is not yet in place. PACT was formed to help all stakeholders meet these ambitious goals through the accelerated deployment of M/HD ZEV infrastructure.

Transitioning M/HD vehicles to zero emissions is a solvable challenge. To comply with state and federal regulations such as *Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles—Phase 3*<sup>2</sup> California’s *Advanced Clean Trucks* (“ACT”) and *Advanced Clean Fleets* (“ACF”), and other states planning to adopt the ACT and ACF rules, additional planning and incentives are required for M/HD ZEV infrastructure deployment. Detailed below is an outline of the barriers and solutions to the deployment of M/HD ZEV infrastructure. The examples provided are not exhaustive, but a starting point to address the primary challenges.

#### BARRIERS & SOLUTIONS TO M/HD ZEV INFRASTRUCTURE DEPLOYMENT

**Barrier—Costs:** Electrifying M/HD fleets is expensive, imposing significant costs on customers and all project stakeholders. Current incentive programs are insufficient to bridge the gap and have long lead times for cost recovery. Commercial fleets need to consider all costs when transitioning to ZEVs, including the cost of vehicles, ZEV infrastructure, and fuel. Additional incentives for fuel and infrastructure can offset these costs, however the amount of funding for M/HD ZEVs and charging infrastructure is inadequate. Sufficient incentives can help to tip the cost balance and build a business case for M/HD ZEV investment.

There is little dedicated federal funding for M/HD ZEV infrastructure despite the high cost and unique nature of M/HD ZEV fleet deployments. State incentives are available in some states, like California and Washington, but are isolated and insufficient to cover the costs associated with the transition. Even where incentive programs exist, the long lead time for reimbursement impedes subsequent investments.

**Solution—Robust Funding Programs:** Incentives for M/HD ZEVs and charging infrastructure will play a critical role in supporting the energy transition in trucking. Carve outs in existing programs for LD vehicles will not be sufficient. Instead, the transition to zero-emission trucking needs dedicated funding streams. For example, while the Charging and Fueling Infrastructure (“CFI”) program funds some M/HD infrastructure projects, the funding through the CFI program will not be sufficient to seed the initial investment that leads to scalability. Similarly, while NEVI is eligible to be used on M/HD infrastructure, implementation of the program has led to the vast majority of funds being used for light-duty charging exclusively. Federal funds could also be used to modernize the electrical grid to prepare for M/HD charging.

**Barrier—Long Project Timelines:** Fleet operators that are confident in their decision to purchase M/HD ZEVs face challenges when it comes to site readiness, including the examples below. An OEM is typically able to deliver vehicles within a year of their being ordered, but customers cannot count on the availability of necessary infrastructure or power supply to charge purchased vehicles—it can take 12–36 months to install and energize infrastructure. Every M/HD site has different challenges, including site design, available power and necessary upgrades, among other factors. Additionally, entities must navigate complex application processes and permitting regulations in order to receive approval for a project.

**Solution—Expediting EV Infrastructure Projects:** State and local governments should create model permitting policies and establish mandatory deadlines for permitting approvals for M/HD ZEV infrastructure. The Federal government can also play a convening and facilitating role among states to align policies.

**Barrier—Limited Understanding of M/HD Industry:** Charging M/HD ZEVs is very different from charging light-duty (“LD”) ZEVs. M/HD charging requirements depend on the fleet duty cycles and route choices, and require direct current instead of alternating current that is typically used for LD home charging. This key difference results in a long process of customer engagement with power companies. Additionally, it is difficult—sometimes impossible—to upgrade sites designed for LD vehicles to accommodate M/HD charging because M/HD vehicles typically require: (1) larger parking spaces; (2) pull through charging; and (3) significantly more power per charger. U.S. agencies should provide technical assistance and model pro-

<sup>2</sup> 40 CFR Parts 86, 1036, 1037, 1039, 1054, 1065, *Greenhouse Gas Emissions Standards for Heavy-Duty Vehicles—Phase 3* (Issued March 29, 2024).

grammatic language that supports new programs for M/HD needs in the national charging infrastructure network.

*Solution—Increased Collaboration:* Fleets and utilities should increase their collaboration to speed the buildout of M/HD ZEV projects. For example, fleets and utilities should be open to phasing in power as it becomes available.

PACT looks forward to working with the Committee to advance the deployment of M/HD ZEV infrastructure.

Sincerely,

ARIEL WOLF,  
General Counsel, PACT.

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**Letter of May 7, 2024, to Hon. Eric A. “Rick” Crawford, Chairman, and Hon. Eleanor Holmes Norton, Ranking Member, Subcommittee on Highways and Transit, from Matthew Brownlee, Director, Federal Government Affairs, The Transport Project, Submitted for the Record by Hon. Eric A. “Rick” Crawford**

MAY 7, 2024.

Hon. RICK CRAWFORD, Chair,  
Hon. ELEANOR HOLMES NORTON, Ranking Member,  
*U.S. House Committee on Transportation and Infrastructure,*  
*Subcommittee on Highways and Transit, 2165 Rayburn House Office Building,*  
*Washington, DC 20515.*

DEAR CHAIRMAN CRAWFORD AND RANKING MEMBER HOLMES NORTON:

I am submitting the following comments on behalf of The Transport Project (formerly known as NGVAmerica) in regards to the Subcommittee on Highways and Transit hearing on April 30, 2024, titled “It’s Electric: A Review of Fleet Electrification Efforts.” The Transport Project is a national coalition of roughly 200 fleets, vehicle and engine manufacturers and dealers, servicers and suppliers, and fuel producers and providers dedicated to the decarbonization of North America’s transportation sector. Through the increased use of gaseous motor fuels including renewable natural gas and hydrogen, the United States and Canada can help achieve ambitious climate goals and greatly improve air quality safely, reliably, and effectively without delay and without compromising existing commercial business operations.

The transportation sector makes up the largest portion of greenhouse gas emissions in the United States, and thus we have a great opportunity to reduce emissions. Over the last thirty years, compressed natural gas (CNG) and liquefied natural gas (LNG) vehicles and more recently renewable natural gas (RNG) vehicles, have made significant achievements in reducing emissions. These technologies can offer impactful benefits in our urgent quest for cleaner transportation solutions.

As the Committee considers the future of fleet electrification, I urge you to recognize and integrate RNG, LNG, and CNG vehicles into your framework of sustainable transportation initiatives. The committee also should consider and support hydrogen fueled vehicles including hydrogen fueled internal combustion engines (ICEs), which will soon be entering the market and offer significant emission reduction benefits.

The statement and testimony offered by Kim Okafor, General Manager for Zero Emissions at Love’s Travel Stop and Trillium Energy Solutions, on behalf of NATSO underscored the very real challenges and high cost of electrifying portions of the transportation sector. Additionally, we agree with the statement and testimony of Taki Darakos, Vice President, Vehicle Maintenance and Fleet Service at PITT OHIO on behalf of the American Trucking Association, regarding the recent EPA GHG3 rule. There is a need for broad, pragmatic, and achievable emissions standards that truly foster the adoption of lower-carbon technologies. The shift to unrealistic targets by 2030 could indeed stifle innovation and investment in proven, scalable solutions like RNG that are available today and deliver immediate emissions reductions.

It is widely acknowledged that no single solution will meet our clean transportation needs, especially across different vehicle classes and use cases. Electric vehicles can be vital to our energy transition, but it should not be done at the expense of the investment that has already been made into other alternative fuel vehicles. Gaseous fueled vehicles present a ready and effective technology solution, which is particularly advantageous for heavy-duty transportation where electrification faces challenges due to range, payload capacities, and infrastructure needs.

Renewable natural gas, or biogas, is gas produced from methane emitted through the decomposition of animal manure, food waste, forest management waste, waste-

water sludge, and garbage. This methane, if left alone is a potent greenhouse gas. However, capturing and processing methane for use as a transportation fuel, turns a problematic waste liability into a sustainable energy resource.

As a result, RNG is the only carbon negative motor fuel and its use provides significant greenhouse gas reductions. Last year the bio-CNG mix in California held an annual average carbon intensity score of  $-126.42$  gCO<sub>2</sub>e/MJ, the lowest average carbon intensity of any fuel option in the California Low Carbon Fuel Standard program today. This presents a great opportunity for RNG's potential to meet and surpass emission reduction targets in transportation.

The prevalence of RNG is expanding. Last year alone, 79 percent of CNG used for on road transportation came from a renewable source.<sup>1</sup> In the U.S. there are 338 operational RNG facilities with 165 under construction and 324 in development. We have seen more and more fleets opt for natural gas vehicles as a way to reduce their carbon footprint. The nation's largest fleet, UPS, has over 18,000 alternative fuel vehicles and they continue to expand their roster of CNG and LNG vehicles. UPS aims to cut its carbon emissions per package delivered by 50 percent by 2035.<sup>2</sup>

Natural gas vehicles are not only available now but are mature technologies supported by a well-established fueling network of stations coast-to-coast. They offer lower total cost of ownership and are especially effective in applications where vehicles return to base for refueling—ideal for buses, refuse trucks, and short-haul logistics.

Cities like Los Angeles and New York have successfully integrated RNG into their public transit systems, demonstrating substantial reductions in carbon emissions and pollutants. Similarly, major waste management companies like WM have converted their fleets to RNG, procuring their RNG from their own landfills. Citing not just environmental benefits but also economic advantages due to lower fuel costs compared to diesel.

Electrification is not the only way to decarbonize the transportation sector. If the goal is to lower emissions dramatically and allow every fleet of every size and corner of this country to participate, then multiple clean options must be available.

Gaseous fueled vehicles powered by CNG, LNG and RNG are a practical, immediate solution that can significantly contribute to our national goals for cleaner transportation. By integrating these technologies into the national fleet electrification strategy, we can take a more inclusive and effective approach to reducing transportation emissions.

Please feel free to contact The Transport Project for further data, to engage in discussions, or to participate in hearings to explore this topic in greater depth. Thank you for considering this crucial aspect of our transportation future.

Sincerely,

MATTHEW BROWNLEE,  
*Director, Federal Government Affairs, The Transport Project.*

<sup>1</sup> <https://transportproject.org/wp-content/uploads/2024/04/TTP-RNG-Decarbonize-2024.pdf>

<sup>2</sup> <https://tanktransport.com/2024/04/ups-cng-trucks-acquisition/>



## APPENDIX

### QUESTIONS FROM HON. ERIC A. “RICK” CRAWFORD TO TAKI DARAKOS, VICE PRESIDENT OF VEHICLE MAINTENANCE AND FLEET SERVICE, PITT OHIO, ON BEHALF OF THE AMERICAN TRUCKING ASSOCIATIONS

*Question 1.* Mr. Nigro’s written testimony reflected that there were over 17,000 zero-emission trucks on the road.<sup>1</sup> In contrast, your written testimony suggests that there are very limited numbers of battery-electric trucks available to purchase and deployed on our roads today.<sup>2</sup> Can you please explain this inconsistency between your two testimonies? For example, what is the vehicle class breakdown of zero emission trucks registered today on our roads? Please provide any additional details on the differences and uses of these various trucks.

*ANSWER.* The figures referenced in Mr. Nigro’s testimony are sourced from CALSTART’s January 2024 *State of the U.S. Market Report* and reflect deployment primarily of cargo vans rather than the heavy-duty Class 8 trucks that our economy relies on for long-haul freight. To highlight this difference, I encourage the Committee to consider the figures in the following table, which show that over 80% of zero-emission truck deployments through 2023 were cargo vans.

**CALSTART Zero-Emission Truck (ZET) Deployments**

Vehicle Segment	ZET Deployments	Total Stock	ZET Market Share (%)
Cargo Van .....	14,400	3,687,740	0.39%
MD Step Van .....	843	266,866	0.32%
MD Truck .....	442	3,573,915	0.01%
HD Truck .....	867	5,104,926	0.02%
Refuse .....	48	118,135	0.04%
Yard Tractor .....	1,134	23,437	4.84%
<b>Total .....</b>	<b>17,734</b>	<b>12,775,019</b>	<b>0.14%</b>

Source: Jacob Richard, Jessie Lund, and Baha Al-Alawi. “Zeroing in on Zero-Emission Trucks: The State of the U.S. Market.” CALSTART. January 2024.

In addition to CALSTART’s data, the California Air Resources Board (CARB) periodically reports on the distribution of state credits claimed by heavy-duty vehicle manufacturers. According to CARB’s most recent May 2024 report, manufacturers sold 18,473 zero-emission vehicles in California, of which only 353 (less than two percent) were Class 7 and 8 tractors for model year 2023.<sup>3</sup> Deployment of lighter, lower-payload cargo vans, and the charging infrastructure to support them, should not be conflated with the major investments needed in charging infrastructure for Class 7 and 8 trucks and the technology advancements required to make those vehi-

<sup>1</sup>*It’s Electric: A Review of Fleet Electrification Efforts: Hearing Before the Subcomm. on Highways and Transit of the H. Comm. on Transp. and Infrastructure*, 118th Cong., (Apr. 30, 2024) (testimony of Nick Nigro).

<sup>2</sup>*It’s Electric: A Review of Fleet Electrification Efforts: Hearing Before the Subcomm. on Highways and Transit of the H. Comm. on Transp. and Infrastructure*, 118th Cong., (Apr. 30, 2024) (testimony of Taki Darakos).

<sup>3</sup>CARB. “Advanced Clean Trucks Credit Summary Through the 2023 Model Year.” May 2024.

cles practical and affordable for regional and national heavy-duty trucking networks.

In our experience it has only been within the last two years that the technology has become available in the Class 7 and 8 space. It is also important to note that the purchase price in the battery-electric light-duty segment is slightly higher than traditional ICE vehicles. The price jump for Class 7 and 8 is substantial, ranging from 2.7 to 3.5 times more (excluding charging infrastructure costs) of traditional ICE vehicles.

Operational costs for battery-electric trucks are also higher, especially for Class 7 and 8 vehicles. In a recent study published by the commercial lease and truck rental company Ryder System, Inc., their fleet experienced total cost of transport increases of 94 to 114 percent for heavy-duty truck conversions and 56 to 67 percent for mix fleet conversions, compared to a five percent cost increase for light-duty electric vehicles.<sup>4</sup>

National zero-emission heavy-duty vehicle sales are, to my knowledge, largely driven by grants and demonstration projects through programs such as California's HVIP program or EPA's current Clean School Bus program. Setting aside the financial challenges of purchasing these vehicles, as I mentioned in my testimony, the lack of adequate charging infrastructure and the performance limitations of current heavy-duty tractors will also exacerbate the difficulty of meeting regulatory targets and timelines such as those established by California's Advanced Clean Fleets program. Meanwhile, programs such as the EPA's DERA (Diesel Emissions Reduction Act) program, which is awaiting Congressional reauthorization and merits expansion, continue to deliver emissions reductions and operational benefits for the trucking industry by incentivizing the replacement of older diesel trucks with new, cleaner diesel technology.

*Question 2.* What weather impacts have you experienced with performance limitations of the battery-electric trucks that your company is running in Ohio and Pennsylvania?

*ANSWER.* Real-world operational data shows that weather and topographical conditions can have significant negative impacts on the usable range of battery-electric vehicles. According to a AAA Foundation study of the range of electric passenger vehicles, a car that may be expected to travel 105 miles in 75-degree weather only travels 69 miles in 95-degree temperatures and 43 miles in 20-degree temperatures.<sup>5</sup>

PITT OHIO's experience testing battery-electric trucks has shown similar range reductions in hot and cold temperatures as those seen in passenger cars. We have seen a 10–15% range reduction over the last two years of operation. We are not alone among trucking companies in that we need more time to procure technologies and perform testing over many miles, and under multiple weather and topographical conditions, in order to collect data on how a transition to battery-electric trucks or alternative technologies will impact our operations.

*Question 3.* How do battery-electric trucks perform in all four seasons? Are there any route modifications or adjustments that you need to make due to certain weather conditions?

*ANSWER.* As mentioned in my response to the previous question, our experience has been that battery-electric freight vehicles experience range reductions in extreme hot and cold temperatures. We are a regional carrier operating in the mid-Atlantic and midwestern U.S., so we must be able to maintain our operations despite challenging seasonal weather conditions.

PITT OHIO has developed internal tools to help with placement of vehicles. We make contingencies for factors such as weather, terrain and payload. These tools allow our team to understand routes, payload and daily operating characteristics to ensure that the vehicles are placed in situations where they are set up for success from the start. We factor in vehicle range buffers to ensure our trucks are able to make it back to their depot and reduce risks of network disruptions. While the current technology is improving, it cannot replace the traditional diesel engine in terms of the diversity of duty cycles that it can support.

When we initially deployed our first battery electric trucks, the range of our Class 7 battery-electric box trucks was only 150 miles, and the payload was 8,800 lbs. In comparison, our traditional ICE box trucks traditionally run approximately 150–200 miles per day and move up to 15,000 lbs. of payload. In the Class 8 segment, the

<sup>4</sup>Ryder System, Inc. "Charged Logistics: The Cost of Electric Vehicle Conversion for U.S. Commercial Fleets." May 2024.

<sup>5</sup>AAA Foundation. "Electric Vehicle Range." Nd. Accessed from <https://exchange.aaa.com/automotive/automotive-testing/electric-vehicle-range/>



ability to shift to a battery-electric truck is limited due to range requirements for those vehicles in our current network. Those tractors run 150–200 miles per day in a city operation and average 520 miles per day at night in our linehaul operation. Most of the runs with these heavy-duty vehicles are on extremely tight schedules. Having to charge for any period would require a significant investment in additional equipment and drivers. With a fully battery-electric fleet, we would not be able to do what we do today.

*Question 4.* The Roland Berger study entitled, “Forecasting a Realistic Electricity Infrastructure Buildout for Medium- & Heavy-Duty Battery Electric Vehicles” examined the different types of charging profiles that commercial vehicles would be required to utilize during on-route operations.<sup>6</sup> How will trucking fleets assess depot charging versus on-route charging needs and what needs to be in place to provide certainty?

*ANSWER.* The Roland Berger study highlights the unique charging ecosystem that will be required to fully electrify the medium- and heavy-duty trucking industry. Fleets will assess route length, duty cycles, vehicle range, and the existing charging infrastructure along their routes to ensure operational performance.

Depot charging is generally well-suited for fleets with predictable schedules and vehicles returning to a central location daily, such as Class 3–6 vehicles with local routes under 90 miles, which can be charged overnight using Level 2 or Level 3 chargers. However, fleets with longer routes, particularly Class 8 long-haul trucks exceeding 200 miles daily, will require on-route charging due to the current technological limitations of battery-electric technology.

For PITT OHIO, we continue to have ongoing conversations with utility partners serving our facilities where trucks can return daily for depot charging. With operations in multiple states, it is challenging to work with dozens of utilities and state and local regulators on charging projects across our network. Wait times can take years for these projects, and there is a significant cost. Our experience is likely shared by every other trucking company seeking to proactively address the challenges of electrification.

Our linehaul operations may rely on on-route charging, and the potential need for multiple charging stops will significantly impact operational efficiency, as well as the total cost of ownership and operation. In short, battery-electric technology does not work for every operation today. A reliable, dense, geographically dispersed on-route charging network is an essential precursor before fleets acquire heavy-duty battery-electric vehicles in high-mileage operations.

Several key elements are needed to provide certainty and encourage fleet adoption of zero-emission vehicles:

- Clear and consistent federal and state policies that incentivize ZEV purchases by reducing the financial burden of their higher upfront costs compared to conventional vehicles;
- Substantial upgrades to the nation’s grid transmission and distribution networks;
- Standardized charging protocols and connectors; and
- Reasonable regulatory timelines that enable fleets to work with utility providers to acquire the electricity necessary to power their operations and prove that battery-electric truck technology works for their duty cycle and application.

*Question 5.* The amount of power on the grid to support electrification will be tremendous. The American Transportation Research Institute’s 2022 study demonstrated that electrification of the entire United States vehicle fleet would consume as much as 40 percent of the country’s existing electricity generation and require a 14 percent overall increase in energy generation, yet our aging grid can barely keep up with current demands.<sup>7</sup> Electrification advocates point to trucking fleets to charge at night at slower energy demand to reduce the stress on the grid and provide lower charging financial rates. Would charging at night cover all of the operational needs for PITT OHIO?

*ANSWER.* Nighttime charging presents a potential solution for reducing stress on the grid and taking advantage of lower electricity rates. Still, it is not a panacea

<sup>6</sup>Forecasting a Realistic Electricity Infrastructure Buildout for Medium- & Heavy-Duty Battery Electric Vehicles, CLEAN FREIGHT COALITION, (Mar.19, 2024), available at [https://www.cleanfreightcoalition.org/sites/default/files/2024-03/RB%20Study%20Report\\_final%5B111225%5D.pdf](https://www.cleanfreightcoalition.org/sites/default/files/2024-03/RB%20Study%20Report_final%5B111225%5D.pdf).

<sup>7</sup>Charging Infrastructure Challenges for the U.S. Electric Vehicle Fleet, AMERICAN TRANSPORTATION RESEARCH INSTITUTE, (Dec. 2022), available at <https://truckingresearch.org/wp-content/uploads/2022/12/ATRI-Charging-Infrastructure-Challenges-for-the-U.S.-Electric-Vehicle-Fleet-12-2022.pdf>.

for PITT OHIO's operational needs. This would work to support our box truck fleet. Those trucks sit idle overnight and could leverage nighttime charging. These box trucks represent about 40% of our fleet but—it is important to note—amount to only 18% of our total fleet miles driven. While nighttime charging offers favorable rates that fleets could integrate into some duty cycles, not all operations easily fit this model. Many drivers prefer nighttime driving due to less congested and safer roads, making it impractical to switch entirely to nighttime charging without affecting service delivery and customer expectations, as well as driver morale and retention. It is also important to note that relying on nighttime charging for interstate trucking will impact the driving experience and increase congestion for passenger vehicles, transit buses, and the many other daytime road users who will encounter additional daytime truck traffic.

Moreover, significant investments in infrastructure are required, particularly for behind-the-fence charging at depots that would be the norm for night charging, which poses a challenge for smaller trucking companies that lack the necessary resources. Notwithstanding the national shortage of safe truck parking—we currently have one truck parking spot for every eleven trucks on the road<sup>8</sup>—these are substantial hurdles even for a large, family-owned organization like PITT OHIO. Our nighttime line haul deliveries average 520 miles, with some drivers covering over 600 miles. These deliveries are not feasible if drivers need to stop for lengthy recharges. The Roland Berger study highlights the necessity for corridor charging investments, underscoring that the shift to electrification will impact current business operations significantly. Although nighttime charging could alleviate some stress on the grid and reduce costs, this solution creates its own challenges and cannot meet the complete operational needs of PITT OHIO and other trucking companies similarly involved in nighttime line haul operations.

#### QUESTIONS FROM HON. SALUD O. CARBAJAL TO NICK NIGRO, FOUNDER, ATLAS PUBLIC POLICY

##### *Infrastructure as a Challenge to Fleet Electrification:*

*Question 1.* The White House announced last week a national goal of transitioning to a zero-emissions freight sector. Powering America's Commercial Transportation identifies the lack of MHD ZEV infrastructure as one of the most significant barriers to deployment of zero-emission MHD vehicles.

How can the Federal government accelerate the deployment of MHD ZEV infrastructure?

*ANSWER.* The U.S. federal government can play a crucial role in accelerating the deployment of charging and refueling infrastructure for zero-emission commercial vehicles through the following key actions:

1. *Delivering on the National Freight Corridor Strategy:* The National Freight Corridor Strategy, developed by the Joint Office of Energy and Transportation in collaboration with the U.S. Department of Energy, Department of Transportation, and the Environmental Protection Agency, provides a comprehensive framework for prioritizing investments and infrastructure deployment along the National Highway Freight Network. The strategy aims to catalyze public and private investment, accelerate industry activity, and signal electricity and hydrogen markets to plan and deploy necessary generation, transmission, and distribution projects. The federal government can support the execution of this strategy by:
  - Aligning federal investments and funding decisions with the prioritized areas identified in each phase of the strategy.
  - Providing technical assistance to states, local governments, and other stakeholders to incorporate the strategy into their planning and deployment efforts.
  - Facilitating cross-sector collaboration among commercial fleets, industry, fuel providers, grid operators, regulators, and communities to ensure a coordinated approach to infrastructure deployment.
2. *Creating incentive funding programs:* The federal government can establish targeted incentive funding programs to assist fleets, utilities, and charging and fuel providers in building and operating charging and refueling stations for zero-emission commercial vehicles. These actions may include:

<sup>8</sup>U.S. Department of Transportation's Federal Highway Administration. "Jason's Law Commercial Motor Vehicle Parking Survey and Comparative Assessment." December 2020.

- Create dedicated funding programs for commercial vehicle infrastructure, similar to the existing National Electric Vehicle Infrastructure program and Charging and Fueling Infrastructure discretionary grant program, to offset the high upfront costs of infrastructure installation and upgrades.
  - Support the greater use of the existing Section 30C tax incentive for businesses and organizations investing in zero-emission vehicle infrastructure.
  - Provide discretionary funds for public-private partnerships that leverage the expertise and resources of both sectors in deploying infrastructure.
  - Provide targeted incentives for small businesses and disadvantaged communities to ensure equitable access to clean transportation solutions.
  - Support for workforce development programs to train the necessary technicians and professionals for installing, operating, and maintaining the infrastructure.
3. *Supporting foundational research at national laboratories:* The federal government should continue to support the critical research being conducted at the National Renewable Energy Laboratory, Argonne National Laboratory, and other national laboratories. This research is essential for advancing zero-emission vehicle technologies, improving infrastructure efficiency and reliability, and developing innovative solutions to overcome deployment barriers. Key areas of focus may include:
- Research on high-power charging and rapid hydrogen refueling technologies for commercial vehicles.
  - Development of advanced energy management systems and smart charging solutions to optimize grid integration and support grid resilience.
  - Analysis of infrastructure deployment scenarios and their impact on energy systems, costs, and environmental outcomes.
  - Collaboration with industry partners to transfer research findings into real-world applications and accelerate technology commercialization.

*Federal Need for M/HD Electrification Funds:*

*Question 2.* Powering America's Commercial Transportation, a trade association focused solely on the buildout of zero-emission MHD infrastructure, notes in their letter to the Committee that due to unique aspects of medium- and heavy-duty electrification, new programs and funding streams should be created to support the infrastructure buildout for these vehicles. The White House, in its recent announcement of a national goal of transitioning to a zero-emissions freight sector, announced \$1.5 billion to transition MHD vehicles to zero-emissions.

Do you agree that dedicated funding streams are necessary to make the Administration's goals a reality?

*ANSWER.* Yes, dedicated federal funding streams to support infrastructure for zero-emission freight vehicles are necessary for three compelling reasons:

1. Freight vehicles, such as medium- and heavy-duty trucks, have significantly different operating characteristics and larger sizes compared to light-duty passenger vehicles. These differences necessitate the development of distinct charging and refueling stations that can accommodate the higher power requirements, longer charging times, and larger parking spaces needed for commercial vehicles. Without dedicated funding streams specifically allocated for zero-emission freight infrastructure projects, there is a risk that insufficient funding will be directed towards supporting charging station for commercial vehicles, which could depress zero emission vehicle adoption.
2. Freight charging and refueling stations face economic and operating challenges that are distinct from those encountered by light-duty passenger vehicles. For example, the higher upfront costs of installing high-power charging or hydrogen refueling equipment, coupled with the need for larger land areas and more complex permitting processes, can create significant financial barriers for freight infrastructure projects. Moreover, the operating models for freight charging and refueling stations may differ from those of passenger vehicle stations, as they need to accommodate the specific requirements of commercial fleets, such as the need for reliable and convenient access to charging or refueling along key freight corridors and at logistics hubs. Dedicated federal funding streams can help address these unique challenges and ensure the development of a robust and sustainable infrastructure network for zero-emission freight vehicles.
3. Freight trucks are the backbone of the U.S. economy, responsible for transporting goods and materials across the country and supporting critical supply chains. Creating a robust network of charging and refueling stations for zero-emission freight vehicles is not only essential for reducing emissions and im-

proving public health but also a matter of national security and competitiveness. By investing in the necessary infrastructure to support the widespread adoption of zero-emission freight vehicles, the federal government can help ensure the resilience and reliability of the nation's transportation system, reduce dependence on sources of energy from nations who do not share our values, and foster the growth of domestic clean transportation industries. Moreover, a well-developed charging and refueling network for zero-emission freight vehicles can enhance the competitiveness of U.S. businesses by reducing transportation costs, improving logistics efficiency, and positioning the country as a leader in sustainable freight transportation.

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