



January 21, 2016

The Township of Huron-Kinloss
21 Queen Street
Ripley, Ontario
N0G 2R0

ATT: Mary Rose Walden, Administrator

Re: Township of Huron-Kinloss Proposal for Energy Audit (Electricity Survey and Analysis)

The Ontario Clean Water Agency (OCWA) is pleased to submit a proposal to undertake an Energy Audit on the listed wastewater facilities in the Township of Huron-Kinloss. This Energy Audit is recommended based on preliminary energy walkthrough and hydro bill analysis conducted in these facilities by OCWA Energy Specialist (ES) on November 26, 2015. The facilities were selected based on their annual energy consumption and treatment process involved as discussed with the Township.

Background

OCWA ES performed hydro bill analysis for the following facilities and annual energy consumption was derived as per the documents provided by Township. Basic walkthrough was conducted to get a sense of process and equipment involved. This identified several energy efficiencies opportunities based on largest energy consuming facilities. Following the discussion, the Township expressed interest in OCWA undertaking an Energy Audit to better quantify the potential opportunities for the following facilities:

1. Lucknow WWTP: 289 MWh
2. Lucknow SPS: 109 MWh
3. Huronville Pump House: 149 MWh
4. Ripley Pump House: 126 MWh
5. Point Clark Pump House: 125 MWh
6. Murdoch Glen PH: 100 MWh

Energy Audit is considered as the first step in better understanding the plant's electricity need, the financial analysis and provides data needed to fully understand the financial benefits of installing and upgrading any energy efficient equipment.

This will support 2014-2018 Energy Management Plan submitted to Ministry of Energy by the Township and will assist to meet more than 1% reduction in energy consumption each year.

Work Plan

The work plan outlines the tasks required to complete the Energy Audit and the time anticipated for each task. OCWA will undertake the following tasks:

- **Task 1 Prepare Incentive Application to Local Distribution Company (LDC)**

OCWA will prepare and submit an application for saveONenergy Retrofit Energy Audit incentive funding for this project at no cost to Township. The application would have to be signed by the Township prior to submission to the local LDC (Hydro One Networks and Westario Hydro). All incentive funding provided by the LDC for this project will be paid directly to the Township following the completion of the audit. The incentive funding Agreement will be between the Township and the LDC. The incentive is based upon, in part, the total square footage of the various facilities to be audited up to 50% of audit cost.



The funding formula is as below:

Electricity Survey and Analysis	
Building Size	Incentive
Buildings up to 30,000 ft ²	\$0.10 / ft ² up to a maximum of 50%
Buildings larger than 30,000 ft ²	\$3,000 for 30,000 ft ² and \$0.05 / ft ² up to \$25,000 or 50% of audit costs thereafter

• **Task 2 Historical Information Gather and Analysis**

OCWA had received the following information as part of the Energy Efficiency Walkthrough Assessment:

- Drinking Water Work Permits and wastewater plants' Certificate of Approvals;
- Water/Sewage flow rates;
- Raw sewage strength and characteristics; and
- Applicable utility bills;
- Historical final effluent data; and
- Process and electrical drawing schematics.

• **Task 3 Site Visit**

A site visit will be arranged to conduct a detailed facility walkthrough with the operator and to install energy monitoring equipment on targeted equipment to monitor and track the performance of these systems over a two week period. Monitoring/recording will include but not limited to following process equipment:

- Lucknow WWTP
 - Aeration system, Effluent Pump and Raw Sewage Pumps
- Other Pump Houses
 - Pumps and others

The metering period and duration must reflect a typical production cycle. OCWA anticipates that a two-week metering period will be representative. The length of actual monitoring/recording periods will be discussed with the Township and operator staff. **The Township would be requested to make an on-site electrician available to install the metering equipment provided by OCWA.** The monitoring equipment may be relocated after several weeks of monitoring by the electrician. The equipment would then be removed and returned to OCWA subsequent to the completion of the monitoring/recording period.

• **Task 4 Data Analysis**

Subsequent to the site visit, the Energy Specialist (ES) and Process Specialist (PS) will undertake a desktop review and analysis of the data submitted by the Township to identify electrical and demand savings opportunities and plan the visit to the site.



The analysis will focus on identifying potential energy saving opportunities. Opportunities can include energy conservation training, retrofit of equipment, operation changes, equipment upgrades, and maintenance programs.

- **Task 5 Reporting**

OCWA will prepare a draft report, documenting the results of the Energy Audit. The report will comply with the LDCs requirements for energy audit reports. The report will identify opportunities, potential savings, capital estimates, anticipated payback periods, and make recommendations for implementation. The Township will have the chance on commenting on a Draft report.

The identified Energy Efficiency Opportunities (EEO) will be studied in detail to estimate potential energy savings and provide high level implementation costs. Based on these estimated costs and potential savings, a simple payback period will be calculated for each EEO.

Project Timeline

A project could start essentially any time subsequent to the acceptance of this proposal and completed within 3-4 months of the start date.

Project Personnel

The proposed team members are:

Indra Maharjan, P.Eng., CEM, CMVP - OCWA Program Manager, Energy Conservation

Indra Maharjan is a Senior Engineer with an extensive history of energy projects and energy management roles. He currently leads OCWA's energy services initiative across Ontario and is the program manager for this group. He has 10 years of experience in the energy efficiency field and combines his history in electrical engineering and process understanding to manage and deliver on key efficiency projects. His understanding of the energy market in Ontario and how to access funding programs make him an expert in the sector and will provide significant opportunities for identifying and implementing energy efficiency solutions

OCWA has generated 5300 MWh of annual energy savings through various energy project implementations throughout the province and secure \$650,000 in incentives to our clients through IESO programs. For this project, Indra will provide technical oversight and M&V regarding energy savings verification and incentive application process. For this project, Indra will act as Project Manager to ensure the project remains on schedule and on budget.

Dave Neely, B.Sc., C.E.T., Wastewater Operator Class 4 & Wastewater Collection Operator Class 4, Process Specialist

Dave is a Chemical Engineering Technologist with more than 32 years of experience in water/wastewater Process Engineering, including Process Design, Operations Management, Process Troubleshooting, Process Modeling, Optimization and Energy audits, Laboratory Research and Testing. Dave has in-depth knowledge of plant operations. At present, Dave is OCWA's Process Specialist and currently works in the Innovations, Optimization and Efficiencies Division of OCWA. He is a technical advisor for a number of wastewater projects. Dave also works closely with Engineering Services to provide technical expertise for Engineering Energy Audits in different municipalities. Dave will provide process expertise and QA/QC for the project.

Tomas Ycas, P.Eng. – Project Engineer

Tomas has more than five years of municipal engineering experience and he brings strong engineering, project coordination, and client services experience to the team. Tomas is part of OCWA's energy group where he conducted several ASHRE Level 1, 2 and 3 energy audits.



- **Operations Personnel and Electrician**

The project team will require Operations personnel to assist on-site visits and answer questions the team may have. Input from Operations will be the key to uncovering energy savings. An electrician will be required to install and remove the monitoring equipment. **Electrician cost is not included in this proposal.**

Funding

The amount of IESO incentive is based on the fenced-in area of the facilities to be audited. IESO provides \$0.10 per square foot up to 30,000 square feet, and \$0.05 per square foot for the remaining area above 30,000 square feet. The maximum funding available to the Township is the lesser of either the incentive calculated based on area or 50% of the energy audit cost. It is estimated that 50% of the energy audit cost will be covered by the IESO.

Project Costs

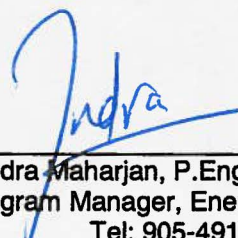
Our estimated total fee to conduct an Energy Audit on the above facilities is **\$26,900** plus HST. Hydro One/Westario Hydro funds up to 50% of the audit cost, which is estimated to be **\$13,450**. As such, the final cost to the Township will be **\$13,450**.

However, the 50% reimbursement is only issued at the end of the audit and the issues purchase order for this project should be for **\$26,900**.

Should you have any questions on the above, please feel free to contact the undersigned.

Yours truly,
Ontario Clean Water Agency



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cc: Jackie Muller, Business Development Manager – OCWA