

WELCOME TO THE

# Proposed Energy Storage Project Public Community Meeting

Please sign in at the front and provide your contact information if you would like to receive Project updates.

If you have questions or comments, please ask one of our representatives.

*Thank you for attending!*

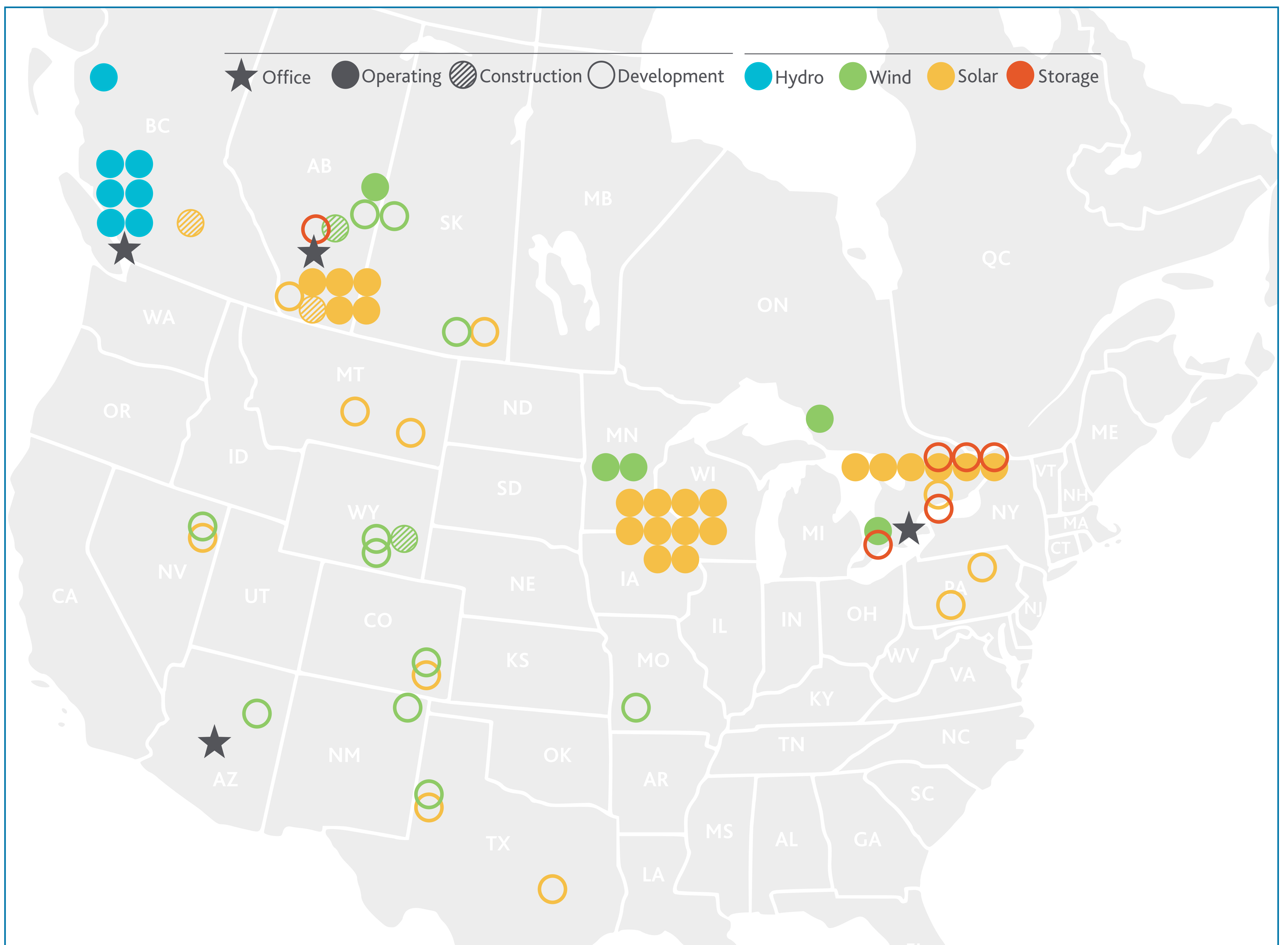


# About BluEarth Renewables

BluEarth Renewables brings together extraordinary people with the power to change the future<sup>™</sup> by delivering renewable energy to the power grid every day. We are a leading, independent, power producer that acquires, develops, builds, owns, and operates wind, hydro, solar and storage facilities across North America. Our portfolio includes 1 GW MW<sub>AC</sub> (gross) in operation, under construction and contracted pre-construction, and over 5 GW of high-quality development projects that are actively being advanced.

For more information, visit [blueearthrenewables.com](https://blueearthrenewables.com).

## Our Portfolio



*Power to Change* THE FUTURE<sup>™</sup>

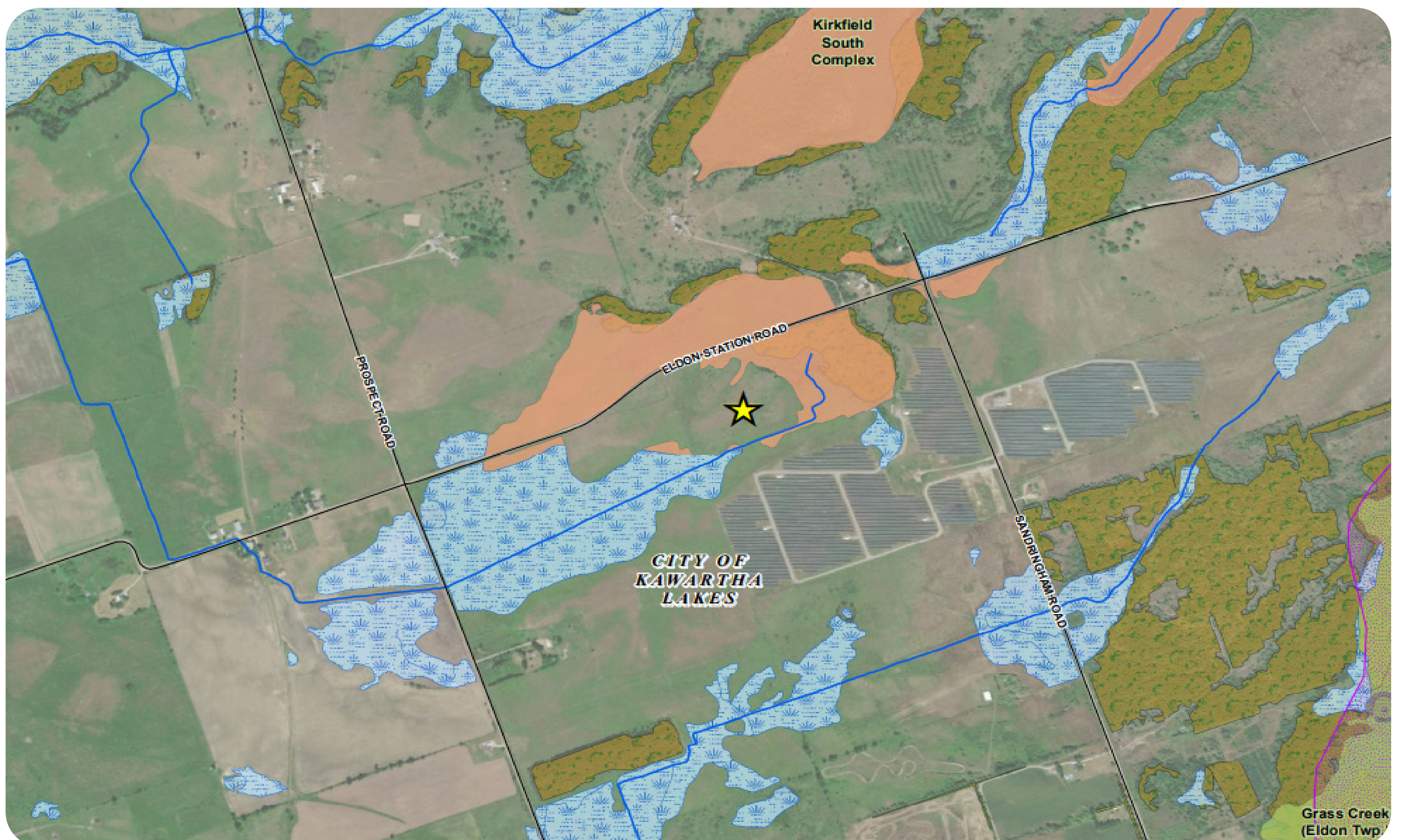


# Proposed Energy Storage Project

## Project Description

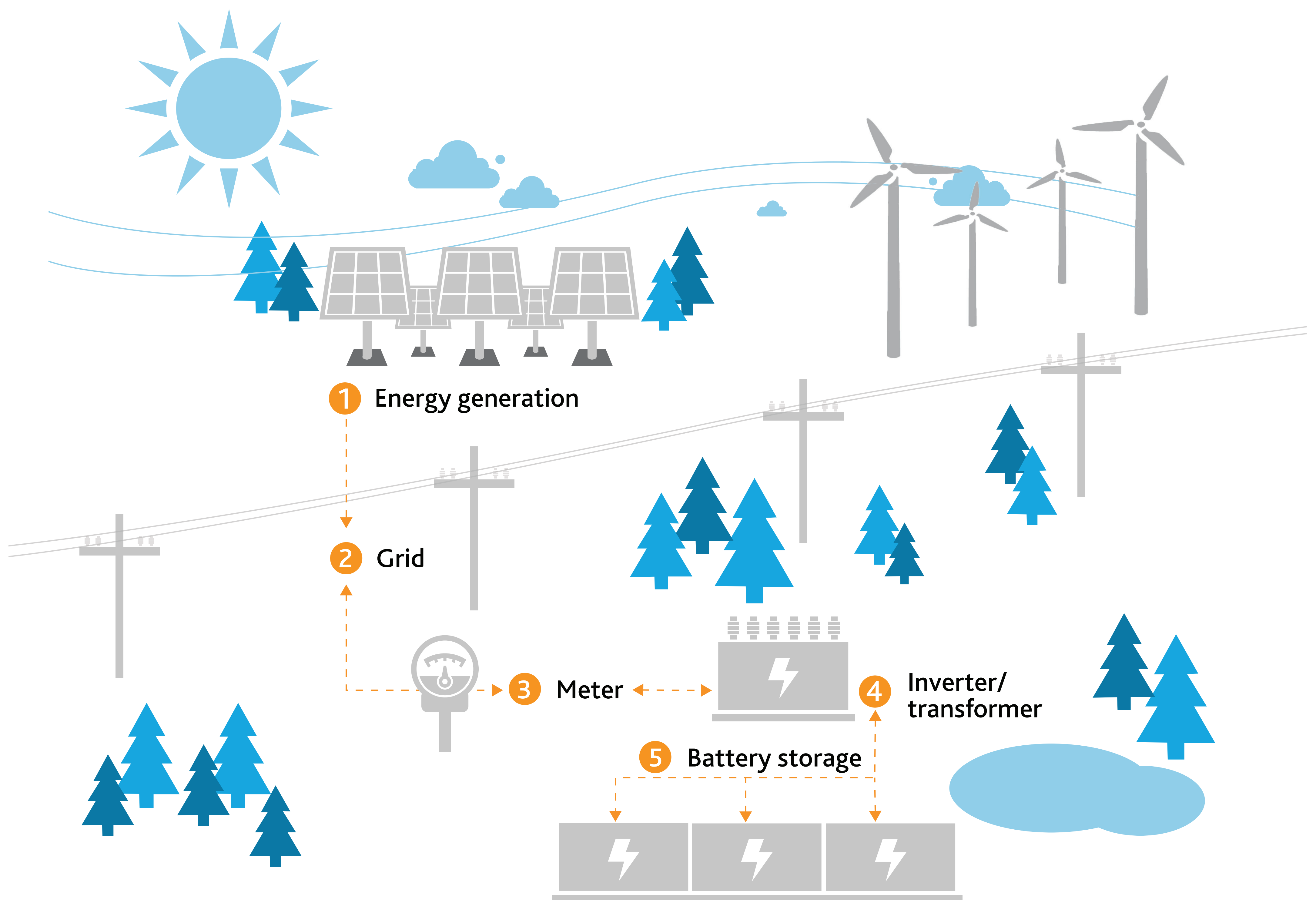
The Bolsover Storage Project has a nameplate capacity of 150 MW, which is enough to power approximately 138,000 homes in Ontario for four hours during times of grid instability.

- The proposed Project is located on approximately 25 acres of leased land within the Kawartha Lakes Region, approximately 6 km from the community of Kirkfield.
- The Project will consist of a battery energy storage system and associated infrastructure including inverters, collector lines, fencing, access roads and a substation. The Project is anticipated to have a capacity of up to 150 MW/600 MWh and will interconnect to the existing Hydro One transmission system.
- By storing surplus electricity during off-peak periods of high supply or low usage and providing electricity during critical peak times, the Project will help increase the overall reliability and stability of Ontario's electricity system.





# How Does Energy Storage Work?



1. Energy is generated from sources including wind, solar, natural gas, hydro, nuclear, etc.
2. This energy enters the grid.
3. The electricity is constantly metered and monitored.
4. If there's more energy supply than demand, energy from the grid is converted from alternating current (AC) to direct current (DC) for storage in the battery system.
5. The energy is stored and a management system runs continuously to monitor and control the flow of energy and optimize how batteries are charged/discharged. BluEarth's Remote Operating Center monitors the status of the storage facility and determines when to charge, store, and discharge energy as required by the electrical grid. When electricity is needed, it flows through the power conversion system (PCS) where it is converted from DC back to AC for distribution, and use in homes and offices.

# Building an Energy Storage Facility

The steps to construct an energy storage facility include:

**1. Civil Works.**

The ground area is prepared to ensure the facility is built on a flat surface.

**2. Perimeter Fencing.**

A fence and safety signage are installed around the perimeter of the facility.

**3. Foundation Work.**

Concrete slabs will be installed as foundations that will accommodate the battery modules and electrical components.

**4. Battery Installation.**

Modular containers that host the batteries are installed in conjunction with a power conversion system (PCS) and medium voltage (MV) transformer.

**5. Electrical Components.**

Balance of electrical equipment includes a project substation with High Voltage (HV) metering, breakers, main power transformer and control building. Alternating current (AC) collection cables are used to interconnect the project substation to the battery system rows.





# Proposed Energy Storage Project

## Why Storage?

Energy storage is the concept of capturing and retaining energy at one point in time, so that it can be used at another point in time.

Energy storage provides reliability and stability to electricity systems by storing surplus energy during off-peak periods of high supply or low usage and providing electricity during critical peak periods.

### What are the common energy storage technologies?

The most common forms of energy storage technologies are battery, pumped hydro, compressed air, and flywheel.

Batteries, specifically lithium batteries, represent the most scalable form of energy storage technology because they can be installed nearly anywhere, have a small footprint, and are relatively inexpensive.





## Community Benefits

We are committed to strengthening the local economies where we live, work and operate by investing in and giving back to the local community for decades to come. Below are some of the local community benefits of the proposed storage project.



### Local employment.

During construction, the Project will provide approximately 70 to 100 jobs including land surveying, road construction, concrete and aggregates supply and installation, equipment assembly, construction of electrical connection and associated infrastructure, and material transportation. During operations, the Project will provide full-time, local operations and maintenance positions.



### Long-term tax revenue.

Over the course of the Project's lifespan, it will provide ongoing contributions to the community's tax base without requiring municipal services such as water and wastewater services.



### Increased grid reliability.

This Project has a nameplate capacity of 150 MW, which is enough to power approximately 138,000 homes in Ontario for four hours during times of grid instability.



### Local economic benefits.

Construction site services, supplies, components and contractors will be sourced locally to the extent possible, while meeting quality, quantity, and workmanship requirements. Some workers may also require accommodations and services while working on the Project.

## Benefits of Energy Storage

Energy storage helps balance supply and demand on the electrical grid and can provide the following benefits:



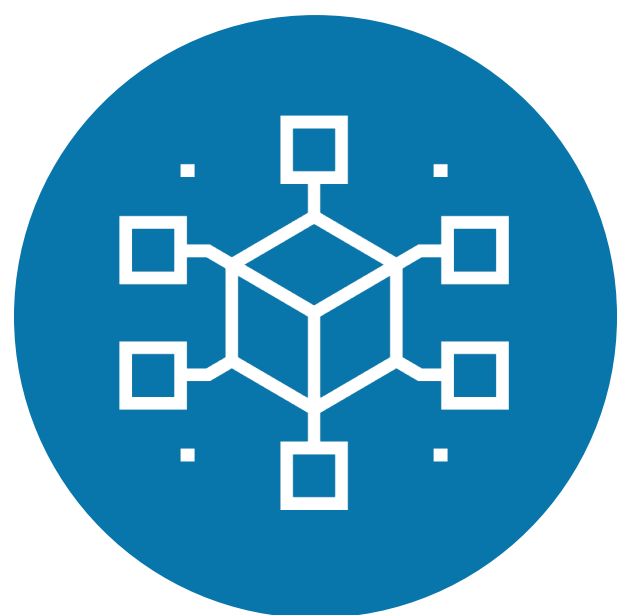
### Cost savings

Increases the efficiency and capabilities of existing electricity generation and transmission networks.



### Reliability

Improves grid reliability by providing backup power during grid disruptions and other emergencies.



### Flexibility

Energy storage can inject or extract electricity from the grid to exactly match demand patterns. This pairs well with renewable generation sources such as wind and solar.



### Lower environmental impacts

Relying on energy storage to regulate the electrical grid allows all generating facilities to operate more efficiently, which can reduce fuel consumption from conventional gas fired facilities.



## Common Questions

We believe in working together with honest and transparent communications. If you have a question about the Project, please ask a member of our team.

### **How much energy will be stored and for how long?**

The amount of energy stored depends on the overall project capacity, which is influenced by a variety of factors such as project location, land size and interconnection constraints. BluEarth is currently considering a power capacity range of up to 150 MW, with a targeted storage duration of four hours. That equates to energy storage capacity of approximately 600 MWh.

### **How long do storage batteries last?**

Batteries used in energy storage last approximately 20 years, or 7,300 cycles of charging. As the battery ages, the performance will gradually decline with time and based on the frequency with which it charges, similar to batteries used in everyday electronics such as your smartphone. To compensate for this aging process, batteries can be replaced or additional batteries can be added to a storage project in order to maintain overall storage capacity.

### **What happens to the facility and batteries once they are retired?**

Once the storage facility has reached the end of its usable life, the facility will be decommissioned. Decommissioning includes de-energizing the facility, removing all above ground equipment and structures, and restoring the land to its prior condition. At the end of a battery's useful life, up to 95% of the battery can be recycled for use in new batteries.



# What's Next?

We intend to submit this Project in the Independent Electricity System Operator's Request for Proposals Process to support future energy demands in Ontario. Should BluEarth be successful in this procurement process, the Project will be awarded a contract by March 2023. Tentative Project schedule dates based on this milestone date are outlined in the table below.

Project Milestone/Activity	Timeline
RFP Submission	January 2023
RFP Contract Award	March 2023 (tentative and subject to change)
Environmental Field Studies	April 2023 - October 2024
Technical Design and Engineering Studies	April 2023 - September 2025
Permitting	October 2024 - September 2025
Construction	September 2025 - April 2026
Commercial Operation	April 2026





# Thank you for attending!

We appreciate the opportunity to share more information with you about the proposed energy storage project.

We look forward to working with you to strengthen the local economy by investing in and giving back to the community for decades to come.

Visit: [www.blueearthrenewables.com](http://www.blueearthrenewables.com)

Email: [projects@blueearth.ca](mailto:projects@blueearth.ca)

Phone: 1-844-214-2578