POTOMAC ECONOMICS

REPORT OF THE INDEPENDENT MONITOR FOR ENTERGY'S JULY 2009 RFP FOR BASELOAD SUPPLY-SIDE RESOURCES

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I. OVERVIEW

A. Introduction

This is the Independent Monitoring Report for the July 2009 Request for Proposals (RFP) for Baseload Supply-Side Resources conducted by Entergy Services, Inc. (ESI or Entergy) on behalf of the Entergy Operating Companies. ESI retained Potomac Economics to independently monitor the RFP in order to ensure that fair criteria and processes are used to evaluate the competing power supply proposals.

The RFP sought up to 350 MW of fixed-price "flexible" baseload products for a three-year term starting January 2010. The RFP included an ESI market test of a 336 MW self-supply proposal offered by Entergy Arkansas, Inc. (EAI) under the cost-based service schedule MSS-4 of the Entergy System Agreement. The MSS-4 service schedule provides a cost-of-service rate that is audited by the Federal Energy Regulatory Commission (FERC). The objective of the RFP was to seek proposals that were comparable to the services that would be provided by the self-supply proposal.

To satisfy the objectives of the RFP, ESI specified two product packages: Product A, a Flexible Baseload Liquidated Damages (LD) product (with limited scheduling flexibility); and Product B, a 7x24 ("around-the-clock") Firm LD product.

B. Results

Aside from the EAI cost-based self-supply offer, there were three other proposals offered in response to the RFP. One of these proposals did not match the specifications of either product package (it was offered as a unit-contingent, 7x16 product). This proposal was declared non-conforming. There were two conforming proposals. Both of these conforming proposals had significantly higher costs than the self-supply proposal. Hence, ESI selected the self-supply proposal.

As the Independent Monitor, we monitored the various facets of the RFP process and evaluation. As indicated in this Report, we found the overall approach to have been conducted in a reasonable, fair, and transparent manner. Furthermore, we found the economic evaluation of the

proposals to have been conducted accurately and to have provided a reasonable basis for making the final selection.

C. Potomac Economics' Role as Independent Monitor

In our role as the Independent Monitor, we sought to ensure the RFP process was designed and implemented in a fair and unbiased manner and that communication restrictions among the RFP teams were observed.[1] Throughout the process, we worked closely with the RFP Administrator, monitoring communication between RFP participants and the evaluation teams. We also monitored the overall process to ensure that the procedures established in the RFP were uniformly applied to all parties. We also monitored the economic evaluation of the competing proposals. This monitoring sought to ensure that the economic evaluation and selection of proposals was conducted in an accurate and fair manner. To this end, we monitored the structure, assumptions, calculations, and results of the economic models used to evaluate each proposal. We also monitored the basis for the projected self-supply costs.

A complete explanation of the responsibilities of the IM is contained in the Independent Monitoring Scope document posted to the RFP website.[2]

II. RFP DEVELOPMENT

Prior to ESI issuing the July 2009 RFP, we reviewed the draft RFP document and provided ESI our comments and recommendations. ESI held a teleconference with the IM team on July 22, 2009 to introduce the IM team to the planned RFP. ESI staff outlined the objectives of the RFP, the RFP schedule, and described the self-supply proposal. As described in more detail below, the self-supply proposal is a "system sale" based on EAI baseload resources, which are approximately 70 percent nuclear-fueled and 30 percent coal-fired. ESI posted the RFP to the public RFP website on July 30, 2009 for potential bidders and other interested parties.

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1 The monitoring work is carried out by a team of Potomac Economics personnel. This includes Dr. David Patton, Dr. Robert Sinclair, Mr. Michael Chiasson, and Mr. Stephen Surina. Throughout this report the words "Independent Monitor", "IM", and "we" refer to this monitoring team.

2 https://emo-web.no.entergy.com/ENTRFP/index.htm

A. Products Offered

ESI initially indicated a preference for unit-contingent products in the RFP. However, we agreed with the Louisiana Public Service Commission (LPSC) Staff that non-unit-contingent liquidated damages (LD) products would more closely matched to the self-supply proposal to be market tested. The LD products (as opposed to unit-contingent products) also eliminated the problem of obtaining network transmission service for designated units. We also requested that ESI's proposed scheduling flexibility associated with the "flexible baseload" product be eased to allow greater notice than the proposed one-hour notice requirement. To address our concerns, ESI changed the product requirement to a two-hour notice. Finally, ESI proposed a 50 MW limit on the 7x24 LD purchase in order to meet its preference for the flexible product. We suggested that this limit be increased in order to better reflect the flexibility inherent in the self-supply offer (which is 70 percent nuclear). ESI agreed to remove the limit entirely.

Table 1 presents the products sought in the July 2009 RFP.

Table 1: Products Sought in the July 2009 Baseload RFP

Product	Description
A - Flexible Baseload LD Purchase	Purchase of flexible capacity on a 7x24 basis with a firm commitment by buyer to schedule the capacity quantity at an annual minimum capacity factor of 80 percent. Seller subject to liquidated damages in instances of failure to supply scheduled energy.
B - 7x24 Firm LD Purchase	Firm capacity purchase with liquidated damages scheduled 7x24 on a day-ahead, must-take basis.

B. Self-Supply Proposal

The self-supply proposal offered by EAI in this RFP is a cost-based offer of baseload capacity. Part of the EAI base load capacity is not included in retail rate base and has been designated as Wholesale Base Load (WBL). This WBL capacity has been sold over time to wholesale purchasers, including to other Entergy Operating Companies. Sales of this WBL capacity to other Entergy Operating Companies are on a regulated cost-of-service basis in accordance with the Entergy System Agreement (see Service Schedule MSS-4).

The WBL self-supply proposal is comprised of a fixed portion (roughly 16 percent) of Entergy Arkansas' six existing baseload nuclear and coal resources. Table 2 shows the source and allocation of the Entergy Arkansas WBL.

Table 2: Source and Allocation of Wholesale Baseload Capacity

		Allocated to WBL				
			Existing WBL Contract		Proposed Contract	
Resource	Entergy Arkansas Baseload Capacity	Total WBL	Capacity	Percent of total	Capacity	Percent of total
Arkansas Nuclear One Unit 1	842	117	46	21%	71	21%
Arkansas Nuclear One Unit 2	997	138	54	25%	84	25%
White Bluff Unit 1	465	64	25	11%	39	12%
White Bluff Unit 2	481	67	26	12%	41	12%
Independent Steam Electrical Station Unit 1	263	37	14	6%	22	7%
Grand Gulf Nuclear (Non-RS)	318	44	18	8%	26	8%
Grand Gulf Nuclear RS	90	90	37	17%	52	16%
Total	3,455	557	221	100%	336	100%

Note: Unless indicated otherwise, units are in MW; "RS" associated with Grand Gulf refers to "Retained Share", which is an internal accounting construct indicating that the share historically has not been included in retail rate base.

The table shows the Entergy Arkansas baseload capacity and the portion of it allocated to WBL. It also shows how that portion allocated to WBL is subsequently divided between the existing WBL Contract[3] and the proposed contract offered as a self-supply proposal in this RFP.

Entergy Operating Companies pay for WBL purchases on a cost-of-service basis. Hence, the WBL proposal is compared to other proposals in the RFP in accordance with the estimate of the WBL proposal's cost of service. ESI estimates the WBL cost of service in two components: a fixed-cost component and a fuel-cost component. The estimate of the fixed-cost component (which includes variable non-fuel O&M) is based on monthly invoices for the existing WBL contract because the existing WBL contract is based on the same MSS-4 cost-of-service formula as the proposed self-supply contract. In addition, the existing contract is comprised of approximately the same proportions of various resources as the proposed self-supply contract, as shown in Table 2. Therefore, the per-MWh charge for fixed costs under the existing MSS-4 contract provides a reasonable basis for estimating the per-MWh fixed cost that will be allocated to the proposed self-supply contract. Moreover, because the charges are subject to a FERC tariff, we judge that the fixed costs allocated to the existing contract do not require further scrutiny. In other words, we assume the fixed costs have been accurately calculated for the existing contract.

[3] The existing WBL contract is between Entergy Arkansas as the seller and Entergy Louisiana and Entergy New Orleans as the buyers.

The fuel cost component of the estimated cost-of-service for the proposed contract is based on projected operating hours and projected fuel prices. The projected hours are based on a system simulation (using the Promod production-cost model). The fuel costs are based on internal ESI fuel price projections and generator heat rates.

We monitored the inputs and calculations of the cost-of-service estimate, which are shown in Table 3.

Table 3: Estimate of Cost-of-Service for Self-Supply Proposal

		2010	2011	2012
1	Base Capacity (MW)	336	336	336
2	GG Uprate - starting June 2012 (MW)	0	0	11
3	Total Capcity (MW)	336	336	347
	Fixed Cost Estimate			
4	Historical WBL Cost (per kW-mo)	$20.37	$20.37	$20.37
5	Base Capacity Cost (excl. Uprate) (000s)	$82,148	$82,148	$82,148
6	Grand Gulf Uprate Cost (000s)			$3,596
7	White Bluff Scrubber Cost (000s)			$303
8	Total Fixed Cost (000s)	$82,168	$82,168	$86,067
	Fuel Cost Estimate			
9	Total Fuel Cost (000s)	[redacted]	[redacted]	[redacted]
10	Projected MWh	[redacted]	[redacted]	[redacted]
11	Historical Production MWh (2006-2008)	[redacted]		
12	Fuel Cost (per MWh)	[redacted]	[redacted]	[redacted]
13	Total Cost (000s)	[redacted]	[redacted]	[redacted]
14	Total Cost per MWh	$43.17	$43.95	$46.68

Note: Historical Production is based on the historical capacity factors for the units that comprise the WBL.

Row 1 of the Table indicates the base capacity of the proposal. Row 2 shows the increase in the Grand Gulf capacity that will be realized in 2012 (due to the planned capacity "uprate").[4] The fixed cost component calculations are shown in Rows 4 through 8. As discussed above, these calculations are based on the historical WBL fixed costs from the existing WBL contract (shown in Row 4 as $20.37 per-kW-month). Row 5 shows the "Base Capacity Cost", which is simply the base capacity (Row 1) multiplied by the historical fixed cost (Row 4). Rows 6 and 7 show

[4] The Uprate is a capital investment intended to increase Grand Gulf plant capacity.

the Grand Gulf Uprate cost and the White Bluff scrubber cost, respectively. We reviewed the basis of these costs and find them to be reasonable. The total fixed cost, including the Grand Gulf Uprate and White Bluff scrubber cost, is shown in Row 8. The vast portion of the estimated fixed cost is based on the historical WBL costs. As discussed above, we find that these historical values provide a reasonable basis for estimating fixed cost for the self-supply proposal.

Rows 9-12 show the fuel-cost calculations. Row 9 is the fuel cost as projected in ESI Promod analysis. We did not validate the Promod calculations directly, but instead screened the inputs and outputs. First, we compared the projected MWh from the Promod analysis (shown in Row 10) to the historical values for 2006-2008, shown in Row 11. The projected MWh are comparable to the historical experience. Hence, we find these values to be reasonable.

The second major element of the estimate fuel costs is whether they are in line with the underlying technology and fuel prices. We first calculated the per-MWh fuel cost based on the total fuel input prices and the projected MWh. Row 12 shows these values. These range from [redacted]. The Nuclear fuel cost portion was [redacted] and the coal cost portion was [redacted]. We find these values to be within expected ranges, given the underlying technology and prevailing input fuel prices.

III. EVALUATION OF PROPOSALS

A. Offers

Aside from the self-supply proposal, there were three other proposals offered in response to the RFP. [redacted] In consultation with ESI, we determined that the third proposal was non-conforming because it was a unit-contingent proposal with 7x16 availability. This violated both the LD and the 7x24 availability requirements.

Table 4 provides a summary of the two conforming proposals and their offer parameters. Both proposals were proposed for three years, as required in the RFP.

Table 4: Summary of Proposals Offered

Product Type	MW	Option Premium ($/kW-yr)	Fixed Heatrate (Btu/kWh)	Gas Basis Adder ($/MMBtu)
[redacted]				

While the RFP invited per-MWh fixed-price offers, both proposals elected the option to submit heat rate-based offers. Heat rate-based proposals were required to specify a fixed heat rate, and were allowed to specify an option premium (per kW) and a per-MMBtu "gas basis adder". The evaluation then applied a common natural gas price assumption linked to the Henry Hub futures prices, as discussed below.

B. Evaluation

The evaluation was straightforward. ESI used what it terms the Fundamental Economic Analysis, which is a cost model that estimates a single $/MWh value reflecting the fixed and variable cost of each proposal over an assumed number of operating hours. This is sometimes referred to as the "bus-bar cost". The flexible baseload proposal was evaluated using an 80 percent capacity factor and the 7x24 was evaluated using a 100 percent capacity factor. Higher or lower capacity factors did not have an appreciable effect on the evaluation outcome.

Because both proposals were heat rate-based, the evaluation for both of them involved using a projected natural gas price. This was based on NYMEX Henry Hub natural gas futures settlement prices as of August 14, 2009, levelized using ESI cost of capital. We verified the accuracy of this levelized value.[5]

The summary of this cost evaluation, including a comparison to the WBL proposal, is shown in Table 5.

[5] While the exact levelized value used is confidential, the average NYMEX published forward price for that time period was $6.50/MMBtu.

Table 5: Summary of Cost Evaluation

Product Type	Capacity (MW)	Capacity Factor	Annual Production (MWh)	Option Premium ($/kW-yr)	Fixed Heatrate (Btu/kWh)	Gas Basis Adder ($/MMBtu)	Henery Hub Gas Price ($/MMBtu)	Total Annual Cost	Per-MWh Cost
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Note: The Per-MWh cost values in the final column for Products A and B include Imputed Debt costs of [redacted] for the Product A proposal and [redacted] for the Product B Proposal. (See text for discussion.)

ESI used the per-MWh cost as the basis for ranking the proposals.[6] The table shows how the final per-MWh cost was calculated. Annual Production is the result of applying the capacity factor to the proposal capacity.[7] Total Annual Cost is the result of multiplying the heat rate by the sum of the levelized Henry Hub Gas Price (i.e., [redacted]) and the Gas Basis Adder. For the Product A proposal, the option premium (times total kW) was added to arrive at its Total Annual Cost. The Per MWh Cost is the Total Annual Cost divided by Annual Production (plus a small amount to reflect "Imputed Debt" cost). As the noted in the Table, imputed debt cost was [redacted] for the Product A proposal [redacted] for the Product B proposal.

Imputed debt cost is an estimate of the incremental finance cost to ESI from entering a purchase power agreement. The credit agencies grade corporate debt based on a range of financial indicators, including the company's debt and other obligations. According to ESI commercial operations, a PPA is considered by the rating agencies to be a debt at 25 percent of the PPA obligation. Hence, if an Operating Company secures a PPA as part of this RFP, the total debt possessed by that company for purposes of a credit rating will increase. Because a credit rating can decline when debt increases, initiating a PPA can affect the Operating Company's credit rating by causing the underlying credit metrics to decline. This, in turn, may increase the Operating Company's cost of capital. In order to reflect this effect in the RFP evaluation, ESI undertakes an analysis to impute these additional costs. We reviewed the calculation of these values and found them to be reasonable.

[6] Because the RFP required any successful bidder to arrange and pay for transmission cost to the Entergy control area, transmission costs were not considered in the evaluation. The WBL units connected to the Entergy grid have existing transmission rights by virtue of their designation as network resources.

[7] Specifically, Annual Production = 8760 x Capacity x Capacity Factor.

C. Selection

As Table 5 shows, the two conforming proposals had bus-bar costs of [redacted] (for Product A) and [redacted] (for Product B). Both proposals had significantly higher cost than the estimated cost of service for the self-supply WBL product, whose average estimated cost of service over the three-year period was $44.61/MWh.[8] Based on these comparative results, ESI selected the self-supply proposal.

D. Conclusions

We find that the overall evaluation was accurate and transparent. We also found it was consistent with the RFP document and conducted in a non-discriminatory manner. The models were logical and based on reasonable assumptions. Therefore, the evaluation results provided a sound basis for making final selections. We also found ESI personnel to be responsive to our various requests, which contributed to transparency in the monitoring process.

[8] The $44.61/MWh value is based on the value in Table 5, which is the three-year simple average of the per-MWh cost. ESI has published a levelized value which is $44.50/MWh.