

Liquid Air Energy Storage (LAES) Project in St. Clair Township Open House

Date: July 20

Afternoon Session

Time: 1:02 p.m. – 1:36 p.m.

Attendance: 18

Presentation Overview

- Introductions to NRStor and Sumitomo
- Overview of energy storage and the IESO Long-Term 2 (LT2) procurement
- Explanation of Liquid Air Energy Storage (LAES) technology and system operation
- Environmental assessment and permitting overview

Questions & Discussion

Project location

- The project is being considered within approximately 5–10 km of the Lambton area on industrially zoned lands.
- The former OPG Lambton Generating Station site itself is not the proposed location.

Technology

- Attendees commented that the technology is different from conventional battery storage.

Employment

- Questions were raised regarding local construction jobs.
- The team discussed employment generated by the Carrington LAES project, including construction and permanent operating positions, and highlighted the transferability of skills from the petroleum and industrial sectors.

Project operation

- Questions were asked about charging and discharge duration.
- The project's round-trip efficiency means charging takes longer than discharging. The facility will operate according to IESO dispatch instructions rather than continuously.

Emissions

- Questions were asked about potential CO₂ emissions.

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- The project uses atmospheric air as the storage medium. Closed-loop molten salt and water systems are used for thermal management. Expected emissions are limited to minor water evaporation and waste heat.

Electricity requirements

- The facility is designed for a 100 MW connection, with options to connect up to 200 MW.
- Candidate sites have confirmed transmission capacity capable of supporting the project.

Proximity to residences

- Questions were asked regarding setbacks from homes.
- Preliminary expectations are approximately 300–500 m from residences, subject to detailed siting. Noise studies will be completed and mitigation measures implemented as required. Residential areas are being avoided as much as possible.

Data centre applications

- The technology could support data centre loads.
- Additional opportunities may exist for co-location with district energy systems and industrial facilities.

Response time

- Approximately 15 minutes are required to prepare the plant for discharge once charging has been completed.

Other Canadian projects

- This would be the first commercial LAES project in Canada.
- Most major equipment is based on established industrial technologies commonly used in air separation and LNG facilities and can be sourced domestically.

General Discussion and Feedback

- Several attendees remarked the session was well attended for an afternoon event.

Liquid Air Energy Storage (LAES) Project in St. Clair Township Open House

Date: July 20

Evening Session

Time: 5:01 p.m. – 5:47 p.m.

Attendance: 10

Presentation Overview

- Introductions to NRStor and Sumitomo
- Overview of energy storage and the IESO Long-Term 2 (LT2) procurement
- Explanation of Liquid Air Energy Storage (LAES) technology and system operation
- Environmental assessment and permitting overview

Questions & Discussion

Seasonal operation

- The facility is intended to operate year-round.
- Charging is generally expected during lower-demand periods (typically overnight), with discharge during periods of higher electricity demand. Summer is anticipated to have more frequent dispatch due to peak electricity demand.

Project location

- A preferred site has not yet been publicly announced due to ongoing confidential negotiations.
- The project is expected to be located within St. Clair Township on land designated as industrial in the Official Plan.
- When asked whether the former OPG Lambton site was being considered, the team noted that project timelines make that site unlikely for this procurement, although it may present opportunities in the future.
- Questions regarding specific rumoured locations were acknowledged but not confirmed.
- Several participants noted a strong preference to have the project sited west of Highway 40.

Noise

- Attendees asked about operational noise.
- The project team reviewed anticipated noise levels and explained that detailed noise studies will be completed as part of the environmental assessment process.

Environmental studies

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- Questions were raised regarding species at risk and environmental studies.
- Potential environmental consultants include Vertex and Egis.
- Site selection is intended to avoid wetlands and woodlands where possible.
- Required archaeological, environmental, and species-at-risk studies will be completed.

Why St. Clair Township?

- The area offers strong transmission infrastructure, an experienced industrial workforce, and suitable industrial land.

Partnership

- This is the first announced LAES collaboration between NRStor and Sumitomo, although the companies have been working together for some time.

Existing LAES facilities

- A 5 MW facility is operating in Hiroshima, Japan.
- A 50 MW project is currently under construction in the United Kingdom.

Comparison with battery storage

- NRStor also develops battery energy storage projects.
- LAES provides many of the same grid services while offering a different value proposition, including greater long-term employment opportunities.

Project financing

- The project is expected to be primarily privately financed.
- Discussions with potential investors are ongoing, with possible government participation.

Project revenues

- Revenue would primarily come through an IESO LT2 contract for providing energy storage capacity services.
- Additional discussion covered energy arbitrage (charging during lower-cost periods and discharging during higher-demand periods) and ancillary grid services.
- Questions were also asked about projected ratepayer savings. The team explained that storage reduces reliance on more expensive generation and imports, lowering overall system costs.

Operations staffing

- The facility is expected to operate similarly to an industrial air separation plant, with approximately 3–4 personnel on site during operations.

Liquefaction process

- Questions were asked regarding how air is liquefied.

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- The process uses compression and cooling to liquefy atmospheric air.
- Routine chemical deliveries are not anticipated beyond standard industrial consumables such as lubricants and closed-loop thermal fluids.

Public disclosure and approvals

- The preferred site is expected to be announced in the coming weeks following completion of negotiations.
- The project team intends to present to Municipal Council, request a Municipal Support Resolution (MSR), and initiate environmental studies.
- The preferred site is designated as Heavy Industrial in the Official Plan.

Municipal approvals

- The project has already been introduced to Council and received positive initial feedback.
- Council requested that an open house be held to gather public input prior to considering a Municipal Support Resolution.

Public notification

- Notification was made to nearby residents within approximately 2 km of several prospective sites.

General Discussion and Feedback

Following the formal sessions, attendees discussed several broader topics:

- Interest in ensuring infrastructure improvements (e.g., roads) provide tangible benefits to the local community and taxpayers.
- Several attendees expressed a desire for greater public participation at the open house.
- Discussion referenced previous battery energy storage information sessions and some public unease associated with those projects.
- Overall, attendees responded positively to the project's lack of direct emissions.
- Noise remained the most commonly raised concern and an area where attendees requested additional information during future engagement.