COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the matters of:

ELECTRONIC APPLICATION OF KENTUCKY UTILITIES COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC RATES AND APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS	)	**Case No. 2025-00113**

AND

ELECTRONIC APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC AND GAS RATES AND APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS	)	**Case No. 2025-00114**

Direct Testimony
of
Jeremy I. Fisher, PhD

On Behalf of
Sierra Club

August 29, 2025

1. INTRODUCTION AND PURPOSE OF TESTIMONY

Q Please state your name, business address, and position.

A My name is Jeremy I. Fisher. I am employed as the Principal Advisor, Climate and Energy at Sierra Club. My business address is 2101 Webster Street, Oakland, California, 94612.

Q Please describe your role at Sierra Club.

A My role at Sierra Club is to provide an expert viewpoint on energy systems economics, emerging electric sector issues, and provide technical review of policy matters with which Sierra Club engages, including electricity system resource planning and public utilities regulation.

Q Please summarize your work experience and educational background.

A Prior to joining Sierra Club at the end of 2017, I was employed as a Principal Associate at Synapse Energy Economics, where I worked on electricity systems issues for a decade. At Synapse, I evaluated and helped to shape resource planning efforts, engaged in electric sector planning on behalf of states and municipalities, helped regulators navigate environmental rules, and assisted states in crafting or revising resource planning rules. In addition, I led the resource planning group at Synapse, which engages in the assessment of planning processes across a wide cohort of states and regions. While at Synapse, I provided services for a wide variety of government and public interest clients, primarily in utility matters.

At Sierra Club I provide technical and advisory support to our legal, policy, and state teams working on energy issues, including in utility planning matters and energy siting issues, amongst other issues. Since 2021, my job responsibilities have included working to understand and respond to the growth of data centers, both for cryptocurrency mining and in cloud compute and artificial intelligence.

In 2022, I coauthored an extensive review of cryptocurrency mining impacts on the electric grid, including the first ground-up survey of the industry's scale,[1] and in 2024 I led a review and policy recommendations paper consolidating potential utility approaches to data center demand called "Demanding Better."[2]

I hold a doctorate in Geological Sciences from Brown University, and I received my bachelor's degrees from University of Maryland in Geology and Geography.

My *curriculum vitae* is attached as Exhibit JIF-1.

Q Have you previously provided comments to or testified before the Kentucky Public Service Commission?

A Yes. I previously appeared before the Kentucky Public Service Commission ("Commission") in planning dockets associated with Kentucky Utilities / Louisville Gas and Electric ("KU / LG&E" or "Companies") including in Dockets 2018-00294/2018-00295 and 2011-00161/2011-00162, and Kentucky Power Company's environmental compliance plan in Docket 2011-00401. I also provided testimony in the Companies' Certificate for Public Convenience and Necessity ("CPCN") for new generation resources to serve load growth in Docket 2025-00045.

Q What is the purpose of your testimony?

A My testimony reviews the Companies' Proposed Rate Extremely High Load Factor ("EHLF") put forward in anticipation of large load customers, including data centers. I review key protections in the proposed rate, provide recommendations to improve those protections and the underlying reasons for those recommendations, and recommend a series of other elements that the

[1] The Energy Bomb: How Proof-of-Work Cryptocurrency Mining Worsens the Climate Crisis and Harms Communities Now. August 2022. Sierra Club and Earthjustice. *Available online at* https://earthjustice.org/wp-content/uploads/energy_bomb_bitcoin_white_paper_101322.pdf .

[2] Demanding Better: How growing demand for electricity can drive a cleaner grid. September 2024. Sierra Club. Available online at https://www.sierraclub.org/sites/default/files/2024-09/demandingbetterwebsept2024.pdf.

Commission should incorporate into the EHLF to protect both the utility and other ratepayers.

Q What is the Proposed Rate EHLF?

A Proposed Rate EHLF is a new rate class proposed by the Companies that would encompass customers anticipated to take 100 MVA (~100 MW customer load) or more at a metered site, with load factors of 85 percent or more. These are extremely large customers that the Companies believe "could require the Companies to acquire additional generation resources to supply their needs and needs of existing customers."[3] According to the Company, service under EHLF and existing Rate Retail Transmission Service ("RTS") are "identical," where "a customer with a load factor of 80% or higher and with the same energy usage would pay the same amount under either rate schedule."[4] However, customers meeting the threshold requirements for EHLF would be subject to a 15-year minimum term,[5] a non-time-differentiated minimum demand charge,[6] a collateral requirement equivalent to two years of demand charge,[7] and an exit or termination fee.[8]

Q Why is EHLF being proposed at this time?

A The Companies appear to be explicitly offering EHLF in response to the potential that very large-scale data centers have expressed interest in locating in the Companies' service territories, and that this tariff is required to mitigate risk to the utilities and their customers.[9] Companies' witness Mr. Michael Hornung explains that new large customers – i.e. the data centers – may require the Company to

[3] Direct Testimony of Hornung, page 4 at 13-15.

[4] Response to Joint Intervenors 2.7(a) and (b).

[5] Direct Testimony of Hornung, page 6 at 3-12.

[6] Direct Testimony of Hornung, page 5 at 5-13.

[7] Direct Testimony of Hornung, page 6 at 13 to page 7 at 5.

[8] Attachment to Filing Requirement Tab 5 - 807 KAR 5:001 Section 16(1)(b)(4), page 36 of 216.

[9] Direct Testimony of Hornung, page 4 at 7-19.

make large generation investments specifically for those customers.[10] Singular large load customers that may individually demand substantial portions of the Companies' capacity and energy, and may be responsible for a large fraction of revenue, are completely new to many utilities, including the Companies. Indeed, the Companies recently proposed to build two large gas-fired power plants, ostensibly to meet expected data center growth.[11]

Q Did the Companies design EHLF expressly for data centers?

A Yes. In response to discovery, the Companies note that "it is possible customers other than data centers could qualify for service under Rate EHLF, but the Company does not have any current expectation in that regard."[12] In other responses, the Companies associate EHLF directly with data centers as well.[13] Finally, the Companies' records of economic development projects in their prospective pipeline, fully two-thirds of the customer load (peak) are listed as data centers.[14]

Q What kind of risk do the Companies actually face that would warrant protections like those contemplated under EHLF?

A The Companies face the prospect of data center customers requesting interconnection – and even paying for interconnection studies or looking to

[10] Direct Testimony of Hornung, page 4 at 13-15.

[11] *See* Direct Testimony of Crockett, page 11 at 1-5; *see also* Crockett, page 12 at 8-12 associating the CPCN with the growth of data centers expressly ("Q. Does the surge of data center demand have any impact on the rate relief requested in these cases? A. No. The Companies are not asking for any change in rates in these cases for the projects proposed in the pending CPCN case. The issue of rate recovery for those projects will be the subject of future rate cases.")

[12] Response to Sierra Club 1.4(c).

[13] *See* Response to Staff 3.4(a) ("The Company assumes the term "EHLF developer" refers to the developer of a large data center project. Rate EHLF would not apply to construction power required to build data centers; presumably a data center developer would be the Company's customer for construction power."); *see also* Response to Staff 3.70(b) (Q: "Explain the reasoning behind using an 85 percent load factor [in EHLF]." A: "The 85% load factor was chosen based on industry research for large data centers.")

[14] Refer to Attachment 05-2025_PSC_DR2_KU_Attach_to_Q32_-_Project_Tracking_Redacted.xlsx which shows 5,640 MW of 8,501 MW of economic development projects as data center customers.

reserve space on the Companies' electric system – and then either failing to transpire, not coming online as quickly as anticipated, failing to find a lessor for rented space, or failing financially. I discussed some of these risks in my testimony in the CPCN docket 2025-00045. Any of these circumstances would leave the Companies with excess or redundant infrastructure, either for an extended period of time or indefinitely, and the recovery of those stranded asset costs could end up being imposed on other customers or recovered from shareholders. Neither of those outcomes would be good for the Companies, their incumbent customers, or future economic development prospects.

The large load tariff, EHLF, proposed here is a response to that stranded asset risk, and an attempt to head off more speculative, less viable customers who increase the Companies' exposure. Kentucky Utilities and Louisville Gas & Electric are not alone in looking to head off that risk using large load tariffs. According to a tracking organization, there are at least 40 large load tariffs that have been implemented or proposed with a similar intention, most of which since 2024.[15] The Companies' have based EHLF on some of the other proposals designed by other utilities.[16]

Q What is your opinion of Proposed Rate EHLF?

A As a general matter, I strongly support the Companies putting forward a large load tariff like EHLF to protect the utility and customers from stranded asset risk of data centers that fail to transpire. Any customer that requires hundreds of millions of utility investment to satisfy their individual requirements should be willing and able to support contract terms similar to those proposed in EHLF, and should be able to secure financing to back those terms. The Companies should view any customer unwilling to meet that burden as a red flag.

[15] *See* Database of Emerging Large-Load Tariffs (DELTa) by Smart Electric Power Alliance and NC Clean Energy Technology Center. Accessed August 27, 2025. *Available online at* https://sepapower.org/large-load-tariffs-database/

[16] *See* Responses to Sierra Club 1.6, Joint Intervenors 1.159.

In my opinion, there are elements of EHLF that the Commission should improve for the benefit of customers, and then other conditions that the Commission should require of the Companies that would make the EHLF tariff more appropriately protective to the Companies and customers.

Q What are your recommended adjustments to rate EHLF?

A I recommend the following for the EHLF tariff:

1. EHLF should be required of customers that require 25 MW or more of anticipated peak demand (or the Companies' assessed MVA equivalency) and anticipate a 75 percent load factor or greater;
2. EHLF should be required for a 15-year term in addition to a contractual load ramp period, during which the customer's use rises to the contracted peak requirement;
3. EHLF should implement an explicit "clean tariff" rider, or a voluntary measure that allows EHLF customers to nominate and pay for new renewable energy, storage, or demand measures in addition to or in lieu of planned or existing generation resources;
4. The Commission require that within six months, the Companies file a cost of service study ("COSS") assessing current rate allocation mechanisms and the potential for cross subsidization if EHLF customers transpire at scale; and
5. The Companies should retain the collateral and exit fee conditions put forth in EHLF; and
6. The Commission require full implementation of the EHLF prior to approving any new infrastructure to meet anticipated data center demand.

2. THE COMPANIES' PROPOSED EHLF SHOULD BE MORE PROTECTIVE FOR THE COMPANY AND OTHER CUSTOMERS

Q What is the threshold for a customer to be served under Proposed Rate EHLF?

A Customers who consume 100 MVA [megavolt-ampere] and have a load factor above 85% are incorporated into EHLF. The Companies state that they have a single customer who could theoretically be served under EHLF, but that customer is served by a different negotiated contract and will not move to the EHLF tariff.[17]

Q How did the Companies determine the thresholds to be served under rate EHLF?

A The Companies state that "the 100 MVA load size was chosen based on the combination of understanding the Companies' resource needs to serve large loads and peer industry review."[18] Yet when asked to produce any workpapers that would support the rate provisions, the Companies pointed only to an answer indicating a peer review of other tariffs.[19] The 'peer review' appears to be a list of reviewed proposed or approved tariffs of a similar nature from nine other utilities.[20] Not all of the utilities reviewed have a specific large load tariff of a similar nature, although some have proposed similar tariffs and are currently under consideration. Table JIF-1 (below) shows the nine utilities reviewed by the Companies, and their thresholds for inclusion on capacity and load factor, where applicable.

[17] Response to Walmart 1.8(a) ("KU only has one customer that could potentially qualify for the EHLF tariff. This customer is currently under a special negotiated contract and will not move to the tariff.")

[18] Response to Staff 3.70(c) and Sierra Club 2.2(a), pointing to Staff 3.70(c)

[19] Response to Joint Intervenors 1.159 & 1.162

[20] Response to Sierra Club 1.6.

Table JIF-1. Utility large load tariffs reviewed by KU/LG&E in preparation for EHLF

Utility	**State** *Status*	**Capacity Threshold**	**Load Factor Threshold**	**Term** Base Period *Ramp Period*	**Docket**
AEP - Indiana Michigan	IN *Approved*	70 MW individual 150 MW aggregate	-	12 years + 5 years	46097
AEP Ohio	OH *Approved*	25 MW	-	8 years + 4 years	24-0508-EL-ATA
Arizona Public Service Company	AZ *Proposed*	5 MW	92%	-	E-01345A-25-0105
Dominion Energy	VA *Proposed*	25 MW	75%	10 years + 4 years	PUR-2025-00058
Evergy Missouri Metro	MO *Proposed*	100 MW	-	15 years 5 years*	EO-2025-0154
NV Energy	NV *Approved*	5 MW	-	**	24-05022
Appalachian Power & Wheeling Power (WV)	W V Approved	100 MW individual 150 MW aggregate	-	12 years + 5 years	24-0611-E-T-PW
Entergy	LA *Approved*	30 MW	-	5 years	Rate LPR-2
Georgia Power	GA *Approved*	100 MW individual or aggregate	-	5 years	PLL-18

* Ramp period included as part of base term period
** Clean Transition Tariff term matches the life of the underlying asset purchased at the behest of the customer

Q Do you have any observations about the thresholds selected by other utility large load tariffs that were reviewed by the Companies?

A Yes. The thresholds span the gamut, and only two actually identify high load factors as a criteria for inclusion in the large-load class. Only Evergy, Appalachian Power, and Georgia Power have proposed commensurate capacity thresholds as the Companies, while AEP Ohio, APS, Dominion, NV Energy, and Entergy Louisiana are 5 to 30 MW, nearly an order of magnitude smaller than the Companies' proposed EHLF threshold.

Of the three utilities reviewed by the Companies that are of a commensurate size threshold for inclusion in the tariff, each differs from the Companies' proposal for inclusion in EHLF in a meaningful way:

- Evergy Missouri's Large Load Power Service ("LLPS") is, as of this writing, still being litigated in Missouri.[21] However, Evergy, which operates in both Kansas and Missouri, has now reached a proposed settlement with parties in Kansas on its LLPS rate,[22] setting a 75 MW threshold for inclusion in LLPS, and providing the utility leeway to aggregate customers sited at multiple meters to determine if they are in the rate class.[23] The proposed LLPS in Missouri similarly allows Evergy to aggregate loads for the purposes of determining inclusion in the rate.[24]
- Appalachian Power Company has proposed a threshold that both incorporates individual facilities at the 100 MW threshold, and allows for the aggregation of multiple meters to determine if a customer rises to the threshold at 150 MW.
- Georgia Power Company uses a 100 MW threshold, but the tariff terms allow the utility to aggregate the load of a customer with multiple meters in proximity.

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[21] *See* Missouri Public Service Commission docket EO-2025-0154, opened November 13, 2024.

[22] *See* Joint Motion for Approval of Unanimous Settlement Agreement and Amendment of the Procedural Schedule, filed August 18, 2025 in Kansas Corporation Commission docket 25-EKME-315-TAR, available online at https://estar.kcc.ks.gov/estar/ViewFile.aspx/S20250818120216891 5.pdf?Id=9e907841-85a6-49d2-8321-59acf777cfd6

[23] *Id* at page 3, paragraph 9. "The Company maintains full discretion to evaluate whether multiple meters or premises may or may not be aggregated for purposes of Schedule LLPS eligibility, and in its sole reasonable discretion may require multiple meters or premises to be considered an aggregate load that shall take service under Schedule LLPS."

[24] *See* Missouri Public Service Commission docket EO-2025-0154, filed February 14, 2025. Schedule BDL-1, page 38 at "Special Terms." "A facility served under this schedule shall generally mean a single point of interconnection. Aggregation of loads under this schedule shall be limited. The Company shall exercise reasonable discretion when choosing to aggregate loads, with such discretion based on factors including, but not limited to, premises sharing one or more of the following: common owner(s), a common parent company, common local electrical infrastructure, physical layout, character of service, end use, and common control." Available online at https://efis.psc.mo.gov/Document/Display/819048

It is also notable that the NV Energy tariff is not strictly a large load tariff; rather it has been termed the Clean Transition Tariff ("CTT") designed to allow large load customers to contract, through NV Energy, with specific renewable resources. I will discuss that tariff later in my testimony.

Q Why would the utility want to aggregate the load of very large load customers who use multiple meters for the purposes of EHLF applicability?

A The purpose of EHLF is to protect the utility and other customers against the potential that large load customers may fail or abandon their data centers if the market does not transpire as expected. A single very large customer distributed across multiple meters, as might happen at a data center campus, would be susceptible to that risk if their individual buildings were smaller.

While there is significant discussion about very large data centers of 100 MW or more, data centers may be built in campuses, or even in different locations across a service territory, where individual buildings (potentially metered individually) may consume less than 100 MW. For example a public data center market overview from real estate company Cushman and Wakefield shows numerous planned data centers in development below the 100 MW threshold proposed in EHLF.[25] For example, Powerhouse, a data center real estate company that has discussed building a facility in Kentucky, is part of a partnership building a 360 MW data center campus near Richmond, Virginia. The segment being proposed by Powerhouse, called CTP-02 and CTP-03[26] are two different buildings that will together use 120 MW of power.[27] It is unclear if these two buildings would operate on separate meters. Similarly, Digital Realty, a colocation provider, boasts of 670 MW of information technology ("IT") load spread over 30 buildings in Northern Virginia.[28]

[25] https://cushwake.cld.bz/Americas-Data-Center-H2-2024-Update/7/

[26] https://www.powerhousedata.com/data-center/ctp-2

[27] https://chirisatechnologyparks.com/

[28] https://go2.digitalrealty.com/rs/087-YZJ-646/images/Metro_Brief_Digital_Realty_2409_NVirginia.pdf

It is critical that data center providers not be exempted from the important protections of EHLF just by virtue of spreading their data centers onto multiple meters.

Q Can the Companies aggregate their loads for the purposes of determining if they should be served by Proposed Rate EHLF?

A The Companies claim is that current regulations prohibit load aggregation.[29] However, this apparent prohibition does not seem to have inhibited the Companies from considering aggregation when assessing if a customer is eligible for other tariff provisions. For example, the Companies' Green Tariff provision requires that a customer be at least 10 MVA for eligibility for a renewable power agreement, but state that "a Customer with multiple accounts may aggregate those accounts for the sole purpose of meeting the 10 MVA requirement."[30] The Commission should require the use of such an aggregation provision for customers served under Proposed Rate EHLF, even if the meters continue to be identified and billed independently.

Q What do you recommend for a load threshold for inclusion in Proposed Rate EHLF?

A To the extent that this provision prevents the Companies from considering the load of the same customer at different locations, it is particularly imperative to set a lower threshold for inclusion in Proposed Rate EHLF to cushion the Companies against large load defection or loss.

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[29] *Refer to* Response to Sierra Club 2-3(a) "The Commission's regulations prohibit load aggregation. See 807 KAR 5:041 Sec. 9(2): 'The utility shall regard each point of delivery as an independent customer and meter the power delivered at each point. Combined meter readings shall not be taken at separate points ….'" (Emphases added.) That notwithstanding, nothing would preclude the Company from seeking to require a customer who so clearly sought solely to evade the Company's Rate EHLF tariff provisions to enter into special contracts that included all the same rates, terms, and conditions as Rate EHLF (except the greater-than-100 MVA eligibility requirement).' "

[30] Louisville Gas and Electric Company. P.S.C. Electric No. 13, First Revision of Original Sheet No. 69. https://lge-ku.com/sites/default/files/media/files/downloads/LGE-Electric-Rates-052825.pdf

I recommend that the Companies adopt a threshold of 25 MW for inclusion in Rate EHLF, at the level of one of the Company's most recent inquiries.[31] Any higher and moderately sized data centers (which are enormous customers compared to the vast majority of other economic development projects) may elect to meter individual data center buildings to avoid the terms of EHLF.

This threshold would be consistent with Dominion and AEP Ohio, roughly consistent with Entergy, and higher than that of APS or NV Energy. It would expose the Companies and their incumbent customers to far less risk.

Q How did the Companies determine the thresholds to be served under rate EHLF?

A The Companies explain that "the 85% load factor was chosen based on industry research for large data centers. While data centers aim for a 99% load factor, backup generation reduces what utilities observe. Setting the load factor at 85% ensures data centers meet the EHLF tariff requirements and protects other customers."[32] The Companies provided no further evidence or workpapers.[33]

Notably, of the tariffs reviewed by the Companies in Table JIF-1, only APS and Dominion include a load factor threshold, and the Companies in this case appear to include the load factor to isolate data centers.

Q What do you make of the Companies explanation?

A I think that the Companies' assertions are based on inherently unsupported premises, resulting in a load factor that's far too restrictive and excludes potential important and impactful customers.

First, while many data center customers claim that they require a very high uptime (hence the backup generators at these sites), the actual load factor of data centers

[31] *See* Attachment to Staff Discovery Response 2.32, 05-2025_PSC_DR2_KU_Attach_to_Q32_-_Project_Tracking_Redacted.xlsx. Inquiry #4479, July 9, 2025.

[32] Response to Staff 3.70(b).

[33] Response to Sierra Club 2.2(b).

varies depending on the use cases. A research paper from Lawrence Berkeley National Laboratory ("LBNL") indicates that servers of different types have different load factor implications, with fairly high requirements for AI training, but lower requirements for AI inference, and even lower for colocation and other services.[34] In my opinion, the evolving state of technology and demand (or lack of demand) for AI will have radical ramifications on data center load utilization patterns.

Second, the assertion that "data centers aim for a 99% load factor [but] backup generation reduces what utilities observe,"[35] would suggest that the backup generators at data centers can operate at will, contrary to the permitting and use cases for these generators. In many cases, on-site diesel backup generators can only operate in a handful of hours each year under air permit conditions. Reducing a load factor from 99% to 85% would imply that behind-the-meter diesel generators are operating over 1,200 hours each year (over 14%).

Finally, if data centers are applying backup diesel generators rigorously as implied by the Companies here, they will clearly work to avoid peak capacity measurements used in the Companies' rate allocation scheme, meaning that they would almost certainly underpay relative to their costs on the system in all other hours of the year.

Q Does a large load tariff like EHLF require a load factor threshold?

A No, it does not. The large load tariff is seeking to make a meaningful differentiation amongst customers that have an outsized impact on the Companies' system, and seeks to mitigate some elements of that risk. The risk and impact to the Companies and their incumbent customers is present if the load factor of the resulting customer is 85 percent or higher – or far lower.

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[34] Shehabi, A., Newkirk, A., Smith, S., Hubbard, A., Lei, N., Siddik, M., et al. (2024). 2024 United States Data Center Energy Usage Report. Lawrence Berkeley National Laboratory. Report #: LBNL-2001637. http://dx.doi.org/10.71468/P1WC7Q Available online at https://escholarship.org/uc/item/32d6m0d1, Figure 3.6

[35] Response to Staff 3.70(b).

Q What is your recommendation for the load factor threshold?

A In my opinion, the Companies should utilize a lower load factor of 75%, ensuring that they are able to capture still very high load factor customers that consume substantial amounts of energy relative to their peak, but not inadvertently precluding lower load-factor, high-impact customers.

Q How did the Companies determine that the appropriate term for EHLF was 15 years?

A The Companies appear to have also set the 15-year contract term based on the peer review of the utilities shown in Table JIF-1.[36]

Q The terms indicated in Table JIF-1 show both base periods as well as "ramp" periods for some utility large load tariffs. What is the ramp period and how is it distinguished?

A The ramp period is a specified period of time in which the customer's expected electricity use will increase from zero to the expected peak requirements. When a data center is built, it may take a period of time – from months to years – to either bring in customers or set up all of the data handling equipment in the data center. Unlike some factories in which all of the elements of production may be in place on day one, data centers are effectively modular, and utilities have observed that it takes time to for them to reach their full potential. As a consequence, the utility may not have to have all of the generation infrastructure in place on day one to serve the customer, and the customer would likely object to paying their full capacity demand charge well before they've reached that level of demand. The ramp period is designed to set in place an orderly transition from the start of service to the full requirement. In most cases, the tariff can adjust the ramp period

[36] Response to Joint Intervenors 2.9(b). "The Company determined a 15-year contract term was reasonable based on its review of certain other utilities' data center rates, tariff provisions, and agreements. See the Company's responses to JI 1-159(b) and Sierra Club 1-6." JI 1-159(b) points to Sierra Club 1-6, which is the list of peer reviewed utilities.

for a given customer, but the ramp period is set at a maximum of four or five years.

Q Why is a ramp period typically built into large load tariffs, rather than the customer just shifting onto the new rate once they pass the new threshold?

A The ramp period is built into the contract to ensure that the other components of the contract are protective for the utility from day one. As soon as a new (or in some cases existing) customer anticipates that it will meet the requirements of the large load tariff, they are brought onto the large load tariff which sets a clear expectation for both the customer and the utility. The utility has the confidence to pursue generation and transmission investments once the customer is signed onto the large load tariff, and hence the ramp is built into the overall contract to capture the entire term of the customer's engagement with the utility.

Q Have the Companies built in a ramp period to the EHLF?

A No. The Proposed Rate EHLF does not include a load ramp period.[37] Instead, the Companies state that all of the provisions of EHLF will apply over the entire 15-year contract period,[38] and later clarified that "the 15-year contract term for Rate EHLF customers includes the load ramp period, [which] will be determined on a case-by-case basis through negotiations…"[39] This is somewhat confusing, because the terms of EHLF specify that the Maximum Load Charge, which is basis of the demand charge, is either the maximum load of the current billing period, the highest measured load in the last 11 months, or "80% of the contract capacity based on the maximum load expected on the system or on facilities specified by [the] Customer."[40] If a customer expects to use 402 MW (as per the Companies' hypothetical) but doesn't anticipate using that amount for five years,

[37] Refer to Filing Requirement Tab 5 - 807 KAR 5:001 Section 16(1)(b)(4), pages 35-37, EHLF.

[38] Refer to Response to Joint Intervenors 1.160.

[39] Refer to Response to Joint Intervenors 2.10.

[40] Refer to Filing Requirement Tab 5 - 807 KAR 5:001 Section 16(1)(b)(4), page 35, EHLF, subsection "RATE."

the current structure of EHLF would appear to have them paying for 321.6 MW, or 80% of their contract capacity, for the first five years.

To the extent that the Company expects to implement an actual load ramp period, it would need to be specified in EHLF.

Q Do you have an opinion about the 15-year term that's been offered by the Companies for rate EHLP?

A Yes, I think it is too short, leaving the utility exposed for having built infrastructure at the behest of large load customers, and then having those customers exit the system long before the end of depreciable life of the assets that have been built at their behest. The Companies are already seeking to build 1,290 MW of gas capacity to serve data centers, looking to spend $2.8 billion in capital just to serve that new demand.[41] The cost of the gas-fired power plants will presumably be depreciated over a period of decades, a cost that will be incurred by all customers, and in particular by all other customers after the 15-year term expires.

Today, we have effectively zero visibility on if the data center boom that's happening in other states is indicative of a robust and growing future for AI or a bubble, although the concern around a potential bubble is rapidly growing.[42] Irrespective of how the next five years emerge for data center growth, it is almost impossible to predict how this extremely fast-moving technology will change in the next 15 years – if computing infrastructure will become more nimble, smaller, efficient, and closer to demand centers, or if tools will end up concentrated with a fewer number of entities, or any other number of scenarios. If the Companies end up highly exposed to those market whims, particularly with Kentucky as an edge-

[41] *See* KY PSC Docket 2025-00045, Companies' CPCN. Joint Application, filed February 28, 2025. Paragraph 19.

[42] Shrivastava, R. Forbes. August 26, 2025. The Prompt: Investors Worry About An AI Bubble. https://www.forbes.com/sites/rashishrivastava/2025/08/26/the-prompt-investors-worry-about-an-ai-bubble/; Goldman, S. August 26, 2025. Nvidia's moment of truth: With AI bubble fears and China uncertainty, global markets brace for Nvidia earnings. https://fortune.com/2025/08/26/nvidia-q2-earnings-preview-china-ai-bubble-trump/.

case for speculative data center growth, the utility's other customers could end up shouldering an inappropriate burden of cost.

Q What is your recommendation to this commission with respect to the term of EHLF?

A I recommend that the Commission expand the term of EHLF to 20 years, inclusive of a load ramp provision – i.e. no shorter than 20 years, but allowing customers to ramp from their starting capacity towards their maximum anticipated capacity.

3. RATE EHLF MUST HAVE A MECHANISM FOR NEW RENEWABLE PROCUREMENT

Q In docket 2025-00045, the Companies CPCN for two new gas plants, the Companies discussed the extraordinary interest in data centers from major technology companies like Amazon, Google, Microsoft, and Meta.[43] Are you aware of if these customers are interested in renewable procurement to power their data centers?

A They are, and their sustainability reports highlight the value that they're seeking to put in those investments. For example, Amazon's 2024 sustainability report touts that the company has "continued to match 100% of electricity consumed in all data center regions with renewable energy sources and worked with utilities and regulators on green tariffs so that more companies can buy carbon-free energy directly from renewable energy projects."[44] Google was instrumental in bringing the NV Energy Clean Transition Tariff ("CTT") to fruition as its first large customer.[45] Microsoft's 2025 sustainability report discusses that the corporation

[43] Refer to Direct Testimony of Mr. Tim Jones in KY PSC Docket 2025-00045, page 19.

[44] https://sustainability.aboutamazon.com/2024-amazon-sustainability-report.pdf.

[45] https://www.utilitydive.com/news/google-fervo-nv-energy-nevada-puc-clean-energy-tariff/719472/; https://blog.google/feed/nevada-clean-energy/.

contracted for 19 GW of new renewable deployment in 2024,[46] and Meta claims to be "the corporate buyer with the largest operating renewable energy portfolio in the US in 2023 with more than 6,700 MW online,"[47] and claimed:

> We matched 100% of our electricity use with renewable energy by adding new wind and solar projects to local grids, including those where our data centers are located, which helps drive the transition to renewable energy.[48]

Clearly, the ability to quickly procure local, new renewable energy in quantity is important to these key entities in the data center ecosystem.

Q Have other utilities expecting large loads from data centers developed tariffs for boutique renewable procurement?

A Yes, they have. A few offer examples of programs that both expand renewable access while de-risking other customers. Some of the defining features of the leading programs are:

1. The ability for a customer to nominate, select, or directly contract with renewable energy, storage, or demand management programs that meet their requirements;
2. The assessment of the nominated resources in the utility's resource planning processes to ensure that they are both incremental (i.e. additional) and to be able to plan the remainder of the system accordingly;
3. A mechanism to ensure the entire cost of the nominated resources are borne by the customer for the life of the resources;

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[46] https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/msc/documents/presentations/CSR/2025-Microsoft-Environmental-Sustainability-Report.pdf.

[47] https://sustainability.atmeta.com/wp-content/uploads/2024/08/Meta-2024-Sustainability-Report.pdf.

[48] *Id*.

4. Credit to the customer for the capacity and energy value brought to the system; and

5. Transfer of resulting renewable energy attributes to the customer.

The most prominent example of this kind of customer-oriented clean tariff is Nevada Energy's CTT.[49] The CTT was initially proposed by Google, who is using it to connect to an enhanced geothermal facility.[50] In the Nevada CTT case, the tariff is structured such that the large load customer works with the utility to assess a clean energy option, or portfolio of clean energy options in the utility's integrated resource plan to ensure that it does not impose additional costs on other customers. The customer then signs an agreement with the clean energy provider and an energy supply agreement with the utility, which procures the resource or resources at the behest of the customer. The all-in cost of the CTT resource(s) is paid for by the large load customer as an amortized fixed charge. In the hours that the CTT resource(s) meet the requirements of the customer's load, the customer does not pay for production by the utility, but does so in all other hours. The structure of the CTT allows the large load customer to customize a renewable portfolio that meets their requirements, and the use of a fixed charge for the cost of the CTT resources allows the customer a form of financial hedge.

Since the inception of the NV Energy CTT, there have been several other proposals put forward that take similar directions:

- Wisconsin Electric Power Company has proposed a Bespoke Resources Tariff[51] coupled with its large load tariff, in which customers are able to identify specific resources which are then sleeved through the utility.

[49] Refer to NV Energy Schedule No. CTT: Clean Transition Tariff, approved in Nevada dockets 24-05022 & 24-05023.

[50] Google. June 11, 2024. How we're working with utilities to create a new model for clean energy. https://blog.google/outreach-initiatives/sustainability/google-clean-energy-partnership/

[51] Wisconsin Public Service Commission. Docket 6630-TE-113, filed March 31, 2025. Application of Wisconsin Electric Power Company for Approval of its Very Large Customer and Bespoke Resources Tariffs.

- Evergy Kansas recently settled a proposed large load tariff that includes a provision for an optional Clean Energy Choice Rider ("Rider CER"), which would "enable customers… to support the procurement of clean energy resources and/or replacement of identified existing resources in lieu of or in addition to the Company's Preferred Resource Plan,"[52] and in which "the Company and the requesting customer will execute an agreement that determines cost recovery from the customer for the selected resources and any appropriate credit."[53] In Evergy's case, the customer is able to identify resources that are procured as system resources, rather than for the specific benefit of the customer, but are credited towards the customer, subject to Commission approval.
- Ameren Missouri recently filed a proposal for a large load tariff that contains a similarly structured Clean Energy Choice Rider ("Rider CEC") where a customer may ask the utility to study a portfolio of resources in their resource plan, or in substitution of resources in the plan, and allow the customer to enter into an agreement with the utility, wherein the utility would, subject to its assessment, procure resources of the form requested by the customer, with costs of the alternative resources covered by the customer.[54]

These programs and riders are designed to help large load customers with corporate clean energy commitments meet those requirements, and/or hedge against fuel costs that may be absorbed by the utility.

[52] State Corporation Commission of Kansas. Docket 25-EKME-315-TAR. Joint Motion for Approval of Unanimous Settlement, filed August 18, 2025. At paragraph 41.

[53] *Id.*

[54] Before the Missouri Public Service Commission, File ET-2025-0184, Direct Testimony of Mr. Steven Wills on Behalf of Ameren Missouri. Page 24 at 9-19.

Q Have the Companies proposed any clean procurement programs in conjunction with EHLF?

A No. The Company has acknowledged that "the potential [large load] customers referenced in Mr. Hornung's testimony may be the ones that have expressed interest in renewable energy availability publicly."[55] But the Company seems to have dismissed that such a provision would have much value, because "no RTS or potential EHLF customers have expressed interest in opting into Rider SSP to date."[56] They further clarify that:

> Most conversations the Companies are having with potential EHLF customers relate to accessing available capacity as quickly as possible. In some limited interactions about renewable energy and sustainability targets that potential customers have, the Companies have referenced the available Green Tariff options and the Companies have expressed a general willingness to think creatively about how to help them reach their goals.[57]

Q Are the Company's current solar share or green tariffs sufficient in this case?

A Almost, but not entirely. The Companies "solar share" program provides subscription services to 0.5 MW blocks of solar;[58] the program would quickly become saturated by an EHLF customer contracting for even a fraction of their demand. The Companies Green Tariff, Renewable Power Agreement option, available to larger customers, allows customers to have the Companies procure renewable energy at their behest, but capped at 250 MW.[59] In addition, the

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[55] Response to Sierra Club 2.5(a).

[56] Response to Lexington-Fayette Urban County Government 1.53.

[57] Response to Lexington-Fayette Urban County Government 2.15.

[58] https://lge-ku.com/solar-share.

[59] Louisville Gas and Electric Company Rate Sheet. P.S.C. Electric No. 13, First Revision of Original Sheet No. 69. https://lge-ku.com/sites/default/files/media/files/downloads/LGE-Electric-Rates-052825.pdf.

program appears to be limited to renewable energy without storage, demand management, or transmission system improvements, and customers are not eligible to receive any credit for capacity that they bring to the system.

Q What is your recommendation with respect to clean procurement options under Rate EHLF?

A To make the program accessible to potential participants under Rate EHLF, the Companies should either:

1. Design a broader version of their Green Tariff for EHLF customers that opens the cap on the scale of renewable energy that can be procured and allows for storage, demand management, and transmission improvements; or
2. Modify the Green Tariff provision such that it is available to EHLF customers, opens the cap, and allows for storage, demand management, and transmission improvements.

I recommend the Companies open the opportunity for large load customers to offer to pay the incremental costs associated with new clean energy in lieu of existing generation resources, or resources that might otherwise be brought online by the Companies.

4. THE COMMISSION SHOULD REQUIRE THE COMPANIES TO EXAMINE THE RATE ALLOCATION IMPLICATION OF NEW LARGE LOAD CUSTOMERS TAKING SERVICE UNDER RATE EHLF

Q How much load do the Companies anticipate they might take on under Rate EHLF?

A At the moment, the Company appears to expect 1,750 MW of data center load, as included in the recent CPCN.[60] While, as I expressed in that proceeding, I believe

[60] Response to Joint Intervenors 1.175.

that the identified customers and resulting load are highly speculative, if these customers were to transpire, they would be responsible for a very large fraction of the Companies' load. At a 95 percent load factor estimated by the Companies,[61] 1,750 MW of data center load would increase the Companies' total load by 50%, and those customers would be responsible for about a third of the Companies' energy consumption.

Q Have the Companies studied the impacts of those prospective customers on rates, or cost allocation schedules?

A No. When intervenors requested such studies, the Companies stated that their cost of service study had been "conducted under the assumption that there would be no customers utilizing the EHLF rate for this case's test year, thereby resulting in no cost allocation to any customer classes."[62] When asked if EHLF sufficiently protects against the imposition of any cost shift to incumbent customers, the Company asserted that "[because] the Company has no Rate EHLF customers, and it assumes none in the test year in this case,… it is not possible for Rate EHLF to shift any costs."[63] The Companies were able to provide no quantitative assessment of how their anticipated EHLF customers would impact existing customer rates.

Q Is there reason to think that EHLF customers may impose costs on other ratepayers?

A Yes. There are three primary avenues by which EHLF customers may impose substantial costs on other customers that should be addressed by the Companies.

[61] Refer to Attachment to Response to Joint Intervenors 1.170(a), 55-2025_JI_DR1_KU_Attach_to_Q170a_-_Data_Center_Rev_Analysis.xlsx

[62] Response to Joint Intervenors 1.170(d)

[63] Response to Sierra Club 2.2(c)

Transmission and network costs.

Very large loads may require substantial new transmission, both for direct interconnection to the grid as well as network upgrades. In Virginia, which has numerous very large data centers being interconnected, Dominion has pursued multiple network upgrade projects specifically identified with data center development. Network transmission costs are typically socialized to all customers, as they're considered a common cost. However, if the utility is building the network transmission upgrade specifically to serve a narrow class of customers, those costs may be inappropriately socialized. The Companies confirm that they expect network interconnection costs required to serve EHLF customers to be borne by all customers:

> Network Facility costs are "network" in nature, meaning the facilities enhance the overall reliability of the grid and are an ultimate benefit to all users of the transmission system. Network costs are borne by the Transmission Owner as outlined in the Company's Allocation of Costs for End-User Interconnections which can be found on the Company's OASIS website.[64]

A slightly different version of this cost shift is addressed by a recent paper from the Harvard Law Clinic, "Extracting Profits from the Public: How Utility Ratepayers Are Paying for Big Tech's Power,"[65] where the researchers assess that network upgrade costs for data centers that are borne by transmission owners under regional transmission operator ("RTO") rules are then allocated to RTO customers (in some cases, the same utility) and then to all customer classes. A similar situation may occur for the Companies.

[64] Response to Joint Intervenors 1.172(a).

[65] Martin, E. and A. Peskoe. March, 2025. Extracting Profits from the Public: How Utility Ratepayers Are Paying for Big Tech's Power. https://eelp.law.harvard.edu/wp-content/uploads/2025/03/Harvard-ELI-Extracting-Profits-from-the-Public.pdf.

Accelerated generation costs.

The Companies recent CPCN to build 1,290 MW of gas capacity to serve data centers at a capital cost of $2.8 billion[66] is effectively an acceleration of costs that would not have otherwise been incurred on the utility's system. The Companies are incurring, earlier than would have otherwise been required, capital and operational costs to build and run power plants that could have otherwise been deferred, but for the anticipated data center demand. The costs of building and operating those power plants will be borne by all customers, and until such time that an EHLF customer transpires, those costs will be borne exclusively by non-EHLF customers. But even if there were a steady supply of large load customers, the utility will always seek to frontload generation prior to the activation of these new large load customers, which means that existing customers will pay for the costs of accelerating generation resources for EHLF customers.

Higher energy utilization

The high load factor customers envisioned under EHLF are expected, by definition, to consume far more energy than their peak capacity would imply relative to other ratepayer classes. That means that they're consuming a disproportionate share of system energy, and may require the Companies to build and operate infrastructure with more energy availability than they otherwise would plan for – hence the construction of new combined cycle power plants, rather than peakers.

The Companies' current rate allocation scheme is based on the top six coincident peaks during the year ("6-CP"), and the Companies have expressed no intent on changing that.[67] If we consider that the Companies need to build to provide both capacity and energy, then a 6-CP rate allocation methodology may severely undercount the services provided to high load factor customers, or the costs those

[66] *See* KY PSC Docket 2025-00045, Companies' CPCN. Joint Application, filed February 28, 2025. Paragraph 19.

[67] *See* Response to Sierra Club 2.4(c).

high energy customers cause on the system. A recent paper from Regulatory Assistance Project ("RAP") "Electric Cost Allocation for a New Era," asserts that the process of singular classification of costs as fixed or variable and use of peak-assignment methodologies "typically works to the benefit of customer classes with high load factors and small numbers of customers,"[68] – i.e. EHLF customers. A study from Dominion Energy in Virginia examining different allocation methodologies revealed that methods that took into account energy use in addition to peak consumption (Base-Intermediate-Peak or "BIP" and Probability of Dispatch or "POD") had radically different allocations for residential and very large, high load factor customers ("GS-4") as shown in the table below replicated from Dominion's testimony.[69]

Table 2. Table from Dominion Energy (VA) assessment of different rate allocation methodologies.

TABLE 8
Comparison of Allocation Methods
RORs at Current Rates
GENERATION

Class	A&E	SWPA	12-CP	BIP	POD
Residential	6.47%	9.75%	7.20%	10.54%	13.20%
GS-1	9.20%	9.48%	9.97%	9.80%	10.25%
GS-2	13.90%	13.04%	13.69%	13.04%	12.40%
GS-3	10.32%	7.57%	9.25%	7.09%	5.69%
GS-4	4.93%	1.58%	3.91%	0.93%	-0.37%
Churches	10.02%	13.13%	11.74%	14.16%	16.67%
Lights	3.30%	15.12%	116.23%	9.06%	3.44%
Total Jurisdictional	7.54%	7.54%	7.54%	7.54%	7.54%

[68] Lazar, J., Chernick, P., Marcus, W., and LeBel, M. (Ed.). (2020, January). Electric cost allocation for a new era: A manual. Montpelier, VT: Regulatory Assistance Project at 78. Available online at https://www.raponline.org/wp-content/uploads/2023/09/rap-lazar-chernick-marcus-lebel-electric-cost-allocation-new-era-2020-january.pdf

[69] See Application of Virginia Electric &Power Company for a 2023 Biennial Review of the Rates, Terms & Conditions etc., Case No. PUR-2023-00101, Direct Testimony of Glenn A. Watkins at 34:8 (October 23, 2023), available at https://www.scc.virginia.gov/docketsearch/DOCS/7w9k01!.PDF

Q Are you proposing that the Companies change their rate allocation in this case to consider EHLF customer load?

A No, although I think that the Companies should have presented such a study in this docket to help inform the Commission about likely future changes, if any, that would be required if large load customers do transpire.

Q What is your recommendation at this time?

A I recommend that the Commission require the Companies to file a prospective cost of service comparison study (a) examining several alternative cost allocation schemas to asses if the six coincident peak ("6-CP") method results in undue cost shifting from non EHLF ratepayers and (b) assessing mechanisms of either directly assigning network upgrade costs and generation acceleration costs, or proposing an equitable allocation mechanism that prevents existing ratepayers from subsidizing data centers in electric rates.

5. OTHER MATTERS

Q Do you have any other matters to address with respect to Rate EHLF?

A Yes, I have two other elements, first addressing exit fees and collateral, and secondly how the Companies stage the procurement of generation resources with respect to EHLF protections for customers.

Q Have the Companies proposed that EHLF customers will be subject to exit fee requirements?

A Yes. The Companies have proposed that EHLF customers seeking to terminate their participation in rate EHLF would be subject to an exit fee equivalent to the nominal value of the remaining non-fuel revenue over the remaining term.[70]

[70] Kentucky Utilities Proposed Rate EHLF, P.S.C. No. 21, Original Sheet No. 26.1, filing requirement Tab 5 - 807 KAR 5:001 Section 16(1)(b)(4), at 36.

In my opinion this fee is a critical protection for existing ratepayers, particularly for highly speculative large customers that are driving large-scale resource decisions and investments at the utility. If an EHLF customer is expecting to come into the utility's service territory, it is critically important that the customer makes a real commitment to the utility, such that the utility has confidence it will recoup the costs of serving that customer, and not have to recover costs from other ratepayers. The extended term is one element of that protection; the other element must be the enforcement of that term through a termination, or exit, fee that provides no incentive to exit early. The exit fee provision requires that prospective EHLF customers secure financing that demonstrate they have a viable business practice that will persist through the term of the contract.

Q Have the Companies proposed that EHLF customers will be subject to a collateral obligation?

A Yes. The Companies have proposed that EHLF customers will be subject to collateral requirements equivalent to two years of billing charges at the largest contract capacity value; customers with high credit ratings and sufficient cash in their balance sheets are required to provide cash or a letter of credit equivalent to one year of billing charges. [71]

These collateral requirements are also critically important protections for existing ratepayers, particularly with respect to more speculative high load customers. The current state of the data center market is highly speculative (described by some as "falling into irrational exuberance territory"[72]) which could leave utilities on the hook if an entire cohort of data centers fails to transpire, or real estate investors with little data center experience fail to secure tenants. Under such a circumstance some of the highly leveraged speculators could simply declare bankruptcy, leaving the utility holding unexpected costs. The Companies seem to have given a

[71] Kentucky Utilities Proposed Rate EHLF, P.S.C. No. 21, Original Sheet No. 26.2, filing requirement Tab 5 - 807 KAR 5:001 Section 16(1)(b)(4), at 37.

[72] https://www.utilitydive.com/news/load-forecasts-data-centers-risks-consumers-cost-epsa/737280/.

fair bit of thought to the pathways open to the utility if a very large load customer becomes insolvent, as articulated in Response to Staff Discovery 2.3.[73]

In the case of bankruptcy of a large load customer under EHLF, the Companies would at least have some recourse through collateral. It is important that these collateral provisions do not allow for sureties as an alternative to cash or letters of credit, because if the market for data centers falls out, it will hit numerous data centers simultaneously, exposing the sureties themselves to correlated risk.

In my opinion, the Companies should retain the collateral and exit fee conditions put forth in EHLF.

Q You indicated that you had concerns with how the Companies stage the procurement of generation resources with respect to EHLF protections for customers. Please explain what you mean.

A The Companies staging of this large load tariff EHLF and the preceding CPCN for billions of dollars in new generation to serve prospective data center customers are exactly reversed, which is deeply concerning, and undermines the protections the Company has sought to put in place in rate EHLF.

The important purpose of proposed rate EHLF is to protect the utility and its incumbent customers by requiring that very large data center customers are real and have sufficient financial backing to support the terms of EHLF. Take, for example, a real estate speculator who has secured just enough funding at the outset to acquire land, put together conceptual plans, and pay for an interconnection study, but has not secured interest in either acquiring the data center or leased space from an established technology company that would actually install servers and use the space as designed. That speculator may have enough presence to make a convincing argument that the utility should invest on its behalf, but if it can't make a compelling financial argument it is unlikely to convince a bank to back its claim – and its commitment to a multi-decadal

[73] Response to PSC Staff 2.3.

contract with minimum billing terms. In other words, the large load tariff serves as a market testing mechanism to filter out real proposals from those hoping to ride the coattails of the data center rush.

However, when the utility builds generation or transmission capacity in anticipation of what could otherwise be speculative load, it is in effect extending credit to these data centers in a way that would be unacceptable to a financial institution. With no knowledge of if the customers will actually secure tenants (or if the entire move to build massive data centers is premised on a bubble), the utility has exposed itself to an enormous exogenous risk.

This is exactly the circumstance that happened to the Companies. The CPCN to build new gas plants was premised on the anticipation of real data center load transpiring, and backed with the promise that these data center companies would persist and remain solvent, without actually testing the market. The Companies have now proposed Rate EHLF – what happens if upon implementation, it turns out that none of the data centers in the Companies' pipeline are actually able to finance the terms of EHLF? That would not be a failure of EHLF, but a very clear signal that the "economic pipeline" underlying the Companies' premise of load growth was but vapor.

It is imperative that we put infrastructure after tariffs and not the reverse. While this proceeding is not the CPCN, it is my opinion that the Companies should have first established rate EHLF; second, determined if any customers actually elect to take service under rate EHLF; and only then move to build generation to serve those customers. I therefore recommend that the Commission require that EHLF be fully implemented prior to approving any new infrastructure to meet anticipated data center demand.

Q Does this conclude your testimony?

A Yes, it does.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the matters of:

ELECTRONIC APPLICATION OF KENTUCKY UTILITIES COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC RATES AND APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS	)	**Case No. 2025-00113**
AND		
ELECTRONIC APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC AND GAS RATES AND APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS	)	**Case No. 2025-00114**

AFFIDAVIT OF JEREMY FISHER FOR DIRECT TESTIMONY

State of California)

Affiant Jeremy Fisher, being first duly sworn, states the following: The prepared Direct Testimony and associated exhibits filed on August 29, 2025, constitute the direct testimony of Affiant in the above-captioned case. Affiant states that he would give the answers set forth in the Direct Testimony, if asked the questions propounded therein. Affiant further states that, to the best of his knowledge, his statements made are true and correct.

Jeremy Fisher

SUBSCRIBED, ACKNOWLEDGED, AND SWORN to before me by Jeremy Fisher this 29th day of August, 2025.

Amber Hall

Notary Public

Notary ID No.: HH 666054

My Commission expires: 04/17/2029

Florida

polk

AMBER HALL
Notary Public - State of Florida
Commission # HH 666054
Expires on April 17, 2029

Notarized remotely online using communication technology via Proof.

Jeremy Fisher, PhD.
Curriculum Vitae

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EDUCATION

BROWN UNIVERSITY Providence, Rhode Island
Doctor of Philosophy in Geological Sciences (2006)
Master of Science in Geological Sciences (2003)

UNIVERSITY OF MARYLAND College Park, Maryland
Bachelor of Science in Geology (2001)
Bachelor of Science in Geography (2001)

PROFESSIONAL EXPERIENCE

SIERRA CLUB Oakland, California
Principal Advisor, Climate and Energy (2023-present)

Senior Advisor for Strategic Research and Development (2019-2023)

Senior Strategy and Technical Advisor (2017-December 2019)

Provides detailed expertise on energy system issues and strategic engagement with utilities, regulatory commission, and partners. Research and development on cutting edge energy system economic issues, supports legal and campaign staff at Sierra Club; provides oversight to consulting practices on energy issues. Develops novels programs to assist utility and fossil sector decarbonizations goals; develops and supports federal policy positions.

SYNAPSE ENERGY ECONOMICS Cambridge, Massachusetts
Principal Associate (2013-2017); Scientist (2007-2013)

Consulted on economic analysis of climate change and energy, carbon, and emissions policies. Developed successful clean energy regulatory strategy. Provides detailed technical and strategic analysis on behalf of public interest groups in US. Provides training to regulators on best practices in energy system planning. Develops quantitative evaluations of regional climate change impact, long- and short-term electric industry planning, carbon reduction strategies, and emissions compliance programs. Lead investigator on avoided emissions tool (AVERT) for US EPA; collaborator on health benefits assessments.

TULANE UNIVERSITY New Orleans, Louisiana
Postdoctoral Researcher (2006-2007)

Modeled carbon balance in forest ecosystems through satellite data and dynamic models. Developed new techniques to assess large-scale forest morbidity and mortality. Tracking impacts of Hurricane Katrina (US Gulf Coast) and large-scale disturbances in Amazon basin. (Brazil).

BROWN UNIVERSITY Providence, Rhode Island

Research Assistant (2001-2006)

Tracked impact of climate change on New England forests from satellites. Worked with West African communities to determine impact of climate change and practice on landscape. Modeled coastal power plant effluent from satellite data.

FELLOWSHIPS & AWARDS

- *Visiting Fellow,* Watson Institute for International Studies, Brown University, 2007
- *Fellow*, National Science Foundation East Asia Summer Institute (EASI), 2003
- *Fellow*, Henry Luce Foundation at the Watson Institute for International Studies, Brown University, 2003

EXPERT TESTIMONY & DECLARATIONS

Kentucky Public Service Commission (Docket No. 2025-00045). Direct testimony regarding the prudence of Kentucky Utilities / Louisville Gas and Electric's Joint Application for Certificates of Public Convenience and Necessity and Site Compatibility Certificates for two natural gas facilities. On behalf of Sierra Club. June 16, corrected July 3, 2025.

New Mexico Public Regulation Commission (Case No. 22-00270-UT). Direct and surrebuttal testimony regarding the prudence of Public Service New Mexico's 2013 coal supply agreement at Four Corners, and subsequent capital investments. On behalf of Sierra Club. June 23 and September 1, 2023.

Public Utilities Commission of Ohio (Case No. 18-1004-EL-RDR). Direct testimony on independent audit of Ohio Power (AEP) power purchase agreement with the Ohio Valley Electric Corporation, demonstrating imprudent management and oversight. On behalf of National Resources Defense Council. December 29, 2021.

New Mexico Public Regulation Commission (Case No. 21-00017-UT). Direct and surrebuttal testimony opposing Public Service New Mexico's proposal to abandon Four Corners power plant by selling its share to a coal provider. On behalf of Sierra Club. July 12 and August 30, 2021.

New Mexico Public Regulation Commission (Case No. 20-00222-UT). Direct testimony on stipulation regarding Public Service New Mexico's request to merge Avangrid, with regard to the disposition of Four Corners power plant. On behalf of Sierra Club. June 18, 2021.

Georgia Public Service Commission (Docket Nos. 4822, 16573, & 19279). Rebuttal and surrebuttal testimony in the Georgia Commission's examination of PURPA payments regarding market price suppressive impacts from operations. On behalf of Sierra Club. December 4 and 22, 2020.

Oregon Public Utilities Commission (Docket UE 374). Opening and rebuttal testimony in PacifiCorp's general rate case evaluating the prudence of certain environmental retrofits on coal plants. June 4 & July 24, 2020.

Michigan Public Service Commission (Case No. U-20529). Direct testimony in Indiana Michigan's Power Supply Cost Recovery Plan regarding participation in the Ohio Valley Electric Cooperative. On behalf of Sierra Club. May 11, 2020.

Indiana Utility Regulatory Commission (Cause No. 38703 FAC 127). Direct testimony in Indianapolis Power and Light's fuel cost adjustment regarding commitment and operation of the Petersburg coal power plant. On behalf of Sierra Club, April 21, 2020.

United States Court of Appeals for the Second Circuit (Case 19-3652(L)). Declaration in support of Sierra Club's action to compel the Secretary of Energy to maintain lighting efficiency standards. On behalf of Sierra Club, March 18, 2020.

New Mexico Public Regulation Commission (Case No. 19-00018-UT). Rebuttal testimony in support of Public Service New Mexico's proposal to abandon San Juan power plant, and use of securitization as a recovery mechanism. On behalf of Sierra Club. November 15, 2019.

Kentucky Public Service Commission (Dockets 2018-00294/2018-00295). Direct testimony in Kentucky Utilities / Louisville Gas and Electric's adjustment of rates regarding participation in the Ohio Valley Electric Cooperative. On behalf of Sierra Club. January 16, 2019.

Superior Court of Washington for Thurston County (No. 18-2-03640-34). Declaration in support of Sierra Club opposing PacifiCorp motion for relief to keep certain materials related to the economics of PacifiCorp's coal fleet confidential. On behalf of Sierra Club. September 7, 2018.

United States District Court for the District of Columbia (Civil Action 17-2700-EGS). Declaration in support of Sierra Club's action to compel the Secretary of Energy to complete energy efficiency standards for manufactured housing. On behalf of Sierra Club. June 29, 2018.

Public Utilities Commission of Ohio (Docket 17-32-EL-AIR): Direct testimony in Duke Energy Ohio's request for a rider to include the costs of Ohio Valley Electric Corporation contract costs into rates. On behalf of Sierra Club. June 25, 2018.

California Public Utilities Commission (Investigation 17-04-019): Direct testimony regarding PacifiCorp's compliance with California's Emissions Performance Standard. On behalf of Sierra Club. February 7, 2018.

Mississippi Public Service Commission (Docket No. 2017-AD-112): Direct testimony regarding settlement with Mississippi Power Company on value of Kemper County Combined Cycle plant. On behalf of Sierra Club. October 23, 2017.

Utah Public Service Commission (Docket 14-035-114): Direct and surrebuttal testimonies in the investigation into the costs and benefits of PacifiCorp's proposed Net Metering program, with respect to long-term resource value and environmental benefits. On behalf of Heal Utah. June 8, 2017.

Indiana Utility Regulatory Commission (Cause No. 44872): Direct and rebuttal testimonies regarding Northern Indiana Public Service Company's application for a Certificate of Public Convenience and Necessity for environmental compliance projects at Schahfer units 14 & 15 and Michigan City unit 12. On behalf of Sierra Club. April 3, 2017.

Indiana Utility Regulatory Commission (Cause No. 44871): Direct and rebuttal testimonies regarding Indiana Michigan Company's application for a Certificate of Public Convenience and Necessity to install Selective Catalytic Reduction at Rockport Power Plant Unit 2. On behalf of Citizens Action Coalition of Indiana, Sierra Club, and Valley Watch. February 3, 2017.

Public Utilities Commission of Nevada (Docket Nos. 16-07001, 16-07007, and 16-08027): Direct testimony regarding the economic viability of the North Valmy coal plant. On behalf of Sierra Club. September 30, 2016.

California Public Utilities Commission (Docket 15-09-007): Direct testimony regarding PacifiCorp's application for authority to sell Utah mining assets on a post-hoc basis. On behalf of Sierra Club. July 11, 2016.

Washington Utilities and Transportation Commission (Docket UE-152253): Response, cross-answer, and supplementary cross-answer testimony regarding the general rate case on behalf of Pacific Power & Light Company. On behalf of Sierra Club. June 1, 2016.

Georgia Public Service Commission (Docket 40161): Direct testimony regarding Georgia Power Company's 2016 Integrated Resource Plan. On behalf of Sierra Club. May 18, 2016.

Oregon Public Utility Commission (Docket UM-1712): Direct testimony regarding PacifiCorp's application for approval of Deer Creek Mine transaction. On behalf of Sierra Club. March 5, 2015.

Oklahoma Corporation Commission (Case No. PUD 201400): Direct and rebuttal testimony comparing the modeling performed by Oklahoma Gas & Electric in support of its request for authorization and cost recovery of a Clean Air Act compliance plan and Mustang modernization against best practices in resource planning. On behalf of Sierra Club. December 16, 2014 and January 26, 2015.

New Mexico Public Regulation Commission (Case 12-00390-UT): Direct and surrebuttal testimony evaluating the economic modeling performed by Public Service Company of New Mexico in support of its application for certificate of public convenience and necessity for the acquisition of San Juan Generating Station and Palo Verde units. On behalf of New Energy Economy. August 29, 2014; December 29, 2014.

Wyoming Public Service Commission (Docket No. 20000-446-ER-14): Direct testimony in the matter of the application of Rocky Mountain Power for authority to increase its retail electric utility service rates in Wyoming approximately $36.1 million per year or 5.3 percent. On behalf of Sierra Club. July 25, 2014.

Indiana Utility Regulatory Commissions (Cause No. 44446): Direct testimony evaluating the economic modeling performed on behalf of Vectren South in support of its application for certificate of public convenience and necessity for various retrofits at Brown 1 & 2, Culley 3 and Culley plant, and Warrick 4. On behalf of Sierra Club, Citizens Action Coalition, and Valley Watch. May 28, 2014.

Utah Public Service Commission (Docket No. 13-035-184): Direct testimony In the matter of the application of Rocky Mountain Power for authority to increase its retail electric utility service rates in Utah and for approval of its proposed electric service schedules and electric service regulations. On behalf of Sierra Club. May 1, 2014.

Louisiana Public Service Commission (Docket No. U-32507): Direct and cross answering testimony regarding the application of Cleco Power LLC for: (i) authorization to install emissions control equipment at certain of its generating facilities in order to comply with the federal national emissions standards for hazardous air pollutants from coal and oil-fired electric steam units rule; and (ii) authorization to recover the costs associated with the emissions control equipment in jurisdictional rates. On behalf of Sierra Club. November 8, 2013 and December 9, 2013.

Nevada Public Utilities Commission (Docket No. 13-07021): Direct testimony regarding a joint application of Nevada Power Company d/b/a NV Energy, Sierra Pacific Power Company d/b/a NV Energy (referenced together as "NV Energy, Inc.") and MidAmerican Energy Holdings Company ("MidAmerican") for approval of a merger of NV Energy, Inc. with MidAmerican. On behalf of Sierra Club. October 24, 2013.

Indiana Utility Regulatory Commission (Cause No. 44339): Direct testimony in the matter of Indianapolis Power & Light Company's application for a Certificate of Public Convenience and

Necessity for the construction of a combined cycle gas turbine generation facility. On behalf of Citizens Action Coalition of Indiana. August 22, 2013.

Indiana Utility Regulatory Commission (Cause No. 44242): Direct and surrebuttal testimony regarding Indianapolis Power & Light Company's petition for approval of clean energy projects and qualified pollution control property. On behalf of Sierra Club. January 28, 2013; April 3, 2013.

Wyoming Public Service Commission (Docket 2000-418-EA-12): Direct testimony regarding the application of PacifiCorp for approval of a certificate of public convenience and necessity to construct selective catalytic reduction systems on the Jim Bridger Units 3 and 4. On behalf of Sierra Club. February 1, 2013.

Public Service Commission of Wisconsin (Docket No. 6690-CE-197): Direct, rebuttal, and surrebuttal testimony regarding Wisconsin Public Service Corporation's application for authority to construct a multi-pollutant control technology system for Unit 3 of Weston Generating Station. On behalf of Clean Wisconsin. Direct testimony submitted November 15, 2012, rebuttal testimony submitted December 14, 2012, surrebuttal testimony submitted January 7, 2013.

Utah Public Service Commission (Docket 12-035-92): Direct, surrebuttal, and cross-answering testimony regarding Rocky Mountain Power's request for approval to construct Selective Catalytic Reduction systems at Jim Bridger units 3 and 4. On behalf of Sierra Club. November 30, 2012.

Oregon Public Utility Commission (Docket UE 246): Direct testimony in the matter of PacifiCorp's filing of revised tariff schedules for electric service in Oregon. On behalf of Sierra Club. June 20, 2012.

Kentucky Public Service Commission (Docket 2011-00401): Direct testimony regarding the application of Kentucky Power Company for approval of its 2011 environmental compliance plan, for approval of its amended environmental cost recovery surcharge tariff, and for the granting of a certificate of public convenience and necessity for the construction and acquisition of related facilities. On behalf of Sierra Club. March 12, 2012.

Kentucky Public Service Commission (Dockets 2011-00161/2011-00162): Direct testimony regarding the application of Kentucky Utilities/Louisville Gas and Electric Company for certificates of public convenience and necessity and approval of its 2011 compliance plan for recovery by environmental surcharge. On behalf of Sierra Club and Natural Resources Defense Council (NRDC). September 16, 2011.

Kansas Corporation Commission (Docket 11-KCPE-581-PRE): Direct testimony in the matter of the petition of Kansas City Power & Light (KCP&L) for determination of the ratemaking principles and treatment that will apply to the recovery in rates of the cost to be incurred by KCP&L for certain electric generating facilities under K.S.A. 66-1239. On behalf of Sierra Club. June 3, 2011.

Utah Public Service Commission (Docket 10-035-124): Direct testimony in the matter of the application of Rocky Mountain Power for authority to increase its retail electric utility service rates in Utah and approval of its proposal electric service schedules and electric service regulations. On behalf of Sierra Club. May 26, 2011.

Wyoming Public Service Commission (Docket 20000-384-ER-10): Direct **testimony** in the matter of the application of Rocky Mountain Power for authority to increase its retail electric utility rates in Wyoming approximately $97.9 million per year or an average overall increase of 17.3 percent. On behalf of Powder River Basin Resource Council. April 11, 2011.

REPORTS, ARTICLES, FORMAL COMMENT, AND BLOGS

Fisher, J. December 20, 2024. CERB Appeal: Using Carbon Emissions Reduction Bonds to Drive Climate Outcomes. Sierra Club.

Fisher, J. L. Williams, D. Jaffe, and M. Wachspress. September, 2024. Demanding Better: How Growing Demand for Electricity Can Drive a Cleaner Grid. Sierra Club.

December 2022. Sierra Club, Earthjustice et. al. Environmental NGO Response to the Department of the Treasury on § 45Q Tax Credits for Carbon Capture, Utilization, and Storage. IRS-2022-0057.

Fisher, J. March 18, 2022. Comments to Council on Environmental Quality: Carbon Capture Utilization and Sequestration Guidance. On behalf of Sierra Club.

Fisher, J. and S. Herz. March 15, 2022. Europe's Crisis is Not a Profiteering License for US Oil and Gas. Blog. Sierra Club.

Fisher, J. and P. Drupp. February 1, 2022. Response to Request for Information DE-FOA-0002660, from US Department of Energy, Office of Fossil Energy and Carbon Management on Deployment and Demonstration Opportunities for Carbon Reduction and Removal Technologies. On behalf of Sierra Club.

Herz, S., **J. Fisher**, B. Pierpont, C. Blazer, and N. Mathew-Shah. November, 2021. Designing Coal Retirement Mechanisms for Equity and Impact. White paper. Sierra Club.

Cushing, B. and **J. Fisher**. June 14, 2021. Comments to Securities and Exchange: Public Input on Climate Change Disclosures. On behalf of Sierra Club.

Fisher, J. May 13, 2021. Generation and transformation: Bringing cooperative G&Ts into the clean energy future. Opinion in UtilityDive, on behalf of Sierra Club.

Fisher, J. October, 2020. The Risk of Unplugged Wells for California Taxpayers: California Resources Corporation – A Case Study. White paper. Sierra Club.

Fisher, J., Al Armendariz, Matthew Miller, Brendan Pierpont, Casey Roberts, Josh Smith, Greg Wannier. October 2019. Playing with Other People's Money: How Non-Economic Coal Operations Distort Energy Markets. White paper. Sierra Club.

Varadarajan, U., D. Posner, **J. Fisher.** 2018. Harnessing Financial Tools to Transform the Electric Sector. Sierra Club.

February 6, 2018. Sierra Club Comments on Puerto Rico Federal Oversight Board's Critical Infrastructure Project, Peaking Projects.

February 6, 2018. Sierra Club Comments on Puerto Rico Federal Oversight Board's Critical Infrastructure Project, Arecibo Incinerator.

June 12, 2018. Sierra Club Comments on Puerto Rico Federal Oversight Board's Critical Infrastructure Project, Peaking Projects.

Fisher, J. 2017. Sierra Club Preliminary and Reply Comments on PacifiCorp's 2017 Integrated Resource Plan. Synapse Energy Economics for Sierra Club.

Fisher J. Allison, A. 2017. Sierra Club Comments on Tucson Electric Power's 2017 Integrated Resource Plan. Synapse Energy Economics for Sierra Club.

Allison, A., **J. Fisher.** 2017. Sierra Club Comments on Arizona Public Service Company's 2017 Integrated Resource Plan. Synapse Energy Economics for Sierra Club.

Fisher, J. 2017. *Chasing the Elusive Benefits of Navajo Generating Station: A Review of Peabody & Navigant's Navajo Economic Assessment.* Prepared for Sierra Club, May 2, 2017

Fisher, J. and A. I. Horowitz. 2016. *Expert Report: State of PREPA's System, Load Forecast, Capital Budget, Fuel Budget, Purchased Power Budget, Operations Expense Budget.* Prepared for the Puerto Rico Energy Commission regarding Matter No. CEPR-AP-2015-0001, November 23, 2016.

Fisher, J., P. Luckow, A. Horowitz, T. Comings, A. Allison, E.A. Stanton, S. Jackson, K. Takahashi. 2016. *Michigan Compliance Assessment for the Clean Power Plan: MPSC/MDEQ EPA 111(d) Impact Analysis.* Prepared for Michigan Public Service Commission, Michigan Department of Environmental Quality, and Michigan Agency for Energy.

Comings, T., S. Jackson**, J. Fisher.** 2016. *The Economic Case for Retiring North Valmy Generating Station*. Synapse Energy Economics for Sierra Club.

Fisher, J., A. Horowitz, J. Migden-Ostrander, T. Woolf. 2016. *Puerto Rico Electric Power Authority's 2015 Integrated Resource Plan*. Prepared for Puerto Rico Energy Commission.

Luckow, P., E.A. Stanton, S. Fields, W. Ong, B. Biewald, S. Jackson, **J. Fisher**. 2016. *Spring 2016 National Carbon Dioxide Price Forecast*. Synapse Energy Economics.

Fisher, J., N. Santen, P. Luckow, F. De Sisternes, T. Levin, A. Botterud. 2016. *A Guide to Clean Power Plan Modeling Tools: Analytical Approaches for State Plan CO_2 Performance Projections*. Prepared by Synapse Energy Economics and Argonne National Library.

Jackson, S., **J. Fisher**, B. Fagan, W. Ong. 2016. *Beyond the Clean Power Plan: How the Eastern Interconnection Can Significantly Reduce CO_2 Emissions and Maintain Reliability.* Prepared by Synapse Energy Economics for the Union of Concerned Scientists.

Fisher, J., R. DeYoung, N. R. Santen. 2015. *Assessing the Emission Benefits of Renewable Energy and Energy Efficiency Using EPA's Avoided Emissions and generation Tool (AVERT).* Prepared for 2015 International Emission Inventory Conference.

Fisher, J., P. Luckow, N. R. Santen. 2015. *Review of the Use of the System Optimizer Model in PacifiCorp's 2015 IRP.* Synapse Energy Economics for Sierra Club, Western Clean Energy Campaign, Powder River Basin Resource Council, Utah Clean Energy, and Idaho Conservation League.

Fisher, J., T. Comings, F. Ackerman, S. Jackson. 2015. *Clearing Up the Smog: Debunking Industry Claims that We Can't Afford Healthy Air.* Synapse Energy Economics for Earthjustice.

Biewald, B., J. Daniel, **J. Fisher**, P. Luckow, A. Napoleon, N. R. Santen, K. Takahashi. 2015. *Air Emissions Displacement by Energy Efficiency and Renewable Energy.* Synapse Energy Economics.

Takahashi, K., **J. Fisher**, T. Vitolo, N. R. Santen. 2015. *Review of TVA's Draft 2015 Integrated Resource Plan*. Synapse Energy Economics for Sierra Club.

Luckow, P., E. A. Stanton, S. Fields, B. Biewald, S. Jackson, **J. Fisher**, R. Wilson. 2015. *2015 Carbon Dioxide Price Forecast.* Synapse Energy Economics.

Vitolo, T., **J. Fisher**, J. Daniel. 2015. *Dallman Units 31/32: Retrofit or Retire?* Synapse Energy Economics for the Sierra Club.

Vitolo, T., **J. Fisher**, K. Takahashi. 2014. *TVA's Use of Dispatchability Metrics in Its Scorecard.* Synapse Energy Economics for Sierra Club.

Luckow, P., E. A. Stanton, B. Biewald, S. Fields, S. Jackson, **J. Fisher**, F. Ackerman. 2014. *CO_2 Price Report, Spring 2014: Includes 2013 CO_2 Price Forecast.* Synapse Energy Economics.

Daniel, J., T. Comings, **J. Fisher**. 2014. *Comments on Preliminary Assumptions for Cleco's 2014/2015 Integrated Resource Plan.* Synapse Energy Economics for Sierra Club.

Fisher, J., T. Comings, and D. Schlissel. 2014. *Comments on Duke Energy Indiana's 2013 Integrated Resource Plan*. Synapse Energy Economics and Schlissel Consulting for Mullet & Associates, Citizens Action Coalition of Indiana, Earthjustice, and Sierra Club.

Fisher, J., P. Knight, E. A. Stanton, and B. Biewald. 2014. *Avoided Emissions and Generation Tool (AVERT): User Manual*. Version 1.0. Synapse Energy Economics for the U.S. Environmental Protection Agency.

Luckow, P., E. A. Stanton, B. Biewald, **J. Fisher**, F. Ackerman, E. Hausman. 2013. *2013 Carbon Dioxide Price Forecast.* Synapse Energy Economics.

Knight, P., E. A. Stanton, **J. Fisher**, B. Biewald. 2013. *Forecasting Coal Unit Competitiveness: Coal Retirement Assessment Using Synapse's Coal Asset Valuation Tool (CAVT).* Synapse Energy Economics for Energy Foundation.

Takahashi, K., P. Knight, **J. Fisher**, D. White. 2013. *Economic and Environmental Analysis of Residential Heating and Cooling Systems: A Study of Heat Pump Performance in U.S. Cities*. Proceeding of the 7th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL'13), September 12, 2013.

Fagan, R., **J. Fisher**, B. Biewald. 2013. *An Expanded Analysis of the Costs and Benefits of Base Case and Carbon Reduction Scenarios in the EIPC Process.* Synapse Energy Economics for the Sustainable FERC Project.

Fisher, J. *Sierra Club's Preliminary Comments on PacifiCorp 2013 Integrated Resource Plan.* Oregon Docket LC 57. Synapse Energy Economics for Sierra Club.

Fisher, J., T. Vitolo. 2012. *Assessing the Use of the 2011 TVA Integrated Resource Plan in the Retrofit Decision for Gallatin Fossil Plant.* Synapse Energy Economics for Sierra Club.

Fisher, J., K. Takahashi. 2012. *TVA Coal in Crisis: Using Energy Efficiency to Replace TVA's Highly Non-Economic Coal Units*. Synapse Energy Economics for Sierra Club.

Fisher J., S. Jackson, B. Biewald. 2012. *The Carbon Footprint of Electricity from Biomass: A Review of the Current State of Science and Policy*. Synapse Energy Economics.

Fisher, J., C. James, N. Hughes, D. White, R. Wilson, and B. Biewald. 2011. *Emissions Reductions from Renewable Energy and Energy Efficiency in California Air Quality Management Districts.* Synapse Energy Economics for California Energy Commission.

Fisher, J., F. Ackerman. 2011. *The Water-Energy Nexus in the Western States: Projections to 2100*. Synapse Energy Economics for Stockholm Environment Institute.

Averyt, K., **J. Fisher**, A. Huber-Lee, A. Lewis, J. Macknick, N. Madden, J. Rogers, S. Tellinghuisen. 2011. *Freshwater use by US power plants: Electricity's thirst for a precious resource.* Union of Concernered Scientists for the Energy and Water in a Warming World Initiatve.

White, D. E., D. Hurley, **J. Fisher**. 2011. *Economic Analysis of Schiller Station Coal Units*. Synapse Energy Economics for Conservation Law Foundation.

Fisher, J., R. Wilson, N. Hughes, M. Wittenstein, B. Biewald. 2011. *Benefits of Beyond BAU: Human, Social, and Environmental Damages Avoided Through the Retirement of the US Coal Fleet*. Synapse Energy Economics for Civil Society Institute.

Fisher, J., B. Biewald. 2011. *Environmental Controls and the WECC Coal Fleet: Estimating the forward-going economic merit of coal-fired power plants in the West with new environmental controls.* Synapse Energy Economics for Energy Foundation and Western Grid Group.

Hausman, E., V. Sabodash, N. Hughes, **J. Fisher**. 2011. *Economic Impact Analysis of New Mexico's Greenhouse Gas Emissions Rule*. Synapse Energy Economics for New Energy Economy.

Fisher, J. 2011. *A Green Future for Los Angeles Department of Water and Power: Phasing out Coal in LA by 2020.* Synapse Energy Economics for Sierra Club.

Fisher, J., J. Levy, Y. Nishioka, P. Kirshen, R. Wilson, M. Chang, J. Kallay, C. James. 2010*. Co-Benefits of Energy Efficiency and Renewable Energy in Utah: Air Quality, Health and Water Benefits.* Synapse Energy Economics, Harvard School of Public Health, Tufts University for State of Utah Energy Office.

Biewald, B., D. White, **J. Fisher**, M. Chang, L. Johnston. 2009. *Incorporating Carbon Dioxide Emissions Reductions in Benefit Calculations for Energy Efficiency: Comments on the Department of Energy's Methodology for Analysis of the Proposed Lighting Standard.* Synapse Energy Economics for the New York Office of Attorney General.

Hausman, E., **J. Fisher**, L.A. Mancinelli, B. Biewald. 2009. *Productive and Unproductive Costs of CO_2 Cap-and-Trade: Impacts on Electricity Consumers and Producers.* Synapse Energy Economics for the National Association of Regulatory Utility Commissioners, The National Association of State Utility Consumer Advocates (NASUCA), The National Rural Electric Cooperative Association (NRECA), The American Public Power Association (APPA).

Biewald, B., **J. Fisher**, C. James, L. Johnston, D. Schlissel, R. Wilson. 2009. *Energy Future: A Green Energy Alternative for Michigan*. Synapse Energy Economics for Sierra Club.

James, C., **J. Fisher**, K. Takahashi. 2009. "Energy Supply and Demand Sectors." *Alaska Climate Change Strategy's Mitigation Advisory Group Final Report: Greenhouse Gas Inventory and Forecast and Policy Recommendations Addressing Greenhouse Gas Reduction in Alaska. Submitted to the Alaska Climate Change Sub-Cabinet.* Synapse Energy Economics for the Center for Climate Strategies.

James, C., **J. Fisher**, K. Takahashi, B. Warfield. 2009. *No Need to Wait: Using Energy Efficiency and Offsets to Meet Early Electric Sector Greenhouse Gas Targets*. Synapse Energy Economics for Environmental Defense Fund.

James, C., **J. Fisher**. 2008. *Reducing Emissions in Connecticut on High Electric Demand Days (HEDD)*. Synapse Energy Economics for the Connecticut Department of Environmental Protection and the US Environmental Protection Agency.

Napoleon, A., **J. Fisher**, W. Steinhurst, M. Wilson, F. Ackerman, M. Resnikoff. 2008. *The Real Costs of Cleaning up Nuclear Waste: A Full Cost Accounting of Cleanup Options for the West Valley Nuclear Waste Site.* Synapse Energy Economics et al.

James, C., F. Fisher. 2008. *Reducing Emissions in Connecticut on High Electric Demand Days (HEDD).* Synapse Energy Economics for the CT Department of Environmental Protection and the U.S. Environmental Protection Agency.

Hausman, E., **J. Fisher**, B. Biewald. 2008. *Analysis of Indirect Emissions Benefits of Wind, Landfill Gas, and Municipal Solid Waste Generation*. Synapse Energy Economics for US. Environmental Protection Agency.

Schlissel, D., **J. Fisher**. 2008. *A preliminary analysis of the relationship between CO_2 emission allowance prices and the price of natural gas.* Synapse Energy Economics for Energy Foundation.

PEER-REVIEWED ARTICLES

Buonocore, J. J., P. Luckow, **J. Fisher**, W. Kempton, J. I. Levy. 2016. "Health and climate benefits of offshore wind facilities in the Mid-Atlantic United States." *Environmental Research Letters*, 11 (2016) 074019. doi: 10.1088/1748-9326/11/7/074019

Buonocore, J. J., P. Luckow, G. Norris, J. D. Spengler, B. Biewald, **J. Fisher**, J. I. Levy. 2015. "Health and climate benefits of different energy-efficiency and renewable energy choices." *Nature Climate Change,* August 2015: doi:10.1038/nclimate2771.

Ackerman, F., **J.I. Fisher**. 2013. "Is there a water–energy nexus in electricity generation? Long-term scenarios for the western United States." *Energy Policy,* August: 235–241.

Averyt, K., J. Macknick, J. Rogers, N. Madden, **J. Fisher**, J.R. Meldrum, and R. Newmark. 2012. "Water use for electricity in the United States: An analysis of reported and calculated water use information for 2008." *Environmental Research Letters.* In press (accepted Nov. 2012).

Morisette, J. T., A. D. Richardson, A. K. Knapp, **J.I. Fisher**, E. Graham, J. Abatzoglou, B.E. Wilson, D. D. Breshears, G. M. Henebry, J. M. Hanes, and L. Liang. 2009. "Tracking the rhythm of the seasons in the face of global change: Challenges and opportunities for phenological research in the 21st Century." *Frontiers in Ecology* 7 (5): 253–260.

Biewald, B., L. Johnston, **J. Fisher**. 2009. "Co-benefits: Experience and lessons from the US electric sector." *Pollution Atmosphérique,* April 2009: 113-120.

Fisher, J.I., G.C. Hurtt, J.Q. Chambers, Q. Thomas. 2008. "Clustered disturbances lead to bias in large-scale estimates based on forest sample plots." *Ecology Letters* 11 (6): 554–563.

Chambers, J.Q., **J.I. Fisher**, H. Zeng, E.L. Chapman, D.B. Baker, and G.C. Hurtt. 2007. "Hurricane Katrina's Carbon Footprint on US Gulf Coast Forests." *Science* 318 (5853): 1107. DOI: 10.1126/science.1148913.

Fisher, J.I., A.D. Richardson, and J.F. Mustard. 2007. "Phenology model from surface meteorology does not capture satellite-based greenup estimations." *Global Change Biology* 13:707–721.

Fisher, J.I., J.F. Mustard. 2007. "Cross-scalar satellite phenology from ground, Landsat, and MODIS data." *Remote Sensing of Environment* 109:261–273.

Fisher, J.I., J.F. Mustard, and M. Vadeboncoeur. 2006. "Green leaf phenology at Landsat resolution: Scaling from the field to the satellite." *Remote Sensing of Environment* 100 (2): 265–279.

Fisher, J.I., J.F. Mustard. 2004. "High spatial resolution sea surface climatology from Landsat thermal infrared data." *Remote Sensing of Environment* 90:293–307.

Fisher, J.I., J. F. Mustard, and P. Sanou. 2004. "Policy imprints in Sudanian forests: Trajectories of vegetation change under land management practices in West Africa." *Submitted, International Remote Sensing.*

Fisher, J.I., S.J. Goetz. 2001. "Considerations in the use of high spatial resolution imagery: an applications research assessment." Proceedings at the American Society for Photogrammetry and Remote Sensing (ASPRS) Conference in St. Louis, MO.

SELECTED ABSTRACTS

Fisher, J.I., "Phenological indicators of forest composition in northern deciduous forests." *American Geophysical Union.* San Francisco, CA. December 2007.

Fisher, J.I., A.D. Richardson, and J.F. Mustard. "Phenology model from weather station meteorology does not predict satellite-based onset." *American Geophysical Union.* San Francisco, CA. December 2006.

Chambers, J., **J.I. Fisher**, G Hurtt, T. Baker, P. Camargo, R. Campanella, *et al.*, "Charting the Impacts of Disturbance on Biomass Accumulation in Old-Growth Amazon Forests." *American Geophysical Union.* San Francisco, CA. December 2006.

Fisher, J.I., A.D. Richardson, and J.F. Mustard. "Phenology model from surface meteorology does not capture satellite-based greenup estimations." *American Geophysical Union. Eos Trans. 87(52).* San Francisco, CA. December 2006.

Fisher, J.I., J.F. Mustard, and M. Vadeboncoeur. "Green leaf phenology at Landsat resolution: scaling from the plot to satellite." *American Geophysical Union. Eos Trans. 86(52).* San Francisco, CA. December 2005.

Fisher, J.I., J.F. Mustard. "Riparian forest loss and landscape-scale change in Sudanian West Africa." *Ecological Association of America*. Portland, Oregon. August 2004.

Fisher, J.I., J.F. Mustard. "High spatial resolution sea surface climatology from Landsat thermal infrared data." *American Society for Photogrammetry and Remote Sensing (ASPRS) New England Region Technical Meeting*. Kingston, Rhode Island. November, 2004.

Fisher, J.I., J.F. Mustard, and P. Sanou. "Trajectories of vegetation change under controlled land-use in Sudanian West Africa." *American Geophysical Union*. *Eos Trans. 85(47).* San Francisco, CA. December 2004.

Fisher, J.I., J.F. Mustard. "Constructing a climatology of Narragansett Bay surface temperature with satellite thermal imagery." *The Rhode Island Natural History Survey Conference*. Cranston, RI. March, 2003.

Fisher, J.I., J.F. Mustard. "Constructing a high resolution sea surface climatology of Southern New England using satellite thermal imagery." *New England Estuarine Research Society.* Fairhaven, MA. May, 2003.

Fisher, J.I., J.F. Mustard. "High spatial resolution sea surface climatology from Landsat thermal infrared data." *Ecological Society of America Conference.* Savannah, GA. August, 2003.

Fisher, J.I., S.J. Goetz. "Considerations in the use of high spatial resolution imagery: an applications research assessment." *American Society for Photogrammetry and Remote Sensing (ASPRS) Conference Proceedings*, St. Louis, MO. March, 2001.

SEMINARS AND PRESENTATIONS

Fisher, J. 2015. "Planning for Clean Power Plan: Top Five Points for States." Presentation at the National Governor's Association Policy Academy on Clean Power Plan in Salt Lake City, UT, October 14, 2015.

Fisher, J. 2015. "Environmental Regulations in Integrated Resource Planning." Presentation at EUCI Conference in Atlanta, GA, May 14, 2015.

Fisher, J.I., R. DeYoung. 2015. "EPA's AVERT: Avoiding Emissions from the Electric Sector through Efficiency and Renewable Energy." Presentation at the 18th Annual Energy, Utility & Environment Conference & Expo (EUEC2015) in San Diego, CA, February 17, 2015.

Fisher, J. 2014. "Planning in Vertically Integrated Utilities." Presentation to the U.S. Environmental Protection Agency in Washington, DC, May 22, 2014.

Fisher, J. 2013. "IRP Best Practices Stakeholder Perspectives." Presentation at Indiana Utility Regulatory Commission Emerging Issues in IRP conference. October 17, 2013.

Fisher, J., P. Knight. 2013. Avoided Emissions and Generation Tools (AVERT): An Introduction." Presentation for EPA and various state departments of environmental quality/protection.

Takahashi, K., **J. Fisher**. 2013. "Greening TVA: Leveraging Energy Efficiency to Replace TVA's Highly Uneconomic Coal Units." Presentation at the ACEEE National Conference on Energy Efficiency as a Resource, September 23, 2013.

Fisher, J. 2011. "Emissions Reductions from Renewable Energy and Energy Efficiency in California Air Districts." Presentation for EPA State Climate and Energy Program, June 14, 2011.

Fisher, J., B. Biewald. 2011. "WECC Coal Plant Retirement Based On Forward-Going Economic Merit." Presentation for Western Grid Group, January 10, 2011.

Fisher, J. 2010. "Protecting Electricity and Water Consumers in a Water-Constrained World." Presentation to the National Association of State Utility Consumer Advocates, November 16, 2010.

James, C., **J. Fisher**, D. White, and N. Hughes. 2010. "Quantifying Criteria Emissions Reductions in CA from Efficiency and Renewables." CEC / PIER Air Quality Webinar Series, October 12, 2010.

Fisher, J. 2008. "Climate Change, Water, and Risk in Electricity Planning." Presentation at National Association of Regulatory Utility Commissioners (NARUC) Conference in Portland, OR, July 22, 2008.

Fisher, J., E. Hausman, and C. James. 2008. "Emissions Behavior in the Northeast from the EPA Acid Rain Monitoring Dataset." Presentation at Northeast States for Coordinated Air Use Management (NESCAUM) conference in Boston, MA, January 30, 2008.

Fisher, J.I., J.F. Mustard, and M. Vadeboncoeur. 2006. "Climate and phenological variability from satellite data. Ecology and Evolutionary Biology," Presentation at Tulane University, March 24, 2006.

Fisher, J.I., J.F. Mustard, and M. Vadeboncoeur. 2005. "Anthropogenic and climatic influences on green leaf phenology: new observations from Landsat data." Seminar presentation at the Ecosystems Center at the Marine Biological Laboratory in Woods Hole, MA, September 27, 2005.

Fisher, J.I., J.F. Mustard, "High resolution phenological modeling in Southern New England." Seminar at the Woods Hole Research Center in Woods Hole, MA, March 16, 2005.