



# Memo

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TO: Public Works Committee  
FROM: Kevin Schone, Public Works Manager  
DATE: January 7, 2019  
SUBJECT: Wells 6 & 8 Improvement Consideration

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In November 2018, staff met with an energy advisor from Leidos, Inc. for taking advantage of energy efficiency programs and reducing electrical cost. Leidos is an Ameren contractor that manages ActOnEnergy programs.

One project that was identified was the addition of VFD's at wells 6&8 at WTP #1 as well as adding full ethernet connectivity and controls to these same wells.

## SCOPE OF WORK:

Install Toshiba VFD's and provide Full Ethernet connectivity and control to Wells 6 and 8 from Plant 1. Supply and install hardware to provide ethernet control and provide stats back of each drive on the Scada computer.

The supplied hardware will give the drives speed control based on 3 options.

1. Flow
2. Pressure
3. Manual control

The stats sent back to the Scada computer will provide trended data that will allow the operators to track the health of the drive and pump.

The standard items that will be tracked are:

1. Hand/Off/Auto control at well;
2. Phase Monitor/ Sub monitor monitoring;
3. VFD Input Voltage;
4. VFD Dc Bus;
5. VFD Output Voltage;
6. VFD Output Current; and
7. VFD Commanded Speed.

Other items can be added if requested (additional cost).

- Bypass starter function can be added so system can operate automatically in bypass mode.
- Individual flow meters at wells can be added.
- Well pressure can be added.
- Temperature of well sites can be added to system.

Softener PLC will be replaced with an SLC 5/05 1746-L552 to add ethernet connectivity for control. Wireless ethernet will be used to each well, with the option to add Well 7 later. We will be operating in either 2.4Ghz or 5.8Ghz frequency and will be encrypted. The frequency chosen will be based on which provides the cleanest signal. This will fully eliminate the DH-485 network in the plant. Allowing for increased response time and upgrade paths in the future. High Service pumps can be added with an ethernet module to each drive. Price to process Ameren Custom Incentive form and ending paperwork. Included in price.

Project quotes include the following:

- RNS will install 2 VFD's, one at well 6 and 1 at well 8. The cost for well 6 is \$12,995.00 and the cost for well 8 is \$14,295.00 for a total of \$27,290.00. The total eligible incentives for the two VFD's is \$19,346.25
- BEA will install all hardware to provide ethernet control and stats back of each drive on the Scada computer as noted above for a total of \$33,660.00. The incentive for this portion of the project would be \$6000.00.

The total cost of the VFD's and controls for this project would be \$60,950.00. Of the total amount, staff expects incentive checks in the amount of \$25,346.25 to be sent to the City for purchase and installation of the two VFD's and associated controls upon project completion. There are sufficient funds within the water budget for this project.

This matter has been placed on the Public Works Committee meeting agenda of Monday, January 7, 2019 for review and discussion.