

REPORT FOR ACTION

Replacement of Control System Hardware and Software Components for the Existing Cogeneration (Cogen) Plant

Date: April 22, 2024
To: The Board of Governors of Exhibition Place
From: Don Boyle, Chief Executive Office
Wards: Ward 10 - Fort York - Spadina

SUMMARY

This report recommends approving a sole source award to replace the inoperable and obsolete control system components of the existing Cogeneration (Cogen) Plant located on the roof of the Enercare Centre. The generator and associated control system was commissioned and placed into service on June 26, 2007.

The existing Cogeneration Plant is approximately 16 years old, and the majority of the components are at the end of their service life. Replacement of obsolete control system will allow the Cogeneration Plant to resume operating and providing cost savings to Exhibition Place.

The Cogeneration Plant is manufactured by Toromont Power Systems ("Toromont") who is the sole provider of replacement components and parts.

Staff are seeking Board's approval to proceed with an award to Toromont Power Systems as a sole source contract. The Chair of the Board in consultation with the CEO of Exhibition Place approved this contract award on February 29, 2024, pursuant to the authority under the Board Financial By-law 2-18, Article X and seek concurrence of the Board.

Toromont Cat Power Systems is an industry leader in the supply and integration of backup and prime power generation systems, rental generators, marine engines and industrial engines through customized engineering and packaging. A division of Toromont Industries (TSX: TIH). The Power Systems division is dedicated to supporting your business when it comes to power generation, power quality, marine engines, industrial engines, rental power, pumps and temperature control.

RECOMMENDATIONS

The Chief Executive Officer recommends that:

1. The Board concur with the action taken by the Chair of the Board and the Chief Executive Officer in approving the sole source award for the replacement cost provided by Toromont Power Systems in the amount of \$311,040, excluding HST, for the upgrade of the Cogeneration Plant's inoperable and obsolete control system.

FINANCIAL IMPACT

The financing of \$311,040 for this project is included within the approved Exhibition Place 2024 Capital Works State of Good Repair Program and the cost is in line with operations staff expectations.

The Cogen plant is currently inoperable due to obsolescence and the repairs are necessary for it to resume operation. A delay in upgrading the unit will result in an average loss in savings of \$79,000, monthly. Since late last year, Operations staff has been manually interfacing with the control system to synchronize generator output; however, recently the control system has completely failed and requires urgent replacement.

Currently there is approximately \$1.0 Million per year in savings from running the Cogen which is part of our District Energy System. The savings come from displacing/reducing consumption of both electricity and gas. The \$1.0 Million in savings is used to repay the DES City loan on a quarterly basis. The Cogen is not operable at this time, and if the upgrade to the aging infrastructure is not completed, we will be unable to achieve the \$79,000 in savings.

DECISION HISTORY

The Exhibition Place 2022-2026 Strategic Plan has a goal to ensure Competitively Priced Services and Sustainable Operations and to support this goal we will ensure advanced sustainable and green practices are built into our infrastructure and processes to service the grounds in a responsible way and continue to establish new commitments for sustainability targets.

At its meeting of October 27, 2023, the Board approved the 2024 Capital Works Program budget, which was subsequently approved by City Council on February 14, 2024.

<https://secure.toronto.ca/council/agenda-item.do?item=2023.EP6.1>
<https://www.toronto.ca/legdocs/mmis/2023/ep/bgrd/backgroundfile-239958.pdf>
<https://www.toronto.ca/legdocs/mmis/2023/ep/bgrd/backgroundfile-239979.pdf>

COMMENTS

The Cogeneration (Cogen) plant produces electricity at a lower cost than if it were purchased directly from the grid and enables Exhibition Place to reduce our higher peak demand charges. In addition, the Cogen's heat recovery system acts to supplement our existing hot water boilers for the District Energy System.

The Cogeneration (Cogen) plant located on the roof of the Enercare Centre consists of a 1.6 MW natural gas-fired generator with a heat-recovery system. The waste heat produced by the engine is recovered in the form of hot water to complement the main hot water boiler plant located in the Enercare Centre. This boiler plant provides heating to the Enercare Centre, Beanfield Centre, and Hotel X Phase 1 as part of a District Energy System (DES) supplying various buildings from a centralized plant.

Due to the current downtime of the Cogen plant, there is an average loss of \$79,000 in monthly savings, requiring urgent replacement of obsolete control system. Upon award, due to supply chain issues, work is expected to be completed within seven to eight months.

The \$79,000 per month loss in savings is derived from three factors:

1. The cost difference in purchasing electricity with all the add on cost versus producing the electricity on site.
2. Peak Demand savings, because running the generator at our total peak demand is reduced resulting in electrical cost savings
3. The waste heat off the generator from the cooling jacket and exhaust stack recovery is used by the district energy plant offsetting the cost of running the boilers to produce the heat at a cost.

The scope of work involves addressing the obsolescence of the Generator control hardware and software consisting of the Rockwell SLC5 PLC, the Caterpillar EMCP II+ engine controller, the ION power meter, the Woodward DSLC-1 paralleling controller, the GE 489 generator protection relay, and the two Basler BE1-951 utility protection relays.

The 1600kW Caterpillar natural gas generator is paralleled to the local utility and operated as a cogeneration system to provide electrical power and thermal energy to the campus including the Hotel. The upgrade will modernize the controls equipment to increase serviceability and reliability without having to replace the entire system.

TENDER PROCESS

The Cogeneration Plant is manufactured by Toromont Power Systems. Toromont is the sole provider of replacement components and parts. Staff are seeking Board's approval to proceed with an award to Toromont Power Systems as a sole source contract.

Funding for the subject contract amount of \$311,040 is recommended from the approved 2024 Capital Budget under Emergency Generators Upgrades. The recommended construction price is within the available allocated budget for this project.

Due to the urgent nature of the work, the CEO of Exhibition Place requested the Chair of the Board to approve this award report under authority provided for in Financial By-law 2-18.

CONTACT

Mark Goss, General Manager, Operations, 416-263-3660, mgoss@explace.on.ca

SIGNATURE

Don Boyle
Chief Executive Officer