Building A More Functional World

Walker Dairy Rural Power Resiliency Project 4.99 MW

Prepared By:

Matt Lensink, P. Eng.
Chief Executive Officer

November 22, 2023

CEM ENGINEERING
Building A More Functional World

About CEM

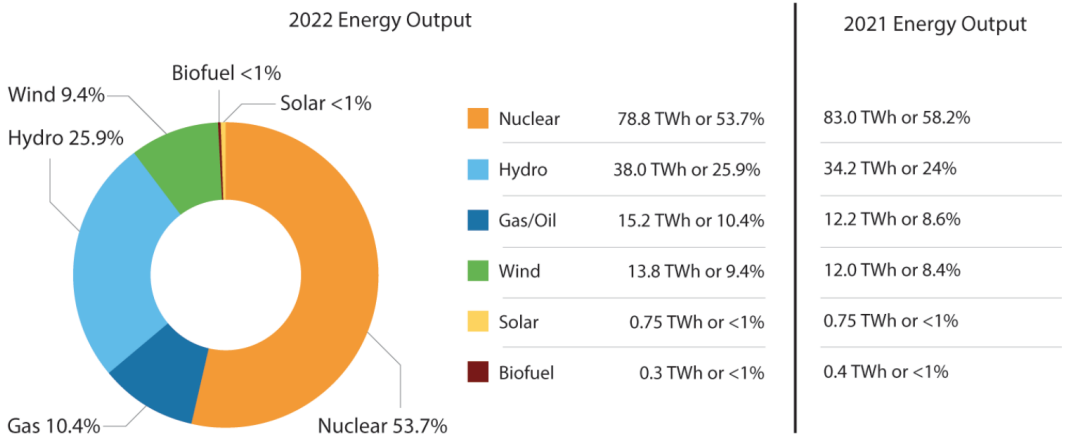
- Thermal Power Project Delivery firm
- **Over 20 years** in the industry with over 60 staff
- **3 offices** across Canada
- Family-owned/family-run business
- Multi-disciplined *(mechanical; electrical; civil/structural; I&C)*
- Provide a full range of services, including:
  - *Consulting*
  - *Detailed design*
  - *Contract administration*
  - *Commissioning services*
  - *Expanded Scope*

At CEM, our mission is to leave the world a better place than we found it.

About the IESO

- The IESO manages the province's power system so that Ontarians receive power when and where they need it. It plans and prepares for future electricity needs.
- A not-for-profit entity established by the Government of Ontario, IESO fees and licences to operate are set by the Ontario Energy Board.

Installed Capacity	38,214 MW (transmission-connected) Source: Reliability Outlook released March 2023
Record Summer Peak	**27,005 MW** (August 1, 2006)
Record Winter Peak	**24,979 MW** (December 20, 2004) Ontario's peak energy use is typically in the summer months when people use air conditioners to beat the heat. Peaks also take place in the winter when the weather is especially cold. Weather has the biggest influence on electricity demand.
Consumers Served (2021)	5.3 million



IESO LT1 RFP

- Ontario needs a reliable and affordable grid to remain attractive for business development and ensure future growth and decarbonization. Ongoing competitive procurements are expected to secure up to 4,000 MW of long-term capacity to
  - Provide security against the risk of not having resources to meet North American planning standards
  - Enable emissions reductions in other sectors AND support the transition underway
  - Allow time for sector transformation –a more decentralized system, technological evolution to create new business opportunities and drive down costs.

ieso
Connecting Today.
Powering Tomorrow.

Procurement Mechanism	Procurement Target	Storage Target	Natural Gas Target	Other (Hybrids, Biofuel, etc.)
Same Technology Upgrades	300 MW	No limit	Up to 300 MW	No limit
Expedited Long Term 1	1,500 MW	~900 MW	Up to 600 MW	No limit
Long Term 1*	2,200 MW	~1,600 MW	Up to 600 MW	No limit
Total by 2027	**4,000 MW**	**~2,500 MW**	**Up to 1,500 MW**	

915 MW

* Exact targets to be confirmed

LT1 RFP Schedule:

Qualified Applicants selected in 2022

Deliverability Test: September 2023

Submit LT1 Bids: December 2023

Award LT1 Contracts: Q2 2024

Gas generation contracts must expire by **April 30, 2040**, to align with the latest expiration date of the IESO current natural gas generation contracts. All other contracts must expire no later than **April 30, 2047**

Walker Dairy Rural Power Resiliency Project

Project Name

Walker Dairy Rural Power Resiliency Project

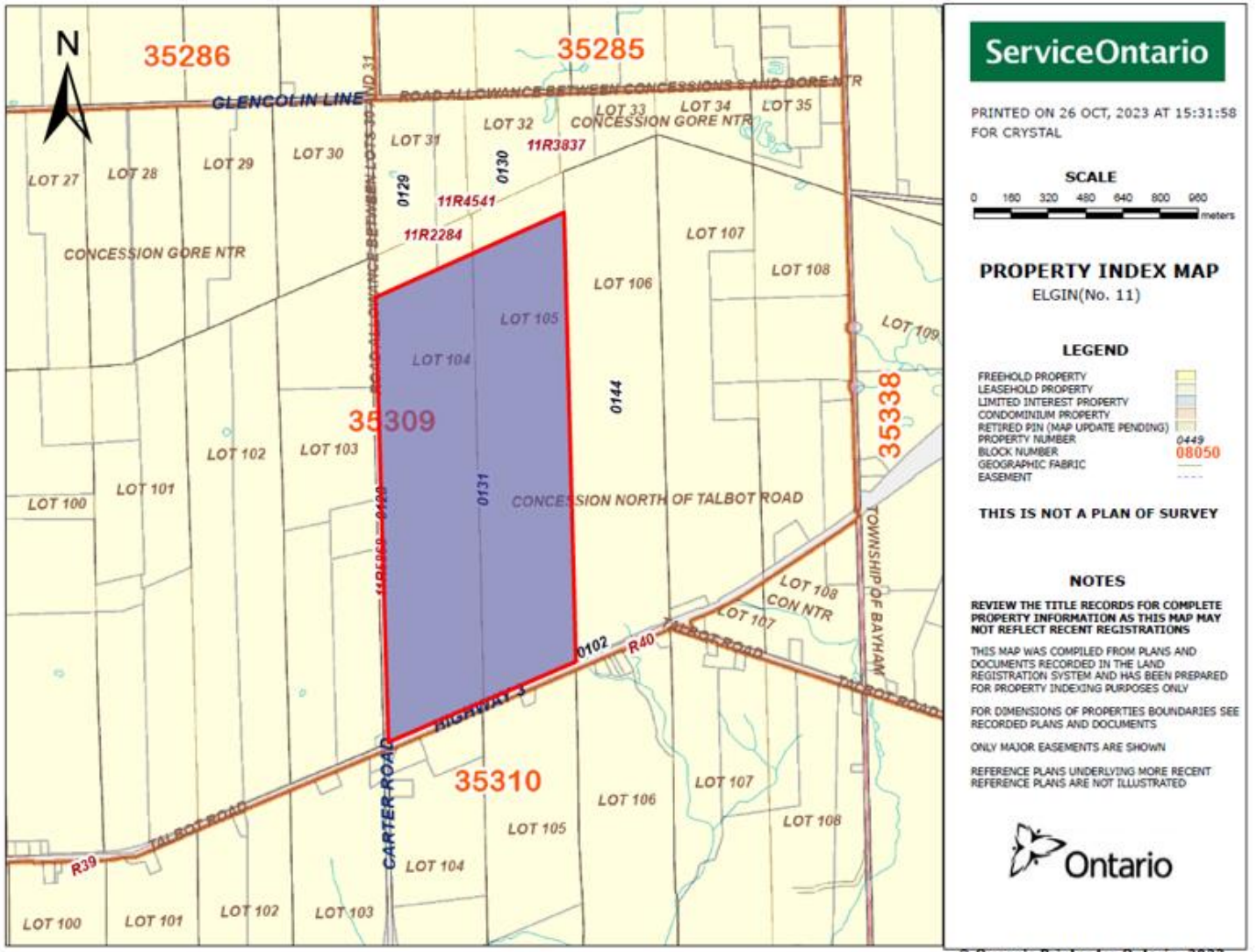
Maximum Contract Capacity

4.99 MW

Technology

Non-Energy Storage - Biogas-Fueled Reciprocating Engine

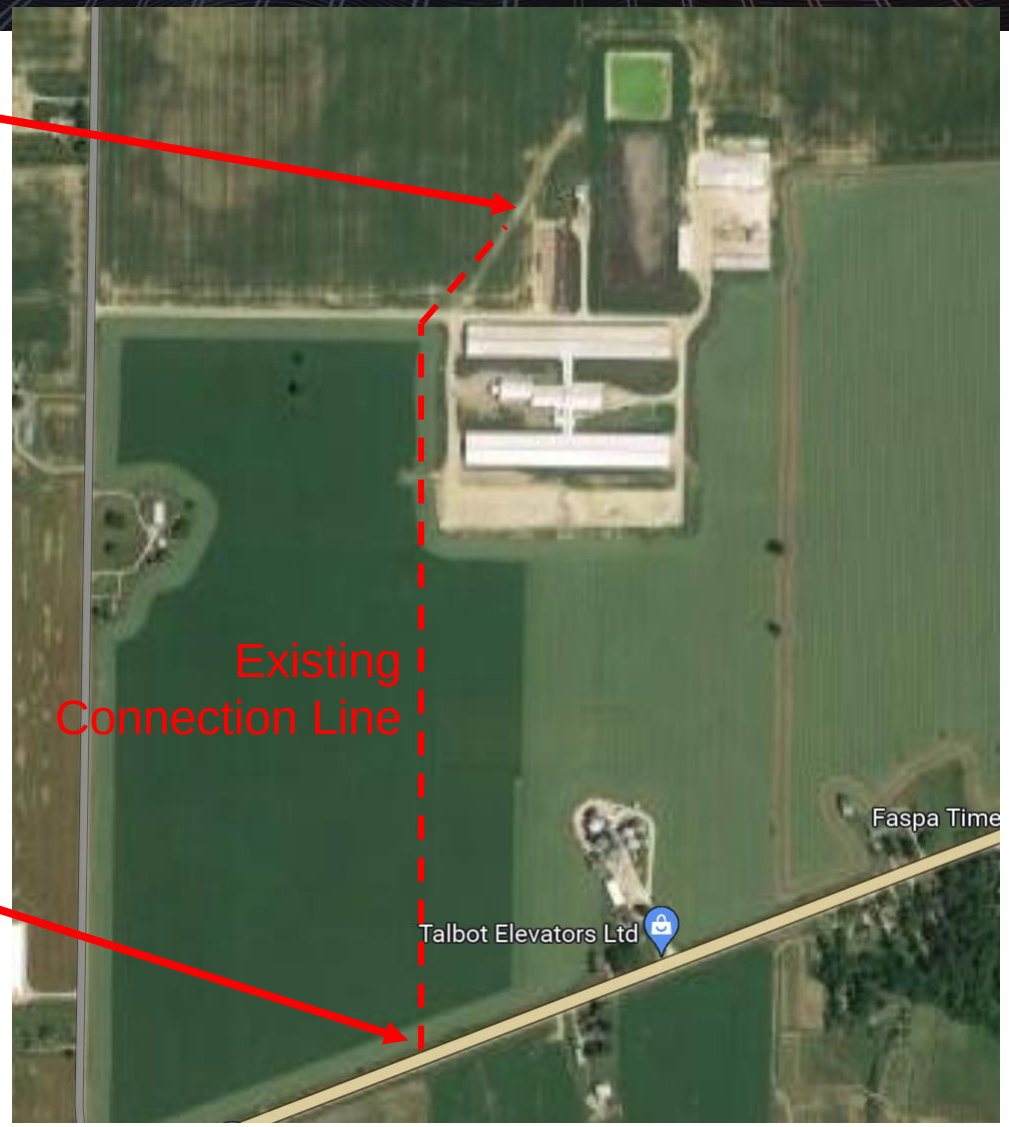
Scale Map of Project Site



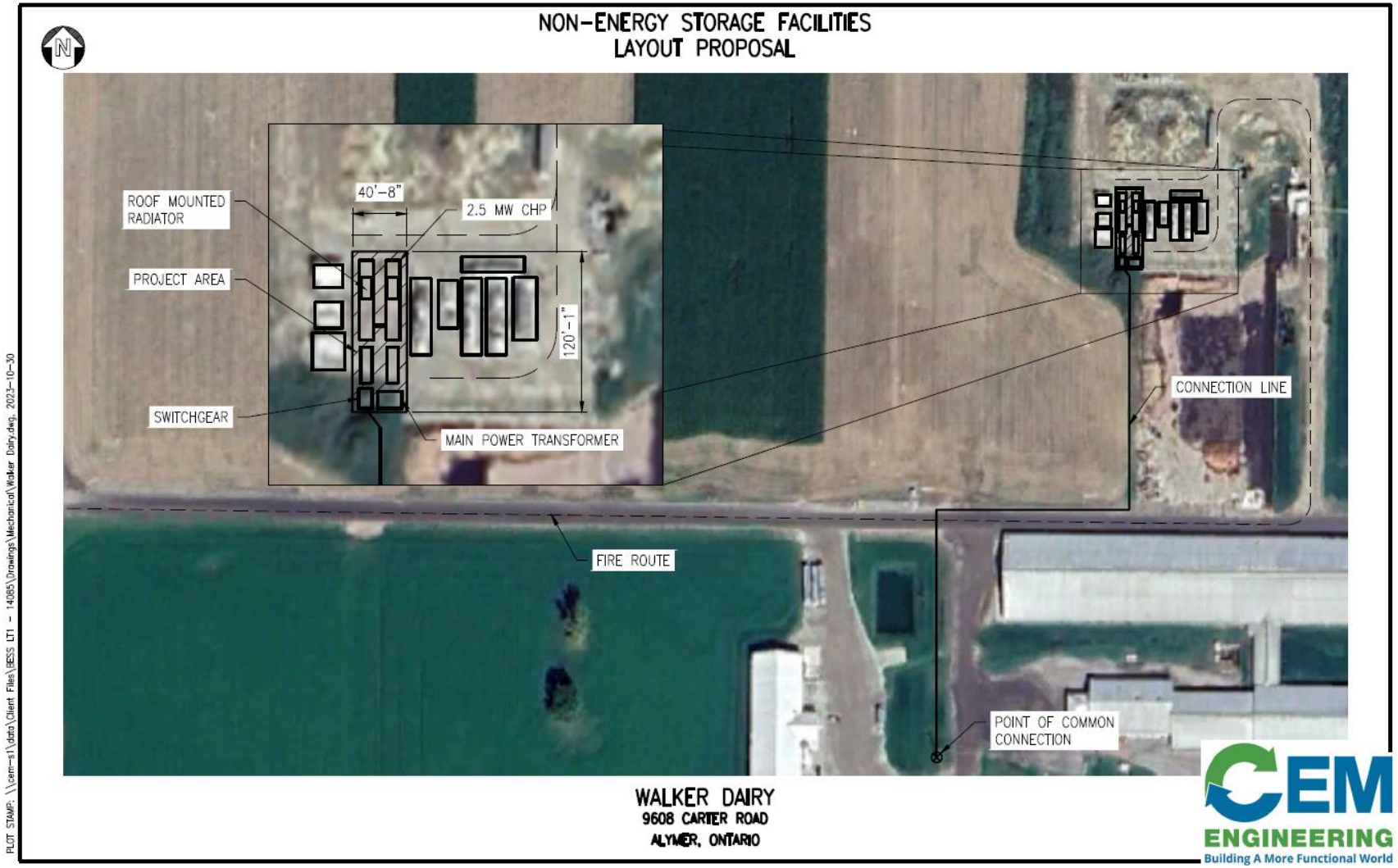
Project Description

- The Project will feature 2x 2.49 MW cogeneration gensets, 2x 3.25 MVA at a dairy farm with a biogas facility.
- Engines will be installed in purpose-built metal enclosures equipped with sound attenuation.
- Enclosures will be installed on concrete or pile foundations.
- Engines will utilize biogas as the fuel.
- Electricity generated from the engines will be exported to the local HONI grid at 27.6 kV onto the M02 feeder from the Aylmer TS.

Site Plan with Connection Points



Site Plan with Fire Route



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Safety and Operational Considerations

- Engines are expected to operate **1,500 – 2000** hours per year during peak electricity demand periods in Ontario.
- Engines will be operated based on the needs of the grid and will be dispatched by the IESO.
- Air emissions will be controlled to Ministry of Environment standards.
- Noise emissions will be mitigated by enclosure and exhaust silencers in accordance with Ministry of Environment approval.
- Engines are equipped with automatic fire detection & fire suppression systems.

Overall LT1 Schedule

ACTIVITIES	TIME LINE	STATUS
IESO Qualification	Jan 2022-Jun 2022	Completed
Identify Potential Sites	Jul 2022-Jan 2023	Completed
Deliverability Tests	Jun-Sep 2023	Completed
Prepare & Submit Proposals to IESO	Oct-Dec 2023	In Process
IESO Review & Contract Award	Jan-Apr 2024	
Engineering (Civil, Mech, Elect)	May-Jul 2024	
Permitting	Aug 2024-Jun 2025	
Procurement & Site Delivery	May 2024-Jul 2025	
Pre-Installation Work	May 2025 – Spring 2026	
Site Installation & Commissioning	Spring 2026	

Opportunities & Community Engagement

- **Resiliency & Reliability** – The LT1 program and this project specifically will provide increased power quality and power reliability to the local Malahide area.
- **Lower Emissions** – This facility will feature high efficiency engines which will have lower emissions than larger, gas turbine-based generation facilities also participating in the LT1 program.
- **Local Job Creation** – The project will require skilled trades during the construction phase of the project and it will deliver additional revenue to the Walker Dairy facility improving its long-term economic viability.

Project Contact Information

Qualified Applicant:

Cogeneration and Energy Management Engineering Inc.
/dba CEM Engineering Inc.
#301 - 25 Corporate Park Drive,
St. Catharines, Ontario, L2S 3W2
905-935-5815
info@cemeng.ca
www.cemeng.ca

Proponent:

Walker Resilient Generation Inc.
#301 - 25 Corporate Park Drive,
St. Catharines, Ontario, L2S 3W2
905-935-5815
matt@cemeng.ca
https://cemenergy.ca/cem-energy-walker-dairy/

Questions?

The floor is open for questions about the Walker Dairy Rural Power Resiliency Project