

TO: Mayor J. Lehman and Members of General Committee

FROM: B. Thompson, C.E.T., C.E.M.
Manager of Energy

NOTED: R. Pews, P. Eng, Director of Corporate Facilities 

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General Manager of Community and Corporate Services 

C. Ladd, Chief Administrative Officer 

RE: EIA Award

DATE: September 26, 2016

The purpose of this memo is to inform council of an award received by the City of Barrie, Water Operations Branch, for an energy reduction project completed over 2015 and 2016 at six City of Barrie ground water wells.

PowerStream had informed the City of the Energy into Action (EIA) Innovation Awards and the City had provided the information required to submit the application to PowerStream who submitted the application on the City's behalf. The application was submitted in the Municipal University, Schools and Hospitals (MUSH) category for buildings that use between 50 and 250 kW of electricity as their monthly peak.

The project consisted of the addition of Variable Frequency Drive (VFD) controls on six ground water well motors. The project reduced electrical demand by 350 kW per month and the City received \$94,104.57 in incentive payments from PowerStream. A seventh well was recently approved (a three month monitoring period is required prior to approval and this monitoring period was completed after the deadline for the awards) and will add about \$17,000 more dollars in incentive payments.

The project was led by the Water Operations Branch and was undertaken to provide better control for the supply of water into zones. By installing VFD controls, they were able to run the motor at the speed required to produce the desired flow of water rather than reduce water supply mechanically by partially closing a valve, which was causing operational issues in some cases. A second factor was that because water systems must be sized for fire flows, they are generally about 15% over sized. Where no control is being used, this results in the wells being capable of supplying more water than is required when there is no fire occurring. In this case, the addition of the VFD allowed for the wells to reduce supply to what is required for potable water uses while being able to ramp up to maximum flows in the case of a fire. A byproduct of the project was a substantial reduction in electrical demand and a reduction in electrical consumption.

The Energy Management Branch worked with the Water Operations Branch to ensure incentives were applied for and all rules were followed, including establishment of an electrical demand baseline for each well prior to construction and a three month post construction monitoring period to determine new demand. With Save on Energy incentives, there are multiple paths which can be used to apply for the incentives and each path may lead to different incentive amounts. In this case, the Energy Management Branch, in consultation with PowerStream Demand Management staff, determined that applying for demand reduction incentives rather than kWh reduction incentives was far more lucrative to the City and so this path was taken.

Barry Thompson, Manager of Energy