



February 1<sup>st</sup>, 2023

Via Electronic Filing

Public Utility Commission of Ohio  
180 E. Broad St.  
Columbus, OH 43215

**RE: Case No. 22-1025-AU-COI, In the Matter of the Commission's Investigation into the Implementation of the Federal Infrastructure Investment and Jobs Act's (IIJA) Electric Vehicle Charging (EVC) PURPA Standard**

Electrify America appreciates the opportunity to submit this comment letter as requested by Paragraph No. 11 of the Entry into the Journal issued on November 14<sup>th</sup>, 2022. Electrify America, the largest open Direct Current Fast Charging (DCFC) network in the United States, is investing more than \$2 billion over 10 years in Zero Emission Vehicle infrastructure, education and access. To date, Electrify America has built a coast-to-coast network of public DCFC stations across approximately 800 locations and 3500 individual DC fast chargers in total. Electrify America operates 13 public DCFC stations with 66 DC fast chargers in Ohio, and has 12 additional DCFC stations in some stage of development throughout the state of Ohio.

Paragraph No. 7 of the November 14<sup>th</sup> Entry notes that the IIJA requires that each state commence consideration, or set a hearing date for consideration, of the EVC standard not later than November 15, 2022. The IIJA also requires that the consideration be completed not later than November 15, 2023. (16 U.S.C. 2622(b)(7)). The Commission found that none of the exemptions outlined in Paragraph 8 of the entry have been met in regard to the EVC standard and therefore a hearing and comment period were scheduled.

Electrify America commends the Commission for taking action pursuant to the amendments to PURPA Section 111(d) made by the IIJA. The EVC standard enumerated by the IIJA requires every state utility regulatory body across the country to consider the establishment of measures that promote greater electrification of the transportation sector including new EV-specific alternative rate designs that<sup>1</sup>:

1. Promote affordable and equitable EV charging options for residential, commercial, and public EV charging infrastructure;
2. Improve the customer experience and reduce charging times;
3. Accelerate private investment in charging infrastructure; and
4. Appropriately recover the marginal costs of delivering electricity for vehicle charging.

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<sup>1</sup> 16 United States Code 2621(d)(21); 16 U.S.C. 2622(a),(b)(8)).



Senator John Hickenlooper, one of the sponsors of this provision, explained succinctly, “Our intention is to ensure that alternatives to traditional, demand-based electricity rates are made available to EV charging station owners with appropriate oversight by State public utility commissions.”<sup>2</sup>

Electrify America submitted comments on the importance of a robust Commission investigation into the EVC standard in Case 22-755-AU-COI on September 12th, 2022. Electrify America reiterates those comments, which are attached as Appendix A to this comment letter. As detailed in the September comment letter, DCFC stations in Ohio are subject to a wide range of rate structures and demand charges. Rates with high demand charges present a significant barrier to sustainable economics for DCFC stations, especially those with low load factors such as stations that can accommodate multiple simultaneous high power charging sessions, are new and building traffic, or those in rural areas.

Establishment of measures to promote greater transportation electrification as contemplated in the EVC standard, requires a rigorous review of utility rate designs available to EV charging stations and an investigation into suitable alternatives to demand charges or mitigation measures for low load factor stations to reduce the burden of demand charges. Electrify America urges the Commission to commence a review that includes alternative rate designs as soon as possible in order to meet the completion deadline of November 15<sup>th</sup>, 2023 contained in the IJJA.

We appreciate the opportunity to submit these comments and look forward to engaging in this proceeding to assist the Commission in its investigation into the EVC standard.

Respectfully submitted,

*/s/ Anthony Willingham*

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Enclosure: 9/12/2022 EA Comment Letter

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<sup>2</sup> Congressional Record, August 5, 2021, S.5926-5927.



September 12<sup>th</sup>, 2022

Via Electronic Filing

Public Utility Commission of Ohio  
180 E. Broad St.  
Columbus, OH 43215

Re: Case No. 22-755-AU-COI, In the Matter of the Commission's Investigation into the Implementation of the Federal Infrastructure Investment and Jobs Act

Electrify America, LLC ("Electrify America") appreciates the opportunity to comment on the Public Utilities Commission of Ohio's ("Commission") Investigation into the Implementation of the Federal Infrastructure Investment and Jobs Act ("IIJA Investigation") of 2021, Pub. L. No. 117-58, 135 Stat 429, as it relates to the Commission's jurisdiction.

Electrify America, the largest open Direct Current Fast Charging ("DCFC") network in the U.S., is investing more than \$2 billion over 10 years in Zero Emission Vehicle infrastructure, education and access. The investment will enable millions of Americans to discover the benefits of electric driving and support the build-out of a nationwide network of ultra-fast community and highway chargers that are convenient and reliable. To date, Electrify America has built a coast-to-coast network of DCFC stations across over 780 locations and with over 3,300 individual DC fast chargers in total. Electrify America currently operates 13 DCFC stations with 66 DC fast chargers in Ohio, which are open to the public. In addition, Electrify America has 12 DCFC stations with 72 DC fast chargers under development in Ohio.

Electrify America commends the Commission for opening its IIJA Investigation to ensure compliance with the IIJA. This IIJA Investigation is a valuable first step where the Commission can give full and timely consideration of the establishment of new, electric vehicle ("EV")-specific rates that include alternatives to demand charges. Demand charges pose a significant barrier to economically sustainable DCFC station operations, in many cases hindering their ability to ever reach financial viability. Because these stations are relied upon by drivers who may not be able to charge at home, the ongoing presence of demand charges has significant equity implications for transportation electrification. Completing these reforms by November 2023 will address these barriers and fulfill the Commission's obligations under the IIJA to complete its proceeding by the statutory deadline.



### Legislative Considerations

Paragraph 6 of the Commission's August 10, 2022 Entry opening this proceeding to review the implementation of the IIJA recognizes "that the IIJA amended the federal Public Utility Regulatory Policy Act (PURPA) of 1978 by adding to the list of standards that PURPA requires state regulatory authorities to determine whether to implement ... [relating to] electric vehicle charging programs."<sup>1</sup> This list of standards for EVs provides the Commission with the tools and direction for promoting greater electrification of the transportation sector for the benefit of current and future Ohio residents. Specifically, the Commission along with every utility state utility regulatory body across the country must consider measures including the establishment of new, EV-specific rates such as alternatives to demand charges that:<sup>2</sup>

1. Promote affordable and equitable EV charging options for residential, commercial, and public EV charging infrastructure;
2. Improve the customer experience and reduce charging times;
3. Accelerate private investment in charging infrastructure; and
4. Appropriately recover the marginal costs of delivering electricity for vehicle charging.

Senator John Hickenlooper, one of the sponsors of this provision, explained succinctly, "Our intention is to ensure that alternatives to traditional, demand-based electricity rates are made available to EV charging station owners with appropriate oversight by State public utility commissions."<sup>3</sup>

Successful completion of the IIJA Investigation also provides the Commission with the opportunity to enhance the impact of funds that Ohio will receive through the National Electric Infrastructure Formula Program ("NEVI")<sup>4</sup>. Specifically, by complying with the PURPA amendment's directive to evaluate EV-specific rates, the Commission can help ensure that the investments in charging infrastructure made by the Ohio Department of Transportation through NEVI will be economically sustainable for the long term while advancing social equity goals and attracting private sector investment.

This IIJA investigation is a welcome start to federal legal compliance with the IIJA to resolve the EV-related issues identified above. Electrify America looks forward to the subsequent enactment of specific EV-related rate reforms as the Commission continues its timely proceeding under the law.

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<sup>1</sup> *Relying on* 16 United States Code 2621(d)(20) and (21). The EV list of standards and the associated compliance requirements (16 U.S.C. 2622(a),(b)) are amendments to the Public Utility Regulatory Policies Act ("PURPA") that are found in Section 40431 of "Infrastructure Investment and Jobs Act," also known as the Bipartisan Infrastructure Law. See Pub. L. No. 117-58, available at <https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf>

<sup>2</sup> 16 United States Code 2621(d)(21); 16 U.S.C. 2622(a),(b)(8)).

<sup>3</sup> Congressional Record, August 5, 2021, S.5926-5927

<sup>4</sup> Information about the NEVI program and the downloadable Ohio Nevi Plan can be accessed at <https://drive.ohio.gov/programs/electric/nevi/nevi>





### The Impact of Demand Charges in Current Rate Designs

Demand charges are a critical barrier to the widespread electrification of the transportation sector. These charges, assessed on peak energy consumption during a billing period rather than quantity of electricity used, pose a special economic challenge for high-power, low-utilization uses such as DC fast charging. Research from the Great Plains Institute found that these charges can account for over 90% of electricity costs for DC fast charging, and “lead to operating costs that far exceed the revenue these chargers can receive from customer payments,”<sup>5</sup> a finding echoed in a 2021 U.S. Department of Energy (“DOE”) report.<sup>6</sup> This circumstance manifests in Ohio in certain utility service areas, a phenomenon that can discourage EV charging infrastructure investment in the state and delay the build-out of new stations, particularly in rural areas and disadvantaged communities where near-term utilization may be lower.<sup>7</sup>

Demand charges can also vary widely without adherence to cost causation principles. In Colorado, for example, the state’s utility commission concluded in a report that demand charges result in the annual cost to operate a DCFC station varying by a factor of 35 across different utility service territories in that state alone.<sup>8</sup> Ohio also experiences a wide variety of rate designs and demand exposure by utility and rate class. Table 1 below provides a summary of total demand charges inclusive of base rates and riders that would be applicable to a new DCFC station within each investor-owned utility (IOU) service area. The table also details the presence of any rate features that limit demand charges for low load factor customers.

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<sup>5</sup> McFarlane, D., et al, “Overcoming Barriers to Expanding Fast Charging Infrastructure in the Midcontinent Region,” Great Plains Institute, available at [https://www.betterenergy.org/wp-content/uploads/2019/08/GPI\\_DCFC-Analysis.pdf](https://www.betterenergy.org/wp-content/uploads/2019/08/GPI_DCFC-Analysis.pdf) (July 2019).

<sup>6</sup> U.S. Department of Energy, “An EV Future: Navigating the Transition,” available at [https://8b9a2972-f6bd-463f-ab0e-7b2ba71ee2f1.filesusr.com/ugd/1c0235\\_965967cdf2bf4b94924c05637398fda3.pdf](https://8b9a2972-f6bd-463f-ab0e-7b2ba71ee2f1.filesusr.com/ugd/1c0235_965967cdf2bf4b94924c05637398fda3.pdf) (October 2021).

<sup>7</sup> High demand charges can also become a de-facto energy storage mandate for DCFC station development. Adding storage to DCFC station designs greatly increases capital costs, which in turn reduces the number of stations developed due to the higher cost per station or reallocation of capital budgets to more favorable jurisdictions. It can also result in longer development timeliness due to the need for interconnection studies that may be triggered by the presence of storage. Real estate constraints may limit the size of battery storage systems or preclude their placement altogether. As a result, rate reform to reduce or eliminate demand charges is the best policy option to ensure widespread deployment of EV charging infrastructure.

<sup>8</sup> Colorado PUC Electric Vehicle Working Group Report, Colorado Public Utilities Commission, available at [https://evcharging.enelx.com/images/azura-pages/utilities/2019-01\\_CoPUC\\_Electric\\_Vehicle\\_Report.pdf](https://evcharging.enelx.com/images/azura-pages/utilities/2019-01_CoPUC_Electric_Vehicle_Report.pdf) (January 2019).

Table 1: Summary of Total Demand Charges<sup>9</sup>

Utility	Zone	Rate for New Stations	Total Demand Charges (Base Rate + Riders = Total Demand Charge) (\$/kw-mo)	Rate Features to Mitigate Demand Charges
AES Ohio		Secondary Distribution Service (D19)	$\$3.66 + \$1.92 = \$5.58$	Rate limiters for maximum unit costs of \$0.0384/kWh and \$0.0113/kWh for distribution and transmission, respectively.
American Electric Power	Columbus Southern & Ohio Power <sup>10</sup>	General Service Secondary	$\$7.01 + \$7.39 = \$14.40^{11}$	None
Duke Energy		Secondary Distribution	$5.67 + \$2.88 = \$8.55$	Billed demand has a minimum load factor limit of ~ 10% calculated as monthly kWh ÷ 71
First Energy	The Illuminating Company	General Service	$\$7.48 + \$9.08 = \$16.56$	None
	Ohio Edison	General Service	$\$5.46 + \$7.16 = \$12.62$	None
	Toledo Edison	General Service	$\$8.04 + \$6.80 = \$14.84$	None

As Table 1 demonstrates, a wide variety of demand exposure and demand cost levels exists among Ohio IOUs. Table 1 also indicates that riders comprise a substantial portion of the demand exposure in many utilities. A comprehensive review of rate designs to remove barriers to DCFC station operator business models must include consideration of both base rates *and* riders. Riders and pass-through costs from PJM wholesale markets, such as Transmission capacity charges, need not be levied in the form of demand charges, but can also be recovered on a volumetric basis.

Recently, Electrify America experienced rate developments in the opposite direction of progress. For example, AEP previously offered the GS-TOD bundled rate, which consisted of fully volumetric charges for base rates and riders. This rate is no longer available to new DCFC stations, which now must take service on the General Service Secondary rate. The demand charges on the General Service Secondary rate are the key barrier to DCFC station economics and may inhibit new investment in DCFC station locations within the AEP service area.

<sup>9</sup> Total demand charges are calculated based on distribution tariffs effective as of September 1, 2022. AES Ohio tariffs available at <https://www.aes-ohio.com/rates-tariffs>. AEP Ohio tariffs available at <https://www.aepohio.com/company/about/rates/>. Duke Energy Ohio tariffs available at <https://www.duke-energy.com/home/billing/rates/electric-tariff>. First Energy tariffs available at [https://www.firstenergycorp.com/customer\\_choice/ohio/ohio\\_tariffs.html](https://www.firstenergycorp.com/customer_choice/ohio/ohio_tariffs.html).

<sup>10</sup> Demand charges for General Service Secondary customers are the same in both zones.

<sup>11</sup> AEP Ohio has multiple riders calculated as a percentage gross up to base rates. As a result, the demand charges listed in this table understate the true demand cost exposure as they do not include the effect of these riders.





Increased charging capacity of new EV models is exacerbating demand exposure at DCFC stations, especially at ultra-fast charging stations (up to 150 kW) and hyper-fast charger stations (up to 350 kW). In the past six model years, the average charging speed of new EV models has increased four-fold, from 50kW to 200kW, and the trend is accelerating.<sup>12</sup> Finally, demand charges result in significant cost disparities between home and public charging, as residential rates are not subject to demand charges.

### Key Equity Considerations

Access to DCFC stations is crucial to the successful transition to clean transportation in Ohio particularly for drivers who do not have consistent access to home charging. For these EV drivers, such as residents of apartments, townhouses, and other multi-unit dwellings (“MUDs”), public DC fast charging often serves as the primary means of recharging.

Recent research from UCLA’s Luskin Center shows that 43% of MUD residents rely on DC fast charging as their primary means of charging, nearly three times the percentage of non-MUD residents.<sup>13</sup> While more than 80% of all charging sessions happen at home,<sup>14</sup> in urban areas there is greater difficulty charging because urban households are more than twice as likely as suburban households to be located in MUDs.<sup>15</sup> To that point, a recent study by DOE’s National Renewable Energy Lab indicates that only “33% of the current light duty vehicle stock in the United States is parked close to electrical access.”<sup>16</sup> In many instances, these drivers may rely on public stations where they can charge quickly and affordably. Demand charges are the largest differentiating factor between effective electricity rates billed by the utility to residential customers and to commercial EV customer accounts.

This inequity between effective residential and commercial rates imposes greater costs on Ohio residents who depend on public charging stations, such as those who reside in MUDs, than on those who can charge at home. These costs must be reformed to enable sustainable private sector investment in stations serving MUD residents and to reduce the disparity in the cost of EV charging between those who can charge at home versus those who rely on publicly accessible chargers.

<sup>12</sup> Atlas Public Policy analysis of data from U.S. Environmental Protection Agency and various industry sources.

<sup>13</sup> DeShazo and Di Filippo, “Evaluating Multi-Unit Resident Charging Behavior at Direct Current Fast Chargers. UCLA Luskin Center for Innovation,” pp. 3, 13, available at <https://innovation.luskin.ucla.edu/wp-content/uploads/2021/03/Evaluating-Multi-Unit-Resident-Charging-Behavior-at-Direct-Charging-Behavior-at-Direct-Current-Fast-ChargersCurrent-Fast-Chargers.pdf> (February 2021).

<sup>14</sup> Hurlbut D., et al., “Electric Vehicle Charging Implications for Utility Ratemaking in Colorado,” National Renewable Energy Laboratory, available at <https://www.nrel.gov/docs/fy19osti/73303.pdf>, accessed on May 19, 2021.

<sup>15</sup> In fact, 37% of urban households and 16% of suburban households reside in MUDs. See Mortgage Bankers Association, “MBA Chart of Week: Distribution of Housing Types, Race and Ethnicity (Urban Areas and U.S.),” available at <https://newslink.mba.org/mba-newslinks/2017/october/mba-newslink-monday-10-2-17/mba-chart-of-week-distribution-of-housing-types-race-and-ethnicity-urban-areas-and-u-s/> (Oct. 2, 2017). Furthermore, 86% of the 31.4 million MUDs in the US are rented, and these residents have the greatest difficulty charging at home. See Neal N., Goodman, L., and Young, C., “Housing Supply Chartbook,” Urban Institute (January 2020).

<sup>16</sup> Ge, Y., Simeone, C., Duvall A., and Wood E., “There’s No Place Like Home: Residential Parking, Electrical Access, and Implications for the Future of Electric Vehicle Charging Infrastructure,” National Renewable Energy Laboratory, available at <https://www.nrel.gov/docs/fy22osti/81065.pdf> (October 2021).



### Rate Design Solutions

Electrify America operates in over 200 utility territories across the United States and acknowledges that there is no one-size-fits all solution to demand charge barriers. Instead, the Commission should consider and evaluate solutions based on their ability to remove barriers to EV charging station operator business models, i.e., provide predictable and stable electric costs over a range of load factors especially for low load factor sites. Electrify America provides the following table summarizing alternative rate designs that have enabled sustainable commercial EV charging operations along with key examples from other states.

**Table 2: Summary of Selected Alternative Rate Designs**

Rate Design	Description
Fully Volumetric Rate	The revenue requirement for a rate class is recovered through volumetric charges. (e.g., Southern California Edison's TOU-8 tariff, DTE Energy's GS-3 tariff, and Rocky Mountain Power Utah's Schedule 6A tariff)
Low Load Factor Rate Variants	A variation on a rate schedule for low load factor customers (typically < 15%) where demand charges are reduced and usage charges are increased relative to the parent rate. (e.g., National Grid Massachusetts' proposed commercial EV rates)
Demand Limiters	A rate feature where demand charges are limited for low load factor accounts based on a minimum monthly hours of use or ratio. (e.g., Xcel Energy Minnesota's General Service A-14 tariff)
Unit Cost Limiters	A calculation method where charges are based on the published tariff, but not to exceed a pre-defined unit cost threshold. (e.g., Dayton Power & Light Tariff D19)
Reduced Demand Charges	Demand charges are reduced to only recover local customer specific facilities-related costs (e.g., transformers), while shared distribution and generation and transmission charges are recovered volumetrically.
Hours of Use Tiered Charges	A rate structure where usage is grouped into tiers based on the load factor. Low load factor accounts would have usage priced in higher cost tiers and omit a demand charge. (e.g., Georgia Power Rate PLM)





### Conclusion

Electrify America welcomes the Commission's timely IJA Investigation and respectfully urges it to consider EV-specific rates by November 2023 to ensure compliance with the IJA and address the outstanding EV-related rate issues not yet addressed by the Commission.<sup>17</sup>

We appreciate the opportunity to submit these comments and would be happy to discuss this matter further and answer any questions the Commission may have.

Respectfully submitted,

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<sup>17</sup> IJA provides that “Not later than 1 year after the date of enactment of this paragraph, each State regulatory authority (with respect to each electric utility for which the State has ratemaking authority) ... shall commence consideration under Section 111, or set a hearing date for consideration...”

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Summary: Comments Comments of Electrify America, LLC in the matter of the Commission's Investigation into the Implementation of the Federal Infrastructure Investment and Jobs Act electronically filed by Tyler Stoff on behalf of Electrify America, LLC

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Summary: Comments Initial Comments of Electrify America, LLC electronically filed  
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