

Jun 19 9 55 AM '07

BEFORE THE ARKANSAS PUBLIC SERVICE COMMISSION **FILED**

IN THE MATTER OF THE PETITION OF	)	
ENERGY ARKANSAS, INC. FOR A	)	
DECLARATORY ORDER APPROVING THE	)	
DETERMINATION OF AVOIDED COSTS FOR	)	DOCKET NO. 04-113-U
QUALIFIED COGENERATION FACILITIES	)	
PURSUANT TO COGENERATION RULES	)	

DIRECT TESTIMONY OF

ROBERT M. FAGAN

SYNAPSE ENERGY ECONOMICS

ON BEHALF OF THE

GENERAL STAFF OF THE

ARKANSAS PUBLIC SERVICE COMMISSION

JUNE 19, 2007

9

1

1 I. INTRODUCTION

2 Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS  
3 ADDRESS.

4 A. My name is Robert M. Fagan. I am a Senior Associate at Synapse Energy  
5 Economics, Inc., 22 Pearl Street, Cambridge, Massachusetts, 02139.

6 Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AND  
7 EDUCATIONAL BACKGROUND.

8 A. I am an energy economics analyst and mechanical engineer with over 20 years of  
9 experience in the energy industry. My work has focused primarily on electric  
10 power industry issues, especially: economic and technical analysis of wholesale  
11 and retail electricity markets; analysis of electric power transmission pricing  
12 structures; assessment and implementation of demand-side resource alternatives;  
13 and review and examination of renewable energy technologies and policies  
14 including the increased market penetration and technical potential of utility-scale  
15 wind power. I hold an M.A. from Boston University in Energy and  
16 Environmental Studies (1992) and a B.S. from Clarkson University in Mechanical  
17 Engineering (1981). My resume is included as Exhibit RMF-1.

18 Q. ON WHOSE BEHALF ARE YOU TESTIFYING?

19 A. I am testifying on behalf of the General Staff (Staff) of the Arkansas Public  
20 Service Commission (Commission).

---

1 Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE ARKANSAS  
2 PUBLIC SERVICE COMMISSION?

3 A. No. I have testified in numerous U.S. state and Canadian provincial jurisdictions  
4 on various electricity market issues, as described in my resume (Exhibit RMF-1).

5 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

6 A. The purpose of my testimony is to provide a technical opinion on the extent to  
7 which Entergy Arkansas, Inc.'s (EAI or the Company) avoided cost computation  
8 methodology is consistent with the relevant Arkansas statutes, the Commission's  
9 Cogeneration Rules, EAI's Cogeneration Tariff (M24), and the general purpose of  
10 the federal Public Utility Regulatory Policies Act (PURPA).

11 Q. WHAT IS THE KEY QUESTION TO BE DECIDED IN THIS  
12 PROCEEDING?

13 A. The key question is whether EAI's petition for a declaratory order should be  
14 approved. The answer to this question rests on the extent to which EAI's avoided  
15 costs computation methodology does indeed adhere to the tenets of the Arkansas  
16 statutes and the Cogeneration Rules.

17 **II. SUMMARY OF TESTIMONY**

18 Q. PLEASE SUMMARIZE YOUR TESTIMONY.

19 A. The filing materials and discovery request responses that I have reviewed indicate  
20 that EAI appears to have in place an avoided cost computation methodology that

---

1 is appropriate and consistent with the Arkansas statutes and the Commission's  
2 Cogeneration Rules. The changes to the avoided cost computation methodology  
3 made by EAI beginning September 2003 – *i.e.*, including “rejected purchases”  
4 and “emergency sales” in the calculation, along with other dispatch-specific  
5 adders - appear reasonable. Those changes reflect the reality of the wholesale  
6 power markets in which EAI operates, as well as the attributes of EAI's system  
7 operations. Therefore, subject to evaluating any additional issues that may be  
8 raised during this proceeding, I conclude that EAI's avoided cost computation  
9 methodology appears to be consistent with Arkansas statutes, the Commission's  
10 Cogeneration Rules, EAI's Cogeneration Tariff, and the requirements of PURPA.

11 **III. FRAMEWORK FOR REVIEW**

12 **Q. WHAT IS THE FRAMEWORK FOR YOUR REVIEW OF EAI'S**  
13 **AVOIDED COST COMPUTATION METHODOLOGY?**

14 A. The framework includes the definition of avoided costs from the relevant  
15 Arkansas statutes, relevant sections from the Commission's Cogeneration Rules,  
16 the EAI Cogeneration Tariff, and PURPA.

17 **Q. WHAT DO THE RELEVANT SECTIONS OF THE ARKANSAS**  
18 **STATUTES STATE?**

19 A. There are a number of sections of the statutes that are relevant to this proceeding,  
20 including Ark. Code Ann. §§ 23-3-701, 23-3-702, and 23-3-704. The statutes

---

1 provide for just and reasonable rates that are not excessive and do not exceed  
2 avoided costs:

3 ...electric utilities should not be required to purchase power from  
4 the facilities at excessive rates which would result in an increase in  
5 the cost of providing electrical service to customers....(Ark. Code  
6 Ann. § 23-3-701 (a))

7 ...the Arkansas Public Service Commission ...shall continue to  
8 provide for electric utilities to purchase electric energy or capacity  
9 from qualifying facilities at rates which are just and  
10 reasonable...which do not increase the cost of providing electrical  
11 service to customers...and which do not exceed avoided costs.  
12 (Ark. Code Ann. § 23-3-701 (b))

13 Nothing in this subsection requires any electric utility to pay more  
14 than avoided costs for purchases. (Ark. Code Ann. § 23-3-704 (c))

15 The statutes also define avoided costs:

16 'Avoided costs' means the costs to an electric utility of electric  
17 energy or capacity, or both, that, but for the purchase from the  
18 qualifying facility or facilities, the utility would generate itself or  
19 purchase from another source. (emphasis added) (Ark. Code Ann.  
20 § 23-3-702 (1))

21 **Q. WHAT DO THE APPLICABLE COGENERATION RULES SAY?**

22 A. The framework also includes the relevant section from the Commission's  
23 Cogeneration Rules, Section 3.4, "Rates for Purchase," subsection (d). This  
24 subsection states that the rates for purchase will be at the utility's avoided costs  
25 calculated at the time of delivery.

26 **Q. WHAT DOES EAI'S COGENERATION TARIFF SAY?**

---

1 A. In section 35.3, the Cogeneration Tariff states that the energy payment will be the  
2 "highest avoided energy cost on the Entergy System at the time energy is  
3 purchased from the Customer" (Large Cogeneration Rider M24<sup>1</sup>, Section 35.3,  
4 Option 2).

5 **Q. IN GENERAL, WHAT GUIDANCE DOES PURPA PROVIDE TO**  
6 **UTILITIES FOR USE AS THE PURCHASE PRICE FOR OUTPUT FROM**  
7 **A QUALIFIED FACILITY (QF)?**

8 A. In general, PURPA requires utilities to use their avoided energy cost as the  
9 measure of the value of energy output from a QF.

#### 10 IV. CUSTOMER IMPACTS

11 **Q. IN WHAT WAY DOES THE OUTCOME OF THIS PROCEEDING**  
12 **AFFECT ARKANSAS JURISDICTIONAL RATEPAYERS?**

13 A. The avoided costs payments made by EAI to QF facilities are recovered in rates  
14 from EAI's native load, as purchased power costs. EAI's payments for energy  
15 put to the system by QFs are charged to EAI's retail ratepayers through the  
16 Energy Cost Recovery (ECR) Rider of the Company's rates. Of particular  
17 relevance is the fact that EAI's change in avoided cost computation in September  
18 of 2003 will result in a very sizable reduction in overall purchased power costs  
19 (since September of 2003) relative to the pre-September 2003 computation

---

<sup>1</sup>The Small Cogeneration Rider (M23) of the cogeneration tariff, which contains specified avoided costs, applies to small cogenerators and does not apply in this case.

---

1 method if the avoided cost computation methodology is found to be consistent  
2 with Arkansas law. Confidential Exhibit RMF-2 summarizes the information on  
3 avoided cost reduction payments since September of 2003, using confidential data  
4 in response to Data Request PBE-44.

5 **V. AVOIDED COST COMPUTATION METHODOLOGY**

6 **Q. HAS EAI DESCRIBED ITS AVOIDED COST COMPUTATION**  
7 **METHODOLOGY?**

8 **A.** Yes, in a number of places. For example, in the response to Data Request APSC  
9 1-5, EAI explains the process used to compute avoided costs. I include this  
10 response as Exhibit RMF-3.

11 **Q. PLEASE EXPLAIN THE CONCEPT OF "AVOIDED COSTS" AND HOW**  
12 **THEY ARE DETERMINED BY EAI.**

13 **A.** Avoided costs are the hypothetical costs of energy that the utility neither  
14 generated nor purchased, but would have generated or purchased absent the  
15 receipt of QF energy "put" to EAI's system. The Entergy System, of which EAI  
16 is part, determines avoided costs using an after-the-fact calculation based on what  
17 the Entergy Operating Companies would have done if no QF energy had been put  
18 to the System.

---

1 Q. WHAT IS THE MOST SIGNIFICANT ASPECT OF THE AVOIDED COST  
2 COMPUTATION METHODOLOGY IN THIS PROCEEDING?

3 A. EAI changed the nature of the computation in September 2003 by, among other  
4 things, adding components to its calculation for “rejected purchases” and  
5 “emergency sales.”

6 Q. CONCEPTUALLY, ARE “REJECTED PURCHASES” A VALID  
7 COMPONENT OF AVOIDED COSTS?

8 A. Yes. Conceptually, it makes sense to include “rejected purposes” if they are true  
9 and valid offers to sell energy to EAI because they represent a supply option that  
10 would be available to serve System load but were rejected because of the presence  
11 of the QF put. The definition of avoided costs in the Commission’s Cogeneration  
12 Rules specifies that “[a]voided costs means the incremental costs to an electric  
13 utility of electric energy or capacity or both that, but for the purchase from the  
14 qualifying facility or qualifying facilities, such utility would generate itself or  
15 purchase from another source.” (Emphasis supplied.)

16 Q. CONCEPTUALLY, ARE “EMERGENCY SALES” A VALID  
17 COMPONENT OF AVOIDED COSTS?

18 A. Yes. Conceptually it makes sense to include “emergency sales” because they  
19 represent the marginal opportunity cost associated with having to take energy  
20 from the QF. Such “emergency sales” would occur only if the QF put were

---



1 delivered at such a level that the System could not maintain a balance between  
2 load and resources. As explained by EAI Witness J. Stephen Dingle (Direct  
3 Testimony at page 20), the Company has determined that it would be more  
4 operationally efficient, and would hold customers harmless, if it makes an  
5 occasional emergency sale, instead of ceasing the purchase of QF put.

6 **Q. HAS EAI PROVIDED ITS ESTIMATES OF AVOIDED COSTS IN ITS**  
7 **SERVICE TERRITORY?**

8 A. Yes. In response to data requests, EAI has provided both aggregate monthly, and  
9 hourly, avoided cost information.

10 **Q. HAS EAI PROVIDED EVIDENCE DESCRIBING IN DETAIL THE**  
11 **COMPUTATION OF THE AVOIDED COSTS PROVIDED IN RESPONSE**  
12 **TO THOSE DISCOVERY REQUESTS?**

13 A. Yes, for a portion of the hours. The computation of avoided costs for any single  
14 hour is a complex process because it involves comparing two different system  
15 dispatches to determine the effect on system marginal cost or opportunity cost of  
16 the presence of QF energy.

17 **Q. HAVE YOU HAD AN OPPORTUNITY TO EXAMINE EAI'S**  
18 **COMPUTATIONS OF AVOIDED COST?**

19 A. Yes, but primarily for purposes of a high level understanding of the calculation  
20 methodology.

---

1 Q. BASED ON YOUR REVIEW TO DATE, PLEASE SUMMARIZE YOUR  
2 PRELIMINARY OPINIONS CONCERNING THE AVOIDED COST  
3 COMPUTATIONS.

4 A. As described above, the methodology employed by EAI to compute avoided costs  
5 appears to be conceptually sound. Based on my review to date, I have not yet  
6 uncovered any particular concerns with EAI's implementation of its  
7 computational methodology that would question the value of avoided costs.  
8 However, it is clear that the avoided cost calculation process is complex, and not  
9 very transparent. This lack of transparency is a concern, in part because it makes  
10 it more difficult to document EAI's actual purchased power costs, required when  
11 auditing purchased power costs to ensure that EAI is not paying more than  
12 avoided costs.<sup>2</sup>

13 Q. WHAT DO YOU CONCLUDE?

14 A. Subject to evaluating further issues raised in this proceeding, EAI's methodology  
15 appears to be consistent with the Arkansas statutes and the Commission's  
16 Cogeneration Rules, and the requirements of PURPA.

17 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

18 A. Yes.

---

<sup>2</sup> A secondary concern is the overall efficiency of the QF purchase process and whether or not increased savings for consumers might be seen if more transparent avoided cost pricing signals were available.

---

**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 first class mail, postage prepaid, this 19<sup>th</sup> day of June, 2007.

  
\_\_\_\_\_  
Valerie F. Boyce