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December 16<sup>th</sup>, 2022

Via Electronic Filing

Ms. Linda C. Bridwell, P.E.  
Executive Director  
Kentucky Public Service Commission  
211 Sower Boulevard  
Frankfort, KY 40602

Re: Case No. 2022-00369, Electronic Investigation of Amendments to the Public Utility Regulatory Policies Act of 1978 and Electrification Transportation

Dear Ms. Bridwell,

Electrify America, LLC (“Electrify America”) appreciates the opportunity to comment on the Kentucky Public Service Commission’s (“Commission”) Investigation into the transportation related amendments to the Public Utility Regulatory Policies Act (PURPA) of 1978 made by the Federal Infrastructure Investment and Jobs Act (“IIJA”) of 2021, Pub. L. No. 117-58, 135 Stat 429.

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 790 locations and with over 3,400 individual DC fast chargers in total. Electrify America currently operates four DCFC stations with 16 DC fast chargers in Kentucky, which are open to the public. Electrify America has plans to expand its investments in Kentucky with an addition of four more DCFC stations. These stations are currently in development.

Electrify America commends the Commission for opening its IIJA Investigation, and urges the Commission to use opportunity fully consider the establishment of new electric vehicle (“EV”) rates that provide alternatives to traditional demand charges. As explained below, demand charges pose a significant barrier to economically sustainable DCFC station operations in Kentucky. Electrify America also urges that the Commission ensure a level playing field between regulated utilities and competitive providers of EV charging services. 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

The Commission’s Order opening this proceeding recognized the standard for evaluating measures to promote transportation electrification in this investigation is set out in the newly amended PURPA. According to the amendments and the standard, the Commission along with every 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>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.

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> Successful completion of this investigation not only provides the Commission with the opportunity to remove the barriers that traditional demand charges pose on public DCFC charging stations, but to also enhance the impact of funds that Kentucky will receive through the National Electric Infrastructure Formula Program (“NEVI”)<sup>3</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 Kentucky state transportation entities through NEVI will be economically sustainable for the long term while advancing social equity goals and attracting private sector investment.

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

Demand charges are a critical barrier to the widespread electrification of the transportation sector in Kentucky and across the nation. 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>4</sup> a finding echoed in a 2021 U.S. Department of Energy (“DOE”) report.<sup>5</sup> This circumstance manifests in Kentucky, 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>6</sup>

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

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

<sup>3</sup> Information about Kentucky’s Electric Vehicle Infrastructure Deployment Plan and the downloadable Kentucky Nevi Plan can be accessed at <https://transportation.ky.gov/Planning/Pages/EVPlan.aspx>

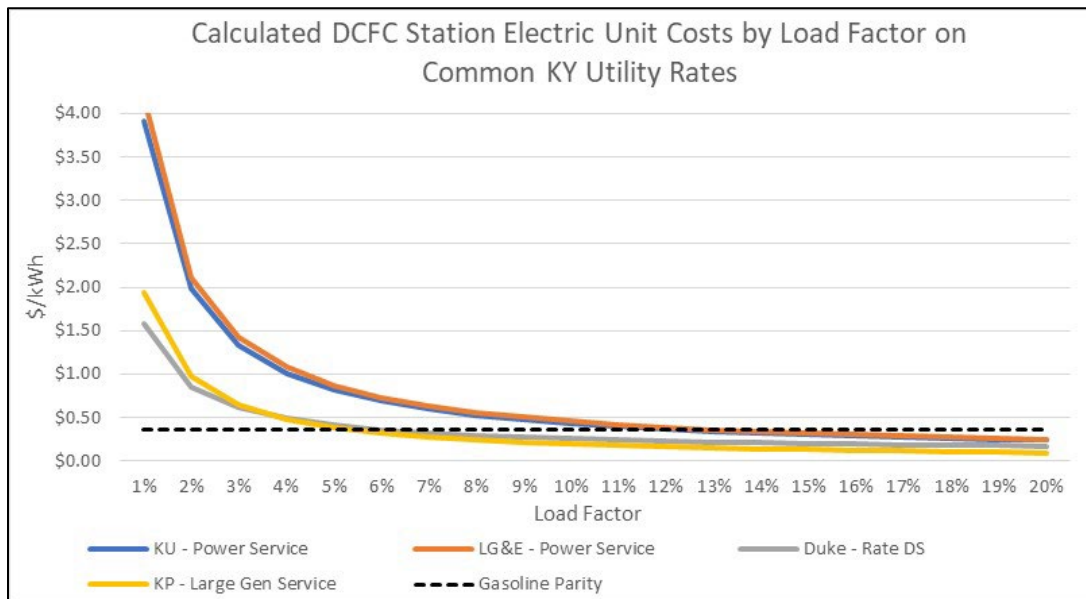
<sup>4</sup> McFarlane, D., et al, “Overcoming Barriers to Expanding Fast Charging Infrastructure in the Midcontinent Region,” Great Plains Institute, available at [https://www.betterenergy.org/wp-content/uploads/2019/08/GPI\\_DCFC-Analysis.pdf](https://www.betterenergy.org/wp-content/uploads/2019/08/GPI_DCFC-Analysis.pdf) (July 2019).

<sup>5</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>6</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



The graphic below shows the impact of demand charges on DC Fast Charging station unit costs. The Y axis shows the effective unit costs of energy delivered by the Kentucky Investor-Owned Utilities (IOUs) based on EV charging station load factors. This analysis presumes a DCFC station peak demand of 240 kW and calculates costs based on the most likely tariffs that a DCFC station would be assigned.<sup>7</sup>



As the chart demonstrates, unit costs at low load factors are prohibitive and well in excess of the costs of gasoline.<sup>8</sup> Many DCFC stations, especially those that are new and still building traffic operate at load factors below 10%.

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>9</sup> Finally, demand charges result in significant cost disparities between home and public charging, as residential rates are not subject to demand charges.

In the current Duke Energy rate case, Duke has proposed the introduction of a new demand charge in its Time of Use Distribution rate (Rate DT). Duke Energy's rationale for this proposal is that if customers on Rate DT charge EVs in the offpeak period, they must be subject to a demand charge to recover the

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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>7</sup> This analysis uses an average of rate components for calendar year 2022 and presumes that Schools Taxes, Franchise Fees, and Sales Taxes of 3%, 2%, and 6%, respectively, are applicable.

<sup>8</sup> Gasoline parity is calculated using the DOE E-Gallon method. This is based on an average ICE vehicle fuel economy of 27.9 mi/gal and a typical EV fuel economy of 3.5 mi/kWh. The equation to find the electricity price that equals parity with gasoline is as follows (Cost of Gasoline \$/gal ÷ 27.9 mpg ÷ (1/3.5 kWh/mi)). Cost of gasoline in Kentucky in December 2022 obtained from AAA gas survey available at <https://gasprices.aaa.com/>

<sup>9</sup> Atlas Public Policy analysis of data from U.S. Environmental Protection Agency and various industry sources.



distribution demand costs of service.<sup>10</sup> Proposals such as this are premature at this time and increase the demand charge barrier. Due to the nascent stage of EV adoption in KY and the need to encourage, not discourage EV applications such as fleets to charge in off-peak hours, the Commission should recommend alternatives to demand charges in rate designs as described in more detail below.

### Rate Design Solutions

Electrify America operates in over 225 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, Duke - Indiana Rate LLF)
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, Duke - Ohio Rate DS)
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)

### Key Equity Considerations

<sup>10</sup> Direct Testimony of Bruce L. Sailors, Duke Energy Kentucky, Inc., Case No. 2022-00372, Vol. 13 p. 10 (Dec. 1, 2022).



Access to DCFC stations is crucial to the successful transition to clean transportation in Kentucky particularly for drivers in urban areas who may 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>11</sup> While more than 80% of all charging sessions happen at home,<sup>12</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>13</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>14</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 Kentucky residents who depend on public charging stations. 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.

#### Maintaining a Level Playing Field is Important

In the past, the Commission has expressed concerns regarding the potential for utility owned EV charging infrastructure to distort the electric vehicle charging market. In 2021, the Commission stated *“The Commission notes that an investor-owned utility earns its shareholder return on the level of investment in the utility. As such, a utility is economically incentivized to increase the level of investment, in order to maximize shareholder return. As such, ahead of LG&E’s additional investment into EV infrastructure, the Commission cautions the utility against making unreasonable, unnecessary or unfair*

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<sup>11</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>12</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>13</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>14</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).



*investments on the EV front. The Commission will continue to review LG&E's investments and tariffs on this front to ensure customers are not subsidizing LG&E's foray into a competitive line of business."*<sup>15, 16</sup>

In its investigation into PURPA pursuant to the IIJA, it is important for the Commission to bear in mind the third objective of the amendments to PURPA Section 111(d) which is to accelerate private investment in charging infrastructure. Competition is at the heart of the Section 111(d) standard. To this end, Electrify America proposes several essential policy guardrails in the sections below that are necessary to prevent impediments to private investment that may arise when utilities have a strong advantage relative to competitive providers.

Significant private investment in EV infrastructure in Kentucky will materialize if investors perceive that the state supports fair and open competition. Kentucky is competing for capital investment with other geographies and ensuring a competitively neutral utility posture on EV investments is critical to unlocking private investments in competitive charging sectors such as public charging, workplace charging, and fleets.

As a matter of background, currently Louisville Gas & Electric (LG&E) and Kentucky Utilities (KU) have received approval of a tariff for pricing charging services at up to eight utility owned DCFC stations at a rate of \$0.25 per kilowatt hour (EVC-FAST).<sup>17</sup> They have stated plans to build in the second half of 2022 eight DCFC stations in Kentucky with four in each service territory if matching funds from the Environmental Mitigation Trust related to the Volkswagen settlement are available; LG&E and KU will scale their proposal down to four stations in total if funds are unavailable.<sup>18</sup> In its current base rate case, Duke Energy has proposed to offer EV Supply Equipment (EVSE) to its customers in the form of a fixture rental tariff. In this program structure, customers will pay for the energy consumed by the EVSE and the utility will charge a monthly fixture rental fee that includes the charger, installation, and any maintenance or warranty service for the charger.<sup>19</sup>

### Recommended Guardrails to Help Ensure Fair Competition

#### Customer Pricing at Utility Owned Stations Must be Based on Both Cost to Operate and a Comparison with Competitive Providers in the Market

LG&E and KU have indicated that they expect their DCFC stations to cost approximately \$306,000 to construct.<sup>20</sup> Duke Energy has proposed monthly fixture rental charges, but total levelized fixture costs are uncertain.<sup>21</sup> In each scenario, the costs for utility owned EVSE must

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<sup>15</sup> Public Service Commission Order, Louisville Gas and Electric Co., Case No. 2020-350 ("LG&E Order"), p. 62 (June 30, 2021).

<sup>16</sup> The same language appears in the Order for Kentucky Utilities. Public Service Commission Order, Kentucky Utilities Co., Case No. 2020-349 ("KU Order"), pp. 57-58 (June 30, 2021).

<sup>17</sup> LG&E Order, p. 69 and Appendix B, p. 9; KU Order, p. 62 and Appendix B, p. 8.

<sup>18</sup> Direct Testimony of Eileen L. Saunders, Kentucky Utilities Co., Case No. 2020-000349 ("Saunders Testimony"), p. 41 (Nov. 25, 2020).

<sup>19</sup> Direct Testimony of Cormack C. Gordon, Duke Energy Kentucky, Inc., Case No. 2022-00372 ("Gordon Testimony"), p. 23 (Dec. 1, 2022).

<sup>20</sup> Saunders Test., p. 41.

<sup>21</sup> Gordon Testimony, p. 24, lines 2-3.



reflect the actual costs of hardware and station operation. In the LG&E and KU public DCFC business model, costs for EV charging should be set at levels necessary to recover the capital costs of the investment (rate of return on rate base if applicable), depreciation expense, electricity from the distribution grid, operations and maintenance (O&M) expense, Information Technology expense, and overhead. Evaluation of cost-based pricing for public DCFC stations may require some assumptions such as expected station utilization and monthly sales, but these assumptions should be disclosed to the Commission. In the business model proposed by Duke Energy, the monthly EVSE fixture rental charges should be sufficient to cover the capital costs and expected O&M of the EVSE.

A comparison of utility owned EVSE pricing to prices offered by competitive market providers is another important datapoint for evaluation. Prices for EVSE and public charging should be at levels that are commensurate with competitive providers.

#### The Ability to Socialize Losses Among Customers Must be Minimized

Utilities should not be allowed to socialize loss making EV investments among ratepayers without limits. While some public EV charging stations may not cover costs immediately upon start-up, in the long run they must be self-sustaining. Competitive providers of EV charging services may incur losses too as they work to invest in a market and build customers, but their ability to do this is limited and utilities should be subject to the same discipline of the market. A 2016 Commission order approving the first program allowing KU and LG&E to own Level 2 stations noted that, “[u]nder Tariff EVC, the charging stations have a per-hour charging fee that is calculated to recover the charging station's cost, installation, maintenance expenses, taxes, a return on LG&E/KU's investment through an overall levelized carrying charge, and the cost of electricity, including fuel adjustment and environmental charges.”<sup>22</sup> Based on available information, the cost recovery provisions of the LG&E and KU public DCFC stations are undefined.<sup>23</sup>

#### Criteria for Siting of Utility Owned Stations Would Improve Transparency

Some states such as Colorado have approved criteria for the siting of utility owned EV charging stations.<sup>24</sup> Some states also use Environmental Justice (EJ) Community status as a criterion for utility siting.<sup>25</sup> A set of defined criteria for utility owned DCFC station siting would help increase transparency and investor confidence in committing capital investment into EV charging infrastructure in Kentucky.

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<sup>22</sup> Public Service Commission Order, Kentucky Utilities and Louisville Gas and Electric Company, Case No. 2015-00355, p.4 (April 11, 2016).

<sup>23</sup> Seelye Testimony, p. 75 (noting that cost recovery will be dealt with in future proceedings).

<sup>24</sup> In Colorado, Xcel held two stakeholder workshops and developed criteria for siting “market” and “connector” utility owned stations DCFC stations. A discussion of this process and criteria can be found in Colorado PUC Decision C22-0255 adopted 4/13/2022

<sup>25</sup> In its proposal pending before the Dept of Public Utilities in MA in Docket 21-91, National Grid has proposed DCFC station ownership in EJ communities under certain criteria



### Competitively Sensitive Information Must be Protected

The Commission should ensure that there are appropriate internal safeguards for the load data from competitive DCFC charging stations. This load data provides visibility into the degree to which competitive DCFC stations are successfully attracting EV drivers. Charging load data is highly sensitive commercial information and most DCFC station operators treat it as a trade secret. This load data could be used to inform utility station siting if there are no controls regarding access to this information and limitations on siting.

### Limits to Scale

The scale of utility owned EVSE and public EV charging programs is important to consider. Utility programs that are large in size run the risk of crowding out private capital. The Commission should periodically review EV charging market share to ensure that utility investments are not to the detriment disincentivizing private capital investment in the sector.

### Equal Access to System Information

The Commission has recognized information dissymmetry between the utilities and the private market noting that, “with the utility entering an otherwise economically competitive field of EV charging, it has a knowledge advantage. As mentioned above, no competitor will have near the information the utility has regarding its own electrical systems. This can lead to an unfair competitive advantage.”<sup>26</sup> The Commission ordered LG&E and KU to develop a study to identify areas where 10 to 20 EV stations can be located with minimal system upgrade costs.<sup>27</sup> Electrify America greatly appreciates the Commission’s recognition of this information gap and the benefits of making this type of information available to EV charging station developers.

Overall, Electrify America does not oppose utility ownership of EVSE or charging stations, but it is imperative that there is a level playing field and the guardrails detailed above should be sufficient to ensure that one is maintained. The IIJA amendments to PURPA call for increased private investment in EV charging infrastructure which will be critical for electrification of transportation in Kentucky.

### Conclusion

Electrify America welcomes the Commission’s timely IIJA Investigation and respectfully urges it to consider EV-specific rates by November 2023 to ensure compliance with the IIJA and address the outstanding EV-related rate issues not yet addressed by the Commission.<sup>28</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.

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<sup>26</sup> LG&E Order, pp. 61-62; KU Order, pp. 57 (including an identical statement included in the LG&E Order).

<sup>27</sup> LG&E Order, pp. 61; KU Order, pp. 57.

<sup>28</sup> IIJA 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...”





Respectfully submitted,

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