BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke Energy Ohio, Inc., for Authority to Adjust its Power Forward Rider	)))	Case No. 19-1750-EL-UNC
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Change Accounting Methods	)))	Case No. 19-1751-GE-AAM

COMMENTS OF THE OHIO ENVIRONMENTAL COUNCIL & SIERRA CLUB

I. Introduction

Pursuant to the procedural schedule established by the Public Utilities Commission of Ohio (the "Commission" or "PUCO") for 19-1750-EL-UNC and 19-1751-GE-AAM, the Ohio Environmental Council (OEC) and Sierra Club (collectively, "Environmental Advocates") submit these joint comments regarding the Application of Duke Energy Ohio, Inc. for Authority to adjust its Power Forward Rider. Both Environmental Advocates were heavily involved in the Power Forward process as well as consolidated Case Nos. 17-0032-EL-AIR, et al. from which this case stems. Environmental Advocates' comments concern data access and the Company's Electric Transportation Pilot, two issues on which the Environmental Advocates have deep experience. In particular, Environmental Advocates have actively engaged on the legal and policy issues at the intersection of electric transportation and utility regulation in several docketed proceedings before this Commission, including individual utility programs and the Commission's EV charging station jurisdictional inquiry, as well as throughout the Commission's Power Forward process. The Environmental Advocates reserve the right to address any additional items not covered in our comments here as litigation proceeds in this case.

II. Customer Connect

Duke Energy Ohio, Inc. ("Duke" or "the Company") proposes to replace the Duke's old customer information system (CIS) with a new and updated version referred to as Customer Connect. Duke Witness Retha Hunsicker details the challenges of the current system and need for a new one in her testimony. The Environmental Advocates appreciate the need for a new CIS through the Customer Connect program. One important aspect discussed throughout the Power Forward process, and in the subsequent reports stemming from those cases, was the need for a uniform methodology across the electric distribution utilities for third parties to obtain customer energy usage data (CEUD).[1] While the majority of Duke's proposal relates to its plan to develop new interfaces for customers to obtain their own energy usage,[2] investments in this component can either assist or frustrate the goal to develop uniform methods for third parties to obtain CEUD to offer new, innovative products for the benefit of Duke's customers. To ensure ease of access, any investment in Customer Connect must support, not hinder, access to CEUD for competitive retail energy suppliers (CRES) providers and customer authorized third parties.

Additionally, and importantly, the Commission should ensure that the mechanism implemented to provide access to this type of data is uniform across the Ohio utilities to ensure CRES providers and other third parties have a standardized method to access authorized CEUD data. The many divergent methods used amongst utilities to provide CRES providers and other third parties access to CEUD makes it difficult to provide important services to customers throughout the state. Using a standardized method such as Green Button Connect My Data and

[1] PowerForward: A Roadmap to Ohio's Electricity Future at 32.
[2] Direct Testimony of Retha Hunsicker at 7-10.

other well- documented best practices would "bring uniformity and minimize complexity for all stakeholders," as recommended in the Data and Modern Grid Workgroup Final Report.[3]

III. The Electric Transportation Pilot

Duke proposes a three-year, $15.8M pilot program to support electric vehicles ("EVs") and EV charging that the Company refers to as the "Electric Transportation Pilot" ("ET Pilot" or the "Pilot"). The forward-looking ET Pilot is presented in the testimony of Duke witness Lang W. Reynolds and consists of five program components: EV Fast Charging; Electric School Bus Rebates; Electric Transit Bus Charging; Residential EV Charging; and Commercial EV Charging.[4]

For several reasons, the Environmental Advocates support the ET Pilot. First, the Pilot's modest portfolio of proposed programs would support electrification of three market-ready electric vehicle ("EV") technologies: electric cars, electric school buses, and electric transit buses. Second, the ET Pilot would address key barriers to electrification. For electric cars, Duke proposes to deploy charging stations where they are needed most—at homes, whether single or multi-family, at workplaces, and along highway corridors. In its Power Forward report, the Commission recognized the need for EV charging stations in these market segments and the importance of the utility role.[5] For electric school and transit buses, Duke would help overcome the barriers of upfront infrastructure and vehicle cost, which remain obstacles despite lower total costs of ownership. Finally, the Pilot's emphasis on the integration of new EV load for grid and customer

[3] Data and Modern Grid Workgroup, Final Report by EnerNex to PUCO at 16-19 (Dec. 13, 2019).

[4] *See* Direct Testimony of Lang W. Reynolds.

[5] *Power Forward: A Roadmap to Ohio's Electricity Future* at 20 ("[T]he Commission believes that grid modernization plans developed by the EDUs must address how the existing distribution grid will adapt to meet the anticipated energy and power needs of EVs, so that the societal benefits associated with EV charging can be maximized. First, EDUs will need to assess how they will meet the demand associated with the growth of residential charging stations. Second, the EDUs must address the need for both urban and corridor travel charging stations.").

benefit would help Ohio realize the many benefits of transportation electrification sooner rather than later. The Environmental Advocates applaud the Company for designing a program that will hasten electrification of the transportation sector and lead to benefits across the state, and we urge the Commission to approve the ET Pilot, subject to the minor modifications described in detail below and summarized here:

- For the Residential EV Charging Program, the Company should require that recipients of rebates take service on an applicable time-of-use rate for purposes of charging the vehicle, and metering for electricity usage on that rate should be tested using the metering capabilities embedded in the smart charging stations to be deployed under that program;
- For the Commercial EV Charging Program, the Company should set a minimum participation level of 400 ports for the multi-unit dwelling segment, and should require all site hosts to report information related to electricity pricing as a precondition for participation in the program, in addition to informing site hosts about its available tariffs and rates, including time-of-use rates, to better inform site hosts about their options to effectively manage charging load and to provide the opportunity to maximize fuel cost savings.
- For the Direct Current Fast Charging Station Program, the Company should work to ensure that EV drivers are able to realize fuel cost savings relative to gasoline at DCFC deployed pursuant to the ET Pilot.
- For the EV Transit Bus and EV School Bus Charging Programs, the Commission should require the Company to develop and file a new electricity rate that is tailored to the transportation electrification use case of high-power charging for medium- and heavy-duty vehicles.

- Consistent with the Company's commitment to universal service, the Transit, School and Commercial EV Charge program components should be modified to include equity targets in order to ensure the program improves access to clean transportation options for all customers. The Transit and School Bus programs should each reserve funding to support electrification of at least two buses for one of the counties within its service territory designated by the Ohio EPA as "first priority" for Volkswagen Settlement funds as a result of historical air quality concerns and concentrated transportation-related pollution.[6] For the Commercial EV Charging Program, the Company should commit to deploy at least 10% of the 1,200 level 2 ports in low-income geographic areas, consistent with the equity provisions built into AEP Ohio's EV infrastructure program.[7]

a. Transportation electrification will benefit the Company's customers and Ohioans.

Done right, widespread transportation electrification will benefit all utility customers and Ohioans generally. MJ Bradley and Associates estimate that a mass market for EVs could provide cumulative benefits of $43.3 billion to Ohio by 2050. Of those total net benefits:

- $7.6 billion would accrue to electric utility customers in the form of reduced electric bills; and
- $35.7 billion would accrue directly to Ohio drivers in the form of reduced annual vehicle operating costs.

The potential $7.6 billion in reduced electric bills resulting from improved utilization of the grid estimated by MJ Bradley study is directionally consistent with numerous analyses

[6] Ohio Environmental Protection Agency, Ohio Beneficiary Mitigation Plan at 9, 19.

[7] *See* Stipulation and Agreement, Case No. AEP 16-1852. For purposes of the set-aside in the Stipulation, the low-income geographic area is defined as a site geographically located within a census tract that meets the requirements for a low-income geographic area. The low-income geographic area was subject to review and re-evaluation during the program's midstream evaluation.

conducted by other industry experts, including The National Research Council of the National Academies,[8] Pacific Northwest National Laboratory,[9] and Energy and Environmental Economics (E3).[10] These analyses are borne out by real world data. Research into the revenues and costs associated with EVs from 2012 through 2018 in the two utility territories with the most EVs in the country reveals that revenues from EV charging exceed associated costs by hundreds of millions of dollars, resulting in significant utility customer benefits.[11]

While potential $7.6 billion in grid benefits is squarely within the Commission's traditional regulatory purview, the larger $35.7 billion in reduced fuel and maintenance costs will accrue to people who are also utility customers. The electric industry and its regulators have a long history of advancing energy efficiency programs and bill-assistance programs to help utility customers who spend a disproportionate share of their income on electric bills, but the average American household spends twice as much on gasoline annually as it does on electricity. Electrifying the transportation sector provides utility regulators an opportunity to offer households more comprehensive relief, cutting their transportation fuel bill at least in half (and potentially more, if customers charge during off-peak hours on properly designed time-variant rates).

As explained below, Duke's ET Pilot is well designed to accelerate transportation electrification to realize the health, energy security, electricity grid, economic and environmental benefits identified in the MJ Bradley study sooner rather than later. In other words, the Company has proposed investments today that could pull forward these future benefits.

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[8] National Research Council of the National Academy of Sciences, *Overcoming Barriers to the Deployment of Plug-in Electric Vehicles* at 105, the National Academies Press, 2015.

[9] Kinter-Meyer, Schneider, Pratt, *Impacts Assessment of Plug-in Hybrid Vehicles on Electric Utilities and Regional U.S. Power Grids* (November 2007).

[10] Energy and Environmental Economics (E3), *California Transportation Electrification Assessment Phase 2: Grid Impacts (*October 2014).

[11] Synapse Energy Economics, Inc., Electric Vehicles Are Driving Electric Rates Down (June 2019 Update), available at https://www.synapse-energy.com/sites/default/files/EV-Impacts-June-2019-18-122.pdf

b. The Electric Transportation Pilot should be approved with minor modifications.

Duke's three-year, $15.8M ET Pilot consists of five program elements: the Residential EV Charging Rebate Program, the Commercial EV Charging Program, the EV Fast Charge Program, the EV Transit Bus Charging Program, and the EV School Bus Charging Program. Below, we review and offer recommendations for improvement to each. We also address the Company's plan for data collection and reporting.

i. Residential EV Charging Rebate Program

Duke's Residential EV Charging Rebate Program would fund rebate and participation payments for the deployment of up to 1,000 smart charging stations at customer residences.[12] The purpose of this program component is to test the customer response to, and value of, managed EV charging.[13]

The residential charging component targets a core infrastructure need for EV drivers. In order to enable EV adoption, it is critical for would-be drivers to have access to infrastructure in "long-dwell time" locations where cars are most frequently located and available for charging. The typical car is parked at home 50 percent of the time.[14] Unsurprisingly, the National Research Council of the National Academies of Sciences characterizes home charging as a "virtual necessity" for all EV drivers; residences without access to electric vehicle charging "clearly [have] challenges to overcome to make PEV ownership practical."[15] Drivers are very unlikely to purchase

[12] Lang Testimony at 19.
[13] *Id.* at 20.
[14] *See* Adam Langton and Noel Crisostomo, *Vehicle-Grid Integration*, California Public Utilities Department at 5 (October 2013); *see also* Marcus Alexander, *Transportation Statistics Analysis for Electric Transportation*, Electric Power Research Institute (December 2011).
[15] National Research Council of the National Academies of Sciences, *Overcoming Barriers to the Deployment of Plug-in Electric Vehicles*, the National Academies Press at 9 (2015).

an EV if they cannot charge at home.[16] The rebates Duke proposes to offer would address this need.

The home is also the location where the vast majority of charging occurs.[17] In other words, the flexible, manageable load that EVs represent is most frequently available to provide grid services at the home. If home charging is managed to occur during off-peak periods, EV load can "fill valleys" in load without increasing overall capacity requirements. Similarly, EV load can be shifted to facilitate the integration of variable generation from renewable sources.[18] By increasing usage of standing assets, smoothing and shifting loads, and improving reliability, EV charging can lower the marginal cost of electricity for all customers. The ET Pilot would test one method for vehicle-grid integration: direct load control by leveraging the "smarts" in EVs and EV charging stations.[19]

The Environmental Advocates support development of managed charging for vehicle-grid integration. At the same time, we recommend that the ET Pilot also require that rebate recipients take service on an applicable time-of-use rate. Time-of-use rates are a very effective[20] form of foundational load management. With the smart charging stations that would be deployed under the Residential component, Duke has an opportunity to test the metrology embedded in those charging

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[16] *See* Adam Langton and Noel Crisotomo, *Vehicle-Grid Integration*, California Public Utilities Commission at 5 (October 2013).

[17] U.S. Department of Energy Office of Energy Efficiency and Renewable Energy, *National Plug-In Electric Vehicle Infrastructure Analysis* (September 2017) (identifying a range of home charging percentages for its scenario analysis and finding 82% to 88% as consistent with early market findings by The EV Project as reported by Idaho National Laboratory).

[18] *Id.*

[19] Lang Testimony at 19-20.

[20] See, for example, The Department of Energy's EV Project, which has tracked the charging behavior of thousands of EVs since 2011, has shown that in areas with time-of-use ("TOU") rates and effective utility education and outreach, the majority of EV charging occurs during off-peak hours. This was not the case in areas without TOU rates, where EV demand generally peaked in the early evening, exacerbating early-evening system-wide peak demand. *See* Schey, et al., *A First Look at the Impact of Electric Vehicle Charging on the Electric Grid, The EV Project at EVS26* (May 2012).

stations and avoid requiring a participating customer to put all of their electricity use on a time-of-use rate, or to install a second meter, which can be cost prohibitive. The Environmental Advocates recommend that Duke incorporate this additional element for its ET Pilot in order to more fully evaluate the options for vehicle-grid integration, particularly as the Company does not intend to test the managed charging capability of these charging stations until years two and three of the program.[21]

ii. **Commercial EV Charging Program**

Duke's Commercial EV Charging Program would support deployment of Level 2 charging stations at multi-unit dwellings ("MUDs"), workplaces, and long-dwell time public locations to serve personal and fleet vehicles.[22] As with the residential program, access to charging at each of these locations is critical to enable EV adoption and comprehensively meet the needs of EV drivers. In particular, it is critical for would-be EV drivers to have access to infrastructure in places where cars are naturally parked for long periods of time (*e.g.*, the home and workplace).

The Environmental Advocates recommend two modifications to improve this program component. First, the Company should require participating site hosts to report information related to electricity pricing as a precondition for participation in the program. The Company should also commit to informing site hosts about its available tariffs and rates, including time-of-use rates, better providing site hosts with information about their options to effectively manage charging load and the opportunity to maximize fuel cost savings. We recommend that the Company adopt the language incorporated in AEP Ohio's program approved by the Commission in 2018.[23] Second,

[21] Lang Testimony at 20.
[22] *Id.* at 21.
[23] Through a stipulation and agreement, "require[d] reporting of prices charged to EV drivers at all charging stations in a manner and form as established by AEP Ohio, including, but not limited to, reporting of intended prices as a precondition on receipt of rebates. Aspart of the rebate process, AEP Ohio will inform site hosts about its available

the Company should set a minimum deployment goal of 400 ports for the multi-unit dwelling market segment.

As explained above, drivers are unlikely to purchase plug-in vehicles if they cannot plug-in at home, where cars are typically parked for at least half the day.[24] However, less than half of U.S. vehicles have reliable access to dedicated off-street parking at an owned residence where charging infrastructure could be installed.[25] To-date, almost 90 percent of EV drivers live in single-family detached homes.[26] As the National Academy of Sciences notes: "Lack of access to charging infrastructure at home will constitute a significant barrier to EV deployment for households without a dedicated parking spot or for whom the parking location is far from access to electricity."[27] Even if an EV driver can persuade an apartment owner or manager to engage in considerable learning and agree to install a charging station, considerable challenges remain: parking lots are often common or shared spaces, complicating authorization to install charging stations and billing arrangements; the costs of installing infrastructure at a distance from the building is more expensive; and, in the case of renters, investments in charging infrastructure may not be recoverable within their expected tenancy. To ensure that the Commercial EV Charging Program works effectively to address these barriers, the Company should set a minimum participation level for the MUD segment of 400 ports for this program element.

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tariffs and rates, including time-of-use rates, to better inform site hosts about their options to effectively manage charging load and to provide the opportunity to maximize fuel cost savings."

[24] *See* Adam Langton and Noel Crisostomo, *Vehicle-Grid Integration*, California Public Utilities Department at 5 (October 2013); *see also* Marcus Alexander, *Transportation Statistics Analysis for Electric Transportation*, Electric Power Research Institute (December 2011).

[25] Traut *et al.*, *US Residential Charging Potential for EVs (Transportation Research Part D)* (November 2013).

[26] Center for Sustainable Energy, *California Plug-in EV Owner Survey Dashboard, available at* https://cleanvehiclerebate.org/eng/survey-dashboard/ev

[27] National Research Council of the National Academy of Sciences, *Overcoming Barriers to the Deployment of Plug-in Electric Vehicles* at 105, the National Academies Press, 2015.

iii. **EV Fast Charge Program**

For its EV Fast Charge Program, Duke proposes to support the deployment of up to 100 Direct Current Fast Charging ("DCFC") throughout its territory through "make-ready" infrastructure investments at 25 locations.[28] Like home and workplace charging, access to DCFC stations for distance travel strongly influences EV adoption decisions and is an important part of a comprehensive charging network. Without access to DC fast charging, vehicle range can be a limiting factor, and inter-city or distance travel is often impossible or impractical for all-electric vehicle drivers.[29] In addition to inhibiting distance travel and exacerbating anxieties about vehicle range, consumer research indicates that a "lack of robust DC fast charging infrastructure is seriously inhibiting the value, utility, and sales potential" of typical pure-battery electric vehicles.[30]

As with many network industries, the development of DC fast charging networks suffers from a "chicken-or-the-egg" market coordination problem. Prospective EV owners are reluctant to purchase an electric car in the face of limited access to charging infrastructure, while prospective hosts and backers of EV charging infrastructure cannot see a business case for EV charging station investment where too few EVs are in use. The market coordination problem is acute for DC fast charging stations, which have "high upfront costs" and "require significant revenues for the owner-operator to achieve profitability."[31] However, quantitative research on this "chicken-or-the-egg" problem in the EV context not only indicates that the increased supply of more EVs would drive the deployment of more public charging and vice-versa, but that a financial subsidy given to infrastructure investment will increase EV sales by more than twice the amount of the increase if

[28] Lang Testimony at 12-16.

[29] Nick Nigro *et al., Strategic Planning to Implement Publicly Available EV Charging Stations: A Guide for Businesses and Policymakers* (2015) at 11.

[30] PlugShare, New Survey Data: BEV Drivers and the Desire for DC Fast Charging (March 2014).

[31] Nick Nigro *et al., Strategic Planning to Implement Publicly Available EV Charging Stations: A Guide for Businesses and Policymakers* (2015) at 11.

the financial incentive is provided for EV purchase.[32] Duke's proposed DCFC Station Program would help overcome the market coordination issues, and drive vehicle adoption.[33]

Duke does not specify any program terms related to the prices that drivers can expect to pay when they pull up to ET Pilot-supported DCFC stations. As the Illinois Citizens Utility Board has observed, this raises a concern that "when a driver with a low battery pulls up to a remote public charge station, she may be facing a situational monopoly, with no choice but to pay whatever fees are assessed" and underscores the need for "utility support for independent charge station operators [to] be conditioned on their acceptance of regulatory guidelines."[34] At a minimum, Duke should commit to collect data on pricing at all stations deployed pursuant to the ET Pilot, and agree to work with site hosts to educate them about applicable electricity rates and EV benefits, including the importance of fuel cost savings.

Ideally, the prices paid by drivers at ET Pilot DCFC stations would not exceed the equivalent price of gasoline. Fuel cost savings are a key driver of EV adoption. A survey of nearly 20,000 EV owners reveals that fuel cost savings are the single biggest motivator of EV purchase decisions.[35] If the DCFC stations deployed under the ET Pilot fail to provide the fuel savings that motivate EV purchase decision, then the program's ability to accelerate the EV market and to deliver the resulting benefits upon which the proposed investment of utility-customer funds is partially justified will be compromised. By reporting prices at a granular level

[32] Li S *et al*., *The Market for Electric Vehicles: Indirect Networks Effects and Policy Design*, Journal of the Association of Environmental and Resource Economists 4, no. 1 (March 2017).
[33] *Id.* (finding that "the increased availability of public charging stations has a statistically and economically significant impact on EV adoption decisions.").
[34] Citizens Utility Board, *The ABCs of EVs: A Guide for Policy Makers and Consumer Advocates* at 7 (April 2017).
[35] California Clean Vehicle Rebate Project, EV Consumer Survey Dashboard (available at https://cleanvehiclerebate.org/eng/survey-dashboard/ev, visited Sept 6, 2018).

in its annual reports, the Company can help the Commission and stakeholders assess whether changes need to be made to ensure this customer-funded program is meeting its objectives.

iv. **Electric Transit Bus Program**

For the Transit Bus Charging Program component, Duke proposes to support the adoption of up to 10 transit buses through "make-ready" investments that will support installation of charging infrastructure.[36] This program component is intended to leverage funding available under the Volkswagen Environmental Mitigation Trust ("EMT") and stretch those funds further than would otherwise be possible. The Environmental Advocates strongly support this program element. Among the many demonstrated, market-ready technologies in the medium- and heavy-duty sectors, there is no question that electric buses are ready for prime time. In 2015, the California Air Resources Board concluded that "zero emission transit buses are primed to be one of the first heavy-duty vehicle types to achieve significant zero-emission vehicle sales volumes, leading and supporting technology development in the heavy-duty sector as a whole."[37] Most bus manufacturers offer zero emission buses[38]—including Ohio-located manufacturers—and multiple fleets already operate zero emission buses in regular revenue service.[39]

While there is a cost premium to purchase an electric bus over a conventional diesel bus, the total cost of ownership for an electric transit bus can be lower than a diesel or CNG bus even with that cost premium, due to maintenance and fuel cost savings. Put another way, Duke's proposed Transit Bus Charging Program could help meet the higher up-front capital requirements of an electric bus and charging infrastructure, allowing a transit agency to lock in the lower lifetime

[36] Lang Testimony at 18-19.
[37] California Air Resources Board, *Advanced Clean Transit Regulation: Discussion Document* (May 2015).
[38] California Air Resources Board, *Innovative Clean Transit Regulation: Discussion Document* (December 2017).
[39] *Id.*

costs of electric buses. Lifetime savings can be reinvested into additional purchases of electric buses, creating a positive economic cycle where a transit agency continues electrifying its bus fleet, further driving down operational costs as electric buses replace the entire fleet.

In its Application, Duke states that it "believes there are significant potential operational cost savings" for electric buses used in its service territory.[40] Operational costs typically fall into two categories: maintenance and fuel. Maintenance cost savings are substantially less than conventional vehicles.[41] The fuel cost savings from electricity fuel versus diesel are also substantial in theory, but can they be impacted by utility demand charges that do not accurately reflect the costs associated with transportation electrification use cases,[42] potentially erasing the fuel cost savings upon which the economics of transportation electrification depend.[43] Duke's assessment of transit bus savings appears to rely on a wholesale electricity rate of $0.10/kWh as opposed to an estimation based on its available commercial and industrial rates.[44]

To ensure the ET Pilot is successful, supporting transportation electrification broadly, we recommend that the Commission direct the Company to develop and propose a new rate within 6 months of approval of this program that is tailored to the transit and school bus charging use cases. In making this recommendation, we are not recommending that transportation electrification loads be subsidized, rather, rate design should be optimized to account for the intended use cases.

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[40] Lang Testimony at 18.

[41] *See, e.g.*, U.S. Federal Transit Administration, *King County Metro Battery Electric Bus Demonstration-- Preliminary Project Results* (May 2017) (finding that the monthly per-mile maintenance costs of electric buses averaged $0.18/mi while diesel and hybrid buses averaged $0.32/mi and $0.44/mi, respectively).

[42] Examples of "use cases" might include (1) at-home charging of passenger EVs; (2) public charging at Level 2 or Direct Current Fast Charging stations; (3) charging of medium- and heavy-duty fleets that are publicly or privately owned, among others.

[43] *See, e.g.*, ICF, California Transportation Electrification Assessment – Phase 3-Part A: Commercial and Non-Road Grid Impacts – Final Report," at 47 (Jan. 2016) (finding that "[u]tility rate structures are one of several key decision factors for potential [transportation electrification] consumers, and can represent the difference between a consumer accruing a return on their investment or realizing a net loss.").

[44] Lang Testimony, LWR-5 (specifying the "annual electricity cost ($/kWh" as "0.101").

Because demand charges often do a poor job of reflecting actual distribution system costs, and because energy costs are better reflected in time-varying volumetric rates, reforming demand charges in general is good policy.[45]

As an example, the Commission and Duke should look to recent efforts to optimize rates for transportation electrification use-cases, including the suite of recently approved Southern California Edison (SCE) rates refined in a stipulation between SCE, NRDC, Sierra Club, the Environmental Defense Fund, Siemens, the Coalition of California Utility Employees, and the Office of Ratepayer Advocates (which is housed in the California Public Utilities Commission).[46] Those rates are not subsidized, but they have no demand charge component for the next five years, at which point demand charges will be phased in as utilization increases. Likewise, the Commission should examine rates recently approved for Pacific Gas & Electric that incorporate a time-based energy charge and subscription fee for high power EV charging applications like medium- and heavy-duty vehicles, and does not include demand charges.[47]

v. **The EV School Bus Charging Program**

With the School Bus Charging Program, Duke would facilitate the replacement of old diesel school buses with clean electric models through rebates for the purchase of up to ten buses and associated charging infrastructure.[48] Like electric transit buses, electric school buses are also market-ready and share in the same lifetime operation cost savings as transit buses.

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[45] *See Borenstein, Severin, The Economics of Fixed Cost Recovery by Utilities*, Energy Institute at Haas Working Paper 272R (July 2016).

[46] *See* Decision on the Transportation Electrification Standard Review Projects (D.18-05-040) at 110-17, A.17-01-020 *et al.*, California Public Utilities Commission (issued June 6, 2018).

[47] Application for Approval of Pacific Gas and Electric Company's (U 39 E) Commercial Electric Vehicle Rate, Application No. A.18-11-003, California Public Utilities Commission (filed November 5, 2018).

[48] DEC Application at 10-11.

Moreover, electrifying school buses can help a particularly vulnerable population—children. Regrettably, children are often the most exposed and most vulnerable to diesel emissions from school buses. Over 25 million children ride school buses each day nationwide, more than transit and passenger rail combined. [49] Children are exposed to diesel fumes while riding and getting on and off diesel school buses. Asthma, which diesel pollution exacerbates, is now the most common chronic condition among U.S. children, affecting 1 in 10 in the United States.[50] A University of Michigan and University of Washington public health study found that cleaner school transportation for children provides significant health benefits and could prevent 14 million school absences each year.[51] The School Bus Charging Program would help overcome the upfront cost premium that stands between Ohio's school children and clean transportation to and from their classrooms.

In addition to significant health benefits, school buses are well-suited to facilitate the integration of renewables and support the electric grid due to their predictable duty-cycles. The Environmental Advocates therefore strongly support the vehicle-to-grid ("V2G") aspect of the School Bus Charging Program, and requests an opportunity to provide input as the details of the V2G testing materialize.

To ensure that, like the Transit Bus Charging Program, the School Bus Charging Program is not a one-off pilot and instead supports broader electric school bus adoption in Ohio, the OEC and Sierra Club strongly recommend that the Commission direct the Company to develop a suitable electricity rate for charging electric school buses.

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[49] National School Transportation Association, *The Yellow School Bus Industry* (2013).

[50] Respiratory Health Association, *Asthma in Chicago Disparities: Perspectives and Interventions* (2011) at 1.

[51] SD Adar *et al*., *Adopting Clean Fuels and Technologies on School Buses. Pollution and Health Impacts in Children* (June 2015).

IV. Conclusion

Subject to the foregoing recommendations, the Environmental Advocates are generally supportive of the proposal contained in these cases by Duke, and we look forward to working together to improve the pending application.

Dated: April 15th, 2020

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CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of the foregoing was served upon all parties of record via electronic mail on April 15, 2020.

/s/ Christopher Tavenor
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Summary: Comments regarding the Application of Duke Energy Ohio, Inc. for Authority to adjust its Power Forward Rider electronically filed by Chris Tavenor on behalf of The Ohio Environmental Council and Sierra Club