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Honeywell – 2019 Energy & Operational Savings Report

Information Report to Council

Report Number: INFO-2020-20

Department(s): Development & Infrastructure Services Commission

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In accordance with the Procedure By-law, any member of Council may make a request to the Town Clerk that this Report be placed on an upcoming Committee of the Whole agenda for discussion.

Executive Summary

Since 2007, cumulative savings for the Phase 1 and Phase 2 of the Honeywell energy efficiency projects have amounted to \$7,235,995 of cost avoidance associated with energy. This is \$2,444,651 higher than Honeywell guaranteed amount determined at the beginning of the projects.

Purpose

The purpose of this report is to provide an update on energy and operational savings from the Phase 1 and Phase 2 of the Honeywell Retrofit Program that were initiated in 2007 and 2014 respectively.

Background

In an effort to lower greenhouse gas emissions, improve facility comfort, address deferred maintenance and reduce utility costs, the Town of Newmarket partnered with Honeywell Canada Energy and Environmental Services (EES) in 2007 to perform a comprehensive energy and facility renewal (EFR) study and subsequent retrofit of

various Town facilities. Given the success of the Phase 1 EFR program, Community Services Information Report 2012-11 provided staff with authority to review the program’s applicability to Magna Centre and/or other facilities in the future. As a result, staff implemented and completed a Phase 2 Honeywell Retrofit Program including streetlights in 2015.

Each year, Honeywell provides the Town with an annual energy and operational savings report for the Retrofit Program. The Phase 1 utility and operational savings guarantee ended in 2018. Cumulative achieved savings for Phase 1 totaled \$2,596,207, which was \$982,882 higher than the cumulative savings guarantee. Total costs for the Phase 1 project were \$1.56 million, funded by an internal loan from reserve funds. This loan has been fully paid back (\$156,000 per year) through utility savings from 2008 -2017. In the 2018 budget, this annual payment was used to address extraordinary budget items.

The Phase 2 project straight utility cost savings guarantee is approximately \$583,000 per year from November 2015 to October 2031. To the end of October 2019, Phase 2 cumulative achieved savings (utility savings and operational savings together) amounted to \$4,639,787, which is \$1,461,719 higher than the cumulative savings guarantee. Total costs for the Phase 2 project are \$7.3 million, funded through an internal loan from reserve funds. This loan is being paid back through utility savings starting 2017.

Discussion

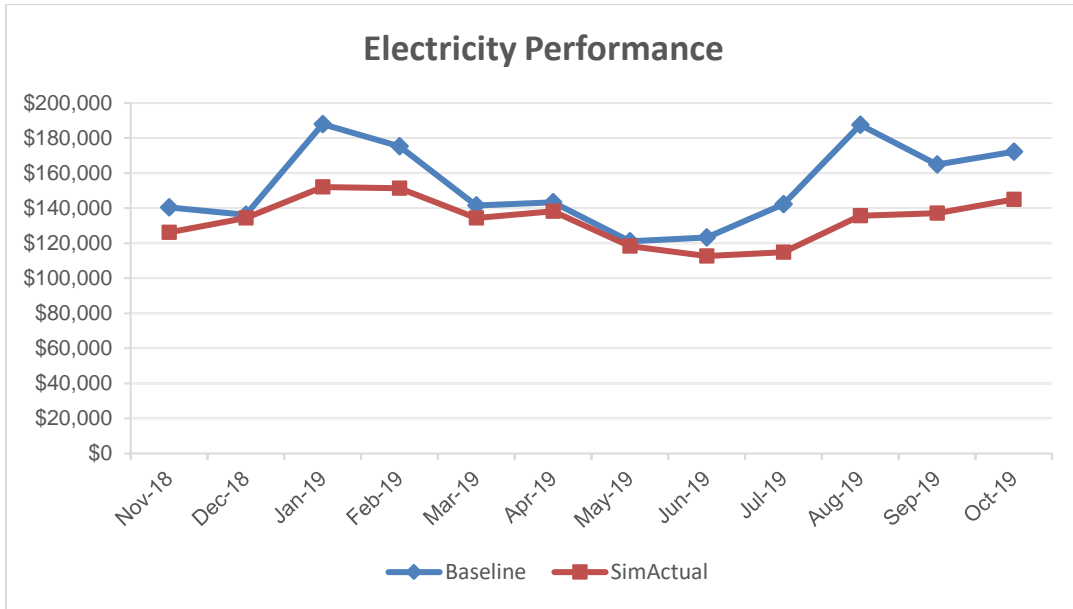
The cost savings achieved during the period of November 2018 to October 2019 by Facility and Utility are provided in the following summary:

Building Name	Electricity, \$	Natural Gas, \$	Water, \$	Total Savings, \$
Municipal Office	\$13,190	\$1,354	n/a	\$14,544
Ray Twinney Rec	\$89,347	\$37,034	\$53,934	\$180,315
Seniors Meeting Place	\$6,254	\$2,333	n/a	\$8,587
Magna Centre	\$126,974	n/a	n/a	\$126,974
Total	\$235,765	\$40,721	\$53,934	\$330,420

Following is a graphical representation of the simulated actual utility consumption against the baseline utilities as established at the beginning of the project:

Electricity cost savings for the period is \$235,765.

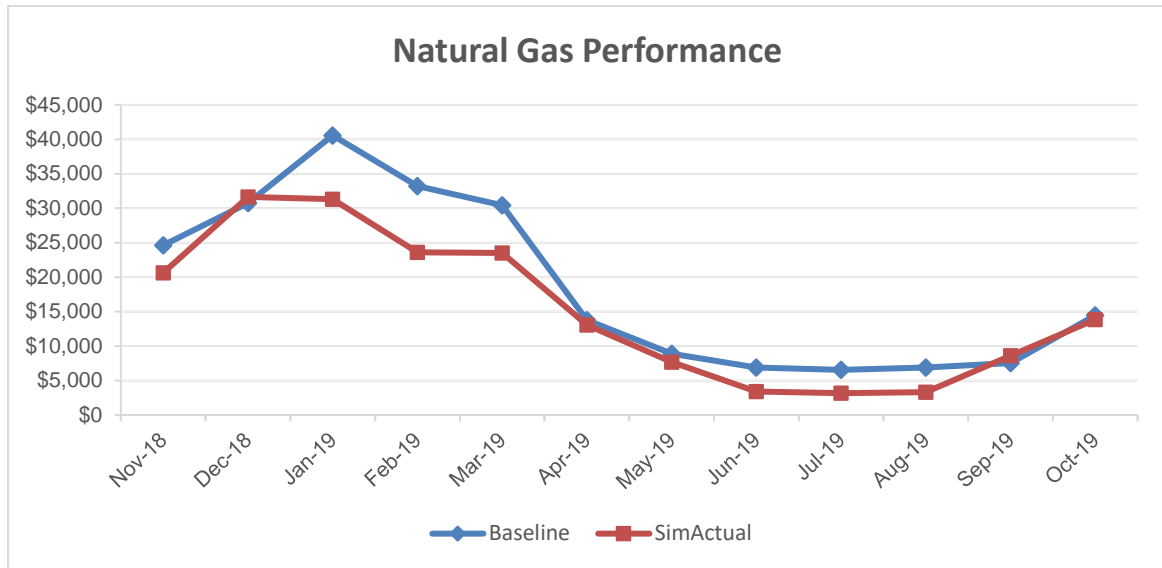
Electricity Consumption Cost (Excluding Streetlights*)



*Electricity cost savings for Streetlights for the period is \$595,343.

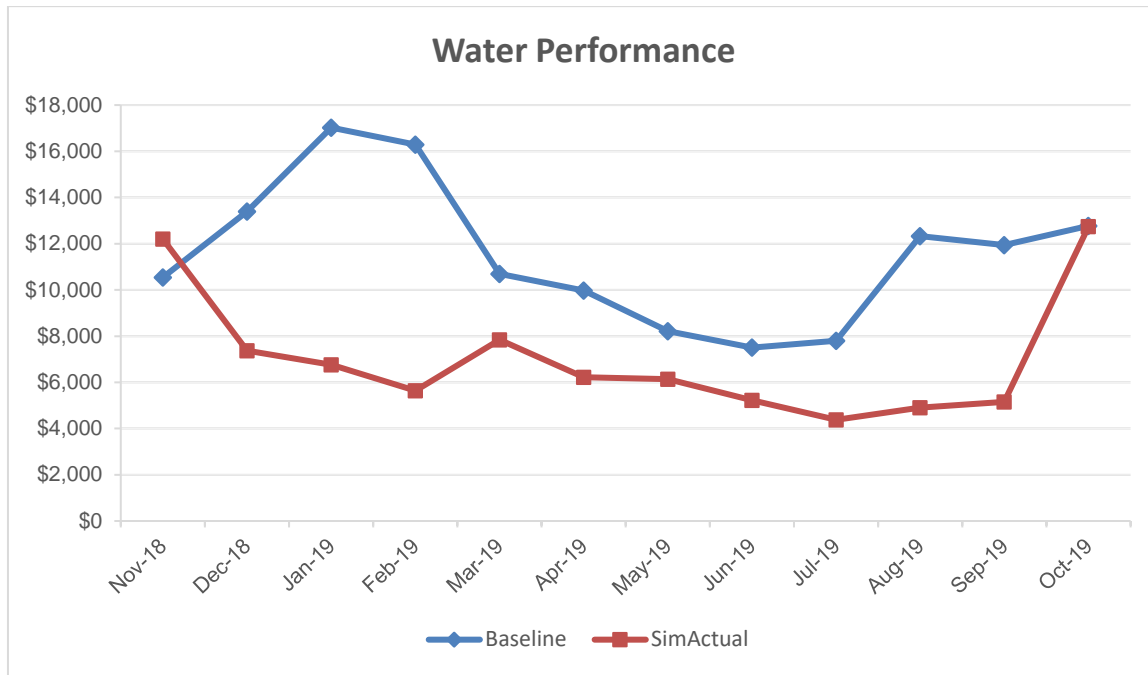
Natural Gas Consumption Costs

Natural gas cost savings for the period is \$40,721. There is additional \$11,117 natural gas cost savings as a result of installation of VFD in Magna Centre.



Water Consumption Costs

Water cost savings for the period is \$53,934.



In addition to the utility cost avoidance indicated above, operational cost savings were identified as \$315,534 due to lower maintenance activities indicated in the following chart:

Measure	Description of Savings	Average Maintenance Savings
Streetlighting Upgrade(LED)	Savings result from increased life expectancy of new LED street lights, and reduced forecasted maintenance cost as developed by Newmarket Hydro, Honeywell and the Town. Includes a 10 year warranty on new LED fixtures (material). See section 4.3.1 for more detail. Maintenance saving is based upon table 3.7 in the EFRR.	\$297,250
Lighting System Upgrades	The lamp and ballast lighting material savings are due to replacement. The new equipment is under warranty, and has a longer rated operating life.	\$15,188
Control System Upgrades & Scheduling	Measures result in reduced: wear and tear on scheduled motors; less frequent filter changes due to lower annual operating hours and wear on valves and dampers due to stable control and reduced hunting.	\$1,867
HVAC Upgrades	Less wear and tear and change out of pool cooling compressor due to shorter operating hours.	\$1,229
Total		\$315,534

Conclusion

In conclusion, the savings report ending 2019 is provided in appendix A & B for your reference. To the end of October 2019, cumulative savings and/or cost avoidance realized is \$7,235,995. This is \$2,444,651 higher than anticipated at the beginning of the projects.

Business Plan and Strategic Plan Linkages

Consistent with Council's Strategic Priority for Environmental stewardship, this initiative supports reducing energy consumption and greenhouse gases. The Town is fiscally responsible and operates as efficiently and effectively as possible to maximize savings. The Town wishes to provide facilities that are well maintained and efficiently operated according to established operational and health standards. It is also the Town's goal to reduce annual energy consumption.

Consultation

No consultation was required for this report.

Human Resource Considerations

There are no Human Resource considerations as a result of this report.

Budget Impact

No budget impact (operational/capital/tax levy)

Attachments

Appendix A - The Phase 1 Project Cost Savings Summary

Appendix B - The Phase 2 Project Cost Savings Summary

Contact

For more information on this report, please contact Frank Wu, Business Performance Specialist, at 905-953-5300, extension 2523 (or fwu@Newmarket.ca).

Approval

Frank Wu
Business Performance Specialist

Mark Agnoletto
Acting Director, Public Works Services

Peter Noehammer, Commissioner
Development & Infrastructure Services

Appendix A – The Phase 1 Project Cost Savings Summary

Guarantee Year		Utility Savings Guarantee	Operational Savings	Total Savings Guarantee	Cumulative Savings Guarantee	Achieved Savings	Cumulative Achieved Savings	Cumulative Excess (Shortfall)
Phase 1 CP	Jan 2007 - Nov 2007	n/a	n/a	n/a	n/a	\$126,989	\$126,989	\$126,989
Phase 1 Yr 1	Nov 2007 - Oct 2008	\$159,232	(\$1,700)	\$157,532	\$157,532	\$217,683	\$344,672	\$187,140
Phase 1 Yr 2	Nov 2008 - Oct 2009	\$159,232	(\$1,700)	\$157,532	\$315,064	\$211,221	\$555,893	\$240,829
Phase 1 Yr 3	Nov 2009 - Oct 2010	\$159,232	(\$1,700)	\$157,532	\$472,596	\$213,969	\$769,862	\$297,266
Phase 1 Yr 4	Nov 2010 - Oct 2011	\$159,232	(\$1,700)	\$157,532	\$630,128	\$210,420	\$980,282	\$350,154
Phase 1 Yr 5	Nov 2011 - Oct 2012	\$159,232	(\$1,700)	\$157,532	\$787,660	\$218,006	\$1,198,288	\$410,628
Phase 1 Yr 6	Nov 2012 - Oct 2013	\$159,232	(\$1,700)	\$157,532	\$945,192	\$193,719	\$1,392,007	\$446,815
Phase 1 Yr 7	Nov 2013 - Oct 2014	\$159,232	(\$1,700)	\$157,532	\$1,102,724	\$184,537	\$1,576,544	\$473,820
Phase 1 Yr 8	Nov 2014 - Oct 2015	\$159,232	(\$1,700)	\$157,532	\$1,260,256	\$266,188	\$1,842,732	\$582,476
Phase 1 Yr 9	Nov 2015 - Oct 2016	\$159,232	(\$1,700)	\$157,532	\$1,417,788	\$242,742	\$2,085,474	\$667,686
Phase 1 Yr 10	Nov 2016 - Oct 2017	\$159,232	(\$1,700)	\$157,532	\$1,575,320	\$252,555	\$2,338,029	\$762,709
Phase 1 Yr 11	Nov 2016 - Oct 2018	\$38,432	(\$427)	\$38,005	\$1,613,325	\$258,178	\$2,596,207	\$982,882

Appendix B – The Phase 2 Project Cost Savings Summary

Guarantee Year		Utility Savings Guarantee	Operational Savings	Total Savings Guarantee	Cumulative Savings Guarantee	Achieved Savings	Cumulative Achieved Savings	Cumulative Excess (Shortfall)
Phase 2 CP	Nov 2014 - Oct 2015	n/a	n/a	n/a	n/a	\$284,669	\$284,669	\$284,669
Phase 2 Yr 1	Nov 2015 - Oct 2016	\$477,662	\$276,533	\$754,195	\$754,195	\$972,385	\$1,257,054	\$502,859
Phase 2 Yr 2	Nov 2016 - Oct 2017	\$491,737	\$288,929	\$780,666	\$1,534,861	\$1,113,445	\$2,370,499	\$835,638
Phase 2 Yr 3	Nov 2017 - Oct 2018	\$505,813	\$301,920	\$807,733	\$2,342,594	\$1,016,278	\$3,386,777	\$1,044,183
Phase 2 Yr 4	Nov 2018 - Oct 2019	\$519,889	\$315,535	\$835,424	\$3,178,018	\$1,253,010	\$4,639,787	\$1,461,769
Phase 2 Yr 5	Nov 2019 - Oct 2020	\$533,965	\$329,803	\$863,768	\$4,041,786	n/a	n/a	n/a
Phase 2 Yr 6	Nov 2020 - Oct 2021	\$548,041	\$344,755	\$892,796	\$4,934,582	n/a	n/a	n/a
Phase 2 Yr 7	Nov 2021 - Oct 2022	\$562,116	\$360,426	\$922,542	\$5,857,124	n/a	n/a	n/a
Phase 2 Yr 8	Nov 2022 - Oct 2023	\$576,192	\$376,849	\$953,041	\$6,810,165	n/a	n/a	n/a
Phase 2 Yr 9	Nov 2023 - Oct 2024	\$590,268	\$394,060	\$984,328	\$7,794,493	n/a	n/a	n/a
Phase 2 Yr 10	Nov 2024 - Oct 2025	\$604,344	\$412,097	\$1,016,441	\$8,810,934	n/a	n/a	n/a
Phase 2 Yr 11	Nov 2025 - Oct 2026	\$618,419	\$290,241	\$908,660	\$9,719,594	n/a	n/a	n/a
Phase 2 Yr 12	Nov 2026 - Oct 2027	\$632,495	\$303,295	\$935,790	\$10,655,384	n/a	n/a	n/a
Phase 2 Yr 13	Nov 2027 - Oct 2028	\$646,571	\$316,975	\$963,546	\$11,618,930	n/a	n/a	n/a
Phase 2 Yr 14	Nov 2028 - Oct 2029	\$660,647	\$331,313	\$991,960	\$12,610,890	n/a	n/a	n/a
Phase 2 Yr 15	Nov 2029 - Oct 2030	\$674,722	\$346,338	\$1,021,060	\$13,631,950	n/a	n/a	n/a
Phase 2 Yr 16	Nov 2030 - Oct 2031	\$688,798	\$362,084	\$1,050,882	\$14,682,832	n/a	n/a	n/a