

# Ventnor Energy Storage Project



Delegation Presentation to Council

November 6th 2023

**baseload**  
power

# About Baseload Power

- ★ Over 60+ years of combined electricity experience
- ★ Developer of zero-carbon electricity infrastructure:
  - Battery Energy Storage;
  - Renewable Electricity Generation; and
  - Public EV Charging Infrastructure
- ★ Generated over \$1.5 Billion in electricity infrastructure investment
- ★ Developed over 1,150 megawatts (MW) of electricity projects across Canada
- ★ Over 2,500 MW of electricity projects in development

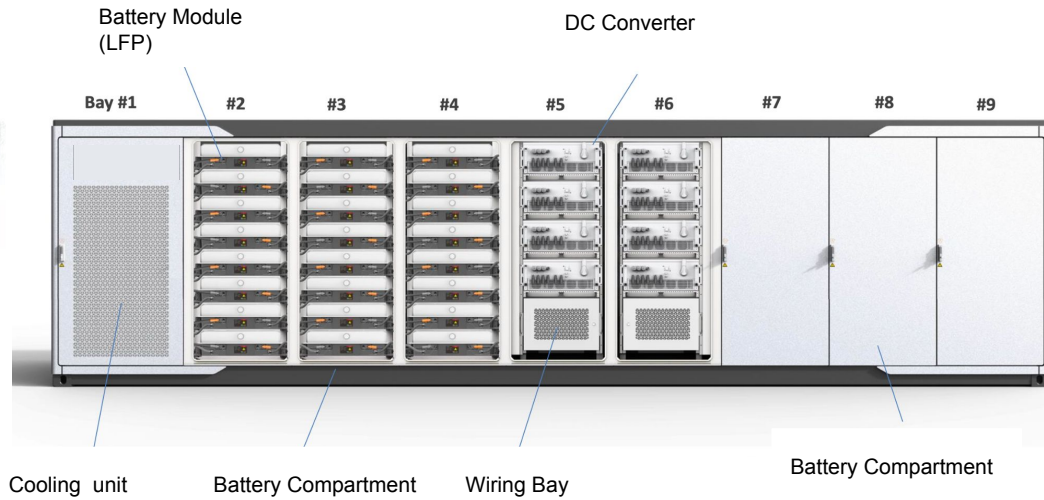
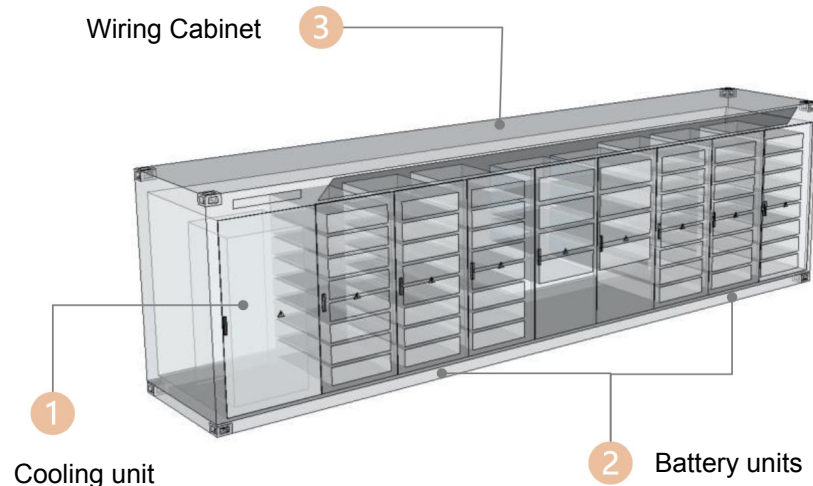


# Ontario Electricity System Needs

- ★ Ontario needs 4,000 megawatts (MW) of new electrical resources by 2028 because:
  - Shutdown of the Pickering Nuclear Plant
  - Greenhouse gas (GHG) reduction and Population growth
  - The electrification of transportation and industry
- ★ Ontario has excess electricity at night time that can be stored and used during peak times
- ★ The Province, through the Independent Electricity System Operator (IESO), is procuring electrical resources through competitive bid requests for proposals ([RFP](#))
- ★ The competitive bidding process is designed to maintain a robust electricity system while securing the most cost effective resources on behalf of ratepayers

# What is a Battery Energy Storage System?

- ★ Batteries include individual Lithium-ion-phosphate (LFP) battery modules, grouped together in purpose built outdoor rated and safety certified containers and deployed onsite with associated inverters and transformers that are connected to the high voltage utility electrical grid system



# Attributes and Benefits of Battery Energy Storage

- ★ DOES NOT create GHG or air pollution unlike natural gas generation
- ★ Proven to be very cost competitive with natural gas generation
- ★ Will SAVE Ontario's electricity consumers money because battery will:
  - charge with surplus night-time power vs. selling surplus to NY and Quebec at a loss
  - discharge during peak-times vs. buying power from NY and Quebec at premium prices
- ★ MINIMIZES the need for new local and regional power lines



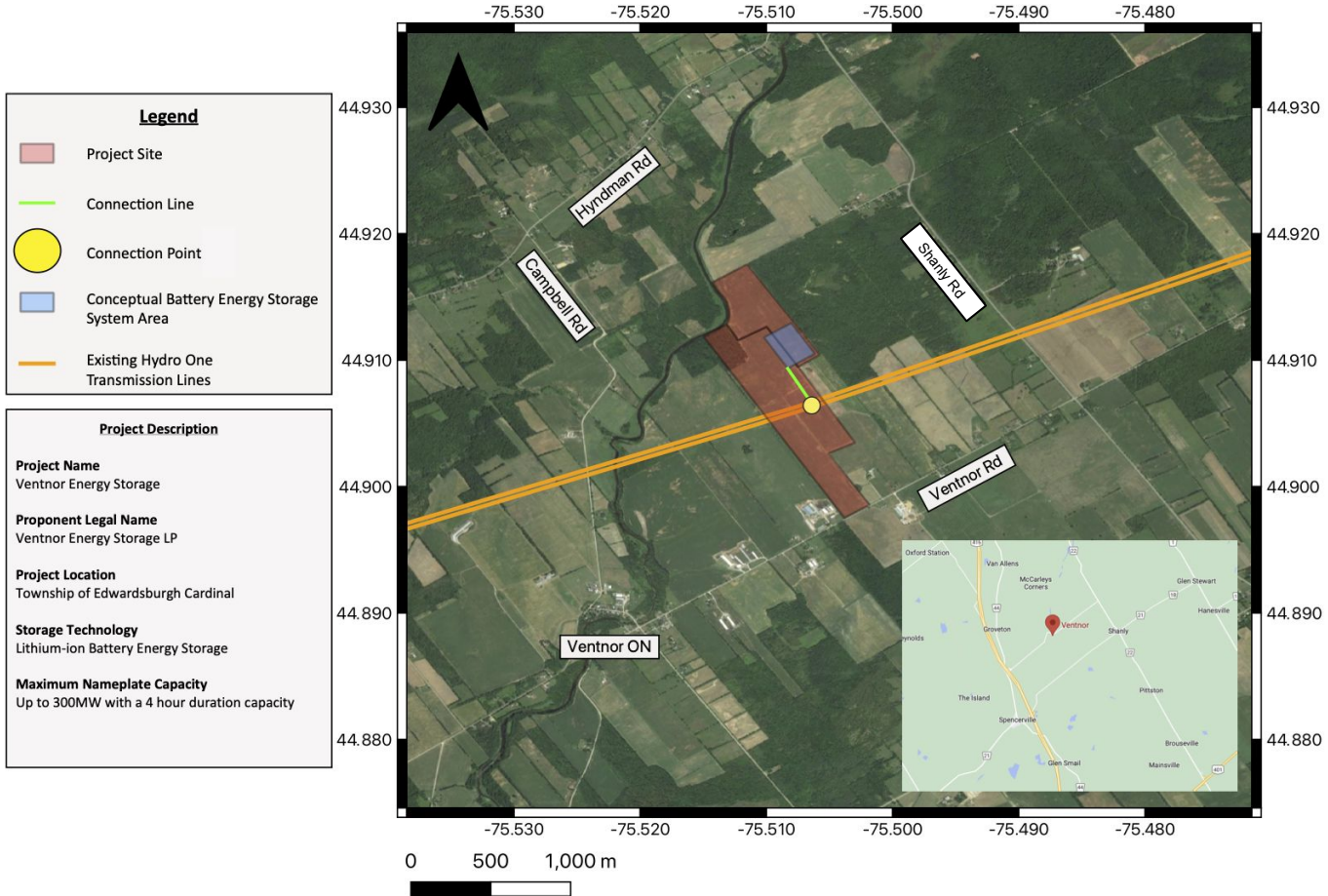
# Ventnor Energy Storage Project (the “Project”)

- ★ The Project is a battery energy storage system rated up to 300 megawatts for 4 hours
- ★ The Project Site is on Ventnor Rd. and the total footprint is approximately 25 acres
- ★ Location strategically maximizes setbacks from existing and future residences (800+ metres)
- ★ The Project is located on private land outside of environmentally sensitive areas
- ★ The IESO confirmed that the Project’s location will provide reliability and flexibility for the grid

# Additional Project Attributes

- ★ Very close to the existing Hydro One Transmission Lines - No need to build new transmission lines across the Township
- ★ Sited in a remote section on the Project Site far from the road or any houses
- ★ Project plans to use existing property entrance off of Ventnor Rd
- ★ The Project plans to utilize existing farm road on the property
- ★ Very efficient use of land vs. other electricity sources i.e 300 MW battery project uses 25 acres, 300 MW solar farm uses 2,000 acres, 300 MW wind farm uses 10,000+ acres

# Detailed Project Map





# Local Benefits of the Project

- ★ Provides multiple financial benefits to the Municipality over a minimum of 20 years, including:
  - Recurring community benefit payments
  - Increased tax revenues
  - Use of local materials, equipment and labour wherever possible and local service industries
- ★ Helps to improve local electricity quality, reliability and security
- ★ Road use agreement to upgrade and maintain Municipal roads used by the Project

# Stakeholder Consultation

- ★ The Project held a consultation meeting with Township Staff on Tuesday October 3rd 2023
- ★ Made a delegation to Council on Tuesday October 10th 2023
- ★ Held multiple consultations with South Nation Conservation Planning on Friday September 22nd 2023 and Friday October 20th 2023
- ★ Held a Public Community Meeting on Wednesday November 1st 2023
- ★ If awarded a contract by the IESO additional consultation with all stakeholders will be undertaken

# Public Community Meeting

- ★ A public community meeting was held on Wednesday November 1 from 6-8pm
- ★ The meeting was well attended with 10 entries on the sign-in sheet
- ★ Feedback forms with Project addressed stamped envelopes were provided to each attendee
- ★ The meeting presentation has been posted to the Project's website and has been made available to the Township to post on its website
- ★ Questions regarding fire, groundwater, decommissioning, setbacks from homes, setbacks from environmental areas, municipal approval process and financial community benefits were raised and these question were addressed by Baseload staff and by the information included in community meeting presentation

## ***Top 4 Public Community Meeting Topics***

Operational noise permit	<ul style="list-style-type: none"><li>• Must meet 40 dB at night time throughout life of Project</li></ul>
Fire management plan	<ul style="list-style-type: none"><li>• Hazard Mitigation Analysis, Fire Risk Assessment, Fire Protection Design and Emergency Response Plan including ongoing first responder integration, education, training and awareness</li></ul>
Groundwater management plan	<ul style="list-style-type: none"><li>• Project Site is being farmed and no large outcroppings of rock have been identified so rock blasting is not expected</li><li>• Containment systems will be used for Project's transformer foundations in the same way Hydro One uses them for its substations</li></ul>
Decommissioning plan	<ul style="list-style-type: none"><li>• Contract term is 20 years plus likely extensions as Project is critical infrastructure for the Province</li><li>• At end of life, we are obligated to restore land to its original condition</li><li>• Batteries and equipment that cannot be repurposed can be recycled at facilities located in Ontario</li></ul>

# Key Permits and Approvals

- ★ Province classifies battery projects as electrical transmission infrastructure
- ★ Provincial requirement is Class Environmental Assessment for Minor Transmission Facilities
- ★ Class EA is the same process that is required for Hydro One transmission substations
- ★ Class EA is for projects that have predictable and manageable environmental effects
- ★ Municipality has control over the Project through zoning and site plan control
- ★ Class EA and Municipal process would ONLY begin if the Project is awarded a contract by the IESO



# Municipal Support Resolution

- ★ We are requesting that council provide a Municipal Support Resolution (MSR) for the Project
- ★ The MSR IS NOT an approval, just support for the concept of the Project in principle, which helps the Project in its bid submission to the IESO
- ★ The Project would still be subject to all municipal approvals, including Zoning and Site Plan Approval
- ★ Municipalities across the Province have provided MSRs for a variety of Projects including those located on agricultural land (please click hyperlinks below):
  - [Municipality of Lakeshore](#)
  - [Greater Napanee](#)
  - [Enniskillen Township](#)
  - [Municipality of Chatham Kent](#)
  - [Township of Cramahe](#)
  - [City of Windsor](#)

# THANK YOU FOR YOUR TIME AND ATTENTION



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# Appendix

# Operational Noise Mitigation

- ★ Batteries generate noise primarily from the cooling systems, inverters and transformers
- ★ The Project is subject to complying with Provincial noise limits as set out in the Ministry of the Environment, Conservation and Parks' Noise Guideline - NPC-300 for its entire operational life
- ★ Noise regulations under the NPC-300 are the strictest in rural areas, requiring the night-time ambient noise at a noise receptor in a rural area to be no greater than 40 decibels
- ★ The Project cannot be built and operated without adhering to the NPC-300 guidelines
- ★ The Project is setback 800+ metres from existing and potential future homes to ensure that the requirements of NPC-300 will be met
- ★ Additional noise attenuation measures such as berms, noise walls may be built if required

# Battery Safety Features

## Pressure Release Panels

Allows off gasses to escape quickly and for any potential fire to burn out faster

## Air Cooled Venting

To add additional cooling to the system and allows off gasses to escape quickly and for any potential fire to burn out faster

## Multicriteria Smoke and Heat detectors

Tied into overall fire management system that detects heat and off gasses well in advance of any failures

## Exterior Steel Walls

With fiberglass insulation for more optimal cooling and fire containment

## Internal Insulation Walls

For more optimal cooling and fire containment

## Cooling Unit, Aux Sensors and Relays

To keep the system cool and pass information back to the fire management system





# Fire Safety Measures – Part 1

- ★ Batteries must meet multiple fire safety standards including:
  - US National Fire Protection Standard 855; and
  - UL9540/UL9530A, and UL1973
- ★ Battery containers are designed, built and tested to prevent the spread of fire to neighbouring battery containers
- ★ The Project layout incorporates spacing between battery containers to prevent the spread of fire
- ★ Lithium-ion Phosphate (LFP) batteries are updated battery technology that has a significantly lower risk of fire compared to older battery technology

## Fire Safety Measures – Part 2

- ★ Battery facilities are designed with a centralized 24/7 fire monitoring and management system
- ★ Fire system monitors every individual battery module for safe operating conditions including temperature, off-gassing and smoke
- ★ Based on monitoring conditions, the fire system will:
  - Automatically turn off battery containers and all surrounding battery containers
  - Increase cooling levels by activating all remote and onsite temperature controlling mechanisms for all surrounding battery containers
  - Send communication of potential issue to the closest first responders
- ★ Current best practices are to not use water and other fire retardants to extinguish a battery fire

## Fire Safety Measures – Part 3

- ★ Managing a battery fire relies on known fire management technology, procedures, knowledge, training and skills
- ★ Detailed plans will be prepared for the Project including:
  - Hazard Mitigation Analysis, Fire Risk Assessment, Fire Protection Design and Emergency Response Plan including first responder integration, education, training and awareness
- ★ Ongoing fire system testing and first responder training will be conducted throughout the Project's operational life
- ★ Global insurance companies provide insurance coverage for battery projects as they are comfortable with the technology and the safety features incorporated into the technology

# Groundwater Management

- ★ Given the Project Site is being farmed and there are no large outcroppings of rock, rock blasting is not expected during the construction of the Project
- ★ Stormwater Management Plan will be created to manage and mitigate any run-off and groundwater impacts
- ★ Containment systems will be incorporated into transformer foundations in the same manner as Hydro One employs for its substations
- ★ Strategically, the Project is located 800+ metres from the closest home which acts as an additional natural barrier to protect groundwater
- ★ Current best practices are to not use foam and other fire suppression chemicals to extinguish a battery fire, further protecting groundwater

# Decommissioning

- ★ If the Project is awarded a contract under the IESO RFP, the term of the contract is 20 years
- ★ Once operational the Project will become part of the critical electrical infrastructure for the Province and the IESO will most likely look to extend the original contract beyond 20 years
- ★ In our agreements with landowners, at the end of the Project we are obligated to remove all equipment and restore the land to its original condition
- ★ At end of the Project, the battery and other equipment will continue to have significant value (multiple millions of dollars) and will be used or repurposed in other projects or uses
- ★ Batteries and equipment that cannot be repurposed will be recycled at facilities located in Ontario
- ★ Decommissioning Plan will be created in consultation with the municipality



<b><i>Potential Impacts</i></b>	<b><i>Mitigation Measures During Construction and Operations</i></b>
Air Quality During Construction	<ul style="list-style-type: none"> <li>• Emissions associated with Project construction activities are primarily dust and equipment exhaust, which will be localized and will be relatively short duration with a negligible effect on the surrounding airshed</li> <li>• A dust management plan will be in place and a non-chloride dust control (e.g. water) will be used where needed</li> </ul>
Construction Noise	<ul style="list-style-type: none"> <li>• Construction will take place during normal business hours and not during 8:00PM-7:00AM</li> <li>• All equipment will be maintained in good working order with muffler devices, where appropriate</li> <li>• The Project will comply with the Municipality's Noise By-Law</li> </ul>
Natural Environment During Construction and Operations	<ul style="list-style-type: none"> <li>• Standard mitigation will be used to protect migratory bird habitat, reptile habitat, and to manage wildlife encounters</li> <li>• Standard erosion and sediment control measures used to mitigate potential negative effects to adjacent drains</li> <li>• Stormwater management will be implemented and will comply with Ontario Water Resources Act (OWRA)</li> </ul>

<b>Potential Impacts</b>	<b>Mitigation Measures During Construction and Operations</b>
Visual Impact	<ul style="list-style-type: none"> <li>• The Project has been strategically sited to be in a remote portion of the Project Site to minimize the visual impact</li> <li>• The Project will be designed and built to include visual barriers where appropriate, which may include berms, alternative fencing and/or vegetation</li> </ul>
Public Safety	<ul style="list-style-type: none"> <li>• The Project will comply with the Occupational Health and Safety Act and only use licensed contractors and operators</li> <li>• The Project Site will be fully fenced and appropriate security measures will be put in place</li> <li>• A detailed emergency response and fire management plan will be developed in consultation with the local fire department. Any required equipment and training will be provided</li> </ul>
Environmental Contamination	<ul style="list-style-type: none"> <li>• Battery storage systems are designed and built with a containment capture tray for more than 100% of the standard water and glycol coolant that may be used to control battery temperature</li> <li>• Project will be designed and built to include containment structures around transformers, which are the same as those used by Hydro One at their substations</li> </ul>
Electromagnetic fields	<ul style="list-style-type: none"> <li>• Operation of the battery has the potential to generate electromagnetic fields similar to the fields generated by the existing electricity transmission system</li> <li>• Any electromagnetic field created by the battery would be contained with 80 feet of the battery system</li> </ul>

<b><i>Potential Impacts</i></b>	<b><i>Mitigation Measures During Construction and Operations</i></b>
Traffic Disruption	<ul style="list-style-type: none"> <li>• A traffic management plan will be implemented prior to construction in consultation with the Municipality</li> </ul>
Agricultural Land	<ul style="list-style-type: none"> <li>• Most official plans include provisions that allow electrical utility related infrastructure to be located in any zone</li> <li>• The Project, if approved, will connect to the Hydro One grid and act as critical electrical infrastructure for the Province for a very long period of time (20+ years)</li> <li>• The IESO's RFP for energy storage resources does not prohibit such projects from being located on agricultural land, which is different than previous RFPs for solar energy resources</li> <li>• The footprint of the Project is very small, especially considering the total size of the property</li> <li>• Farming operations will continue on the land that is not being used by the Project</li> <li>• The <a href="#">Municipality of Lakeshore</a>, <a href="#">Municipality of Chatham Kent</a>, <a href="#">Greater Napanee</a>, <a href="#">Enniskillen Township</a>, <a href="#">Township of Cramahe</a> and others have provided support resolutions for projects on agricultural land</li> </ul>