Engine Generator Air/Fuel Ratio Controller – Award of Contract

Recommendation
That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the proposal submitted by Advantage Governor & Controls Inc. for the supply of two Engine Generator Air/Fuel Ratio Controllers for a total estimated cost of $119,868.90 (including GST and PST) be approved; and
2. That the City Solicitor be requested to prepare the appropriate agreement and that His Worship the Mayor and the City Clerk be authorized to execute the agreement under the Corporate Seal.

Topic and Purpose

The purpose of this report is to request City Council approval for the award of a contract with Advantage Governor & Controls Inc. for the purchase of two Engine Generator Air/Fuel Ratio Controllers.

Report Highlights

1. In October 2018, the City of Saskatoon (City) issued a Request for Proposal (RFP) for the supply of two Engine Generator Air/Fuel Ratio Controllers.
2. Four proposals were received from two vendors and the Administration recommends awarding the contract for the Engine Generator Air/Fuel Ratio Controllers to Advantage Governor & Controls Inc.

Strategic Goals

This report supports the Strategic Goals of Continuous Improvement, Asset and Financial Stability, and Environmental Leadership by ensuring that the Landfill Gas Generator is running at peak output power for longer periods of time, and reducing emissions by having optimal combustion of gases.

Background

Proper combustion of the landfill gas is sensitive to the concentration of methane in the fuel gas. As the concentration of methane changes, combustion of the fuel either becomes rich or lean, which leads to stress on the engines, poor emissions results, and increased nuisance tripping of the engines.

The engine's air/fuel ratio is set manually at each engine service according to the present methane concentration at that specific time. Between engine services, the methane concentration fluctuates, typically from 52% to 62% methane to carbon dioxide.

Running a fuel mix that is rich causes stress on the engines and becomes difficult for the engines to maintain full power output. A software-based work-around has been implemented to reduce the power output of the engines when the gas concentration is rich or lean to reduce the stress on the engines. In 2015, power output was 96.6% of its potential output.

An Air/Fuel Ratio Controller would create the appropriate air/fuel mixture over the range of methane concentrations in the fuel, allowing the engines to run at peak power output.

Report

On October 16, 2018, the City issued an RFP for the supply of two Engine Generator Air/Fuel Ratio Controllers. The RFP closed on November 7, 2018, and four proposals were received from two vendors. The following table summarizes the list of proposals that were submitted:

Company Name	Location
Advantage Governor & Controls Inc.	Wainwright, AB
Alberta Governor Service Inc. 1	Edmonton, AB
Alberta Governor Service Inc. 2	Edmonton, AB
Alberta Governor Service Inc. 3	Edmonton, AB

Proposals 2 and 3 from Alberta Governor Service Inc. were beyond the scope of the RFP. These proposals offered components to improve other engine functions and maintenance costs, not strictly improving the air/fuel ratio as requested. Therefore, they were not evaluated and scored.

The Evaluation Committee was comprised of four Saskatoon Light & Power Administration staff and was based on the following matrix, outlined in the RFP.

Rated Criteria Evaluation	Maximum Available Points
1. Warranty, standards, service, and technical support	35
2. Price (Life Cycle Cost)	20
3. References	25
4. Project schedule (availability and duration)	10
5. General quality of proposal, including completeness, readability and layout	10
Total Maximum Available Points	100

The results of the evaluation determined that the proposal submitted by Advantage Governor & Controls Inc. best met the requirements of the RFP and achieved the highest score.

Options to the Recommendation

The option is to not proceed with the purchase. This is not recommended due to the short financial payback associated with this system.

Financial Implications

The net cost to the City for the Air/Fuel Ratio Controllers as submitted by Advantage Governor & Controls Inc. would be as follows:

Base Bid	$107,990.00
GST (5%)	5,399.50
PST (6%)	6,479.40
Total Bid	$119,868.90
GST Rebate (5%)	(5,399.50)
Net Cost to the City	$114,469.40

The total estimated cost of the two Air/Fuel Controllers is $119,868.90 (including GST and PST). The simple payback for these systems is 2.04 years, after which the generators will produce an additional $58,805 of electricity sales until the generators reach end-of-life. There is sufficient funding in Capital Project #1281-05 – Sustain Power Generation Options.

The Air/Fuel Ratio Controllers will be installed on the two Saskatoon Light & Power Landfill Gas Generators. The components that make up the system are low maintenance and will require no additional funding.

Environmental Implications

By fine-tuning the combustion based on the incoming methane concentration, more complete combustion occurs and consequently less emissions are generated.

Other Considerations/Implications

There are no policy, privacy or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The systems will be installed in the first quarter of 2019, when available from the vendor.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Report Approval

Written by:	Derek Button, Maintenance Engineer, Saskatoon Light & Power
Reviewed by:	Brendan Lemke, Acting Director of Saskatoon Light & Power
Approved by:	Trevor Bell, Acting General Manager, Utilities & Environment Department