REPORT FOR ACTION

Energy Retrofit Project - Update for Alternate Projects

Date: March 11, 2024
To: Board of Management of the Toronto Zoo
From: Director, Facilities & Infrastructure
Wards: All

SUMMARY

This report is to provide an update on the status of the change of scope concerning the Peak Shaving component of the Energy Retrofit Project (ERP) and the site-wide generator services.

RECOMMENDATIONS

The Director, Facilities & Infrastructure recommends that:

1. The Board of Management of the Toronto Zoo receive this report for information.

FINANCIAL IMPACT

The present temporary generator solution is serving as a stopgap until a permanent low-carbon emergency backup solution is established. The Zoo has not yet established a target date for the introduction of an eco-friendly alternative as we research options. Throughout the rental period, the Zoo will optimize peak shaving programs to minimize financial impact.

DECISION HISTORY

Ecosystem Energy Services' review of the existing Gensets backup generator system during the Engineering Design phase revealed the poor condition of the existing Gensets, necessitating repairs and indicating a high risk of further failures. Subsequent inspections by the maintenance contractor have confirmed significant repair requirements and has recommended the generators be replaced.

In response to the Council Directive (IE26.16 - TransformTO - Critical Steps for Net Zero by 2040, 2021-12-15) and our Net0 goals, the Toronto Zoo is exploring alternative low-carbon emergency backup measures rather than replacing the natural gas/diesel generators. Meanwhile, temporary backup power has been arranged with a rental generator, enabling us to leverage Peak Shaving conservation measures as needed.

The Board of Management approved the change in scope of the Peak Shaving component of the Energy Retrofit Project during the September 22, 2023, meeting. https://secure.toronto.ca/council/agenda-item.do?item=2023.ZB5.4

COMMENTS

Zoo staff are currently working with the City to finalize amendments to the Energy Retrofit Project contract. The Zoo has opted to replace the Peak Shaving Conservation Measure, as approved by the Board on September 22, 2023, with a conservation measure focusing on heating and cooling system replacement within the Africa and Indo Malaya pavilions. This replacement measure will incorporate heat pumps and new boilers, mirroring the approach taken in the Americas Pavilion. It is projected to yield an additional 409 tonnes of annual greenhouse gas emission savings of the original scope of the Energy Retrofit Project. Construction for this conservation measure is scheduled from Fall 2024 to Spring 2025.

In response to the condition of the existing generators, the Zoo is exploring alternative low-carbon backup systems such as campus-wide battery storage and hydrogen cells within the local community. It is critical to make the correct decision due to financial and animal welfare concerns.

While Zoo staff are dedicated to advancing technological solutions and achieving net zero by 2030, a comprehensive investigation is imperative to identify a reliable, long-term low-carbon backup system that aligns with the Zoo's present and future needs. The Zoo will initiate a Request for Proposal (RFP) process to explore potential options, thus propelling the Zoo to the forefront as a pioneer in green technology.

The temporary generator will not only provide emergency electrical services to the Zoo-site during power outages but also present an opportunity for on-demand peak shaving, aligning with the original intent of the Peak Shaving component within the Energy Retrofit Project. The selected engine model meets emissions standards, enabling the generator's use for Peak Shaving, which will reduce demand on Ontario's hydro network during summer peak days and decrease the Zoo's global adjustment cost on our hydro utility bills, resulting in net savings to the Zoo.

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