

Exhibit No.: _____
Issue(s): RES Retail Rate Impact Calculation
Policy, Overview
Witness: Ezra D. Hausman, Ph.D.
Type of Exhibit: Rebuttal Testimony
Sponsoring Party: Missouri Solar Energy Industries Assn.
Case No: ET-2014-0071
Date: September 23, 2013

MISSOURI PUBLIC SERVICE COMMISSION

File No. ET-2014-0071

REBUTTAL TESTIMONY

OF

EZRA D. HAUSMAN, PH.D.

ON BEHALF OF

**THE MISSOURI SOLAR ENERGY
INDUSTRIES ASSOCIATION**

**Cambridge, Massachusetts
September 2013**

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Exhibit EDH-1: Resume of Ezra D. Hausman, Ph.D.

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Case No. ET-2014-0071

1 **1. INTRODUCTION AND QUALIFICATIONS**

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

3 A: My name is Ezra D. Hausman, Ph.D., and I am Vice President and Chief
4 Operating Officer of Synapse Energy Economics (“Synapse”), located at 485
5 Massachusetts Avenue, Cambridge, Massachusetts, 02139.

6 **Q: Please describe Synapse Energy Economics.**

7 A: Synapse Energy Economics is a research and consulting firm specializing in
8 energy and environmental issues, including electric generation, transmission and
9 distribution system reliability, ratemaking and rate design, electric industry
10 restructuring and market power, electricity market prices, stranded costs,
11 efficiency, renewable energy, environmental quality, and nuclear power.

12 Synapse’s clients include state consumer advocates, public utilities commission
13 staff, attorneys general, environmental organizations, federal government
14 agencies, and utilities. A complete description of Synapse is available at our
15 website, www.synapse-energy.com.

16 **Q: Please summarize your relevant work experience and your educational**
17 **background.**

18 A: I have been employed by Synapse since July of 2005, and I have served as vice
19 president of Synapse since July 2009. While employed at Synapse I have
20 provided expert analysis and testimony in numerous cases involving electricity,
21 generating capacity, and ancillary service markets, electricity price forecasting,
22 resource planning, environmental compliance, and economic analysis. I have
23 prepared reports on these and other related topics for clients including federal and

1 state agencies; offices of consumer advocate; legislative bodies; cities and towns;
2 non-governmental organizations; foundations; industry associations; and resource
3 developers. I have also facilitated and served as an expert analyst for state-level
4 stakeholder and legislative processes related to electricity resource planning and
5 mitigation of greenhouse gas emissions.

6 From 1997 until 2005, I was employed as a Senior Associate with Tabors
7 Caramanis & Associates (TCA), now part of CRA International, performing a
8 wide range of electricity market and economic analyses and price forecast
9 modeling studies. These included asset valuation studies, market transition
10 cost/benefit studies, market power analyses, and litigation support. I have
11 extensive personal experience with market simulation, production cost modeling,
12 and resource planning methodologies and software.

13 I hold a B.A. from Wesleyan University, an M.S. in civil engineering from Tufts
14 University, an S.M. in applied physics from Harvard University and a Ph.D. in
15 atmospheric chemistry from Harvard University.

16 A copy of my current resume is attached as Exhibit EDH-1 to this testimony.

17 **Q: On whose behalf are you appearing in this proceeding?**

18 A: I am appearing on behalf of the Missouri Solar Energy Industries Association
19 (MOSEIA).

20 **Q: Have you testified previously before the Public Service Commissions in the**
21 **State of Missouri or elsewhere?**

22 A: I filed direct testimony on similar issues earlier this month under Case No. ET-
23 2014-0059. I also served as an expert participant in a stakeholder process
24 sponsored by the Missouri Commission under Docket No. EW-2010-0187 in
25 2010.

26 I have also presented expert testimony before commissions in the states of
27 Arkansas, Iowa, Kansas, Mississippi, Nevada, New Hampshire, South Dakota,

1 Vermont, and Washington. I have testified before state regulatory and/or
2 legislative bodies in Illinois, Massachusetts, and Vermont, and I have served on
3 an expert technical panel before the Federal Energy Regulatory Commissions.
4 Further details are provided in Exhibit EDH-1.

5 **Q: What is the purpose of your rebuttal testimony?**

6 A: I am rebutting the testimony of KCP&L witnesses Burton L. Crawford and Tim
7 M. Rush. Specifically, I am addressing the following issues:

- 8 1. Cost accounting for solar rebates;
- 9 2. Appropriate treatment of existing wind resources in KCP&L's portfolio with
10 respect to the 1% Retail Rate Impact ("RRI") limitation; and
- 11 3. Appropriate consideration of future wind projects and their impact on funds
12 available for solar rebates today.

13 **Q: What are your overall conclusions?**

14 A: I conclude that:

- 15 1. Witnesses Rush and Crawford have overstated the short-term cost of solar rebates
16 by accounting for them as cash outlays, whereas a more appropriate treatment in
17 this case would be to amortize them over the life of the resource;
- 18 2. Mr. Crawford and the company correctly treat pre-existing wind resources as
19 "existing" and include it in the non-renewable portfolio, as these resources were
20 not selected for the primary purpose of meeting RES requirements;
- 21 3. It is premature, overly conservative, and inappropriate to include the unknown
22 future cost of additional RES-related wind in calculating the RRI during the years
23 before such resources are constructed or procured; further, wind resources that are
24 procured for meeting Kansas requirements have are not incurred for the purpose
25 of meeting Missouri RES compliance costs and should not be considered with
26 respect to the 1% RRI limitation.

1 **2. COST ACCOUNTING FOR SOLAR REBATES**

2 **Q: How do witnesses Crawford and Rush treat solar rebate costs when**
3 **calculating RRI?**

4 A: Mr. Crawford states that “KCP&L estimated the amount of solar rebates to be
5 paid in 2013 based on recent history of rebate payments,” (5 at 17) and included
6 the total of those expenditures in the 2013 planning year. Mr. Rush similarly
7 describes “KCP&L’s current forecast” as “\$14 million in solar rebate payments
8 by the end of 2013” (5 at 10). Although neither witness articulates it directly, my
9 understanding is that they are describing the number of dollars paid to customers
10 in solar rebates, and assuming that these should be considered dollar-for-dollar in
11 calculating the rate impact.

12 **Q: Do you believe that this is the correct way to determine the impact of solar**
13 **rebates on rates? If not, please describe how you feel this impact should be**
14 **calculated differently.**

15 A: No. I believe that if the solar rebate program is seen as procurement of long-lived
16 resources on behalf of KCP&L’s customers, they should be financed, amortized,
17 and funded over the life of the resource. I base this opinion on the fact that in
18 Missouri in particular, solar rebates are treated as resource procurement under the
19 RES law—for example, under the recently signed and enacted House Bill No. 142
20 of 2013, 393.1030.3 now states:

21 As a condition of receiving a rebate, customers shall transfer to the
22 electric utility all right, title, and interest in and to the renewable
23 energy credits associated with the new or expanded solar electric
24 system that qualified the customer for the solar rebate for a period
25 of ten years from the date the electric utility confirmed that the
26 solar electric system was installed and operational. (HB 142, 11 at
27 88)

28 KCP&L is making investments for the purpose of procuring Solar Renewable
29 Energy Credits (S-RECs) for ten years; therefore, the rate impact of this
30 procurement should be similarly spread over ten years.

1 **Q: How are the costs of compliance with renewable portfolio standards**
2 **generally passed on to ratepayers?**

3 A: In calculating the appropriate rate treatment of costs incurred for compliance with
4 a renewable portfolio standard (including the RES as defined under 4 CSR 240-
5 20.100 (1)(L)) it is useful to consider the available approaches for meeting such a
6 requirement.

7 In general, there are four ways to meet a portfolio standard requirement, all of
8 which are available to KCP&L and other utilities in Missouri and elsewhere.

- 9 1) The utility may use RECs produced by existing qualifying renewable
10 resources in its portfolio, assuming these RECs have not been sold to or
11 retired by any other party; KCP&L is partly relying on this approach, using
12 the Spearville facility, for the non-solar portion of its RES requirement.¹
- 13 2) The utility may self-build qualifying renewable resources, and retire the RECs
14 produced by these new resources.
- 15 3) The utility may enter into a long-term power purchase agreement with a new
16 or existing qualifying resource owned by third parties, with the stipulation that
17 the purchasing party assumes ownership of the associated RECs. KCP&L is
18 also relying on this approach for compliance with the Missouri RPS.²
- 19 4) The utility may purchase RECs (or S-RECs) from other renewable energy
20 producers or third parties independent of any energy purchases. KCP&L is
21 largely relying on this approach to meet the “solar carve-out” requirement.³

22 Under each of these standard approaches, the cost of the RECs is appropriately
23 passed directly through to ratepayers much as annual fuel costs are. However, this
24 cost (the cost of RECs) reflects the *annualized* cost of each resource; under a
25 purchase power agreement, for example, the seller expects to recover the capital
26 cost of the resource, with a reasonable return on equity, over the lifetime of the

¹ KCP&L 2013 Annual Renewable Energy Standard Compliance Plan, paragraph 2.1.1.

² Ibid.

³ Ibid, paragraph 2.1.2.

1 resource. If a resource produces energy and RECs over a twenty year period, it
2 would be unreasonable to ask ratepayers to bear the entire cost of that resource in
3 the first year of its operation, and it is unlikely that any regulatory authority would
4 allow this sort of treatment in rates. Instead, the company would be required to
5 pass through to ratepayers the cost of the energy and RECS used each year; in the
6 case of a resource built and owned by the utility, the company would be required
7 to finance the capital costs of the resource and pass through the amortized capital
8 cost, along with the operating costs, over the useful life of the resource.

9 Indeed, 4 CSR 240-20.100 (1)(P) defines the “RES revenue requirement” as, “2.
10 The costs (i.e., the return, taxes, and depreciation) of any capital projects whose
11 primary purpose is to permit the electric utility to comply with any RES
12 requirement.” This affirms not only that the commission intended RES costs to be
13 limited to those for projects whose primary purpose is RES compliance, but also
14 that these involve capital assets the cost of which should be treated as depreciable
15 for rate calculation purposes.

16 If solar rebate costs are to be considered “RES compliance costs” under Missouri
17 law, it is appropriate to give them similar rate treatment as any other RES-
18 compliant resource. In other words, because this cost is associated with a resource
19 that produces energy and solar RECs (S-RECs) for the utility over a period of 10
20 years, it would be most reasonable to finance and amortize the cost of these
21 payments over 10 years. (Note that a 20 or 25 year period is more consistent with
22 the minimum expected useful life of small-scale solar energy resources; however,
23 because the utility receives the RECs for only 10 years, this is the appropriate
24 amortization period.)

25 **Q: Were KCP&L to amortize the costs of the solar rebate program over ten**
26 **years, how would that impact RRI?**

27 A: 10-year amortization would significantly decrease the RRI of any given level of
28 solar rebates, providing much more room for the company to provide these

1 rebates under the 1% RRI limit. This is particularly so because of the reduced
2 level of rebates under HB 142 as shown below.

Time Period	Solar Rebate Level under HB 142
Prior to June 30 2014	\$2.00/Watt
July 1 2014 to June 30 2015	\$1.50/Watt
July 1 2015 to June 30 2016	\$1.00/Watt
July 1 2016 to June 30 2019	\$0.50/Watt
July 1 2019 to June 30 2020	\$0.25/Watt
After June 30 2020	\$0.00/Watt

3

4 It is reasonable to conclude that the highest cash payments for the rebates will
5 occur during the earlier years, when the rebates have the highest value and are the
6 most attractive to consumers—and when those consumers most likely to take
7 advantage of the rebates will apply for them. 10-year amortization allows these
8 early-year costs to be spread out into future years in terms of their impact on
9 ratepayers.

10 **Q: KCP&L Witness Crawford argues against 10-year averaging of RES**
11 **compliance costs with respect to the RRI limitation. Do his concerns apply to**
12 **your suggestion that these costs be amortized over 10 years?**

13 **A:** No. Mr. Crawford notes that, were the company to rely on a 10-year, forward-
14 looking average of RES compliance costs,

15 Since the RRI calculation for any given compliance plan year is
16 based on forward looking costs only, it ignores costs incurred in
17 previous years. If the previous year's actual compliance costs
18 exceed 1% and the forward looking 10-year average is 1%, the
19 actual RES compliance impacts can greatly exceed 1%. (7 at 17)

20 I agree that this makes the use of a forward-looking average impractical and
21 inconsistent with the legislature's apparent intention with regard to the 1% RRI
22 limitation. However, 10-year amortization does not present this problem. The
23 point of amortization is to spread the costs out to a time period that is consistent

1 with the period over which benefits are received. In years 2-10, when benefits are
2 still being received from investments made in year 1, an appropriate share of the
3 cost will be included in rates for each year. This is precisely why amortization is
4 the appropriate basis for rate treatment of all long-lived utility assets.

5 Amortization of costs for rate treatment is the way that the goal of the legislature
6 to have 10-year averaging can be achieved, without introducing the distortion
7 identified by Mr. Crawford. It is also the best way to ensure that the costs of the
8 solar rebates and other RES resources are borne by the ratepayers who receive the
9 benefits on a timescale that is consistent with those benefits.

10 3. TREATMENT OF EXISTING WIND RESOURCES

11 **Q: Turning now to the calculation of the 1% RRI limitation, do you agree with**
12 **KCP&L Witness Crawford that existing wind resources should be included**
13 **in the non-renewable portfolio?**

14 **A:** Mr. Crawford states that existing wind resources were “added to the KCP&L
15 generation portfolio based on the economics of the resources.” (8 at 15) While I
16 have not reviewed the company’s resource procurement models, and thus I cannot
17 make an independent assessment of the economic benefits of existing wind
18 resources, Mr. Crawford’s makes clear that these resources would have been
19 included with or without the RES mandate—that they were not added specifically
20 for the purpose of RES compliance, and that thus they should be included in both
21 the nonrenewable portfolio and the RES-compliant portfolio for the purposes of
22 calculating the 1% RRI limitation.

23 I would further note that, since these resources were chosen for economic reasons,
24 it is reasonable to conclude that their inclusion led to a lower-cost portfolio than
25 would have been otherwise procured—as Mr. Crawford concludes as well:

26 If resources that are not directly attributable to RES compliance,
27 such as KCP&L’s existing wind resources, are removed from the
28 calculation of the non-renewable portfolio revenue requirements,
29 the baseline will no longer reflect what would have occurred

1 absent the RES requirements. Over time, this would increase the
2 baseline revenue requirements and allow the potential for actual
3 RES compliance costs to exceed 1% of what would have occurred
4 absent the RES. (Crawford, 8 at 19)

5 Thus choosing to remove this investment from the non-renewable portfolio would
6 actually lead to higher cost, and the availability of more funds under the RRI
7 limitation. Thus any implication that the inclusion of the costs of existing wind
8 resources should somehow reduce the funds available for other RES resources, or
9 for solar rebates, would be inaccurate.

10 **4. TREATMENT OF FUTURE WIND PROJECTS**

11 **Q: Please describe the table on Page 10 of Mr. Crawford's testimony.**

12 A: Mr. Crawford compares the allowable ratepayer costs for solar rebates for the
13 years 2013, 2014, and 2015. (Mr. Crawford deems these to be the funds available
14 for rebate payments; I would interpret them as the portion of amortized costs that
15 may be included in rates during these years.) He shows these values based on two
16 calculation approaches: the "Company Method" and the "Staff Method".

17 **Q: What is the difference between these two methods?**

18 A: The "Company Method" does not consider expected future expenditures in
19 calculating the funds available under the cap—that is, it includes costs incurred
20 each year, compared to the ten-year average RRI limit. The "Staff Method" looks
21 forward to future anticipated costs, including the anticipated cost of a wind
22 project in 2016, and includes them in the 10-year average of RES/rebate costs to
23 be compared to the RRI limit.

24 **Q: Which approach do you think is more appropriate?**

25 A: I find Mr. Crawford's approach to be the more compelling and appropriate for
26 two reasons. First, I agree with Mr. Crawford that the 2016 wind investment
27 should not be included in the RRI calculation because it is not being made for the
28 purpose of compliance with the Missouri RES. As Mr. Crawford explains, "the
29 2016 wind resource addition is being driven by the Kansas renewable portfolio

1 requirements” (11 at 10), and “KCP&L has sufficient resources to meet the
2 [Missouri] RES in 2016 without additional resources.” (12 at 7) Since the wind
3 investment in 2016 is unrelated to RES compliance in Missouri, it should not be
4 included in the RRI calculation, and thus should not limit funds available for solar
5 rebates in Missouri under the 1% limitation .

6 Second, I turn again to the generally accepted principle that cost should be
7 accounted for in rates over a time period consistent with the duration of the
8 associated benefits. This is especially so in this case, where the cost of the future
9 wind project is unknown. In fact, given that the existing wind resources were
10 found to be economic independent of the RES, it is reasonably likely that once
11 new RES-compliant resources are needed the company will be able to again
12 procure low-cost wind resources in the future, and meet its RES obligations at a
13 cost that is lower than currently anticipated.

14 The appropriate treatment is for the “cost” side of the RRI calculation to include
15 the portion of current and past RES-related expenditures that are included in
16 rates—in this case, the cost of rebates amortized over 10 years. Once new
17 expenditures are made (such as on future wind resources procured for the purpose
18 of compliance with the Missouri RES) then those costs should be amortized and
19 included in rates over the useful life of that asset. The impact of these costs, if
20 any, will not be felt by ratepayers prior to that time—thus there is no reason these
21 speculative, future resource costs should be used to displace solar rebates from
22 which KCP&L customers could be benefitting today.

23 To be clear, I am not arguing that solar rebates should somehow be given
24 preferential treatment over wind—it is clear from both 2008 Proposition C and
25 form HB 142 that Missouri has a stated public interest in both least-cost
26 renewable energy including wind (the RES mandate) and in supporting the
27 development of distributed solar resources and a robust solar industry through the
28 rebate program. My point is merely that the company’s need for and cost of future
29 wind resources to meet the RES is speculative—such resources present no cost to

1 ratepayers today, and may present little or no cost in the future. In any case, no
2 costs for wind will be incurred before the solar rebates will be largely or
3 completely phased out under the terms of HB 142, and even then the requirement
4 might be met, for example, with low-cost RECs purchased from out of state. The
5 fact that existing wind resources were selected based on economics suggests that
6 future RES mandates may be met without imposing any additional costs on
7 ratepayers as well.

8 The people of Missouri should not be denied the renewable energy and job-
9 creating benefits of these programs today because of vague projections of future
10 resource costs that may well turn out to be over-stated or nonexistent. In
11 summary, I believe that the company's approach is a more reasonable treatment
12 of the cost of future wind projects with respect to the RRI calculation—that is,
13 they should not be considered to contribute to today's RRI in any way.

14 **5. RECOMMENDATIONS FOR THE COMMISSION**

15 **Q: Given your opinions and conclusions on the matters addressed in this**
16 **rebuttal testimony, do you have any recommendations for the Commission in**
17 **this matter?**

18 **A:** I recommend that the Commission reject KCP&L's petition to suspend payment
19 of solar rebates. I further recommend that the commission direct KCP&L to revise
20 its approach to calculating the ratepayer impact of procuring RES-compliant
21 resources, including solar rebates, by amortizing all costs over the lifetime that
22 each resource provides benefits to KCP&L and its customers. In the case of solar
23 rebates, this should be the 10-year period over which each resource provides
24 RECs to the company.

25 I further recommend that such costs not be allowed to include speculative future
26 costs of resources that are not yet producing benefits for the company or its
27 customers, such as the cost of wind resources that are expected to be procured or
28 built several years in the future. Using correctly amortized costs of existing

1 resources, and resources under consideration for procurement today, will enable
2 the company to most accurately and appropriately provide benefits to customers
3 while observing the RRI limitation year-by-year. At the future date when
4 additional resources are needed and costs are known, the company will be able to
5 make the best decision on how to comply with the RES mandate and the RRI
6 limitation for that future year.

7 Finally, I recommend that whether or not it determines that solar rebate costs
8 should be amortized, the Commission consider the concept of allowing KCP&L
9 to pay “front-loaded” solar rebates in recognition of the step-down in rebate value
10 under HB 142, in in the interest of minimizing the impact on solar rebate
11 customers and the solar industry in Missouri.

12 KCP&L estimates approximately \$11 million per year for solar rebate payments
13 that would be compliant with the 1% RRI. (Crawford, 6 at 9) However, the rate
14 impact limitation under HB 142 (as well as in under the original RES initiative) is
15 specified as an *average* impact. An equivalent average rate impact could be
16 derived by calculating a “pool” of the sum of the total solar rebate payments that
17 can be made that would comply with the 1% RRI impact requirements, and that
18 would recognize the statutory step-down for future solar rebate payments under
19 HB142. There does not appear to be statutory or regulatory prohibition that would
20 preclude KCP&L from classifying any amounts of solar rebate amounts paid over
21 the estimated \$11 million per year as a regulatory asset of KCP&L, which could
22 then be recovered in rates in successive annual periods. KCP&L could also be
23 granted a carrying cost on this regulatory asset. All solar rebate payments
24 included within the regulatory asset (as well as the total carrying costs) could be
25 recovered against the total “pool” of solar rebate funds available for recovery.
26 Under this approach, any adverse impacts on the ratepayers, KCP&L, solar rebate
27 customers, and the solar installation companies are minimized.

28 **Q: Does this conclude your rebuttal testimony?**

29 A: Yes.