

## FOR BOARD ACTION

Agenda Item # 5.b.

Meeting Date:

12/13/07

**SUBJECT:** CONSIDERATION OF BIDS  
OUTDOOR POWER TRANSFORMERS

**PREPARED BY:** Neil Stiller  
Sr. Electrical Engineer

### ITEM DESCRIPTION:

Bids were opened on November 27, 2007 for two 161kV, 20 MVA outdoor power transformers. This transformer will be used at the Cascade Creek and Westside Substations to meet the growing electric requirements of that area. Both are part of the 5-year capital budget.

Five vendors were invited to bid, and three bids were received. These are summarized on the attached pages. Technical evaluation of bids was performed by Ulteig Engineers Inc. along with staff. Price evaluation was performed by staff and takes the following format:

1. Calculate the lowest life cycle cost per bid based on guaranteed electrical losses over 20 years.
2. Identify all bids with a life cycle cost within 10% of the lowest life cycle cost bid.
3. Bidder qualification factors and conformance to specifications are considered.
4. Of the bids identified in Step 2 and not disqualified by Step 3, the bid with the lowest initial purchase price is the recommended bid.

The low bidder, Delta-Star Inc., proposed transformers which meet the specification. RPU has purchased four similar substation transformers from this company in the last 8 years with satisfactory performance.

Delivery of the first transformer is required by February, 2009.

Delivery of the second transformer is required by February, 2010.

### UTILITY BOARD ACTION REQUESTED:

It is recommended that the Utility Board request Common Council approval of a purchase order agreement with Delta Star, Incorporated, in the amount of \$2,149,851.00.

  
\_\_\_\_\_  
General Manager

10/11/07  
Date

**ROCHESTER PUBLIC UTILITIES**

December 10, 2007

Rochester Public Utilities  
4000 East River Road NE  
Rochester, MN 55906-2813  
Attn: Neil Stiller

SUBJECT: Cascade Creek and Westside Substations  
Transformer Bid Evaluation  
Ulteig Projects #207.1221 and #207.0466

Dear Mr. Stiller:

Ulteig Engineers, Inc. has reviewed proposals from Waukesha Electric Systems, Siemens Power Transmission and Distribution, Inc., and Delta Star. A detailed bid tabulation and technical comparison of the bids is attached on separate documents. Below is a summary of Ulteig's comments and recommendations:

**Delivery**

Delta Star quoted prices for FOB transformer placed on foundation, Waukesha's bid included adders of \$52,550 (Cascade Creek) and \$68,300 (Westside) and Siemen's bid indicated FOB site and did not include an adder for FOB foundation.

Costs of \$16,500 (Waukesha), \$21,600 (Delta Star) and \$36,000 (Siemens) were added to each bid of each unit to allow for oil filling after delivery to the site.

**Alternate Bid**

Delta Star submitted an alternate bid based on material (copper, steel, oil) price escalation as defined in Paragraph 6.9 in the Instructions to Bidders form. Waukesha and Siemens did not provide alternate bids.

**Base Bid**

The lowest combined base bid for the two transformers was the alternate bid by Delta Star followed by Siemens, Delta Star's regular bid and Waukesha Electric Systems. The combined base bid was calculated by adding together the total lump sum, adder for oil filling and adder for FOB placed on foundation of each unit. (CC = Cascade Creek unit; West = Westside unit)

	<u>Delta Star Alt.</u>	<u>Siemens</u>	<u>Delta Star</u>	<u>Waukesha</u>
CC lump sum	\$1,046,238	\$1,065,000	\$1,087,374	\$1,344,750
CC oil fill adder	\$21,600	\$36,000	\$21,600	\$16,500
CC FOB fdn. adder	\$0	not provided	\$0	\$52,500
West lump sum	\$1,060,413	\$1,074,000	\$1,162,082	\$1,423,330
West oil fill adder	\$21,600	\$36,000	\$21,600	\$16,500
West FOB fdn. adder	\$0	not provided	\$0	\$68,300
<b>TOTAL BASE BID</b>	<b>\$2,149,851</b>	<b>*\$2,211,000</b>	<b>\$2,292,656</b>	<b>\$2,921,930</b>

\* does not include prices for FOB placed on foundation

**Exceptions to the Technical Specification**

Waukesha and Siemens cannot provide Cascade Creek units that will fit on the existing pad as stated in the "Cascade Creek Project Specific Information" document. Also, Siemen's bid was lacking in technical information, with "TBD" placed in numerous Bid Form data fields, thus making their bid impossible to fully evaluate. These omissions from the Siemens bid were not investigated further due to the relative position of their bid. Delta Star's bid was complete and conformed to the technical specifications.

**Loss Evaluated Bid**

Loss penalty calculations show Siemens would result in the lowest operating costs over a 20 year life cycle of the transformer. However, Delta Star was within 10% of the lowest loss evaluated bid, thus the bid with the lowest initial purchase price between



**Ulteig**engineers

*Get the job done right*

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Delta Star and Siemens will be considered (per Paragraph 6.2 in the Instructions to Bidders form).

**Recommendation**

Ulteig Engineers, Inc. recommends that **Delta Star's Alternate Bid** be awarded the purchase order for the transformer based on the bid evaluation criteria described in Paragraph 6.2 in the Instructions to Bidders form and acceptable delivery.

Sincerely,

Robert Nundahl, PE  
Project Engineer

c: Bob Ledebuhr, RPU

Enclosures

**Outdoor Power Transf. with LTC Bid Tabulation and Evaluation  
Cascade Creek T1 & Westside T1**

BID BOND ( Y / N )	WAUKESHA	DELTA STAR	DELTA STAR AL	SIEMENS	SIEMENS AIL
	Y	Y	Y	Y	Y
<b>CASCADE CREEK - TOTAL LUMP SUM BID FOR TOTAL EQUIPMENT SUPPLY OF SUBSTATION POWER TRANSFORMER AS SPECIFIED</b>	\$1,344,750	\$1,087,374	\$1,046,238	\$1,065,000	\$1,065,000
Optional Field Engineer services per spec. section 1.4 Item A5 (A6 of Addendum)	\$25,500	\$9,600	\$9,600	\$0	\$0
Optional Field Engineer services per spec. section 1.4 Item A6 (A7 of Addendum)	\$31,500	\$27,000	\$27,000	\$0	\$0
Optional "through fault" testing services per spec. section 1.4 Item A7 (A8 of Addendum)	\$1,008,583	\$320,000	\$320,000	No bid	No bid
Services to fill transformer with oil after delivery of the unit to the site per spec. section 2.2.P. Adder(s) for Excluded Items.	\$18,500	\$21,600	\$21,600	\$36,000	\$36,000
	\$52,550				
Core Loss kW @ 20 deg. C	17.8	17.0	17.0	13.2	13.2
LOSS ADDER @ \$8,782 / kW	\$155,786	\$148,784	\$148,784	\$115,528	\$115,528
Load Loss kW @ 75 deg C and 37.5 MVA	295	253.2	253.2	238	238
LOSS ADDER @ \$3,584 / kW	\$1,048,430	\$899,873	\$899,873	\$845,652	\$845,652
<b>TOTAL LOSS COST</b>	<b>\$1,204,216</b>	<b>\$1,048,657</b>	<b>\$1,048,657</b>	<b>\$961,378</b>	<b>\$961,378</b>
<b>LOSS EVALUATED UNIT BID, Options Excluded</b>	<b>\$2,618,016</b>	<b>\$2,167,631</b>	<b>\$2,116,496</b>	<b>\$2,062,378</b>	<b>\$2,062,378</b>
<b>EVALUATION NOTES:</b>	Waukesha bid documents indicate the lump sum bid excluded costs associated with delivery terms "FOB transformer placed on foundation". The Adder for Excluded Items of \$52,550 represents this cost.			Siemens clarified that their guarantee loss values were originally submitted in error. The above numbers are as corrected per correspondence dated 11/29/2007.	Siemens clarified that their guarantee loss values were originally submitted in error. The above numbers are as corrected per correspondence dated 11/29/2007.
<b>WESTSIDE - TOTAL LUMP SUM BID FOR TOTAL EQUIPMENT SUPPLY OF SUBSTATION POWER TRANSFORMER AS SPECIFIED</b>	\$1,423,330	\$1,162,062	\$1,060,413	\$1,074,000	\$1,074,000
Optional Field Engineer services per spec. section 1.4 Item A5	\$25,550	\$9,600	\$9,600	\$0	\$0
Optional Field Engineer services per spec. section 1.4 Item A6	\$31,500	\$27,000	\$27,000	\$0	\$0
Optional "through fault" testing services per spec. section 1.4 Item A7	\$1,087,498	\$320,000	\$320,000	No bid	No bid
Services to fill transformer with oil after delivery of the unit to the site per spec. section 2.2.P. Adder(s) for Excluded Items.	\$18,500	\$21,600	\$21,600	\$36,000	\$36,000
	\$68,300				
Spare parts - one HV bushing	\$8,500	\$6,603	\$6,603	\$6,400	\$6,400
Spare parts - one LV bushing	\$2,500	\$1,192	\$1,192	\$1,350	\$1,350
Spare parts - components for LTC maintenance		\$8,933	\$8,933	\$19,800	\$19,800
Spare parts - one Beckwith M-2001B tap changer control	\$3,000	\$4,400	\$4,400	\$5,000	\$5,000
Core Loss kW @ 20 deg. C	17.6	16.8	16.8	13.0	13.0
LOSS ADDER @ \$8,782 / kW	\$154,035	\$147,034	\$147,034	\$113,778	\$113,778
Load Loss kW @ 75 deg C and 37.5 MVA	235	259	259	244	244
LOSS ADDER @ \$3,584 / kW	\$835,190	\$920,486	\$920,486	\$867,176	\$867,176
<b>TOTAL LOSS COST</b>	<b>\$989,225</b>	<b>\$1,067,520</b>	<b>\$1,067,520</b>	<b>\$980,952</b>	<b>\$980,952</b>
<b>LOSS EVALUATED UNIT BID, Options Excluded</b>	<b>\$2,487,385</b>	<b>\$2,251,202</b>	<b>\$2,149,533</b>	<b>\$2,060,952</b>	<b>\$2,090,952</b>
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<b>LOSS EVALUATED TOTAL BID, Options Excluded</b>	<b>\$5,115,371</b>	<b>\$4,408,832</b>	<b>\$4,266,027</b>	<b>\$4,153,330</b>	<b>\$4,153,330</b>
<b>VARIANCE FROM LOW EVALUATION</b>	<b>23.2%</b>	<b>6.2%</b>	<b>2.7%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>TOTAL LUMP SUM BID FOR TOTAL EQUIPMENT SUPPLY OF TWO (2) SUBSTATION POWER TRANSFORMERS AS SPECIFIED</b>	<b>\$2,921,930</b>	<b>\$2,292,056</b>	<b>\$2,149,851</b>	<b>\$2,211,000</b>	<b>\$2,211,000</b>
<b>DELIVERY</b>	February 2, 2009	February 2, 2009	February 2, 2009	February 2, 2009	February 2, 2009
<b>FOB</b>	Factory, with price adder for FOB pad.	Pad	Pad	Cascade Creek substation and Westside substation only, off-loading not included	Cascade Creek substation and Westside substation only, off-loading not included



## RESOLUTION

BE IT RESOLVED by the Public Utility Board of the City of Rochester, Minnesota to approve a purchase order agreement with Delta-Star Incorporated for

OUTDOOR TWO POWER TRANSFORMERS  
DELIVERY OF THE FIRST TRANSFORMER TO BE FEBRUARY, 2009  
DELIVERY OF THE SECOND TRANSFORMER TO BE FEBRUARY, 2010

The amount of the purchase order agreement to be TWO MILLION ONE HUNDRED FORTY-NINE THOUSAND EIGHT HUNDRED FIFTY-ONE AND 00/100 DOLLARS (\$2,149,851.00) and Delta-Star Incorporated being lowest responsible bidder.

Passed by the Public Utility Board of the City of Rochester, Minnesota, this 13<sup>th</sup> day of December, 2007.

President \_\_\_\_\_

Secretary \_\_\_\_\_