

BEFORE THE  
ARKANSAS PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE CONTINUATION, )  
EXPANSION, AND ENHANCEMENT OF )  
PUBLIC UTILITY ENERGY EFFICIENCY ) DOCKET NO. 13-002-U  
PROGRAMS IN ARKANSAS )

TESTIMONY

OF

MR. GREGG EISENBERG  
EISENBERG ENERGY – INDEPENDENT EVALUATION MONITOR

ON BEHALF OF THE GENERAL STAFF OF THE  
ARKANSAS PUBLIC SERVICE COMMISSION

NOVEMBER 7, 2013

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

2 A. My name is Gregg Eisenberg and I am President of Eisenberg Energy, Inc. My  
3 business address is 1607 Jefferson Avenue, Louisville, CO 80027.

4 **Q. On whose behalf are you testifying in this case?**

5 A. I am testifying on behalf of the General Staff (Staff) of the Arkansas Public  
6 Service Commission (APSC or Commission).

7 **Q. Please describe your role on the Independent Evaluation Monitor Team.**

8 A. My firm is part of the overall Independent Evaluation Monitor (IEM) team led by  
9 Dr. Katherine Johnson of Johnson Consulting Group. My role in particular has  
10 been to assist in overseeing program evaluations in Arkansas.

11 **Q. Please summarize your educational background.**

12 A. I received an M.A. in Geography from Boston University (from the Center of  
13 Energy and Environmental Studies, where I was a Presidential Graduate Fellow)  
14 and a B.A. in History from the University of California in Santa Cruz.

15 **Q. Please summarize your professional experience.**

16 A. I am currently President of Eisenberg Energy, Inc., a one-person consulting firm  
17 that specializes in utility planning. I have worked in the energy sector for nearly  
18 20 years. I worked at the Land and Water Fund of the Rockies in Boulder,  
19 Colorado, on utility regulatory reform in a six-state region in the American  
20 southwest, focusing on utility resource planning and environmental risk  
21 management. I then worked at E Source, an energy research and publishing  
22 company also located in Boulder, where I co-founded the consulting group. I

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1 established Eisenberg Energy ten years ago, during which time I have focused  
2 on both supply-side planning and energy efficiency program evaluation.

3 **Q. Have you previously submitted testimony before the Commission?**

4 A. No.

5 **Q. Have you previously submitted testimony before other state regulatory**  
6 **commissions?**

7 A. No, but I have contributed research to testimony many times.

8 **Q. What is the purpose of your testimony?**

9 A. The purpose of this testimony is to provide responses to the Commission's  
10 directive in Docket No. 13-002-U, Order No. 7, for the Parties Working  
11 Collaboratively (PWC) to cooperatively recommend a proxy value for avoided  
12 carbon costs to be used in evaluating the cost-effectiveness of energy efficiency  
13 (EE) programs in Arkansas and in the EE market potential study for which the  
14 PWC is currently developing an Request for Proposal (RFP). I guided the PWC  
15 discussion regarding utility carbon cost for the purpose of EE evaluation and my  
16 testimony will outline the Staff's recommendation to the Commission regarding a  
17 proxy value for carbon costs for purposes of EE evaluation and describe the  
18 process the PWC followed to arrive at this proposal.

19 **BACKGROUND DISCUSSION**

20 **Q. Please provide some background concerning the Commission's directive**  
21 **to the PWC to develop a proxy value for avoided carbon costs.**

22 A. The PWC requested that the IEM provide assistance in developing a proxy value  
23 for avoided carbon compliance costs and the IEM agreed to conduct and share

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1 research to help drive the discussions forward. The PWC worked together to  
2 develop a proxy value for avoided carbon compliance costs by offering  
3 comments and questions during live teleconferences and by responding to a  
4 series of technical memos circulated to the participants by the IEM.  
5 Communications included three teleconferences (October 4, October 18, and  
6 October 30), along with numerous email communications. The IEM managed the  
7 discussion by: sharing how avoided carbon compliance costs are treated in other  
8 jurisdictions; offering possible solutions for Arkansas utilities, presented to the  
9 PWC in written memoranda and during teleconferences; receiving and tracking  
10 verbal and written comments from the PWC participants; and incorporating the  
11 comments received into new memos in which were used to outline new potential  
12 solutions.

**SPECIFIC RESPONSES TO THE COMMISSION'S QUESTIONS**

13  
14 **Q. What factors from other jurisdictions were presented to the PWC and which**  
15 **proved valuable in the PWC's discussion about developing a proxy value**  
16 **for avoided carbon compliance costs?**

17 **A.** First, on behalf of the IEM, I presented a general overview of regulatory protocol  
18 related to carbon and greenhouse gas management that have been adopted in a  
19 number of states, including California, Massachusetts, Illinois, and others, and  
20 also provided an overview of proxy values for avoided carbon compliance costs  
21 that several investor-owned utilities around the U.S. have adopted for planning  
22 purposes. I then presented details about several third-party-developed, national-  
23 scale studies that model and forecast future carbon compliance costs, including

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1 studies by the Energy Information Administration (2008), Environmental  
2 Protection Agency (2009), and Synapse Energy Economics (2009 and 2012).  
3 The PWC agreed that the national forecasts that depict potential costs from  
4 federal legislation or regulation are more relevant for Arkansas utilities than  
5 forecasts from individual states that have their own climate and greenhouse gas  
6 management policies or from regions, such as the Mid-Atlantic states, that have  
7 developed regional cap and trade management systems. The PWC engaged in  
8 a discussion about the three national-scale studies and most participants agreed  
9 that the study by Synapse (2012)<sup>1</sup> was the best forecast for consideration in  
10 Arkansas because: (a) it was the most comprehensive in terms of considering  
11 forecasts from multiple sources; (b) it was the most recent of the national-scale  
12 studies; (c) its outlook on the timing of future federal legislation seemed the most  
13 reasonable, and (d) its “mid-case” forecast fell in the middle of a large group of  
14 forecasts. While the majority of the PWC participants agreed that the Synapse  
15 Report provided a reasonable third-party-developed proxy value for avoided  
16 carbon compliance costs, the Attorney General’s Office and Arkansas Electric  
17 Energy Consumers, Inc. and Arkansas Gas Consumers, Inc. disagreed with  
18 these assumptions citing high uncertainty in forecasting carbon prices.

19 **Q. What is the Synapse forecast for future avoided carbon compliance costs?**

20 A. The Synapse Report (2012) predicts that federal legislation will occur in 2017 or  
21 2018, with actual implementation beginning in 2020. The report offers low,  
22 middle, and high forecasts. The mid-range forecast predicts carbon emission

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<sup>1</sup> <http://www.synapse-energy.com/Downloads/SynapseReport.2012-10.0.2012-CO2-Forecast.A0035.pdf>

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1 allowances and offsets will cost an average of \$20 per ton, expressed in 2012  
2 dollars, starting in 2020. The low-range forecast predicts an average cost of \$15  
3 per ton in 2020, and the high-range forecast predicts a cost of \$30 per ton in  
4 2020. Each forecast assumes different escalation rates, up to 2040.

5 **Q. Based on this analysis, what did you recommend?**

6 A. On October 16, 2013, I suggested that the PWC adopt the number “\$20 per ton  
7 in 2020” (expressed in 2012 dollars), from the mid-range forecast developed by  
8 Synapse in 2012, as the basis for developing a proxy stream of numbers that the  
9 PWC could present to the Commission. I proposed that the PWC consider using  
10 an escalation rate of 5 percent per year (based on other jurisdictions), and  
11 consider using that escalation rate to determine costs back to 2015.  
12 Furthermore, I proposed that the PWC consider including avoided carbon  
13 compliance costs in EE program cost-effectiveness tests and in the EE market  
14 potential study beginning in year 2015.

15 **Q. Did any parties put forth proposals regarding the avoided carbon cost  
16 assumptions?**

17 A. Yes. Audubon submitted its proposal to the PWC on October 6 to recommend  
18 the Synapse forecast.

19 The Arkansas Advanced Energy Association (AAEA) circulated a memo that  
20 outlined the following proposal: (a) supports use of Synapse mid-range forecasts  
21 for CO<sub>2</sub> costs (\$20 per ton in 2020); (b) argues that the target should be used to  
22 calculate avoided costs for 2015-2017; (c) supports using an annual five-percent  
23 escalator to calculate back to 2015 (\$15 per ton); (d) recommends for the 10-

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1 year horizon of the Potential Study that it uses a five percent escalator starting  
2 with \$15 per ton in 2015 through 2025 for a levelized price of approximately \$20  
3 per ton. AAEA supported its proposal by stating: (a) the Synapse mid-range  
4 forecast for 2020 is below other national-scale forecasts; (b) the Synapse mid-  
5 range forecast is the middle of many other utility forecasts; (c) none of these  
6 forecasts includes an accounting for indirect costs; and (d) using a lower cost  
7 than \$15 per ton of CO<sub>2</sub> for the 2015-2017 planning period ignores other related  
8 emissions (NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, Hg, and methane) and Non-Energy Benefits.

9 **Q. What was the response from the other PWC participants to your**  
10 **recommendations and AAEA's proposal?**

11 A. The responses to these proposals were mixed with several participants of the  
12 PWC pointing out differences in the assumptions used in the Synapse Report,  
13 which affect the overall carbon prices.

14 The Attorney General did not support this approach since it believes that a  
15 carbon tax or cap and trade system is unlikely to be enacted in the near future,  
16 and therefore supports a forecast of \$0 per ton as the best forecast available.

17 In contrast, and recognizing the limited applicability that the Commission  
18 has ordered to be accorded this value in Order No. 7, SWEPCO agreed to follow  
19 the recommendation to use the Synapse mid-case forecast for carbon costs of  
20 \$20 per ton beginning in 2020 for evaluation of EE programs implemented in  
21 2015-2017. SWEPCO views this as a reasonable compromise, and discusses its  
22 position on the use of this forecast for carbon cost in the Direct Testimony  
23 submitted by the Joint Utilities.

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1           In the interest of compromise, and recognizing the limited applicability that  
2           the Commission has ordered to be accorded carbon compliance cost, EAI  
3           agreed to follow the recommendation to use the Synapse mid-case forecast for  
4           carbon costs of \$20 per ton beginning in 2020 for evaluation of EE programs  
5           implemented in 2015-2017. EAI will use the Commission ordered carbon  
6           compliance cost as long as the utility's limited applicability of the use of carbon  
7           compliance cost set forth in Order No. 7 remains effective. Further, EAI  
8           considers that carbon compliance costs are part of avoided energy costs and not  
9           an "adder."

10           OG&E supported SWEPCO's position on CO<sub>2</sub> cost and timing.

11           Sierra Club observed that the Environmental Protection Agency has  
12           announced its intention to finalize carbon standards for existing sources by June  
13           2015 under the Clean Air Act sec. 111(d), and require states to submit SIPs by  
14           June 2016. The Sierra Club therefore believes that generators are likely to incur  
15           carbon compliance costs by 2020, if not earlier, as a result of this administrative  
16           action. The Sierra Club also believes that congressional action will be more  
17           likely following an EPA rulemaking, which increases the likelihood that the future  
18           regulatory costs of carbon will resemble the Synapse mid-case scenario.

19           Audubon also supports the recommendation to use the Synapse 2012  
20           mid-case forecast for the purpose of calculating the annual avoided cost of  
21           energy savings in the years 2020-2040. However, Audubon believes the proxy  
22           figure should be escalated from 2012 dollars to current values in the time-frame  
23           of the cost-benefit analysis. Furthermore, Audubon is not opposed to developing

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1 a projection of avoided compliance costs for savings in the years 2015-2019,  
2 providing there is a basis for this projection.

3 **SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS**

4 **Q. What are your recommendations?**

5 A. I recommend that the Commission approve the following, for the sole purpose of  
6 establishing a proxy value for avoided carbon costs to be used, consistent with  
7 the Commission's directives in Order No. 7, in evaluating the cost-effectiveness  
8 of EE programs and in the EE market potential study for which the PWC is  
9 currently developing an RFP:

10 a. Adopt the mid-range forecast developed by Synapse, presented on  
11 page 4 of its report ("2012 Carbon Price Forecast", published on  
12 October 12, 2012), as a reasonable third-party developed proxy,  
13 which forecasts a stream of expected carbon costs expressed in  
14 2012 dollars per ton (not metric) from year 2020 to year 2040;

15 b. Require utilities and evaluators to begin using this forecasted  
16 stream of costs beginning in the 2015-2017 program cycle in EE  
17 program cost-effectiveness tests and in the EE market potential  
18 study;

19 c. Require utilities and evaluators to: (i) assume a zero value for years  
20 2015-2019; (ii) correct for inflation in each program year when this  
21 forecast is incorporated in to utility analysis; and (iii) use a  
22 reasonable method of calculating later-year values for measures  
23 with a 30-year estimated useful life (i.e., in years 2041-2044); and

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1 d. Apply the same methodology for avoided carbon compliance costs

2 uniformly across all regulated electric and gas utilities in Arkansas.

3 **Q. Does this conclude your testimony?**

4 **A.** Yes, it does.

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing has been served on all parties of record by forwarding the same by electronic service, this 7<sup>th</sup> day of November, 2013.

*/s/ Fran C. Hickman* \_\_\_\_\_

Fran C. Hickman