

CITY OF BATAVIA

DATE: November 8, 2019
TO: Committee of the Whole - PU
FROM: Rahat Bari, City Engineer
SUBJECT: Resolution 19-118-R: Approving Task Order #3 with Siemens for an amount not to exceed \$39,889.00 to perform equipment inspection and cleaning at Main Substation, Northeast Substation and Southeast Substation

Summary: The City of Batavia Electric Utility performed ultrasonic corona detection testing at Main Substation, Northeast Substation and Southeast Substation. The testing results revealed that some equipment is experiencing more than excessive corona issue hence need to be inspected up-close and cleaned.

Background:

The City of Batavia owns and operates an electric utility whereby it purchases wholesale power and resells same to its citizens. To provide reliable power services, the electric utility must test and inspect the equipment periodically to make sure those are in proper working order. The test and inspection also identify any potential for failures in equipment. The City has currently two 138kV and four 34kV substations.

In 2018, the City identified some corona issues with breakers at both Northeast and Southeast Substations. Corona refers to the faint glow surrounding an electrical conductor of 3500 volts or greater as a result of the ionization of air as the nitrogen in the air breaks down. When corona occurs it creates ozone, ultraviolet light, nitric acid, electromagnetic emissions and sound. Ozone deteriorates rubber-based insulation. If moisture or high humidity conditions exist, nitric acids can also be formed that attacks copper and other metals. The electromagnetic emission can be heard as interference on AM radios and the corona sound can be heard by the human ear and be ultrasonic scanning devices. Once corona becomes active, it leaves behind a conductive tracking path on surfaces and creates a very conductive cloud of air around itself. A flash-over can occur once a tracking pathway is completed from phase to phase or phase to ground. It can also occur from the conductive cloud of surrounding air once it finds a path to ground. Understanding the severity of corona issue, we instructed Siemens to fix the corona issue in 2018. With the help of city's electric crews, Siemens cleaned different parts within the breaker which reduced the noise/corona issue considerably. However, in 2018, Siemens provided opinion that this corona issue is fixed temporarily until it reaches a higher severity level.

Replacing those breakers at Northeast and Southeast substation will be costly. Staff budgeted \$600,000 in 2019 budget however informed City Council that further testing will be completed before we proceed with breaker replacement. We have completed further testing in September 2019 to determine whether high level of corona has reoccurred. To our dismay, Siemens has identified higher level of Corona again. As a result, we have re-budgeted \$600,000 again in 2020 budget to proceed with replacement of breakers at Northeast and Southeast substation. In the meantime, we will be proceeding with cleaning up those breakers again so that the risk is

minimized until full replacement of breakers is completed. During the ultrasonic corona detector testing, Siemens identified that 35kV recloser at Main Substation also need to be inspected and cleaned.

The Electric Utility used Siemens to perform this work in 2018. Staff finds Siemens to be a very responsible entity to perform the work. The City has obtained a price quote of \$39,88.00 from Siemens to perform equipment inspection and cleaning work at Northeast, Southeast and Main Substation. Upon completion of the inspection and cleaning, Siemens will provide a report with their findings and recommendation. Siemens is expected to complete the testing and inspection by December 31, 2019 weather permitting. Funds are available in 2019 budget to complete this work.

Account Number: 21-64-6322

Staff recommendations:

- Staff recommends Committee of the Whole and the City Council approve Resolution 19-118-R Approving Task Order #3 with Siemens for an amount not to exceed \$39,889.00 to perform equipment inspection and cleaning at Main, Northeast and Southeast substation.

Attachment:

1. Task Order #3

**CITY OF BATAVIA, ILLINOIS
RESOLUTION 19-118-R**

**AUTHORIZING TASK ORDER #3 WITH SIEMENS FOR AN AMOUNT NOT TO EXCEED \$39,889.00
TO PERFORM EQUIPMENT INSPECTION AND CLEANING AT MAIN, NORTHEAST AND SOUTHEAST
SUBSTATION**

WHEREAS, the City of Batavia owns and operates an electric utility whereby it purchases wholesale power and resells same to its citizens; and

WHEREAS, the City of Batavia Municipal Electric Utility requires that existing equipment be maintained for proper working order and to identify potential failures; and

WHEREAS, the City of Batavia Municipal Electric Utility will be performing Equipment inspection and cleaning at Main, Northeast and Southeast Substation; and

WHEREAS, Siemens Industry, Inc. has submitted a quotation of \$39,889.00 to perform the equipment Testing at Main, Northeast, and Southeast Substation; and

WHEREAS, Siemens has the experience and qualifications necessary to provide the work in a satisfactory and safe manner;

NOW, THEREFORE, BE IT RESOLVED, by the Mayor and City Council of the City of Batavia, Kane and DuPage Counties, Illinois, as follows:

SECTION 1: That the Mayor and City Clerk are hereby authorized to execute Task Order #2 with Siemens to perform equipment Testing and Inspection at McKee Substation for an amount not to exceed \$39,889.00.

CITY OF BATAVIA, ILLINOIS RESOLUTION 19-118-R

PRESENTED to and **PASSED** by the City Council of the City of Batavia, Illinois, this 18th day of November, 2019.

APPROVED by me as Mayor of said City of Batavia, Illinois, this 18th day of November, 2019.

Jeffery D. Schielke, Mayor

Ward	Aldermen	Ayes	Nays	Absent	Abstain	Aldermen	Ayes	Nays	Absent	Abstain
1	O'Brien					Salvati				
2	Callahan					Wolff				
3	Meitzler					Chanzit				
4	Malay					Knopp				
5	Uher					Beck				
6	Cerone					Russotto				
7	McFadden					Miller				
Mayor Schielke										
VOTE:		Ayes	Nays	Absent	Abstentions					
Total holding office: Mayor and 14 aldermen										

ATTEST:

Ellen Posledni, City Clerk

EXHIBIT "B"

TASK ORDER NO. ____3_____

REGARDING GENERAL AGREEMENT BETWEEN CITY OF BATAVIA

AND

Siemens Industries Inc

Project Description:

Perform equipment inspection and cleaning at Main, Northeast and Southeast substation

Scope of Services:

See attached proposal from Siemens

Time of Performance:

Completion by December 31, 2019

Estimated Fee for Services: \$39,889.00

Proposed: _____

Date

Approved: _____

City of Batavia

Date

SIEMENS

November 4, 2019

Mr. Robert Rogde
Senior Project Engineer
City of Batavia
200 N. Raddant Road
Batavia, IL 60510

**Subject: Follow-Up from Siemens Test Report – Ultrasonic Corona Detector
Siemens Negotiation #GCGJL19-10-036**

Dear Robert:

Per your request Siemens Industry, Inc. is providing a quote based on the Ultrasonic Corona Detector report dated 10/20/2019.

Equipment to be Inspected & Cleaned

1. Main Sub
 - a. 34.5 kV recloser – L3421 South Circuit
2. North East 138 kV Sub
 - a. 34.5 kV ABB Breaker – 152-5, The 2000 A Bus Tie Breaker. This was one of the really bad ones previously.
 - b. 34.5 kV ABB Breaker – 152-7, The 2000 A Transformer 2 Main Breaker. This was one of the really bad ones previously.
 - c. Newly Installed Bus Support Insulators – Above new breaker L3415 – We will investigate this as we take the Bus out for construction.
3. South East 138 kV Sub
 - a. 34.5 kV ABB Breaker – 152-3, The 2000 A Transformer Main Breaker. This was one of the bad ones previously.
 - b. L14403 Lightning Arrestors – Inspection
 - c. 138 kV Transformer Bushings – H2 and H3, inspection and cleaning
4. Upon completion a report will be submitted with our findings and any recommendations.

Scope of Work

- Inspect and clean areas where we found corona issues from the test report.

Price

Our estimated price to perform the work in the manner described in this proposal is \$39,889.00. Work will be based on time and material.

Work is based on (2) weeks and (2) men on regular time basis.

Rates

- Senior Field Service Engineer @ \$210.00 regular hour
- Field Service Engineer @ \$180.00 regular hour

Siemens Industry, Inc.

SIEMENS

- Expenses Per Diem (local) is \$110.00 / day
- Expensed Per Diem (overnight) is \$260.00 / day
- Material (cleaning material COLLONITE, SCOTCHBRITE, etc. etc.) will be cost + 15%

Siemens Standard Terms and Conditions of Sale for Joint Product and Services Offerings; copy enclosed.

Notes & Comments

1. Work is quoted Monday thru Friday 8:00 am to 5:00 pm excluding holidays.
2. City of Batavia to de-energize and re-energize all equipment.
3. City of Batavia to provide personnel and lifting equipment to assist our engineers during the inspection and cleaning.
4. Additional repairs to equipment and replacement of parts or equipment are not included. Any such repairs or replacement will be negotiated separately, when known, as necessary.
5. Extensive delays due to circumstances beyond the control of the Siemens Service Personnel will be subject to additional billing.

Should you have any questions or if we may be of assistance, please call me at 708/2267-6146

Yours truly,

Julio Lemus
Account Manager

Siemens Industry, Inc.