

## Memo

Date: June 5, 2016

To: Nann Winter  
Stelzner, Winter, Warburton, Flores, Sanchez & Dawes, P.A.

From: Ed Reyes  
Enchantment Energy Consulting

## RE: Socorro Electric Supply RFI - Results

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The City of Socorro (City) commissioned a study to assess the feasibility of establishing a municipal electric utility to serve its Industrial Park area and certain other users within the City in an effort to lower the electric costs to those customers while maintaining or improving the delivery of electric service and enhancing customer service the users of the system. Related to the study, a Request for Information for Wholesale Electric Power Supply for the City of Socorro was released on March 29, 2016 with Responses due on April 29, 2016.

The responses were competitive and reflect a significant interest from the respondents to provide wholesale electric power to the City. The indicative responses for Firm Energy Delivered to the PNM transmission System at San Juan Generating Station 345 kV (SJ-345kV) and/ or Four Corners Generating Station 345kV (4C-345kV) ranged from about \$37.50 per MWhr for a five year term to \$53.70 per MWhr for a 10 year term. Transmission service to effect delivery to the City would have to be arranged with PNM and Tri-State Generation and Transmission (TSGT) and would result in an average additional cost of approximately \$22 per MWhr over a term of 7 years.

### **Detailed Results**

There were responses from seven (7) different entities including power marketing firms, bank affiliates, a large conglomerate, and investor owned utility affiliates. One entity provided a non-responsive offer for membership in a municipal generation association. Within the responses were nineteen (19) separate offers with various load tranches and contract terms.

The load tranches requested were to include the Industrial Park, the Industrial Park plus the NM-Tech campus and the City load in total. Only one response included pricing options for the Industrial Park and Industrial Park plus NM-Tech load. There was not a significant price differential for serving the smaller loads. The Table below shows the range of responses for Firm Energy delivered at SJ-345kV or 4C-345kV. Additional transmission costs for service from both PNM and TSGT for delivery must be added to obtain a total estimated cost for power delivered to the City.

Contract Term	Delivery Pt	Price for Load Option		
		Industrial Park (\$/MWh)	IND+TECH (\$/MWh)	CITY (\$/MWh)
60 Month Term	4C-345 kV	\$ -	\$ -	\$ 37.33
66 Month Term	4C-345 kV	\$ -	\$ -	\$ 39.50
60 Month Term	4C-345 kV	\$ -	\$ -	\$ 39.57
90 Month Term	4C-345 kV	\$ -	\$ -	\$ 41.00
60 Month Term	4C-345 kV	\$ 41.80	\$ 41.77	\$ 41.75
120 Month Term	4C-345 kV	\$ -	\$ -	\$ 42.09
84 Month Term	4C-345 kV	\$ -	\$ -	\$ 43.00
60 Month Term	4C-345 kV	\$ -	\$ -	\$ 43.95
84 Month Term	4C-345 kV	\$ 47.50	\$ 47.47	\$ 47.45
120 Month Term	4C-345 kV	\$ -	\$ -	\$ 49.75
121 Month Term	4C-345 kV	\$ -	\$ -	\$ 50.45
120 Month Term	4C-345 kV	\$ 53.80	\$ 53.76	\$ 53.70
*60 Month Term - Demand Charge (\$/kW-Month)	SJ-345 kV	\$ -	\$ -	\$ 8.15
*60 Month Term - Energy Charge (\$/MWh)	SJ-345 kV	\$ -	\$ -	\$ 20.00
Non-Responsiv Bid	N/A	N/A	N/A	N/A

\*Note: The Demand Charge and Energy Charge must be combined to determine the total price.

**Delivery Costs**

The RFI specifically requested that delivery be made to the PNM System at SJ-345kV or 4C-345kV for two reasons:

1. The common delivery point allows for a uniform comparison of responses
2. Liquidity and price transparency at those market hubs provides for more competitive offers

In order for the energy to be delivered to the City system, transmission service will have to be arranged from PNM and TSGT. PNM can provide Network Integration Transmission Service (NITS) to move power from the SJ-345kV/ 4C-345kV Delivery Points to the Belen Substation where separate Point to Point (P2P) service from TSGT will be needed to deliver to the Socorro system. The average costs for the respective services are shown in the table below:

	Average Transmission Cost (\$/MWh)
<b>PNM Transmission Costs</b>	\$ 8.99
<b>Tri-State Transmission Costs</b>	\$ 12.25

Please note that this transmission cost estimate is an average of one particular respondent's offer and the estimate is based on various assumptions including load size, load profile, peak demand and the contribution to the transmission system peak. Actual aggregated customer energy data would be required to provide a more accurate transmission cost forecast as well as identifying the specific Ancillary Services associated with the transmission providers' service that the respondent is willing to include in their offer.

**Total Combined Costs**

The total combined costs for energy delivered to the City system varied from an average of \$54.19 per MWhr for a five (5) year term to \$77.62 per MWhr for a ten (10) year term to serve the load identified as total City load. For the Industrial Park and NM-Tech load the prices were higher with the low price for the five (5) year Industrial Park plus NM-Tech load at \$63.58 per MWhr and ten (10) year average price was quoted at \$78.68 per MWhr. There was only one respondent who provided an indicative price for those loads. There are two detailed summaries attached as well as the table below that shows the lowest delivered cost for each load and contract term proposed by the respondents.

<i>Term</i>	<i>Load</i>	<i>Avg (\$/MWh)</i>
5 Year Term	City	\$ 54.19
5 Year Term	Industrial Park	\$ 65.48
5 Year Term	Industrial Park + Tech	\$ 63.58
7 Year Term	City	\$ 62.92
7 Year Term	Industrial Park	\$ 73.49
7 Year Term	Industrial Park + Tech	\$ 70.37
10 Year Term	City	\$ 65.44
10 Year Term	Industrial Park	\$ 82.22
10 Year Term	Industrial Park + Tech	\$ 78.68

**Power Market Changes**

The wholesale power market is fluid and dynamic. The price of wholesale electric power is closely correlated with the price of Natural Gas and as such is influenced by a range of financial and energy market conditions as well as geopolitical developments. Ongoing market monitoring is important and provides indications to determine if/ when the market movement produces an adverse condition that affects the overall feasibility of the City's electric utility development effort.

Socorro RFI Analysis- Ind/Tech  
6/4/2016

	Total Contract Cost (\$)	Total Year 1 Cost (\$)	Total Year 2 Cost (\$)	Total Year 3 Cost (\$)	Total Year 4 Cost (\$)	Total Year 5 Cost (\$)
<b>5 Year Offers</b>						
Industrial Park	\$ 4,918,677	\$ 925,006	\$ 940,505	\$ 956,393	\$ 1,011,815	\$ 1,084,958
Estimated SEC Wholesale Cost	\$ 6,259,486	\$ 1,154,449	\$ 1,213,325	\$ 1,242,517	\$ 1,292,046	\$ 1,357,150
Industrial Park + Tech	\$ 12,788,145	\$ 2,472,743	\$ 2,514,134	\$ 2,556,560	\$ 2,600,055	\$ 2,644,653
Estimated SEC Wholesale Cost	\$ 16,757,937	\$ 3,090,490	\$ 3,248,264	\$ 3,326,536	\$ 3,459,140	\$ 3,633,508

	Total Contract Cost (\$)	Total Year 1 Cost (\$)	Total Year 2 Cost (\$)	Total Year 3 Cost (\$)	Total Year 4 Cost (\$)	Total Year 5 Cost (\$)	Total Year 6 Cost (\$)	Total Year 7 Cost (\$)
<b>7 Year Offers</b>								
Industrial Park	\$ 7,807,136	\$ 1,016,015	\$ 1,032,424	\$ 1,049,230	\$ 1,105,581	\$ 1,179,662	\$ 1,201,103	\$ 1,223,120
Estimated SEC Wholesale Cost	\$ 9,182,450	\$ 1,154,449	\$ 1,213,325	\$ 1,242,517	\$ 1,292,046	\$ 1,357,150	\$ 1,425,539	\$ 1,497,425
Industrial Park + Tech	\$ 20,017,056	\$ 2,716,423	\$ 2,760,251	\$ 2,805,138	\$ 2,851,119	\$ 2,898,228	\$ 2,946,500	\$ 3,039,397
Estimated SEC Wholesale Cost	\$ 24,583,510	\$ 3,090,490	\$ 3,248,264	\$ 3,326,536	\$ 3,459,140	\$ 3,633,508	\$ 3,816,600	\$ 4,008,973

	Total Contract Cost (\$)	Total Year 1 Cost (\$)	Total Year 2 Cost (\$)	Total Year 3 Cost (\$)	Total Year 4 Cost (\$)	Total Year 5 Cost (\$)	Total Year 6 Cost (\$)	Total Year 7 Cost (\$)	Total Year 8 Cost (\$)	Total Year 9 Cost (\$)	Total Year 10 Cost (\$)
<b>10 Year Offers</b>											
Industrial Park	\$ 12,667,001	\$ 1,116,603	\$ 1,134,018	\$ 1,151,841	\$ 1,209,218	\$ 1,284,334	\$ 1,306,823	\$ 1,329,896	\$ 1,353,573	\$ 1,377,874	\$ 1,402,820
Estimated SEC Wholesale Cost	\$ 14,080,996	\$ 1,154,449	\$ 1,213,325	\$ 1,242,517	\$ 1,292,046	\$ 1,357,150	\$ 1,425,539	\$ 1,497,425	\$ 1,572,885	\$ 1,637,412	\$ 1,688,248
Industrial Park + Tech	\$ 32,457,323	\$ 2,985,326	\$ 3,031,843	\$ 3,079,447	\$ 3,128,170	\$ 3,178,050	\$ 3,229,120	\$ 3,324,843	\$ 3,441,046	\$ 3,499,678	\$ 3,559,800
Estimated SEC Wholesale Cost	\$ 37,697,244	\$ 3,090,490	\$ 3,248,264	\$ 3,326,536	\$ 3,459,140	\$ 3,633,508	\$ 3,816,600	\$ 4,008,973	\$ 4,211,022	\$ 4,383,253	\$ 4,519,458

	Contract Avg Rate (\$/MWh)	Yr 1 Avg Rate (\$/MWh)	Yr 2 Avg Rate (\$/MWh)	Yr 3 Avg Rate (\$/MWh)	Yr 4 Avg Rate (\$/MWh)	Yr 5 Avg Rate (\$/MWh)
<b>5 Year Offers</b>						
Industrial Park	\$ 65.48	\$ 62.81	\$ 63.23	\$ 63.66	\$ 66.69	\$ 70.80
Estimated SEC Wholesale Cost	\$ 83.33	\$ 78.39	\$ 81.58	\$ 82.71	\$ 85.16	\$ 88.56
Industrial Park + Tech	\$ 63.58	\$ 62.81	\$ 63.23	\$ 63.66	\$ 66.69	\$ 70.80
Estimated SEC Wholesale Cost	\$ 83.32	\$ 78.38	\$ 81.56	\$ 82.70	\$ 85.15	\$ 88.55

	Contract Avg Rate (\$/MWh)	Yr 1 Avg Rate (\$/MWh)	Yr 2 Avg Rate (\$/MWh)	Yr 3 Avg Rate (\$/MWh)	Yr 4 Avg Rate (\$/MWh)	Yr 5 Avg Rate (\$/MWh)	Yr 6 Avg Rate (\$/MWh)	Yr 7 Avg Rate (\$/MWh)
<b>7 Year Offers</b>								
Industrial Park	\$ 73.49	\$ 68.99	\$ 69.41	\$ 69.84	\$ 72.87	\$ 76.98	\$ 77.60	\$ 78.24
Estimated SEC Wholesale Cost	\$ 86.44	\$ 78.39	\$ 81.58	\$ 82.71	\$ 85.16	\$ 88.56	\$ 92.10	\$ 95.79
Industrial Park + Tech	\$ 70.37	\$ 68.89	\$ 69.31	\$ 69.74	\$ 70.18	\$ 70.63	\$ 71.10	\$ 72.61
Estimated SEC Wholesale Cost	\$ 86.43	\$ 78.38	\$ 81.56	\$ 82.70	\$ 85.15	\$ 88.55	\$ 92.09	\$ 95.78

	Contract Avg Rate (\$/MWh)	Yr 1 Avg Rate (\$/MWh)	Yr 2 Avg Rate (\$/MWh)	Yr 3 Avg Rate (\$/MWh)	Yr 4 Avg Rate (\$/MWh)	Yr 5 Avg Rate (\$/MWh)	Yr 6 Avg Rate (\$/MWh)	Yr 7 Avg Rate (\$/MWh)	Yr 8 Avg Rate (\$/MWh)	Yr 9 Avg Rate (\$/MWh)	Yr 10 Avg Rate (\$/MWh)
<b>10 Year Offers</b>											
Industrial Park	\$ 82.22	\$ 75.82	\$ 76.24	\$ 76.67	\$ 79.70	\$ 83.81	\$ 84.43	\$ 85.07	\$ 85.73	\$ 86.41	\$ 87.10
Estimated SEC Wholesale Cost	\$ 91.39	\$ 78.39	\$ 81.58	\$ 82.71	\$ 85.16	\$ 88.56	\$ 92.10	\$ 95.79	\$ 99.62	\$ 102.68	\$ 104.82
Industrial Park + Tech	\$ 78.68	\$ 75.71	\$ 76.13	\$ 76.56	\$ 77.00	\$ 77.45	\$ 77.92	\$ 79.43	\$ 81.40	\$ 81.96	\$ 82.55
Estimated SEC Wholesale Cost	\$ 91.38	\$ 78.38	\$ 81.56	\$ 82.70	\$ 85.15	\$ 88.55	\$ 92.09	\$ 95.78	\$ 99.61	\$ 102.66	\$ 104.80

	Average Cost (\$/MWh)	Contract Total (\$)	Total Year 1 Cost (\$)	Total Year 2 Cost (\$)	Total Year 3 Cost (\$)	Total Year 4 Cost (\$)	Total Year 5 Cost (\$)	Total Year 6 Cost (\$)	Total Year 7 Cost (\$)
Tri-State Transmission Costs	\$ 12.25	\$ 9,296,124	\$ 816,430	\$ 844,849	\$ 874,362	\$ 928,060	\$ 993,265	\$ 952,321	\$ 915,312
PNM Transmission Costs	\$ 8.99	\$ 6,815,348	\$ 629,608	\$ 644,812	\$ 660,444	\$ 692,606	\$ 732,203	\$ 696,055	\$ 662,245

	Total Contract Energy	Yr 1 Energy	Yr 2 Energy	Yr 3 Energy	Yr 4 Energy	Yr 5 Energy	Yr 6 Energy	Yr 7 Energy	Yr 8 Energy	Yr 9 Energy	Yr 10 Energy
Socorro-Ind Energy (MWh)	154,071	14,726	14,874	15,022	15,173	15,324	15,478	15,632	15,789	15,947	16,106
Socorro-Ind+Tech Energy (MWh)	412,534	39,431	39,825	40,223	40,626	41,032	41,442	41,857	42,275	42,698	43,125

Socorro RFI Analysis- CITY Load  
6/4/2016

5 Year Offers	Total Contract Cost (\$)	Total Year 1 Cost (\$)	Total Year 2 Cost (\$)	Total Year 3 Cost (\$)	Total Year 4 Cost (\$)	Total Year 5 Cost (\$)
	\$ 20,095,651	\$ 3,809,101	\$ 3,898,265	\$ 3,989,554	\$ 4,122,744	\$ 4,275,988
	\$ 21,730,090	\$ 4,030,617	\$ 4,084,669	\$ 4,275,605	\$ 4,529,440	\$ 4,809,759
	\$ 22,463,522	\$ 4,317,410	\$ 4,389,747	\$ 4,463,893	\$ 4,579,043	\$ 4,713,429
	\$ 22,491,664	\$ 4,322,927	\$ 4,395,319	\$ 4,469,521	\$ 4,584,727	\$ 4,719,170
	\$ 23,368,087	\$ 4,494,740	\$ 4,568,851	\$ 4,644,788	\$ 4,761,747	\$ 4,897,960
	\$ 24,252,551	\$ 4,668,131	\$ 4,743,975	\$ 4,821,664	\$ 4,940,391	\$ 5,078,391
<b>Estimated SEC Wholesale Cost</b>	<b>\$ 30,893,201</b>	<b>\$ 5,696,975</b>	<b>\$ 5,988,144</b>	<b>\$ 6,132,621</b>	<b>\$ 6,377,029</b>	<b>\$ 6,698,431</b>

7 Year Offers	Total Contract Cost (\$)	Total Year 1 Cost (\$)	Total Year 2 Cost (\$)	Total Year 3 Cost (\$)	Total Year 4 Cost (\$)	Total Year 5 Cost (\$)	Total Year 6 Cost (\$)	Total Year 7 Cost (\$)
	\$ 32,995,263	\$ 4,435,630	\$ 4,509,150	\$ 4,584,490	\$ 4,700,846	\$ 4,836,450	\$ 4,920,985	\$ 5,007,713
	\$ 34,132,314	\$ 4,593,258	\$ 4,668,353	\$ 4,745,286	\$ 4,863,249	\$ 5,000,478	\$ 5,086,653	\$ 5,175,037
	\$ 36,662,252	\$ 4,943,979	\$ 5,022,584	\$ 5,103,056	\$ 5,224,597	\$ 5,365,439	\$ 5,455,264	\$ 5,547,335
<b>Estimated SEC Wholesale Cost</b>	<b>\$ 45,319,910</b>	<b>\$ 5,696,975</b>	<b>\$ 5,988,144</b>	<b>\$ 6,132,621</b>	<b>\$ 6,377,029</b>	<b>\$ 6,698,431</b>	<b>\$ 7,036,052</b>	<b>\$ 7,390,657</b>

10 Year Offers	Total Contract Cost (\$)	Total Year 1 Cost (\$)	Total Year 2 Cost (\$)	Total Year 3 Cost (\$)	Total Year 4 Cost (\$)	Total Year 5 Cost (\$)	Total Year 6 Cost (\$)	Total Year 7 Cost (\$)	Total Year 8 Cost (\$)	Total Year 9 Cost (\$)	Total Year 10 Cost (\$)
	\$ 49,766,432	\$ 4,030,617	\$ 4,084,669	\$ 4,275,605	\$ 4,529,440	\$ 4,809,759	\$ 5,152,472	\$ 5,460,585	\$ 5,641,304	\$ 5,844,677	\$ 5,937,304
	\$ 55,530,541	\$ 5,000,102	\$ 5,079,267	\$ 5,160,308	\$ 5,282,422	\$ 5,520,221	\$ 5,703,766	\$ 5,798,322	\$ 5,895,223	\$ 5,994,545	\$ 6,096,365
	\$ 55,776,765	\$ 5,125,250	\$ 5,205,666	\$ 5,287,971	\$ 5,411,362	\$ 5,554,071	\$ 5,645,782	\$ 5,739,758	\$ 5,836,074	\$ 5,934,804	\$ 6,036,027
	\$ 59,033,800	\$ 5,436,564	\$ 5,520,093	\$ 5,605,543	\$ 5,732,109	\$ 5,878,026	\$ 5,972,976	\$ 6,070,224	\$ 6,169,845	\$ 6,271,912	\$ 6,376,507
<b>Estimated SEC Wholesale Cost</b>	<b>\$ 69,494,613</b>	<b>\$ 5,696,975</b>	<b>\$ 5,988,144</b>	<b>\$ 6,132,621</b>	<b>\$ 6,377,029</b>	<b>\$ 6,698,431</b>	<b>\$ 7,036,052</b>	<b>\$ 7,390,657</b>	<b>\$ 7,763,197</b>	<b>\$ 8,080,194</b>	<b>\$ 8,331,313</b>

5 Year Offers	Contract (\$/MWh)	Avg Rate (\$/MWh)	Yr 1 Avg Rate (\$/MWh)	Yr 2 Avg Rate (\$/MWh)	Yr 3 Avg Rate (\$/MWh)	Yr 4 Avg Rate (\$/MWh)	Yr 5 Avg Rate (\$/MWh)
	\$	54.19	\$ 52.40	\$ 53.10	\$ 53.80	\$ 55.05	\$ 56.53
	\$	58.60	\$ 55.45	\$ 55.63	\$ 57.66	\$ 60.48	\$ 63.58
	\$	60.58	\$ 59.39	\$ 59.79	\$ 60.20	\$ 61.14	\$ 62.31
	\$	60.66	\$ 59.47	\$ 59.87	\$ 60.27	\$ 61.21	\$ 62.39
	\$	63.02	\$ 61.83	\$ 62.23	\$ 62.64	\$ 63.58	\$ 64.75
	\$	65.40	\$ 64.22	\$ 64.61	\$ 65.02	\$ 65.96	\$ 67.13
<b>Estimated SEC Wholesale Cost</b>	\$	83.31	\$ 78.37	\$ 81.56	\$ 82.70	\$ 85.15	\$ 88.55

7 Year Offers	Contract (\$/MWh)	Avg Rate (\$/MWh)	Yr 1 Avg Rate (\$/MWh)	Yr 2 Avg Rate (\$/MWh)	Yr 3 Avg Rate (\$/MWh)	Yr 4 Avg Rate (\$/MWh)	Yr 5 Avg Rate (\$/MWh)	Yr 6 Avg Rate (\$/MWh)	Yr 7 Avg Rate (\$/MWh)
	\$	62.92	\$ 61.02	\$ 61.42	\$ 61.82	\$ 62.77	\$ 63.94	\$ 64.41	\$ 64.90
	\$	65.09	\$ 63.19	\$ 63.58	\$ 63.99	\$ 64.93	\$ 66.10	\$ 66.58	\$ 67.06
	\$	69.92	\$ 68.01	\$ 68.41	\$ 68.82	\$ 69.76	\$ 70.93	\$ 71.40	\$ 71.89
<b>Estimated SEC Wholesale Cost</b>	\$	86.43	\$ 78.37	\$ 81.56	\$ 82.70	\$ 85.15	\$ 88.55	\$ 92.09	\$ 95.78

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	\$	65.44	\$ 55.45	\$ 55.63	\$ 57.66	\$ 60.48	\$ 63.58	\$ 67.44	\$ 70.77	\$ 72.38	\$ 74.25	\$ 74.68
	\$	73.02	\$ 68.78	\$ 69.18	\$ 69.59	\$ 70.53	\$ 72.98	\$ 74.66	\$ 75.14	\$ 75.64	\$ 76.15	\$ 76.68
	\$	73.34	\$ 70.51	\$ 70.90	\$ 71.31	\$ 72.25	\$ 73.42	\$ 73.90	\$ 74.38	\$ 74.88	\$ 75.40	\$ 75.92
	\$	77.62	\$ 74.79	\$ 75.19	\$ 75.59	\$ 76.53	\$ 77.71	\$ 78.18	\$ 78.67	\$ 79.16	\$ 79.68	\$ 80.20
<b>Estimated SEC Wholesale Cost</b>	\$	91.38	\$ 78.37	\$ 81.56	\$ 82.70	\$ 85.15	\$ 88.55	\$ 92.09	\$ 95.78	\$ 99.61	\$ 102.65	\$ 104.79

	Average Cost (\$/MWh)	Contract Total (\$)	Total Year 1 Cost (\$)	Total Year 2 Cost (\$)	Total Year 3 Cost (\$)	Total Year 4 Cost (\$)	Total Year 5 Cost (\$)	Total Year 6 Cost (\$)	Total Year 7 Cost (\$)
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PNM Transmission Costs	\$ 8.99	\$ 6,815,348	\$ 629,608	\$ 644,812	\$ 660,444	\$ 692,606	\$ 732,203	\$ 696,055	\$ 662,245

	Total Contract Energy	Yr 1 Energy	Yr 2 Energy	Yr 3 Energy	Yr 4 Energy	Yr 5 Energy	Yr 6 Energy	Yr 7 Energy	Yr 8 Energy	Yr 9 Energy	Yr 10 Energy
Socorro Energy (MWh)	760,529	72,693	73,420	74,154	74,896	75,645	76,401	77,165	77,937	78,716	79,503