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Office of the People's Counsel
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Via Email
U.S. Department of Energy
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Re: *DE-FOA-0002528* *Request for Information on Integrating Electric Vehicles onto the Electric Grid*

To Whom It May Concern:

The Office of the People's Counsel for the District of Columbia ("OPC" or "Office"), the statutory representative of District of Columbia ratepayers and consumers with respect to utility matters,[1] respectfully submits the following comments pursuant to the U.S. Department of Energy's ("DOE") Request for Information ("RFI") number DE-FOA-0002528 regarding Integrating Electric Vehicles onto the Electric Grid. The comments provide: (1) a brief introduction of OPC and District of Columbia ("DC" or "District") consumers' interests in electric vehicle ("EV") grid integration; (2) general comments regarding DOE's planned EV grid integration study; and (3) comments on RFI Topic Category 3: The impacts to the electric grid of increased penetration of electric vehicles. OPC commends DOE for seeking broad input on its planned EV grid integration report and emphasizes that federal research, funding, policies and programs should work to ensure that EV grid integration is equitable, just, affordable, reliable for consumers, and implemented in a manner that most cost-effectively meets federal and local greenhouse gas reduction goals.

I. INTRODUCTION

While the District is doing its part to address the climate change crisis, District consumers need bold federal leadership to effectively spur an equitable, just and affordable transformation of the transportation sector. Coupled with a "greening" of the electricity supply, electrification of the transportation sector will reduce air pollution and greenhouse gas ("GHG") emissions. The District has set ambitious GHG reduction goals that complement the newly-announced federal targets.[2]

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[1] D.C. Code § 34-804 (Lexis 2021).

[2] Exec. Order No. 14008, 86 Fed. Reg. 7619 (Feb. 1, 2021) (setting a policy to "put the United States on a path to achieve net-zero emissions, economy-wide, by no later than 2050"); Clean Energy DC (Aug. 2018) at xi *available at* https://doee.dc.gov/cleanenergydc; The United States of America Nationally Determined Contribution *available at* https://www4.unfccc.int/sites/ndcstaging/Pages/LatestSubmissions.aspx (setting a U.S. contribution "[t]o achieve an

Specifically, the District has pledged to reduce GHG emissions by 50% below 2006 levels by 2032 and become carbon neutral by 2050.[3] To do so, the transportation sector must be transformed. Transportation is a significant portion of the District's GHG emissions, comprising 24% of DC's GHG emissions in 2019.[4] District residents also have a strong interest in electrification of the transportation sector to help address local air pollution. While air quality in the District has improved over the last several decades, many residents who face disproportionate exposure risks because of where they live or work still face risks to their health from air pollution. For example, the American Lung Association's 2020 State of the Air report gave DC a failing grade for the period from 2017-2019 because of the number of days that the air was unhealthy for vulnerable populations due to high levels of ozone.[5] Due to societal inequities, low-income residents and communities of color in the District disproportionately suffer from the effects of air pollution.[6]

Electrification of the District's transportation sector is at its nascent stage; as of 2019, the District's EV penetration was 0.23%.[7] To promote transportation electrification, the District provides a number of incentives for EV purchase and use including tax credits, tax incentives, and exemptions from certain driving restrictions.[8] To further support EV adoption, the District's Public Service Commission ("DC PSC") approved the District's electric distribution utility, Pepco Holdings, Inc., to deploy infrastructure to support 55 public EV charging stations and additional

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economy-wide target of reducing its net greenhouse gas emissions by 50-52 percent below 2005 levels in 2030" under Article 4 of the Paris Climate Agreement); District of Columbia Mayor's Order 2017-142, Commitment to Adopt, Honor, and Uphold the Paris Agreement § II.A (committing to the "Paris Agreement to reduce greenhouse gas emissions between 26 and 28 percent by 2025 from 2005 levels, and further commit[ting] to reduce carbon emissions 50 percent by 2032 and 80 percent by 2050 below 2006 levels), issued June 5, 2017 (Mayor's Order 2017-142); Executive Office of the Mayor, *Mayor Bowser Commits to Make Washington, DC Carbon-Neutral and Climate Resilient by 2050*, (announcing the Mayor's pledge to make Washington, DC carbon-neutral and climate resilient by 2050), released December 4, 2017, https://mayor.dc.gov/release/mayor-bowser-commits-make-washington-dc-carbon-neutral-and-climateresilient-2050 (last visited July 20, 2021).

[3] Mayor's Order 2017-142, Commitment to Adopt, Honor, and Uphold the Paris Agreement § II.A (committing to the "Paris Agreement to reduce greenhouse gas emissions between 26 and 28 percent by 2025 from 2005 levels, and further commit[ting] to reduce carbon emissions 50 percent by 2032 and 80 percent by 2050 below 2006 levels), issued June 5, 2017 (Mayor's Order 2017-142).

[4] Dist. of Columbia Dep't of Energy & Env't, Greenhouse Gas Inventories, https://doee.dc.gov/service/greenhouse-gas-inventories (last visited July 20, 2021).

[5] Am. Lung Assn., Report Card: District of Columbia, https://www.lung.org/research/sota/city-rankings/states/district-of-columbia (last visited July 20, 2021).

[6] *See* Tessum et al., *PM2.5 Polluters Disproportionately and Systematically Affect People of Color in the United States* Scientific Advances (Apr. 28, 2021); Am. Lung Ass'n, Disparities in the Impact of Air Pollution, https://www.lung.org/clean-air/outdoors/who-is-at-risk/disparities (last visited July 23, 2021).

[7] *Formal Case No. 1130*, In the Matter of the Investigation into Modernizing the Energy Delivery System for Increased Sustainability ("Formal Case No. 1130"), Order No. 19898 ¶ 2, rel. Apr. 12, 2019 (District Public Service Commission).

[8] *See* U.S. Dep't of Energy, Alternative Fuels Data Center, District of Columbia Laws and Incentives, https://afdc.energy.gov/laws/all?state=DC (last visited July 20, 2021).

infrastructure to support the charging of electric taxis, rideshare vehicles, and buses. At the same time the DC PSC approved the rollout of a Residential Time-of-Use rate for home EV charging.[9]

OPC appreciates that DOE is conducting a broad information-gathering process to develop the report required by the Clean Energy Act of 2020 ("Act").[10] This Act requires the DOE Secretary to submit a report on "the results of a study that examines the research, development, and demonstration opportunities, challenges, and standards needed for integrating electric vehicles onto the electric grid." The report must address specific categories of topics and include the development of "a 10-year roadmap to guide the research, development, and demonstration program to integrate electric vehicles onto the electric grid."[11]

II. GENERAL COMMENTS

A. Need to integrate equity analysis into research planning and to center research questions on the needs of disadvantaged communities.

The Biden Administration has rightly put equity considerations front and center in its clean energy and climate change planning. For too long climate change and clean energy research and policies have first been developed and then equity considerations have been added as an afterthought, if at all. Instead, as stated in Executive Order 14008:

> To secure an equitable economic future, the United States must ensure that environmental and economic justice are key considerations in how we govern. That means investing and building a clean energy economy that creates well-paying union jobs, turning disadvantaged communities — historically marginalized and overburdened — into healthy, thriving communities, and undertaking robust actions to mitigate climate change while preparing for the impacts of climate change across rural, urban, and Tribal areas. Agencies shall make achieving environmental justice part of their missions by developing programs, policies, and activities to address the disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts.[12]

As part of this Order, the Biden Administration's Justice40 initiative sets a goal "that 40 percent of the overall benefits flow to disadvantaged communities."[13] While the guidance on

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9 Formal Case No. 1130, Order No. 19898.

10 *See* The Energy Act of 2020, Pub. L. 116-260 (2020).

11 *Id.*

12 Exec. Order No. 14008, 86 Fed. Reg. 7619 (Feb. 1, 2021).

13 *Id.*

specifically how to comply with this requirement has not yet been finalized, in line with this Order, DOE should structure the research questions in its EV grid integration report so that at least 40% of the research initiatives are directed to the needs of disadvantaged communities. The research roadmap contained in the report should likewise address how this research will, at minimum, direct 40% of pilot programs and research funding to benefit disadvantaged communities. Relevant needs of disadvantaged communities requiring further research include, but are by no means limited to: (1) equitable access to new technologies; (2) specific technological and practical needs of housing types more prevalent in low- or moderate-income households (e.g. multiuse dwellings, single family homes without enclosed garages, the needs of renters and how to equitably incent EV adoption in rental units); (3) prioritizing EV adoption in areas overburdened by local air pollution in which transportation is a significant source of that pollution; and (4) grid integration of public transportation, taxis, and ridesharing.

DOE should also quantitatively evaluate the equities involved in research projects by building equity analysis into research questions and into planned evaluation of project outcomes. Pilot programs should look at the equities in their costs, benefits, and distribution. Equity analysis, if done at all, is too often limited to a qualitative discussion that is neither scored, nor heavily weighted in determining research conclusions. Yet, the question of who benefits, who pays, and whether the distribution of benefits and burdens is equitable is centrally relevant to many EV grid integration decisions, particularly around the development of new technologies, new products, and new programs. For example, for programs that may be ratepayer funded, DOE should evaluate potential rate impact solutions in tandem with the exploration of technological solutions. Questions about program funding sources, and the impact such funding may have on the consumers the program is trying to serve, should shape project development from the onset. This prioritization is needed to ensure that programs deliver improved benefits to consumers at minimal costs.

B. Need for robust consumer protections.

The EV transition will only be successful if consumers are robustly protected when using new applications and programs. Consumers must also be well-educated on their options for EV ownership, use and deployment. Consumers must be able to make informed decisions and enter into safe business transactions. For these reasons, DOE should incorporate the need to develop robust consumer protections into research on any rate options, rate design changes, applications developed for customer use, or any other utility-related programs for electric vehicle owners. For all customer-related EV grid integration applications and programs, DOE should research and recommend best practices for legal protections, contract terms, consumer education materials, data privacy, data access, and data transparency requirements. This investigation should be done in conjunction with the technical development of applications and programs. To the extent disadvantaged or low-income ratepayers may be adversely affected, DOE should investigate implementation of additional consumer protections. These recommendations reflect the broad consensus of utility consumer advocate offices, as voiced in the National Association of State Utility Consumer Advocates' ("NASCUA") 2018 resolution regarding protection for ratepayers as EV adoption rates increase.[14] When examining access to data, DOE should not only explore

[14] NASUCA, Resolution 2018-02, *Urging the Adoption of Policies and Regulations to Protect Ratepayers as Electric Vehicle Adoption Rates Increase* (June 24, 2018) *available at* https://www.nasuca.org/2018-02-protection-

best practices in data privacy but also in the data access needed for consumers and their advocates to ensure that any requirements and costs imposed by utilities for interconnection or use (to the extent customers provide energy back to the grid) can be independently verified, and disputed when necessary.

Moreover, in states with restructured energy markets, including the District, expansion of EVs raises the question of the appropriate role of a regulated distribution utility in developing or owning EV infrastructure. For states that rely on competition in electricity markets to protect consumers by driving down prices and improving offerings, important decisions must be made about the role of utilities versus the development of competitive markets in EV grid infrastructure.[15] For this reason, DOE should consider including in its research plan a study on the role of competition with respect to EV grid integration and the public impacts/benefits of market competition. For instance, DOE could do a case study of EV integration in states with utility-sponsored EV charging equipment versus non-utility sponsored equipment. Such a study could evaluate grid integration, utility bill impacts, rate of integration by income level, what other programs were available to consumers, and other relevant basis of comparison. Quantitative evaluation of the benefits and costs of utility-sponsored EV charging equipment could help state legislatures and public service commissions make better informed decisions related to EV grid integration.

III. COMMENTS ON RFI TOPIC CATEGORY 3: THE IMPACTS TO THE ELECTRIC GRID OF INCREASED PENETRATION OF ELECTRIC VEHICLES

A. ***RFI Topic Category 3, Subtopic 2.a:*** *The changes in electricity demand over a 24-hour cycle due to electric vehicle charging behavior; Anticipated changes or forecasts in electric load over a 24-hour cycle as a result of residential electric vehicle charging. Include approaches (and results) for mitigating those impacts, such as time-of-use rates whole house or EV only (include adoption rates of programs, capability for submetering and billing) and smart charge management.*

To minimize the impacts of anticipated changes in electric load over a 24-hour cycle as a result of residential electric vehicle charging, OPC supports implementation of time-of-use ("TOU") rates when developed and implemented to serve consumers. To be successful, TOU rates must be properly implemented, and the customer needs to be educated on how to attain such benefits. TOU rate programs must also ensure customers can easily identify on/off peaks to

for-ratepayers-as-ev-adoption-rates-increase/.

[15] *See* Alexandra B. Klass, *Public Utilities and Transportation Electrification*, 104 Iowa L. Rev. 545, 549 (2019).

effectively manage their load profile and provide education material that will be distributed to customers that explains the usage of the TOU rate design and how to maximize their benefits.

In terms of load forecasting as a result of electric vehicle charging, such load forecasting should not just include market trends, but also incorporate federal policy priorities. The federal government should lay out an equitable roadmap for the transition to EVs. Then, regional transmission organization ("RTO") and utility load forecasting should incorporate the anticipated results of those policy priorities. For example, the federal government should prioritize electrification of public transit fleets and transportation depots that pollute already-overburdened communities. RTO and utility load forecasting should incorporate the anticipated results of those policy priorities.

B. ***RFI Topic Category 3, Subtopic 4.a:*** *The load increases expected from electrifying the transportation; Magnitude and timeframe for anticipated load increases for the distribution and transmission level from electrification of fleets (local, regional, and long haul). Report on challenges, technology gaps, policy barriers, and communication standards and protocols needed.*

Please see previous comment on RFI Category 3, Subtopic 2.a regarding integrating policy priorities into load forecasting. In addition, DOE's research program should evaluate best practices in distribution and transmission planning to integrate both EV load impacts and charger benefits (e.g., peak reduction). Best practices should include the topic of data transparency. Lack of data transparency can be a policy barrier to developing optimal solutions and developing necessary protocols. Data transparency is an important tool to ensure that programs designed to manage load growth related to residential consumers successfully serve those customers.

C. ***RFI Topic Category 3, Subtopic 5.a:*** *The potential for customer incentives and other managed charging stations strategies to shift charging off-peak; Rate design or other program approaches that will encourage "good" charging behavior by consumers so that negative impacts are mitigated and capacity upgrades are minimized.*

Incentive structures to encourage "good" EV charging behavior must be equitable in both distribution of benefits and distribution of costs. Additional research is needed on best practices to evaluate equitable distribution of benefits of EV programs, especially to low- and moderate-income households that rent, live in multi-use dwelling units, or do not own cars and rely on public transit for transportation. Moreover, equitable distribution of costs should be built into any customer incentive program, focusing particularly on the energy burden of affected ratepayers in ratepayer-funded initiatives. Best practices for equitable funding structures may vary widely by state, particularly in states where state income tax structures are progressive and energy burdens are regressive as compared to states with regressive tax structures. For example, in DC, the income tax structure is progressive with a tax rate on income ranging between 4% and 8.95%.[16] Whereas

[16] Dist. of Columbia Office of Tax and Revenue, DC Individual and Fiduciary Income Tax Rates, https://otr.cfo.dc.gov/page/dc-individual-and-fiduciary-income-tax-rates (last visited July 20, 2021).

in DC the energy burden is regressive—OPC's energy affordability study found that the average energy burden for low- and moderate-income ("LMI") households in DC is 7.8 percent compared to 1.2 percent for non-LMI households. The average LMI household in DC has an energy burden that exceeds an "affordable" energy burden of 6%.[17] With a progressive income tax structure and a regressive energy burden, EV incentive programs in the District may be most equitably funded through taxes rather than utility rates whereas the equities may be different in a state with different tax and utility rate structures. Due to the progressive structure of federal taxes, federal funding of EV expansion programs in disadvantaged areas may be most equitable of all.

DOE should also direct research toward unlocking the full potential of Advanced Metering Infrastructure ("AMI"). Many communities such as DC invested heavily in AMI meters but have not seen the full potential of these meters. DOE should investigate how communities can better use AMI meters to encourage good EV charging behavior and identify barriers to implementing such methods. Such research should not just focus on technological solutions but also best practices in consumer education needed to alter EV charging behavior.

IV. CONCLUSION

OPC appreciates the opportunity to comment on electric vehicle integration into the electric grid, and respectfully requests that DOE adopt OPC's recommendations.

Sincerely,

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[17] Office of the People's Counsel (OPC) of the District of Columbia Population Characterization Report at 30 (2020) *available at* https://opc-dc.gov/news-events/news/alerts/opc-releases-findings-of-energy-affordability-study.