

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

**ELECTRONIC APPLICATION OF
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC
COMPANY FOR CERTIFICATES OF
PUBLIC CONVENIENCE AND NECESSITY
AND SITE COMPATIBILITY
CERTIFICATES**

Case No. 2025-00045

**Direct Testimony
of
Jeremy I. Fisher, PhD**

**On Behalf of
Sierra Club**

June 16, 2025

1 **1. INTRODUCTION AND PURPOSE OF TESTIMONY**

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

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

6 **Q Please describe your role at Sierra Club.**

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

11 **Q Please summarize your work experience and educational background.**

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

22 At Sierra Club I provide technical and advisory support to our legal, policy, and
23 state teams working on energy issues, including in utility planning matters and
24 energy siting issues, amongst other issues. Since 2021, my job responsibilities
25 have included working to understand and respond to the growth of data centers,
26 both for cryptocurrency mining and in cloud compute and artificial intelligence.
27 In 2022, I coauthored an extensive review of cryptocurrency mining impacts on

1 the electric grid, including the first ground-up survey of the industry’s scale,¹ and
2 in 2024 I led a review and policy recommendations paper consolidating potential
3 utility approaches to data center demand called “Demanding Better.”²

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

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

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

9 **A** Yes. I previously appeared before the Kentucky Public Service Commission
10 (“Commission”) in for planning dockets associated with Kentucky Utilities /
11 Louisville Gas and Electric (“KU / LG&E” or “Companies”) in Dockets 2018-
12 00294/2018-00295 and 2011-00161/2011-00162, and Kentucky Power
13 Company’s environmental compliance plan in Docket 2011-00401.

14 **Q What is the purpose of your testimony?**

15 **A** My testimony assesses the broad claim of the Companies that significant new data
16 center demand in Kentucky requires that they fast-track new energy
17 infrastructure. I provide national context for the Companies’ statement that they
18 have attracted over 6,000 MW of data center “economic development,” and
19 compare the Companies’ approach against that used by other utilities. I provide a
20 recommendation for how the Companies’ can pursue load growth while
21 minimizing risk and adverse impacts on their customers.

22 My testimony provides an overview of the national context for data center load
23 growth, and how other utilities are addressing this sector. Sierra Club witness Ms.

¹ The Energy Bomb: How Proof-of-Work Cryptocurrency Mining Worsens the Climate Crisis and Harms Communities Now. Sierra Club and Earthjustice. 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>

1 Chelsea Hotaling describes the Company's large load queue in more specific
2 detail, and provides a specific recommendation with respect to the Company's
3 CPCN.

4 **Q Can you please summarize your findings?**

5 **A** I find that the Companies' data center forecast reflects a broader speculative
6 environment around data center development, and when evaluating the criteria
7 established by Ms. Hotaling, appear to rely on less well-established criteria than
8 used by other utilities.

9 **Q What is your recommendation regarding the Companies' data center load**
10 **forecast?**

11 **A** I recommend that the Commission require the Companies adopt a forecasting
12 methodology for large load customers that minimizes risk and harm to existing
13 customers and the utility. Specifically, the utility must first have steps in place to
14 temper speculation and hold large load customers financially accountable,
15 including tariffs that appropriately allocate cost causation and utilize appropriate
16 financial commitments from large load customers prior to investing in
17 infrastructure at the behest of those customers.

18 With respect to the specific supply side resources requested in this proceeding to
19 meet data center load growth, I refer back to the recommendations of Ms.
20 Hotaling.

1 **2. THE COMPANIES' ASSESSMENT OF DATA CENTER ECONOMIC DEVELOPMENT LOAD**
2 **IS OVERSTATED**

3 **Q What are the Companies forecasting for new load growth, and what**
4 **underlies that growth?**

5 **A** The Company is forecasting that its summer system peak will grow nearly 30
6 percent, from 6,230 MW in 2025 to 8,034 MW by 2032.³ The Company forecasts
7 the bulk of this growth will occur between 2027 and 2032,⁴ amounting to a nearly
8 5.2 percent growth rate across all customer classes. The Companies also forecast
9 that their energy requirements will “climb sharply” from 32,808 GWh in 2025 to
10 48,129 GWh in 2032, a nearly 47 percent increase, or 8 percent annual growth
11 rate between 2027 and 2032.

12 This enormous growth is entirely premised on 2,000 MW of what the Companies
13 refer to as “economic development load,”⁵ the vast majority of which (1,750 MW
14 or 88 percent) is ascribed to prospective, potential data center clients.

15 Notably, about one-third of the Companies’ load today is commercial sector –
16 approximately 10,000 GWh, a value which has decreased slightly in the last
17 decade.⁶ The projected 25,300 GWh increase forecast by the Companies from
18 2027 to 2032, if validated, would represent a staggering 250 percent increase in
19 their commercial sector energy requirements.

20 The Companies’ request for Certificate of Public Convenience and Necessity
21 (“CPCN”) is premised primarily on the presence of a small number of very large
22 new data centers,⁷ meaning that the risk is quite high.

³ Direct Testimony of Mr. Tim Jones, page 3 at 20-21

⁴ Direct Testimony of Mr. Tim Jones, Figure 3.

⁵ Direct Testimony of Mr. Tim Jones, page 4 at 6.

⁶ Energy Information Administration, Form 861, 2023 and 2013.

⁷ The Companies provide an accounting of current economic development loads in response to PSC 2-17, in attachment 12-PSC_DR2_LGE_KU_Attach_to_Q17(g)_Updated_KIUC_DR1-33(a)_Project_Tracking_05.12.25. The attachment indicates that of 8,832 MW of peak load economic

1 **Q What is the basis for the Companies data center growth projections?**

2 **A** The Companies’ data center growth projections are based on the Companies’
3 understanding that they have “more than 6,000 MW of total data center load” in
4 their “economic development queue.”⁸ Sierra Club witness Ms. Chelsea Hotaling,
5 describes the Company’s queue in more specific detail.

6 **Q What do the Companies mean by “economic development queue”?**

7 **A** The Companies use the term “economic development queue” or “pipeline” to
8 refer to requests or inquiries that they have received from potential large load
9 customers. The Companies explain that these range from “request[s] for high-
10 level information,” which the Companies term an “Inquiry” stage to a “formal
11 public decision to locate in the Companies’ service territory and have signed a
12 contract for electric service,” or what the Companies term “Announced.”⁹ The
13 Companies further subdivide queries into various stages of information gathering
14 from prospective customers. The queue is described in more detail by Ms.
15 Hotaling.

16 Critically, no project has yet made it to the “announced” stage of development,
17 and only one project is even considered at the “imminent” stage.

18 **Q Companies’ witness Mr. Bellar asserts that the queue for data centers is**
19 **evidence that the state’s efforts to attract economic development**
20 **opportunities to Kentucky are working. Is Kentucky’s queue for data center**
21 **development unique to the state?**

22 **A** No. Based on my review of other utility findings and announcements, as well as
23 third-party analyses of recent data center development trends, Kentucky’s slate of
24 inquiries is indicative of nationwide speculation that may put unwary utilities, and

development opportunities, 6,182 MW (or 70 percent) are associated with 21 data centers, averaging just under 300 MW each.

⁸ Direct Testimony of John Bevington, page 15 at 4-6

⁹ Response to PSC Staff 1-18(c).

1 their incumbent customers, at risk. Other utilities, facing similar seemingly
2 unbounded enthusiasm for data centers from prospective customers are putting in
3 place firm guardrails to both protect themselves and incumbent ratepayers, and
4 tamp down on speculation.

5 While I'll discuss this further later, the sheer scale of open inquiries coming from
6 data center developers clearly indicates that there is widespread scouting and
7 speculation, which should make utility providers like the Companies wary. Expert
8 observers have projected that non-cryptocurrency mining data centers like those
9 in the Companies' economic development queue¹⁰ (i.e. cloud compute, artificial
10 intelligence, and enterprise) could grow to as much as 100 GW nationally by
11 around 2030,¹¹ comprising about 16 percent of future electricity demand across
12 all sectors.¹²

13 In a recent review of utility filings, I found 17 utility parent companies that
14 purported to have over 409 GW of data center load in their economic
15 development pipeline, another six parent companies claiming over 300 GW of

¹⁰ For clarity, I will use the term "data center" in this testimony to refer to non-cryptocurrency mining operations (i.e. bitcoin and similar proof of work cryptocurrency). The Companies both indicate that "There are no cryptocurrency projects in the economic development pipeline currently," (Response to JI 1.5(i)) and the Companies' extended description of data center customers is counter indicative of cryptocurrency mining. For example, the Companies indicate the data center customers are seeking uninterrupted service and average load factors of 95% (Direct Testimony of John Bevington, p14 at 17-19) and that the issue of demand response has not arisen in the Company's data center interactions to date (Response to JI 1.118(d)). Because their processing is very short-run and not responsive to client requests, cryptocurrency mining facilities are generally amenable to demand response programs, and do not require premium uninterrupted service.

¹¹ See McKinsey, October 29, 2024. AI power: Expanding data center capacity to meet growing demand. (Upper Range scenario) Available online at <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/ai-power-expanding-data-center-capacity-to-meet-growing-demand>; see also Goldman Sachs, February 4, 2025. AI to drive 165% increase in data center power demand by 2030. Available online at <https://www.goldmansachs.com/insights/articles/ai-to-drive-165-increase-in-data-center-power-demand-by-2030>; see also Shehabi, A., S. Smith. A. Hubbard. December, 2024. 2024 United States Data Center Energy Usage Report. Lawrence Berkeley National Laboratory. Available online at <https://www.energy.gov/articles/doe-releases-new-report-evaluating-increase-electricity-demand-data-centers>

¹² Author's calculation. According to EIA Form 861, US electricity demand was approximately 3,725 TWh in 2023. In 2024, there were an estimated 40 GW of data center online, with an estimated demand of 300 TWh (85% load factor estimate). Growing non-data center load by 2% per year through 2030 yields 3,940 TWh of non-data center consumption; 100 GW of data centers could consume about 745 TWh, or about 16% of 4,682 TWh total consumption.

1 unspecified economic development pipeline (often implied as data center) for
2 **nearly 711 GW of speculative data center load.** If those inquiries all transpired,
3 the data center sector alone would consume substantially more than all other
4 sectors, combined. The “economic pipeline” for data centers shown by just these
5 23 utilities alone is seven times larger than forecasts by industry watchers.

6 There is no evidence to suggest that the market for data centers is anywhere near
7 this robust. In my opinion these numbers indicate that one should absolutely not
8 use the economic development pipeline as indicative of real scale.

9 While it is certainly the case that the data center industry is burgeoning, and it
10 may also be the case that the state’s efforts to attract economic development are
11 working writ large, we should treat promises of development at this scale
12 skeptically, and be cautious about exposing ratepayers to risk associated with
13 speculative growth.

14 **Q Can you provide some broad context for the data center market that’s**
15 **developing today?**

16 **A** Yes. As a first matter, its helpful to understand that general landscape of data
17 centers that have and are being developed, how different developers slot into that
18 ecosystem. The largest single set of data center owners today are the so-called
19 “hyperscalers,” or well-known name brand companies that both own data centers
20 and the computing facilities in the data centers, and generally operate large-scale
21 cloud services for themselves and their customers. Approximately 17 GW of
22 operational data centers today are owned and operated by Meta, Amazon, Google,
23 and Microsoft.

24 In the next tier of ownership are leased data centers. These facilities build data
25 centers and much of the associated infrastructure and then lease space in the data
26 center to enterprise or hyperscale customers, either in bulk (i.e. a whole data
27 center) or at the rack scale. These facilities comprise around 20 GW of
28 operational data centers today. Some of the largest owners are entities like Digital

1 Realty, CyrusOne, QTS, and Vantage. While not as concentrated as hyperscalers,
2 that market is still relatively highly concentrated.

3 In addition to the larger data centers that target cloud services and AI, there are a
4 large number of small data centers that may have specialized purposes (*e.g.*
5 telecommunications) or provide storage, computing, or internet services to
6 specific businesses.

7 The last large tranche of data centers under development are what have been
8 termed “powered shell” developers. These are generally real estate companies
9 who have a business buying property, establishing interconnection, and then
10 flipping the property to an established company. There is very little track record
11 behind many of these companies, or if that model will be successful.

12 Historically, data center development has been highly clustered. Large nexuses
13 today include Northern Virginia (although the hub is spreading south rapidly),
14 Oregon, Chicago, San Jose, Phoenix, Omaha, Dallas, Columbus, and Atlanta. Of
15 those, only Northern Virginia, Oregon, Chicago, San Jose, and Phoenix have
16 more than two gigawatts of data center demand today. Those clusters emerge for a
17 few different reasons. Northern Virginia was a historic hub, close to government
18 services, and directly on the east coast fiber lines, and data centers clustered there
19 to reduce the transmission of data between servers. Oregon has historically had
20 access to low-cost hydroelectricity, and is where most transpacific fiber arrives in
21 the US. Chicago offered access to lower cost energy and proximity to data users.
22 San Jose is the heart of Silicon Valley and some of the largest users. Phoenix has
23 been able to offer large land areas, a burgeoning population, and access to low
24 marginal cost solar. The closest analog to Kentucky’s situation is probably Ohio,
25 where Amazon made early inroads through incentive rates and tax breaks.

26 For most applications, including artificial intelligence, many technology
27 companies are still primarily interested in access to low lag times between their
28 ultimate customers, but have started placing data centers further afield. An

1 exception to this may be the development of unique artificial intelligence training
2 centers, which do not necessarily require proximity to customers.

3 **Q Can you help put the Companies' data center development queue in**
4 **perspective?**

5 **A** Yes. In the last two years, the world of data centers has quickly attracted a wealth
6 of prospectors and speculators hoping to cash in on the enormous sums going into
7 technology companies. Its important to note that while there is extraordinary
8 investment capital flowing towards data centers, there is very little clarity – even
9 within technology companies – about the ultimate scale of demand for the
10 services that are being developed.

11 In my observation, since mid-2024, every month has seen a new slate of
12 announcements from both data center developers and utilities. For example, on
13 May 8, 2025 Evergy (KS / MO) announced more than 12.2 GW in their large
14 customer pipeline (implied as primarily data centers),¹³ and one week later on
15 May 14, Ameren (MO) announced an economic development pipeline for data
16 centers of 17.4 GW.¹⁴

17 The scale of speculation is dizzying with land deals and real estate
18 announcements for potential data centers emerging almost daily. For example, in
19 just the month prior to this testimony:

20 • May 7, 2025: A powered shell developer purchased 1,515 acres in outside
21 of San Antonio, Texas for a proposed 360 MW facility,¹⁵

¹³ See Evergy. May 8, 2025. First Quarter 2025 Earnings Call (Presentation). Available online at <https://investors.evergy.com/static-files/5ef38971-0e2c-4f5f-8f39-04a9479dd7fc>; See also the Direct Testimony of Mr. Darrin Ives in Kansas PSC Docket 25-EKME-315-TAR, filed February 11, 2025. Available online at <https://estar.kcc.ks.gov/estar/ViewFile.aspx/S202502111453257308.pdf?Id=075013d2-4f39-4288-a979-0ca429633181>

¹⁴ See Direct Testimony of Mr. Robert Dixon in Missouri PSC Docket ET-2025-0184, filed May 14, 2025. Figure 3. Available online at <https://efis.psc.mo.gov/Document/Display/832446>

¹⁵ Tract. May 7, 2025. Tract Closes Acquisition of 1,515 acres in Caldwell County, Texas for Multi-Gigawatt Data Center Technology Park. Available online at <https://www.tract.com/news/tract-closes-acquisition-of-1515-acres-in-caldwell-county-texas-for-multi-gigawatt-data-center-technology-park/>

- 1 • May 21, 2025: A consortium announced a 1.2 GW data center in Abilene,
2 Texas,¹⁶
- 3 • May 28, 2025: A venture capitalist purchased 2,100 acres outside of
4 Phoenix, Arizona for a proposed 1.5 GW data center;¹⁷
- 5 • May 30, 2025: Google announced that it would expand data centers in
6 Iowa;¹⁸
- 7 • June 1, 2025: Vantage announced that it would use 500 acres of land
8 outside of Columbus, Ohio for an estimated 800 MW data center.¹⁹
- 9 • June 2, 2025: Bit Digital announced that it had acquired an industrial site
10 in North Carolina for a 75 – 200 MW data center;²⁰
- 11 • June 4, 2025: Amazon indicated that it would invest in a large data center
12 campus in North Carolina;²¹

¹⁶ Crusoe. May 21, 2025. Crusoe, Blue Owl Capital, and Primary Digital Infrastructure Enter Second Phase of \$15 Billion Joint Venture to Fund AI Data Center in Abilene, Texas. *Available online at* <https://crusoe.ai/newsroom/crusoe-blue-owl-capital-and-primary-digital-infrastructure-enter-joint-venture/>

¹⁷ Data Center Knowledge. May 28, 2025. Venture Capitalist Palihapitiya Places Data Center Bet in Arizona. *Available online at* <https://www.datacenterknowledge.com/data-center-construction/venture-capitalist-palihapitiya-places-data-center-bet-in-arizona>

¹⁸ Payne, M. May 30, 2025. Google announces \$7 billion investment in Iowa, including new Cedar Rapids data center. Des Moines Register. *Available online at* <https://www.desmoinesregister.com/story/news/2025/05/30/google-will-invest-7-billion-in-iowa-cedar-rapids-data-center-council-bluffs/83944046007/>

¹⁹ Swinhoe, D. June 1, 2025. Vantage targets data center campus outside Columbus, Ohio . Data Center Dynamics. *Available online at* <https://www.datacenterdynamics.com/en/news/vantage-targets-data-center-campus-outside-columbus-ohio/>

²⁰ Bit Digital. June 2, 2025. WhiteFiber Inc., Bit Digital’s AI Unit, acquires ~1,000,000 square foot North Carolina Industrial Property to Support up to 200 MW HPC Data Center Campus. *Available online at* <https://bit-digital.com/press-releases/whitefiber-inc-bit-digitals-ai-unit-acquires-1000000-square-foot-north-carolina-industrial-property-to-support-up-to-200-mw-hpc-data-center-campus/>

²¹ AP News. June 4, 2025. Amazon planning \$10B investment in North Carolina for data center and AI campus. *Available online at* <https://apnews.com/article/amazon-north-carolina-data-center-jobs-338bef3890bb61159e1b6bedfd2efbb5>

- 1 • June 5, 2025: Digital Realty announced that it would seek to develop two
2 sides in Atlanta for around 200 MW of capacity;²²
- 3 • June 10, 2025: A developer announced the acquisition of 786 acres outside
4 of Austin, Texas for a data center of unspecified size;²³

5 Despite the rush of announcements it is remarkably unclear how much of this
6 market will actually be supported by eventual use cases.

7 **Q Do other utilities also think that they have an economic development pipeline**
8 **for data centers at the same scale of the Companies here?**

9 **A Yes, and far in excess of the Companies in many cases.**

10 I conducted an informal survey of materials provided by 64 primarily large
11 investor-owned utilities, including regulatory filings and investor presentations.
12 Within that set, I found fifteen utilities that clearly stated their economic
13 development pipeline, including the Companies' parent company, PPL. In total,
14 the pipeline comprised 396 GW, including "over 50GW" at the Companies'
15 Pennsylvania affiliate.²⁴ Oncor (TX) has claimed 156 GW in its inquiry queue,
16 FirstEnergy (OH) claimed 80 GW, Dominion (VA) 21.4 GW, Ameren (MO) 17.4
17 GW, and Rappahannock (VA) 16 GW.

18 In addition to these, I found another five utilities that discussed their overall large
19 load economic pipeline without specifying which were data centers. Many
20 implied that these inquiries were heavily influenced by data centers. Amongst the
21 largest entities were claims by American Electric Power for 180 GW in their

²² Swinhoe, D. June 5, 2025. Digital Realty files to develop two-building campus outside Atlanta, Georgia .Available online at <https://www.datacenterdynamics.com/en/news/digital-realty-files-to-develop-two-building-campus-outside-atlanta-georgia/>

²³ Swinhoe, D. June 10, 2025. Sabey looks to develop data center campus outside Austin, Texas. Data Center Dynamics. Available online at <https://www.datacenterdynamics.com/en/news/sabey-looks-to-develop-data-center-campus-outside-austin-texas/>

²⁴ PPL Corporation. April 30, 2025. 1st Quarter 2025 Investor Update. Available online at https://investors.pplweb.com/image/PPL_2025_Q1_Investor_Update_vFINAL.pdf

1 pipeline, Southern Company for 50 GW, CenterPoint's for 47 GW, and Evergy
2 for 12 GW.

3 In total, if we took the likely data center economic development claims from these
4 20 utilities, we would arrive at a (staggering) total of 697 GW. If that entire
5 pipeline transpired, data centers alone would consume 40 percent more than the
6 entire US electric system today. Clearly there is a massive overstatement in the
7 pipeline.

8 **Q How have other utilities treated the economic development pipeline relative**
9 **to their planning?**

10 **A** It varies, but generally speaking, utilities – even those in highly established data
11 center areas - deeply discount the data center economic pipeline. For example,
12 FirstEnergy states they've conducted 100 large load studies for 80 GW, but
13 include just 2.6 GW of "active or contracted demand" comprising just 3.25
14 percent of that pipeline, in their base investment plan.²⁵ Exelon indicates that it
15 has approximately 1.5 GW of data centers under construction out of a 16 GW
16 pipeline, or about 10 percent.²⁶

17 NV Energy, which is facing one of the fastest verified growing data center
18 markets in the country outside of Reno at a 27 percent annual growth rate,²⁷ takes
19 a relatively conservative approach downweighing both data centers that have put
20 in formal study requests, as well as those that have signed line extension

²⁵ FirstEnergy. April 23, 2025. 1Q 2025 Strategic & Financial Highlights. Available online at https://s27.q4cdn.com/655807321/files/doc_financials/2025/q1/1Q25-FE-Strategic-Financial-Highlights.pdf

²⁶ Exelon. May 9, 2025. Spring 2025 Investor Presentation. Available online at <https://investors.exeloncorp.com/static-files/a0bf74a1-d7c1-4911-9702-b20fe7fa7030>

²⁷ See S&P Global Market Intelligence. Nevada Datacenters and Energy Report. October 2024. Available online at <https://pages.marketintelligence.spglobal.com/Datacenter-renewables-US-Datacenter-and-Energy-Report-MS.html>

1 requests.²⁸ In total, the utility is planning for 2.2 GW of a 7.6 GW pipeline (as of
2 mid-2024).

3 In contrast, PacifiCorp, serving seven western states, effectively discounts its
4 prospective data center forecast from 6.1 GW in 2030 to zero in its baseline
5 assessment.²⁹

6 Dominion, which has seen the longest sustained data center growth, is planning
7 for about 8 GW based on finalized electric service agreements out of 21.4 GW of
8 data center that have at least executed Substation Engineering Letters of
9 Authorization (i.e. the inquiry pipeline could be far higher), or about 37 percent of
10 those which have progressed to an engineering stage.³⁰

11 Ms. Hotaling describes the threshold for inclusion in load forecasts used by
12 several utilities in PJM.

13 **Q Are experts concerned about the potential for deep speculation in the data
14 center market and the risk that poses to utilities?**

15 **A** Absolutely. Expert observers have expressed concern about not only the
16 uncertainty underlying the actual trends in data center load growth, but how that
17 speculation may negatively impact utilities and generation providers. For
18 example, a February report from the Bipartisan Policy Center captures the levels
19 of uncertainty:

20 Load growth due to data centers in a specific region can be
21 difficult to predict. Data center developers consider multiple states

²⁸ NV Energy IRP, Before the Nevada Public Service Commission in Docket 24-05041. Volume 6, pages 10-11. Available online at https://www.nvenergy.com/publish/content/dam/nvenergy/brochures_arch/about-nvenergy/rates-regulatory/recent-regulatory-filings/irp/IRP-Volume-6.pdf

²⁹ See PacifiCorp 2025 Integrated Resource Plan, Volume 2, Figure A.5 (p18). Available online at https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/integrated-resource-plan/2025-irp/2025_IRP_Vol_2.pdf

³⁰ Dominion Energy. 2024 Integrated Resource Plan. Virginia SCC Docket PUR-2024-00184. Available online at https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/company/irp/2024-irp-w_o-appendices.pdf

1 as possible locations for data centers, and they query multiple
2 utilities simultaneously for electricity rates and incentives prior to
3 making a final selection. Therefore, counting data center project
4 proposals to forecast load growth can result in the overestimation
5 of data centers likely to be built in a specific service territory.³¹

6 Peter Freed, the former director of energy strategy at Meta, the largest data center
7 owner in the United States today, described the “rampant speculative behavior by
8 developers across the country,” as derived from a variety of sources, including
9 “several different load interconnection requests for one viable project or a single
10 request for a half-baked opportunity.”³² He and co-author former-FERC
11 commissioner Alisson Clements, suggested that one important principle to reduce
12 speculation and risk is that “interconnecting utilities should apply sound
13 principles of rate design, especially cost causation, to the allocation of large load
14 interconnection costs.”³³ Finally, Todd Snitchler, the director of the Electric
15 Power Supply Association (EPSA), a merchant generation trade association, has
16 called utility load forecasts that rely on data center load growth verging on
17 “irrational exuberance,” and that “estimates are often wildly optimistic,”³⁴ which
18 shifts risk to utilities.

³¹ Koomey, J., Z. Schmidt, and T. Das. February 2025. Electricity Demand Growth and Data Centers: A Guide for the Perplexed. Bipartisan Policy Center. Available online at <https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2025/02/BPC-Report-Electricity-Demand-Growth-and-Data-Centers-A-Guide-for-the-Perplexed.pdf>

³² Freed, P. and A. Clements. February 19, 2025. How to reduce large load speculation? Standardize the interconnection process. Utility Dive. Available online at <https://www.utilitydive.com/news/data-center-large-load-interconnection-process-clements/740272/>

³³ *Id.*

³⁴ Snitchler, T. January 15, 2025. Load forecasts from data centers risk falling into irrational exuberance territory. Utility Dive. Available online at <https://www.utilitydive.com/news/load-forecasts-data-centers-risks-consumers-cost-epsa/737280/>

1 **3. CONCLUSIONS**

2 **Q What are your observations about the Companies' forecast methodology**
3 **given how other utilities have assessed potential data center demand?**

4 **A** Relative to other utilities that I've assessed, the Companies apply far more weight
5 to less developed data center proposals in their consideration.

6 Kentucky, to date, has relatively little track record of building data centers, and
7 has not generally been seen as a target state for expansion by established
8 hyperscalers or colocation providers. My impression is that the data center
9 developers targeting the Companies service territory are speculating on the
10 potential to build and sell data centers in a novel environment. While that may be
11 a valid business model for a developer, in my opinion it should not drive the
12 Companies towards risk-taking behavior.

13 **Q What is your finding with respect to the Companies' data center forecast**
14 **based on its economic development pipeline?**

15 **A** I find that the Companies' data center forecast reflects a broader speculative
16 environment around data center development, and when evaluating the criteria
17 established by Ms. Hotaling, appear to rely on less well-established criteria than
18 used by other utilities. Under that rubric, the forecast in this CPCN is largely
19 premature, as the Companies are insufficiently insulated from speculative
20 customer risk.

21 **Q What is your recommendation regarding the Companies' data center load**
22 **forecast?**

23 **A** I recommend that the Commission require the Companies adopt a forecasting
24 methodology for large load customers that minimizes risk and harm to existing
25 customers and the utility. Specifically, the utility must first have steps in place to
26 temper speculation and hold large load customers financially accountable,
27 including tariffs that appropriately allocate cost causation and utilize appropriate

1 financial commitments from large load customers prior to investing in
2 infrastructure at the behest of those customers.

3 With respect to the specific supply side resources requested in this proceeding to
4 meet data center load growth, I refer back to the recommendations of Ms.
5 Hotaling.

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

**ELECTRONIC APPLICATION OF
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC
COMPANY FOR CERTIFICATES OF
PUBLIC CONVENIENCE AND NECESSITY
AND SITE COMPATIBILITY
CERTIFICATES**

Case No. 2025-00045

AFFIDAVIT OF JEREMY FISHER FOR DIRECT TESTIMONY

State of)
California)

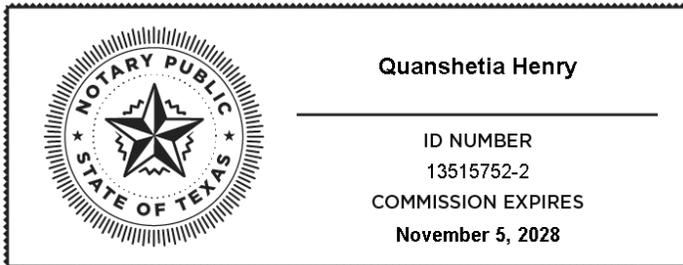
Affiant Jeremy Fisher, being first duly sworn, states the following: The prepared Direct Testimony and associated exhibits filed on June 16, 2025, constitute the direct testimony of Affiant in the above-captioned case. Affiant states that he would give the answers set forth in the Direct Testimony, if asked the questions propounded therein. Affiant further states that, to the best of his knowledge, his statements made are true and correct.



Jeremy Fisher

Notary Public, State of Texas, COUNTY OF COLLIN

SUBSCRIBED AND SWORN to before me this 13th day of June, 2025.



Electronic Notary Public

Quanshetia Henry

Electronically signed and notarized online using the Proof platform.

Jeremy Fisher, PhD.

Curriculum Vitae

Sierra Club. 2101 Webster Avenue. Oakland, California. Suite 1300.
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Jeremy.Fisher@sierraclub.org

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 novel 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

Research Assistant (2001-2006)

Providence, Rhode Island

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

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.

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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. Wachspres. 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.

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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.

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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.

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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.

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