

Public Community Meeting Minutes

Project: Seaforth Storage Project

Meeting Time: 6:00-8:00 PM

Meeting Date: September 6, 2023

Meeting Location: Seaforth Agricultural Society
(Small Hall)
140 Duke St., Seaforth, ON

SUMMARY

A Public Community Meeting was hosted by BluEarth Renewables Inc. (BluEarth or the “Proponent”) within the Municipality of Huron East on September 6, 2023, to present information about the Seaforth Storage Project (the “Project”) to members of the public, as well as provide an opportunity for attendees to discuss the Project.

Notification

Notice of the Public Community Meeting was completed through the following communication mechanisms:

- Email and/or registered mail notices to property owners of land adjacent to the boundaries of the Project site on August 16, 2023;
- Email notice to the Chief Administrative Officer (CAO) of the Municipality of Huron East on August 16, 2023;
- Email and/or registered mail notices to property owners of land within 2000 meters (m) of the Project Site on August 16, 2023;
- Email and/or registered mail notices to other regulatory agencies, council members, or stakeholders identified as having potential interest in the Project on August 16, 2023;
- Email and/or registered mail notices to stakeholders who requested to be added to the Project stakeholder list on August 16, 2023;
- Notice of the Public Community Meeting posted on the Project website on August 17, 2023;
- Newspaper ad in The Citizen on August 25, 2023, and September 1, 2023; and
- Social media post on the Municipality of Huron East Facebook page on August 30, 2023.

While the Project is not located on Indigenous Lands, notices were also emailed to five (5) Indigenous communities on August 16, 2023, with potential interest in the Project.

Meeting Format

The Public Community Meeting consisted of a PowerPoint presentation (see **Attachment 1**) by the BluEarth Project team on the Project, which provided the following information:

- Description and display of the legal Name and contact Information of the Proponent (Slide 1 and Slide 23);
- Name, nameplate capacity, and technology of the Project (Slide 10); and
- A scale map showing the boundaries of the Project Site, location of the Connection Point, and approximate location of the Connection Line (Slide 10).

The presentation was approximately 30 minutes in duration and was followed by a Question and Answer (Q&A) session that was approximately 75 minutes in duration. A summary of the Q&A session is provided as **Attachment 2**.

Before and after the presentation and Q&A session, Public Community Meeting invitees were encouraged to review the Project Information Boards (see **Attachment 3**) that were displayed around the meeting space. A table-sized Project map that showed the boundaries of the Project site, the location of the Connection Point, and the approximate location of the Connection Line was also on display.

MEETING MINUTES



Seaforth Storage Project

A sign-in sheet was provided at each entry point to provide an opportunity for all attendees to be added to the Project Stakeholder List and Energy Storage Fact Sheet handouts were also made available for attendees to take home (see **Attachment 4**).

Attendance

BluEarth estimates that approximately 160-170 people attended the Public Community Meeting.

Follow-Up

BluEarth will be uploading a copy of these meeting minutes to the Project website, as well as updating the Frequently Asked Questions (FAQs) section on the website based on the questions that were received during the Q&A session.

BluEarth has also updated the Project Stakeholder List to include any new stakeholders who attended the Public Community Meeting and provided their contact information on the sign-in sheets. All stakeholders included in this list will be mailed and/or emailed a follow-up letter that provides a brief summary of the Public Community Meeting held on September 6, 2023, and directed to the Project website to access the meeting minutes and materials presented at the meeting.

ATTACHMENTS

Attachment 1 – PowerPoint Presentation

Attachment 2 – Q&A Session Summary

Attachment 3 – Project Information Boards

Attachment 4 – Energy Storage Fact Sheet

ATTACHMENT 1- POWERPOINT PRESENTATION



WELCOME TO THE Seaforth Storage Project

Public Community Meeting



Solar



Hydro



Wind



Storage

Our Team



Daryl Scheerer
Director of Development



Keaton Lechelt
Project Developer



Ashley Rieseberg
Senior Regulatory &
Environment Specialist



Erin Jenken
Manager, Communications



James Foster
Site Lead, St. Columban

Public Community Meeting Agenda

1. BluEarth Presentation (30 min)

- BluEarth Introduction
- IESO Process Overview
- Seaforth Storage Project Overview
- Community Feedback

2. Open Floor Q&A (30 min)

3. Open House (30 min)

- Please visit the info boards and talk with our team

We look forward to having open, respectful, and productive dialogue with the community.

About Us



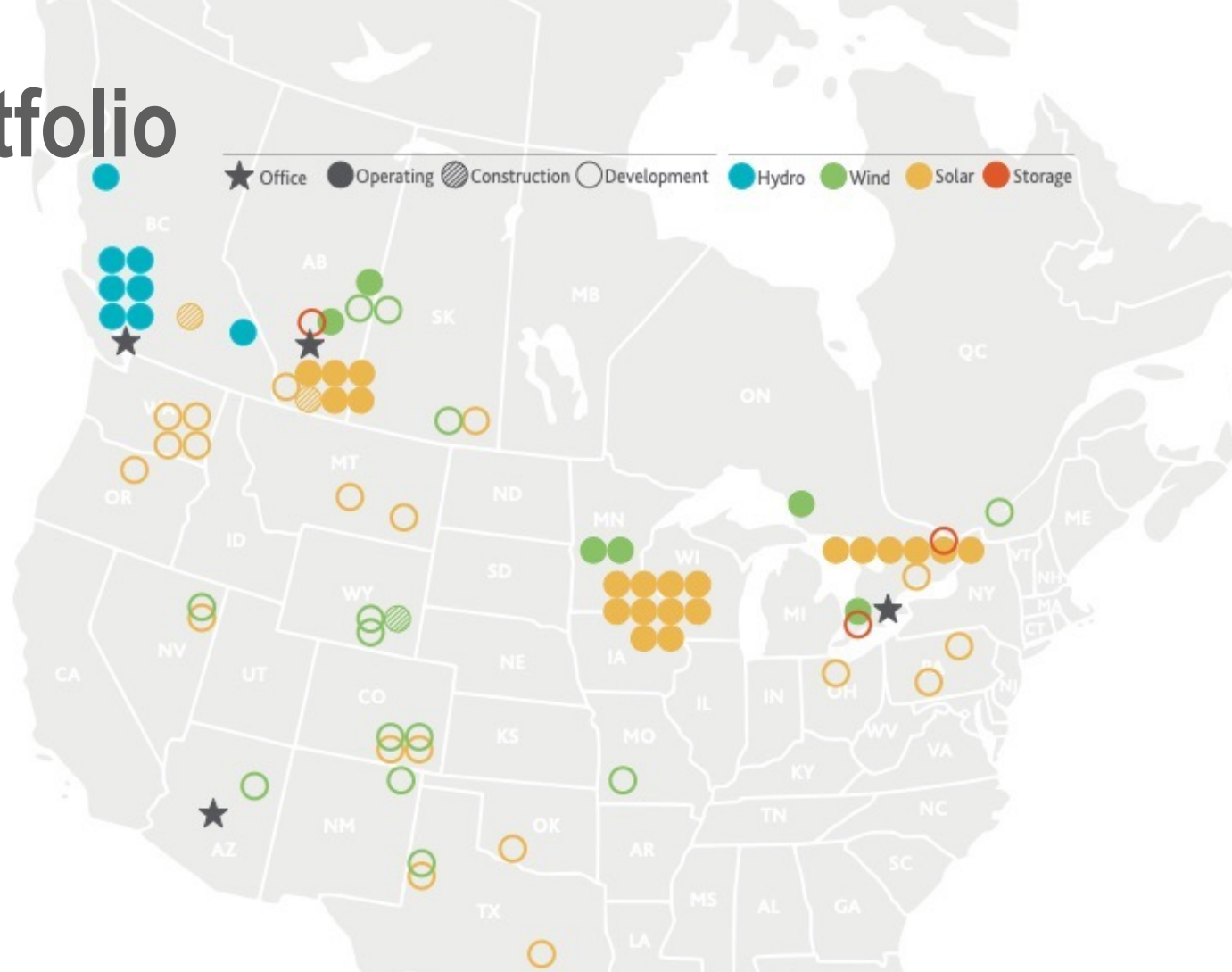
BluEarth Renewables is a leading independent power producer that acquires, develops, builds, owns and operates wind, hydro, solar and storage facilities across North America

Our portfolio is well diversified across technologies and geographies, with over 1 GW in operation and under construction.

- Founded in 2010.
- Headquartered in Calgary, AB, with an office in Guelph, ON.
- Eight operational facilities in Ontario and three under development.
- Our team includes development, permitting, regulatory, financing, engineering, construction, and self-performing operations and maintenance experts.
- Long-term owner operator - BluEarth has never sold a project it has built.



Our Portfolio

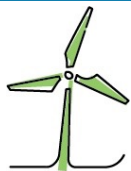


Highlights

3 Offices in Canada
1 Office in Arizona

150 Employees
(~45% Operations)

24/7 NERC Compliant
Remote Operations
Centre



305 MW

Wind in Operation (gross)



234 MW

Solar in Operation (gross)



131 MW

Hydro in Operation (gross)



345 MW

Under Construction



7+ GW

In Development

Why Are We Here?

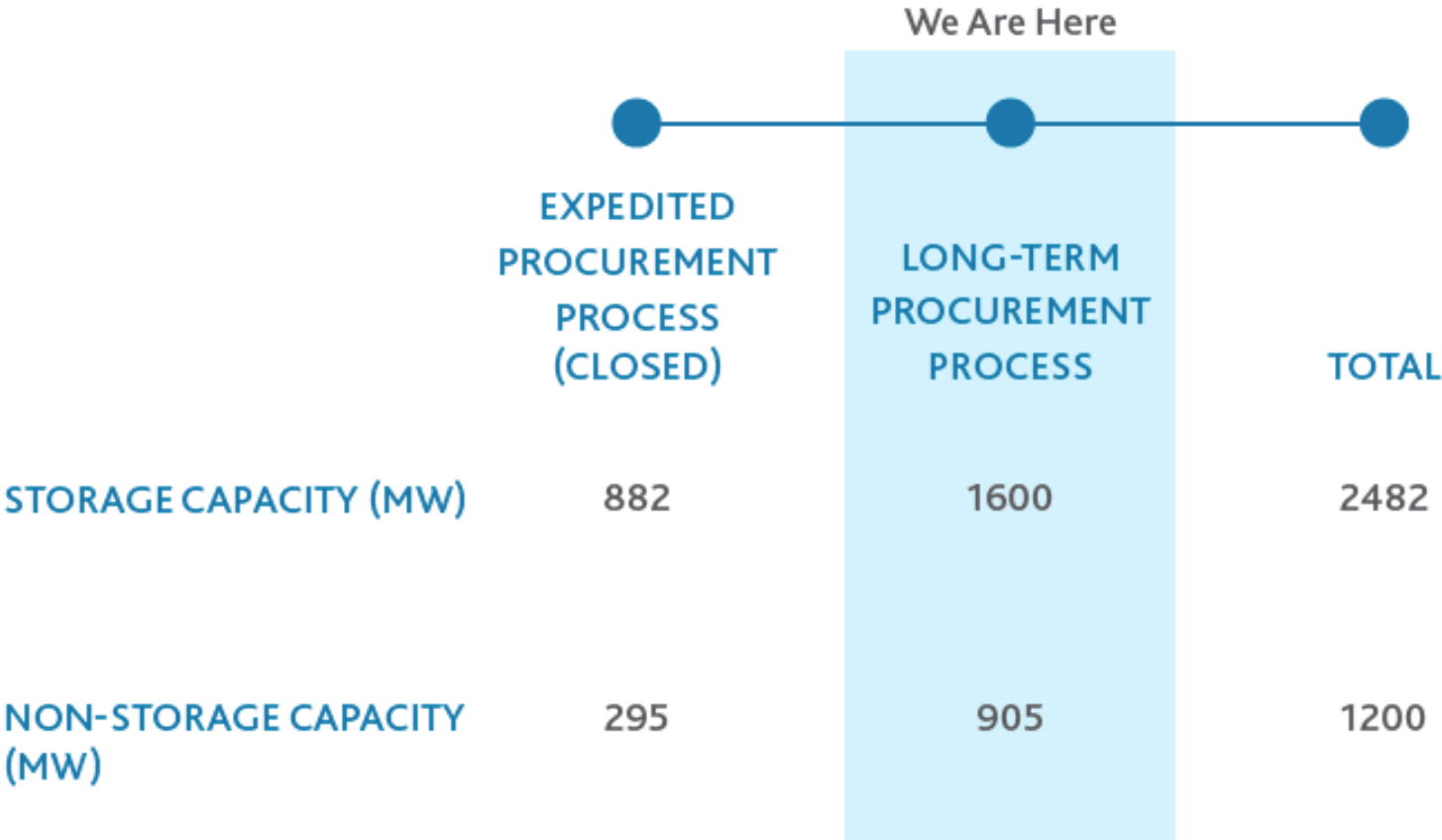
BluEarth is proposing the Seaforth Storage Project in response to the Independent Electricity System Operator's (IESO) request for electricity storage in Ontario.

The IESO has determined that additional electricity supply is needed to replace aging facilities and meet Ontario's growing demand (~2% annually), key factors include:

- Upcoming retirement of the Pickering nuclear plant
- Refurbishment of other nuclear generating units
- Expiring contracts for existing generation facilities
- Increased demand for electricity

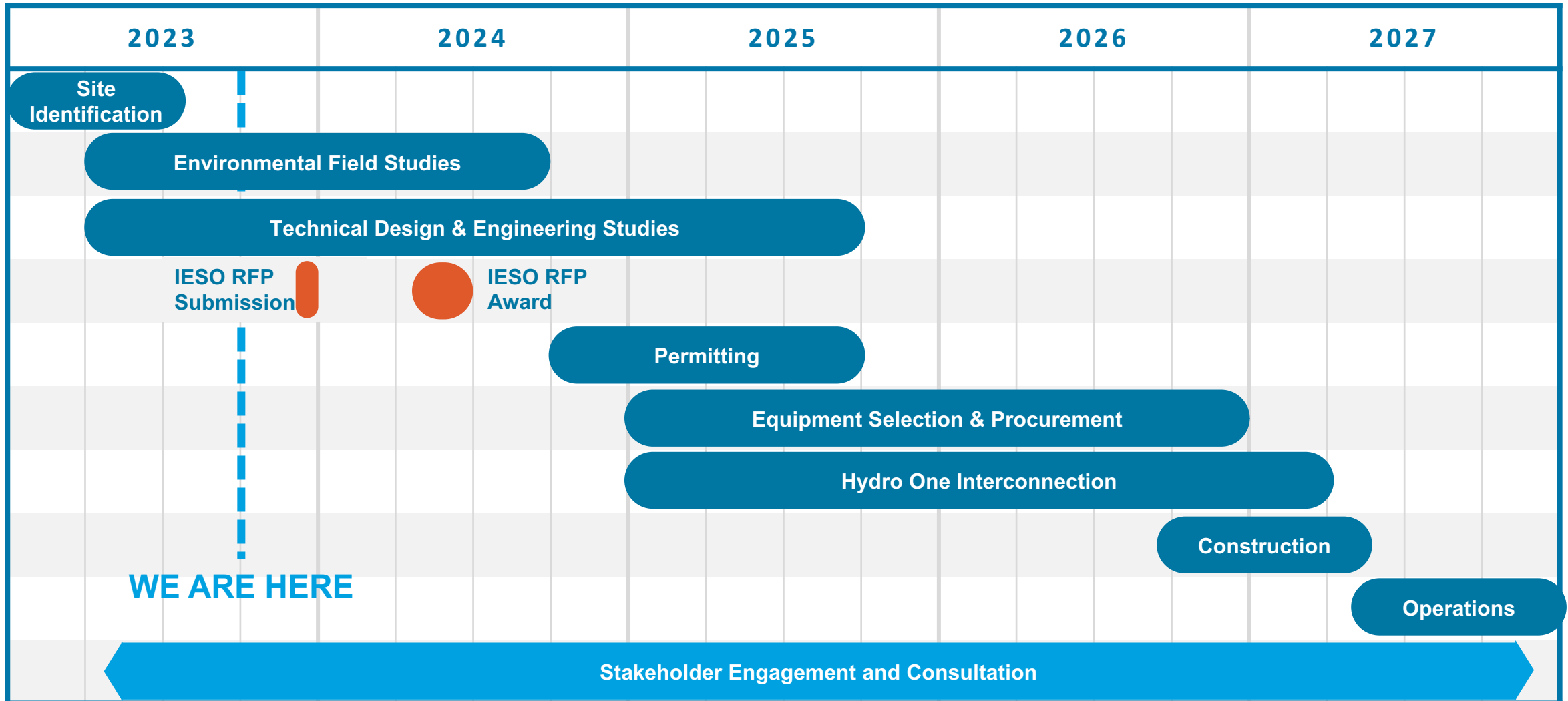
Why Are We Here?

Over 880 MW of storage projects have already been awarded in Ontario. The Seaforth Storage Project is proposed in response to the next procurement.

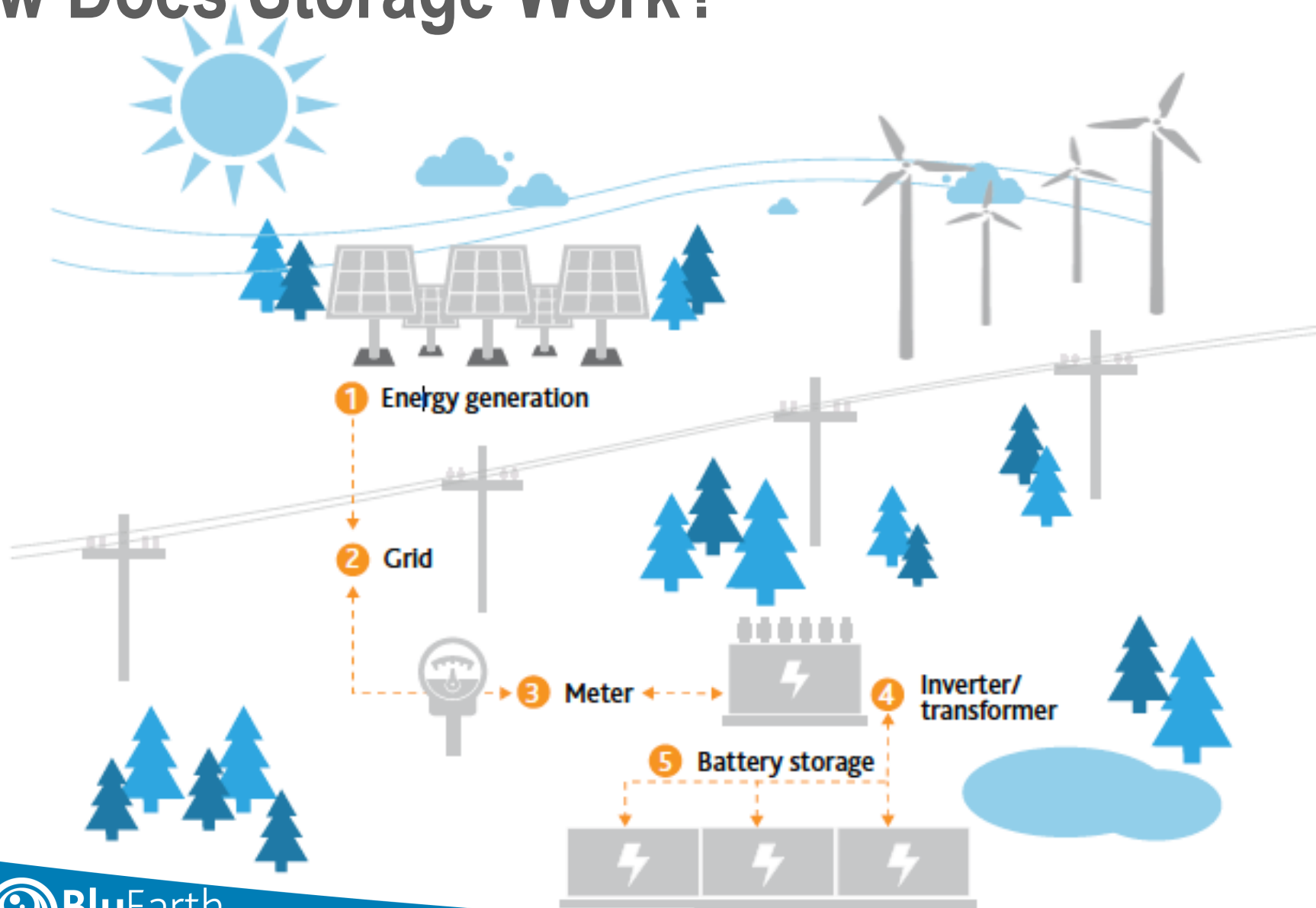


- Projects must be ready for commercial operations no later than 2027
- Energy contracts have a potential 21-year term (2048 contract end date)

Project Timeline (Proposed)



How Does Storage Work?



Seaforth Storage Project Overview

Location

- Municipality of Huron East
- Approximately 4 km from Seaforth

Size Capacity

- Up to 200 MW / 800 MWh (subject to change)
- Capacity for up to 4 hours

Technology

- Battery energy storage system (BESS)
- Lithium iron phosphate (LFP)

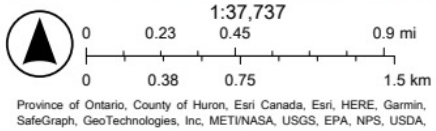


9/6/2023

- | | |
|--------------------------------------|---------------------|
| Ontario Utility Lines - Utility Line | Proposed Path 2 |
| Hydro Line | Proposed Path 3 |
| Proposed T-Line Routes | Seaforth Study Area |
| Proposed Path 1 | |

- World Imagery
Low Resolution 15m Imagery
High Resolution 60cm Imagery

- High Resolution 30cm Imagery
Citations
9.6m Resolution Metadata



Project Location

Why this location?

- Close proximity to point of interconnection with **known available capacity**.
A shorter transmission line (~2 km) means less environmental and social impacts
- BluEarth's previous proposed location (consulted on in 2022) needed to be revised due to site constraints.
- No significant environmental features located on or nearby the site.

Project Study Area vs. Project Footprint

- Project study area is an initial starting point to provide flexibility for siting project infrastructure.
The actual project footprint will be approximately 25-30 acres (see next slide).
- Many variables impact the project footprint, including:
 - Project size (MW)
 - Environmental and technical considerations (geotechnical conditions, environmental features, noise, etc.)
 - Project supplier

Project Layout



Deliverability Results (expected mid-Sept 2023)

Deliverability results from the IESO will dictate overall project size (MW)

Preliminary Layout (expected Oct/Nov 2023)

There are several inputs required for this, including: project size, BESS supplier, and results from 2023 desktop and field studies

Final Layout (expected early 2026)

This is typically finalized closer to construction and will be used in our Site Plan Application to the Municipality of Huron East.

Project Infrastructure

The proposed Seaforth Storage Project would include:

- Lithium iron phosphate (LFP) battery energy storage system
- Inverters
- Collector lines (underground)
- Perimeter fencing
- Access road(s)
- Project substation
- Motion-sensor lighting

Transmission Interconnection

- A transmission line (underground) that will be approximately 2 km in length and connect the project to the Hydro One transmission system will be required.

What Does a Storage Project Look Like?



BluEarth will be completing a visual impact analysis which will include:

- Visual simulations from various viewpoints.
- Analysis of any mitigation (i.e., visual screening) based on the simulations.
- If applicable, recommendations for visual screening such as trees, shrubbery, and berms.



Stakeholder Engagement To-Date

NOVEMBER 2022

Public Community Meeting

Initial public meeting was held for the Seaforth Storage Project.

The proposed project location has since changed (due site constraints).

JULY 2023

EA Notice of Commencement Letters

Sent to stakeholders including residents within 2 km + Indigenous groups, council members, regulatory agencies, third parties, and community organizations.

BluEarth opted to increase engagement from 1km → 2km, as well as requested feedback from Huron County on this list

AUGUST 2023

Stakeholder Information Packages

Sent to all residents within 2km + Indigenous groups, council members, community organizations, and any additional stakeholders as requested (vs. adjacent parcels only).

Meeting ad was placed in the Seaforth Citizen and posted to Municipality web and social channels.

SEPTEMBER 2023

Public Community Meeting

Tonight's meeting to share updated details.

WHAT'S NEXT?

Ongoing community engagement and involvement.

We welcome the community's feedback on the project and our engagement approach.

Community Benefits



Increased Grid Stability

The project will store enough to power approximately 184,000 homes in Ontario for four hours during times of grid instability.



Community Funding

We want to ensure the community is stronger because we're here. This can take several forms, including:

- A project-specific donation fund
- Long term, stable tax revenue
- Annual Community Investment Agreement



Local Employment

During construction, the project will provide approximately 70 to 100 jobs.

During operations, the project will provide 2-3 full-time, local operations and maintenance positions.



Scholarships

BluEarth offers annual scholarships specifically targeting communities where we operate. Apply online at bluearth.ca/scholarships/

Regulatory & Environmental

We are pursuing an extensive field study program for the project. Our team is committed to incorporating results of the field studies into the project design to ensure that impacts to the environment and wildlife are avoided or minimized.

Project Studies & Assessments

Environmental field studies and habitat verification	Complete
Archaeological assessment	Not Started
Cultural heritage evaluation	Not Started
Hydrology study	Not Started
Visual impact modeling	Not Started
Stormwater management assessment	Not Started
Acoustic modeling	Not Started
Air quality dispersion modeling & risk assessment	Not Started

Project Approvals & Permits

Environmental Assessment (EA) Screening	Oct – Nov 2023
Ministry of Tourism Culture and Sport (MTCS) Cultural Heritage Confirmation Letter	Oct – Nov 2023
MTCS Archaeological Assessment Confirmation Letter	Oct – Nov 2023
Environmental Compliance Assessment (ECA) Approval	Oct – Dec 2025*
Environmental Activity and Sector Registry (EASR) Registration	Oct – Dec 2025*
Ausable Bayfield Conservation Authority Permit (if required)	Oct – Dec 2025*
Municipality of Huron East Site Plan Application and Approval	Oct – Dec 2025*

*Dates subject to change based on when layout is finalized.

Protection of Water Resources

- **Surface water:**

- The project location was strategically selected to avoid water features such as rivers and wetlands.
- The environmental field studies confirmed that there were no water features present or adjacent to the project area.

- **Groundwater:**

- We will be completing geotechnical and hydrology studies to understand the current subsurface conditions which will be used to inform the design of the project.
- Mitigation/minimization/protection measures related to groundwater protection will be included in the project-specific Stormwater Management (SMP) and Environmental Protection (EPP) Plans that will be developed for the project.
- While a Stormwater Management Plan has not yet been completed for the project, we anticipate that there the project design will include a stormwater management pond with a geotextile membrane.

- **Potential for leakage:**

- The only liquid within the batteries are contained in the cooling system, and this liquid is typically a water/glycol mix (similar to a car's coolant).
- The battery storage containers are waterproof, so in the unlikely event of a leak from the cooling system, the liquid would be contained within the container. Further, each container is independent so any leak will be limited to the specific container where the leak occurred.

Agricultural Impacts

- Project siting involves considerations of many variables, and this site was carefully selected to minimize environmental and social impacts through:
 - Avoiding wildlife habitat, wetlands, and other significant environmental features
 - Reducing the overall length of the transmission line
- BluEarth understands the importance of agricultural land to the local community and will be hiring a reputable and experienced third-party to complete an agricultural impact assessment for the project.
- The results of this assessment will inform the overall design of the project as well as the construction, decommissioning, and restoration activities to:
 - 1) Minimize impacts; and
 - 2) Ensure that the land is restored to pre-existing conditions upon decommissioning.

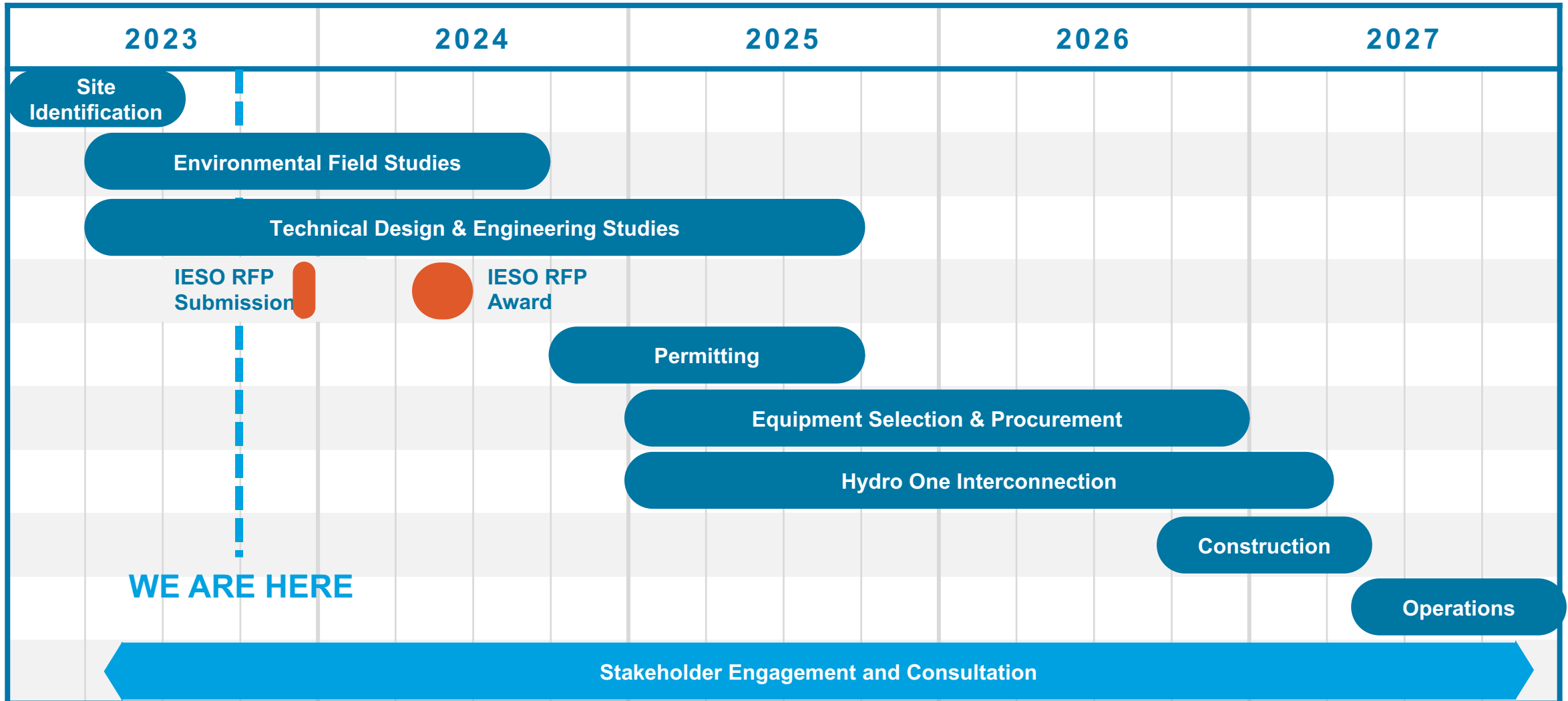
Fire Risk

Safety is top of mind, and the technology selection, system design and battery containers are designed to minimize fire risk and in the unlikely event of fire, to detect and suppress it.

- The proposed battery technology is Lithium Iron Phosphate (LFP), which has a significantly lower fire risk than Lithium Ion Nickel Manganese Cobalt (NMC) based batteries.
- This system includes numerous safety features such as heat / smoke detection, combustible gas detection, fire suppression, gas ventilation, alarms, and emergency shut-off - all of which will be monitored 24/7 by BluEarth employees
- The containers are deliberately spaced to avoid fire cascading from one unit to the next.
- In the event of a fire, emergency services would be called and will focus on preventative measures to ensure nothing else is impacted.

We will engage with the local fire department and emergency service providers throughout the development of the project and are committed to ensuring that these service providers are adequately resourced and trained to respond to any emergency events.

Project Timeline (Proposed)





We want your feedback!

Learn more and find regular updates at
blueearthrenewables.com/seaforth/

Would you like to be added to our stakeholder list?

Email us at projects@bluearth.ca.



We bring together extraordinary people with the
Power to Change THE FUTURE™

Daryl Scheerer
Director of Development

Keaton Lechelt
Project Developer

Ashley Rieseberg
Senior Regulatory & Environment Specialist

Erin Jenken
Manager, Communications

BluEarth Renewables Inc.

Seaforth Storage LP, by its general partner, Seaforth Storage GP Inc.

www.blueearthrenewables.com

projects@blueearth.ca

ATTACHMENT 2 - Q&A SESSION SUMMARY

Seaforth Storage Project

Question and Answer Session

On September 6, 2023, BluEarth hosted a Public Community Meeting for the proposed Seaforth Storage Project. Following a PowerPoint presentation (a copy of which can be found on our website), a Question and Answer (Q&A) session was held to provide members of public the opportunity to ask questions about the project.

The questions and responses from this Q&A session are documented below. All answers, unless specified otherwise, were provided by members of the BluEarth Project Team that attended the meeting. Where additional response detail was confirmed following the meeting, these answers are noted for the applicable questions in *italics*.

1. If the project has nothing to do with the wind turbines, why are you not located right next to the interconnection point?

- As previously mentioned in our presentation, there are variety of factors that influence where we site a project. And in this particular instance, this happens to be a site with no environmental features that is in close proximity to existing infrastructure. The project is only 2 km from the interconnection point, which we think is a very short distance, given the variety of factors we have to consider when selecting a site. Hydro One also enforces a setback from their transmission facilities so it was not feasible for us to site the project closer to the interconnection point.

Who is funding green? The province? Is it your personal money or taxpayer money?

- We all work for BluEarth, which is privately owned by a private equity fund out of Amsterdam called the Dutch Infrastructure Investment Fund. The project will have a contract with IESO, the Independent Electricity System Operator of Ontario that manages the entire system grid within the province.

Thank-you for the thorough presentation. My question is why aren't you looking for land beside a Bruce Power facility, next to Pickering, or on top of a landfill? Your team referred to grid capacity but there must be something near one of these facilities where you could build instead of on good quality farmland.

- Good question. And again, it goes to the electricity system of Ontario. The nuclear facilities are very large facilities with very large transmission lines, but because of this, there is no capability to interconnect with those lines as there is no capacity. The Bruce Power is an 8-reactor site, which when fully operational, is nearly 8000 megawatts and it has 500 kV lines that would be difficult for us to connect to. So unfortunately, building a project right beside the nuclear facilities is technically not feasible for us. And again, we try to site our facilities near 230 kV transmission lines that have available capacity, but we also consider a lot of other factors including environmental impacts.

From my research, I have determined that you have tried to build a project such as this one in Stone Mills and it was met with a lot of opposition. Have you ever built or managed a BESS?

- No, we have we have not managed or built a BESS facility, but the technology is well established and rigorously tested. There are a lot of battery suppliers that have provided gigawatts of projects globally and our construction contractors and the engineers that we use have vast experience and expertise in this area. The project will go through rigorous engineering, design, and safety analysis, to ensure that we are fully complying with all required building, safety, and electrical codes and obtaining all of the appropriate certifications that are needed to construct and safely operate the facility.

Your suppliers of lithium are countries with political instability and human rights violation. How can you assure us that you are going to use suppliers who do not commit those atrocities? And are you going to make a request to council to change zoning? You're not creating a stable environment. What about our volunteer fire department?. You're interfering with tourism and agriculture. You're going to take 80 acres of prime farmland for this project, and I agree that it that needs to be somewhere else closer to what you need to do. My research also show that you transmit electrical power to the United States and sell it back to us during peak hours for increased profit. Therefore, this project is for profit and of no benefit to the people who live here.

- You've asked a few questions so I will try to answer all of them.
- For the first one, BluEarth does have a procurement policy that we regularly review in terms of our supply chain management, ensuring no forced labour and not obtaining materials from countries without proper labor legislation and protection. We take that very, very seriously. When it does come to lithium supply, there is a lot of lithium in Canada and the US, but we can't guarantee that the source of supply for lithium will be from those locations. However, we do look at our supply chain and where the materials for our projects come from as part of our procurement policies and practices.
- In terms of zoning, we have not been advised by Huron County that a zoning amendment is required. As presented earlier, what is required for the project is a site plan approval.
- In terms of agricultural land, I also think we covered that off in the presentation and siting question asked earlier. There is no perfect site, but we think we have selected one that greatly reduces environmental and social risk.
- We also want to highlight, once again, that the 80 acres is not being used for this facility. This was our initial study area, and it has been made been clear in the presentation and our materials that the actual footprint of the facility will be 25-30 acres.
- Our only customer will be the IESO, and this is who would pay for our electricity. We have no ability or control over where the power is sold.

You've previously had a public meeting here that I don't think anybody here attended?

- There was a Public Community Meeting held in November 2022 which was for a different location. And again, we put advertisements in the newspaper for two weeks and notified adjacent landowners, which was the IESO requirement. But we didn't think

we got received enough engagement from the community and so this time we have purposefully expanded our outreach and gone above and beyond what is typically required for storage projects. We advertised in the newspaper, we put an advertisement on the municipality social media pages, and we've also reached out to landowners within 2000 m of the project area. We consulted with Huron County for input on our stakeholder list and included their recommended additions.

How far is the current project from your original site? And why did you move the project to the new location when the previously proposed project site was on an old gravel pit, that wasn't rated as prime agricultural land?

- If memory recalls correctly, it is approximately 8.5 km from the current project site.
- Very good question regarding why we had to move the site. There were a number of factors and constraints that made the site unfeasible from a development point of view.

I don't understand your business plan. You're paying hydro or hydro's paying you to take our hydro, which is provincially owned? What price are you paying to store and then what price are you going to sell it back to us?

- We will be charging the facility when there is excess supply. The way the Hydro One power market functions is there is something called the Ontario electricity price. Anyone can go to the IESO site and see what the clearing price is every single hour and when there is excess supply on the market.
- When demand is really low, such as the overnight market when loads are really low, this means prices will be low and so, this is when we will charge. Our requirement of the contract with the IESO is to be available and ready to be called upon during the business days of the year, so Monday through Friday and be available for the hours of 7:00 AM and 11:00 PM when grid demand in Ontario is high. The IESO will call us on during those hours to dispatch that energy and provide relief to the system, which in turn will reduce the hourly energy clearing price during those hours.

I'm wondering if you have a fire or a leak and it contaminates the land, or the neighbours land. Who pays for the cleanup? You? The Municipality?

- A stormwater and waste management system will be required to capture any rainwater or wastewater. In the unlikely event of a fire, and if water is utilized, our collection system will be designed in such a way that it is captured and retained in our stormwater management pond, which will include a geomembrane-like textile layer that's engineered and designed to prevent any groundwater seepage or contamination.
- BluEarth will also maintain a robust insurance program covering loss events.
- If you look other storage facilities being proposed in Ontario or Canada, you don't see very many companies saying right off from the get-go that they're going to build an expensive stormwater management pond. The fact that we are committing to building a stormwater management pond at such an early stage of development shows that we are taking this very seriously. These structures are very expensive to design and

construct but we want to be absolutely sure that even in the unlikely event of a fire or a leak, that groundwater resources within the vicinity of the project are not impacted.

Further to the fire protection piece, I understand that in the event of a fire, emergency services would be called. Are you talking about our local volunteer department? If you are, are you going to provide the training and materials they need to respond to the call?

- As part of our consultation with the local fire department, we will ensure that the project and fire department are completely aligned on the site design and response procedures. We will also be developing an emergency response plan that incorporates feedback from the local fire department.
- Annually we will be conducting Emergency Response plan training at the site which will allow the fire department to be familiar with the site, so in the event that something does occur, they are aware of how the site is structured. If a fire event occurs, the safety of the fire department is our absolute priority.
- If a single battery container is on fire, the priority would not be preserving that battery; it would be the protection of the fire department and making sure the surrounding area outside of our project fence line remains secure and safe.
- On the question regarding cost and resources, we will be absolutely covering costs in terms of materials, equipment, and training that are necessary to ensure the protection of fire department personnel and ensure that the community isn't negatively impacted beyond our facility.
- We have worked with local volunteer fire departments at many of our facilities and we are well aware of the constraints and limitation of volunteer departments. We will work closely with the fire department to make sure we have full alignment.

How will the project affect our livestock?

- We are not aware of any studies that suggest storage projects impact livestock.

There are no reproductive problems associated with livestock and storage projects?

- We are not aware of any studies that make this link.

What about stray voltage? Fire, fumes, off gas?

- We are not anticipating any of these impacts to be associated with our facility, but we will look into this.

Further Response Detail:

Since hosting the Public Community Meeting on September 6, 2023, BluEarth conducted a review of this topic and did not find any studies or research that has been completed on battery storage facilities that suggests a link between battery storage projects and the health of livestock.

What is the expected lifespan of the project?

- The expected lifespan of the batteries is approximately 20 years, after which point once the batteries are out of service, 95% of the materials can be recycled. There is some augmentation that will occur because just like the battery in your phone, the capacity does degrade over time, but the rate of degradation is much lower for the battery chemistry that we've selected than some of the earlier stage battery technologies that have been used on other operational projects.

What is the cost of your project?

- Approximately \$400 million.

Who is the landowner and how much is he getting of this?

- We do not disclose this information out of the privacy and respect of our landowner.

What rights or say does the community have on this project?

- As part of the IESO procurement process, there's something called a municipal support resolution, the MSP. If we are successful at getting an MSP ahead of the bid date, we are awarded more points in terms of our evaluation with the IESO.
- However, if we don't get MSP and we are successful in winning a contract with the IESO, we have a contractual obligation to obtain an MSP from the Municipality within 18 months. If we don't get an MSP within that timeframe, the contract is void. So, in this way, the MSP provides the Municipality veto rights over our ability to build the project.
- We also need to obtain Site Plan Approval from the Municipality.

The company needs to say that the project is safe to all of the animals and all of the people.

So, will you write a letter from your company that states that the project is safe?

- Again, we are not aware of any studies that state any health impacts for wildlife or humans, or livestock associated with storage facilities. But we will look into this, and I think that we can certainly commit to providing evidence of this, if it exists.
- Again, the project will be in compliance with building and fire codes, CSA compliance, UL compliance, etc. As part of the development of the project, we will be going through all independent engineering reviews and all required risk and hazard analysis.
- Further, in order to get through finance and insurability, the assurance risk and fire risk assessment teams will be looking at our overall design and ensuring that it is designed safely and according to all codes. They will be considering all aspects of engineering design, proper safety, and hazard risk analysis.
- In order for us to get debt financing to build the project, we must have a bankable insurance policy. The insurers have a massive team of fire risk assessments and will be very closely looking at our project to ensure the proper safeguards to ensure public health and safety are in place. We will be doing absolutely everything in advance of the insurers coming in to ensure adequate engineering design, and if the insurers have any feedback for us on where we can improve the safety of our facility, we will 100% be implementing it, as this will be 100% be required for us to obtain any debt financing from a bank. We must have a bankable insurance policy in place and the insurers are

very, very diligent at looking at all infrastructure projects because they are the ones providing the insurance policy for us and for the bank.

Further Response Detail:

Since hosting the Public Community Meeting on September 6, 2023, BluEarth conducted a review of this topic and did not find any studies or research that has been completed on battery storage facilities that suggests a link between battery storage projects and the health of livestock. BluEarth did not find any studies or research that suggest battery storage projects are harmful to human health.

Apart from the temporary and localized air quality impacts associated with construction and decommissioning activities, the project will not produce any localized air pollution that is harmful to human health. Furthermore, battery storage facilities actually decrease air pollution by reducing the need for conventional power plants and emergency backup generators that burn gasoline, diesel, propane or natural gas.

Ensuring public health and safety is top priority for BluEarth and we will continue to monitor ongoing research on this topic and are committed to keeping the community informed of any news or developments.

But the people here, they're needing the safety. If you can't say the batteries are safe, not-regulation wise as we don't know what the regulations mean. But if you can't say this and can't write a letter saying they're safe, then the project should not be built.

Again, the project will be built in compliance with all safety standards and with the safeguards reviewed in our presentation.

Further Response Detail:

As part of the Site Plan Approval Process, BluEarth will provide supplemental information that will provide safety assurances on the Project design and the Project infrastructure, including batteries. As the Project technology has not been selected and the Project design has not been finalized, it is difficult to provide warranties of safety at this time, but BluEarth is committed to providing this information prior to requesting Site Plan Approval from the Municipality of Huron East.

What type of technology is in the battery you're talking about? Is it different than electric car batteries? Electric car batteries are not safe.

- As presented, the LFP technology we are using is different than what is used in electric car batteries.

So, is the battery technology you're using less flammable?

- Yes, the LFP technology we are planning on using is less flammable than the older generation lithium NMC battery type.

Why were the taxpayers not asking for this project? Why did you keep it underneath the rug and push it through? You wouldn't be happy if this was in the backyard of your family and friends.

- Again, the IESO is requesting projects like this to be put into service - this is the government requesting projects. We are responding to a request from the government, who has concerns regarding the future reliability of the grid.

Don't ship the power to the States then.

- Again, BluEarth only sells to IESO and if there is any energy shipped to the US, this is done by IESO.

What is the coolant used in the battery containers?

- It's a glycol ethylene mix.

What are your setbacks from residences?

- This is largely determined by noise, so it will probably be a minimum of 800 m but we won't know until we do the detailed modeling for the project.

Just one second. Mayor - what is your setback for residences within the Municipality?

- [Response from Mayor] It is not within our proper standards right now. Approval for a storage project has never been requested within the Municipality so it has never been included in the paperwork.

So follow-up comment for everyone in this room. Who owns the wind project here?

- BluEarth owns the St Columban wind project.

You're like the 4th owner.

- BluEarth is the second owner.

There is a story that isn't been shared here. We had meetings just like this with the wind farm and people who were there from your company aren't here today and are long gone, guarantee it.

- BluEarth acquired the St. Columban Wind Facility once the project was already in operation. Again, BluEarth has never sold a project that it has constructed, and our intention is to be here for the life of the project and beyond.

Is there any technology that is being looked at instead of putting batteries in the field?

- The IESO procurement specifically targeted battery storage and that's what we are proposing to build.

So you had no input on this? Will their plan change?

- This is what the IESO's long term system planners came up with in terms of what they believe is needed for the province and looking at the future demand and supply.

- We are unsure what IESO is going to do for its next round of procurement. All we are aware of is the procurement that they completed last year, where IESO bought 882 megawatts of battery storage and 295 megawatts of non-battery storage. For this procurement, they are targeting approximately 1600 megawatts of new battery storage and we're trying to win 200 MW of that with this project.
- We are not privy to the system planners and their plans going forward.

There are other ways of storing energy than batteries and there's other avenues to look at. Somebody needs to be looking at something else.

-
- Thanks for your comment. We recognize that all technologies come with pros and cons. We are responding to the IESO's request on what they believe is the best technology fit for the new power demands of the province, which is based on their evaluation of all available technologies and determination of system needs.

So basically, you guys want to store your wind energy at night to sell it during the day?

- No, the St. Columban Wind Facility and the storage project are completely separate. As mentioned previously, we would buy from the grid at night when there is excess power and discharge during the day, and we wouldn't be operating every day. The IESO would only call us to deliver on power when the system needs our capacity to ensure reliability when they are supply constraints. We are a reliability-based product for them to ensure that the grid remains stable throughout the province.

You'd be talking about noise. What's the expected noise level that you think might be produced at this facility. I am raising a family close to your proposed site and obviously don't want to have a lot of noise in the environment that they grow up in. I live in a nice quiet country area and would really like to see it stay that way.

- Yes, understood and we will be completing detailed noise modeling multiple times throughout the development of the project to ensure compliance during operations. Noise concerns are partially why we selected the site, as it is tucked in far away from residences.
- The noise limit is 40 dBA.

What would that sound like?

- 40 dBA is comparable to a library.
- This is the provincial noise requirement, and we will be in compliance with that.

What about property values?

- There are no studies that exist that show that the battery storage projects impact property values. This is something that is dependent on many variables.

Have you been to the site?

- Yes, we were out there today.

Why couldn't you just have built a smaller site at your originally proposed site on the gravel pit?

- There were many factors that went into determining the feasibility of this site and even a smaller site would not have been feasible there.

Was it a coincidence that the landowner of the previous site was connected to your wind turbines? Sounds like you were trying to rush through the process.

- No, this was not a coincidence. We leveraged our existing relationship with this landowner and many of our actions last procurement were influenced by time and expediency due to the quick timelines required for submittal.
- Our timeline to participate and secure a site was very, very short and that resulted in us making quick decisions and we didn't have adequate time to complete all of the studies that would allow us to fully understand the feasibility of the site. This is why with the new location, we've already undertaken environmental studies, constraints work, etc. because we have had more time to complete the proper due diligence for the project.

But why did you move the site? What were the variables?

- One of the main reasons was actually noise and the conclusion that that the mitigation required to comply with the provincial limit would not be feasible for the project.
- There were probably about 10 other reasons why we decided not to proceed with that site and that is also why we never formally requested support from the municipality.

Does Europe have the same sort of systems? How do I get ahold of someone in Europe to find out how much noise there is next to it? I have a noise problem. I cannot stand next to a turbine for half an hour or I'm physically sick.

- Yes, there are quite a few operational storage facilities in Europe.
- I can only comment on the fact that we do have to submit a compliance approval application for the noise aspects of the project and the Ontario government can request us to do a post-construction noise study at any time to evaluate the actual noise that is produced from the facility.
- If the noise received from a receptor exceeds the 40 dBA limit, the regulator can tell us to stop the project. It is in our best interest to keep the project operational and ensure that the project complies with those limits.

It would be nice to receive information on several of the facilities that are currently operational, like in Europe.

- We can certainly share some information on operational storage facilities throughout the world.
- There are also quite a few operational facilities larger than this in operations in the US and the largest storage facility in Canada. It is called the Oneida Storage Project, which is 250 MW and expected to be fully operational in 2025. There is another storage project that will be operational in Ontario in 2025-2026 and that project will be 300 MW.
- So, this is not a unique project in Ontario, in Canada or North America. These projects are going to be popping up everywhere.

Further Response Detail:

Below is a list of some battery energy storage facilities that are currently in operations in North America:

- Wilmot Energy Center, Arizona, 30 MW
- FPL Manatee Energy Storage Center, Florida, 409 MW
- Bolster Substation Battery System, Arizona, 25 MW
- Top Gun Energy Storage Project, California, 30 MW
- Gambit Energy Storage, Texas, 100 MW
- Saticoy Battery Storage System, California, 100 MW
- Bat Cave Energy Storage System, Texas, 100 MW
- North Fork Battery Storage System, Texas, 100 MW
- Moss Landing Energy Storage Facility, Phase II, California, 100 MW

Below is a link to the winners of IESO's E-LT1-RFP for battery storage projects, most which are scheduled to operational in Ontario by 2026:

- <https://www.ieso.ca/-/media/Files/IESO/Document-Library/long-term-rfp/ELT1-RFP-Selected-Proponents.ashx>

Below is a link to a database of European energy storage technologies and facilities, which includes data on 180+ energy storage projects currently in operations in Europe:

- <https://data.europa.eu/data/datasets/database-of-the-european-energy-storage-technologies-and-facilities?locale=en>

Will the noise modelled be measured at each seacan?

- All noise produced from the facility will be estimated and analyzed in the noise model. So that's the inverters, the battery, the substation, etc. The noise that is produced goes into the modelling for the entire facility and then we model the predicted noise levels at each surrounding receptor or residence.

So you talked about noise level. But going back to the wind turbines, I live amongst them. And you did studies on the wind noise supposedly on all 15 of them but you only did studies on two of them prior to obtaining approval for the project. Are you going to do the same with this project?

- At the time of permitting, all wind turbines would have been modelled as part of the Noise Impact Assessment prior to obtaining approval.
- Perhaps you are referring to the certain receptors that needed to be monitored post-construction.

But you didn't do the noise modelling for the project.

- At the time of permitting, all wind turbines would have been modelled as part of the Noise Impact Assessment prior to obtaining approval.
- Post construction noise audits were also conducted at our St. Columban Wind Facility per the approval process.

- At any point in time, you are able to submit noise complaints to the Ministry of Environment, and we are required to respond within seven days with the operational wind turbine data and the information on the noise levels being produced at the site.

When are you coming to council?

- To be determined. We presented to council back in December 2022 and that is last time that we were at Council. We are not planning to go to Council until we have addressed the community's concerns.

I have in my hand research that I did on Stone Mills, who was one of the communities that tried to put a stop to a project in their community. Stone Mills has told me that best technology is underdeveloped. There are no provincial regulations each container. The system will require a heating cooling system. The anticipated noise level levels are 50+ dBA. That's per container. The project will also include lighting towers and lines to connect to the existing transfer station, noisy bright lights at night, and intrusive and a rural residential neighborhood. No thank you.

- I think that lot of these questions or concerns have already been addressed in the presentation, especially on safety, lighting and noise.
- We cannot comment on the exact noise that is going to be produced from the facility, but we can state and commit to the fact that the project will operate in compliance with the 40 dBA limit. The lighting will be motion-activated, and the facility will not be lit all the time, as described earlier.

Further Response Detail:

There are no provincial regulations specific to battery energy storage facilities, but the Project will need to obtain a wide variety of provincial, regional, and local permits. The Project will need to undergo the provincial Class Environmental Assessment (EA) screening process, which reviews a wide variety of factors, including environmental and social impacts. Separate provincial permits will be required for both noise and stormwater management. The design of the facility, including the battery technology, layout of the containers, and other project infrastructure, will also need to be approved by the Municipality of Huron East through the Site Plan Approval process.

As described in the presentation, lighting for the facility will be minimal and limited to nighttime usage for the purposes of safety and emergency maintenance. The lighting will be motion activated and will only turn on when there are individuals present on site.

The noise produced at each container depends on the battery manufacturer/model that is selected for to the project and as we are currently in the process of speaking to battery manufacturers, we cannot comment on the anticipated noise levels at each container. However, we can say that the noise levels produced by the Project facility during operations and observed at each receptor will comply with the provincial limit of 40 dBA.

The battery technology that BluEarth will use for the Project will be equipped with an advanced thermal management system that effectively regulates the temperature of the batteries and prevents overheating and is one of the many protection features that the battery technology will have protect against thermal runaway events. Each battery container will also be equipped with a thoroughly designed fire detection and ventilation system. The battery technology will also be fully tested and certified in accordance with all applicable safety regulations and codes pertaining to battery storage.

I'm going to put council on the spot here. Have they applied for a zoning change?

- [Response from Mayor not BluEarth]
- No. When the group came in December of 2022, it was just to notify council that they were considering a project. Council did ask some questions about things like fire concerns and environmental issues, and we did receive answers about fire response and the type of training that would be done, and that there would be people on-site and on-call 24/7.
- It sounds like the reason we have not been formally approached by them again is because their project has since changed and so there was no request for any permits or permissions or anything of that nature. They just notified us that they were considering doing something at that time.
- As they have stated, they have not come back to present to the Council and formally request municipal support. From what I understand, they have only spoke to the planning department so far about this Project.

So, who supersedes us people in authority? With the wind towers, the Green Energy Act superseded everything, and we got something we didn't even want.

- [Response from Mayor not BluEarth]
- No, and believe me, I agree with that 100%. Our understanding and I think these people [BluEarth] have already alluded to it this evening, is that the municipality does have veto rights if, in fact, we feel this is inappropriate. So, at whatever point they [BluEarth] can answer all the questions that have been asked here this evening and make a presentation to Council, we can then look at the information and make a decision about whether something's right or wrong.

Can we be present at Council when they show up?

- [Response from Mayor not BluEarth] Council meetings are always public.

Will you be monitoring for stray voltage?

- Yes. We will absolutely design the facility in terms of all electrical code compliance and if there are any stray voltage issues, we will investigate and work with the local distribution network, in this case Hydro One, to resolve any stray voltage concerns.

Conclusion

- That concludes this question and answer session. Again, if you're not on our mailing list and you want to be added, there is a sheet at the back of the room or e-mail projects@bluearth.ca.
- Once again, this is early in the process and we recognize we don't have the all answers at this point in time.
- Thank you for coming and we look forward to sharing more with you as project development progresses.

ATTACHMENT 3 - PROJECT INFORMATION BOARDS

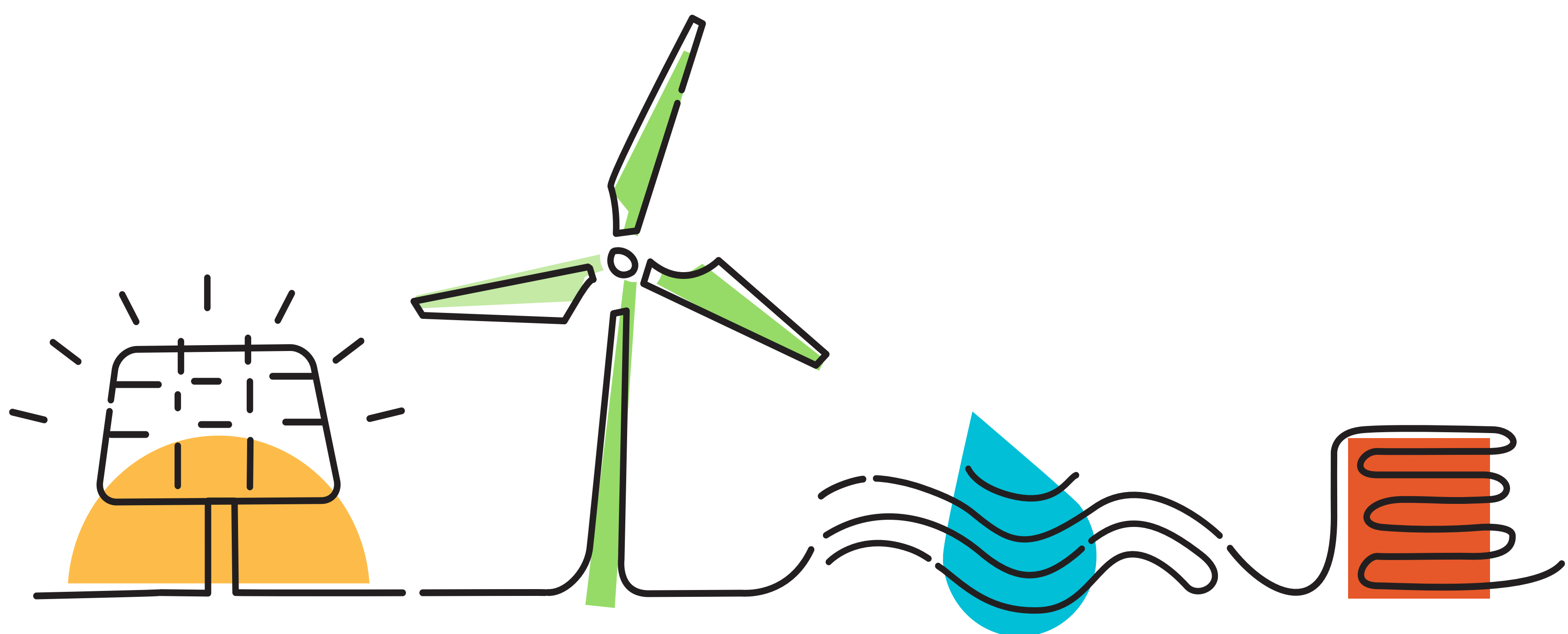
WELCOME TO THE

Seaforth 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!

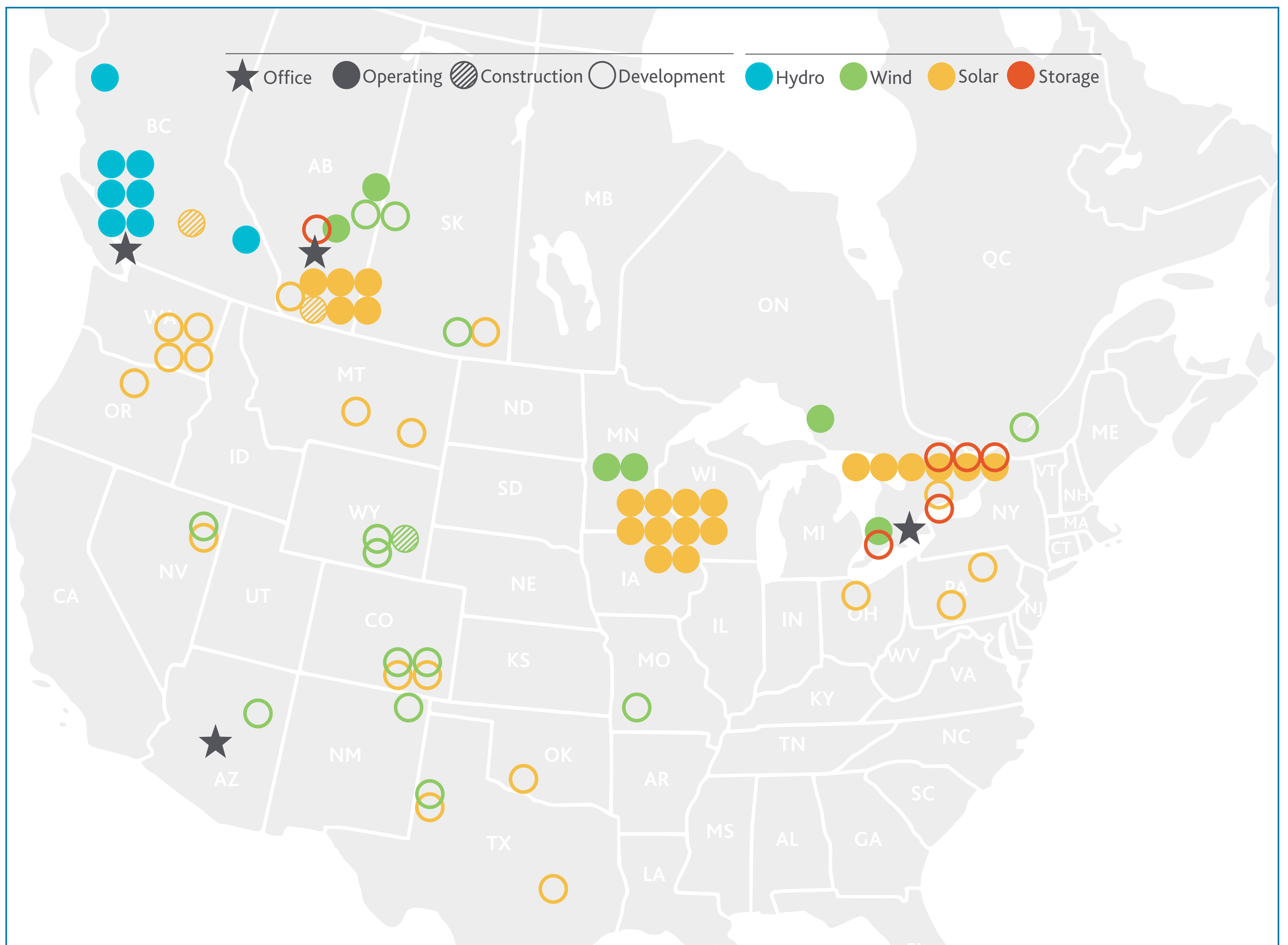


About BluEarth Renewables

BluEarth Renewables brings together extraordinary people with the power to change the future™ 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_{AC} (gross) in operation, under construction and contracted pre-construction, and over 8 GW of high-quality development projects that are actively being advanced.

For more information, visit blueearthrenewables.com.

Our Portfolio



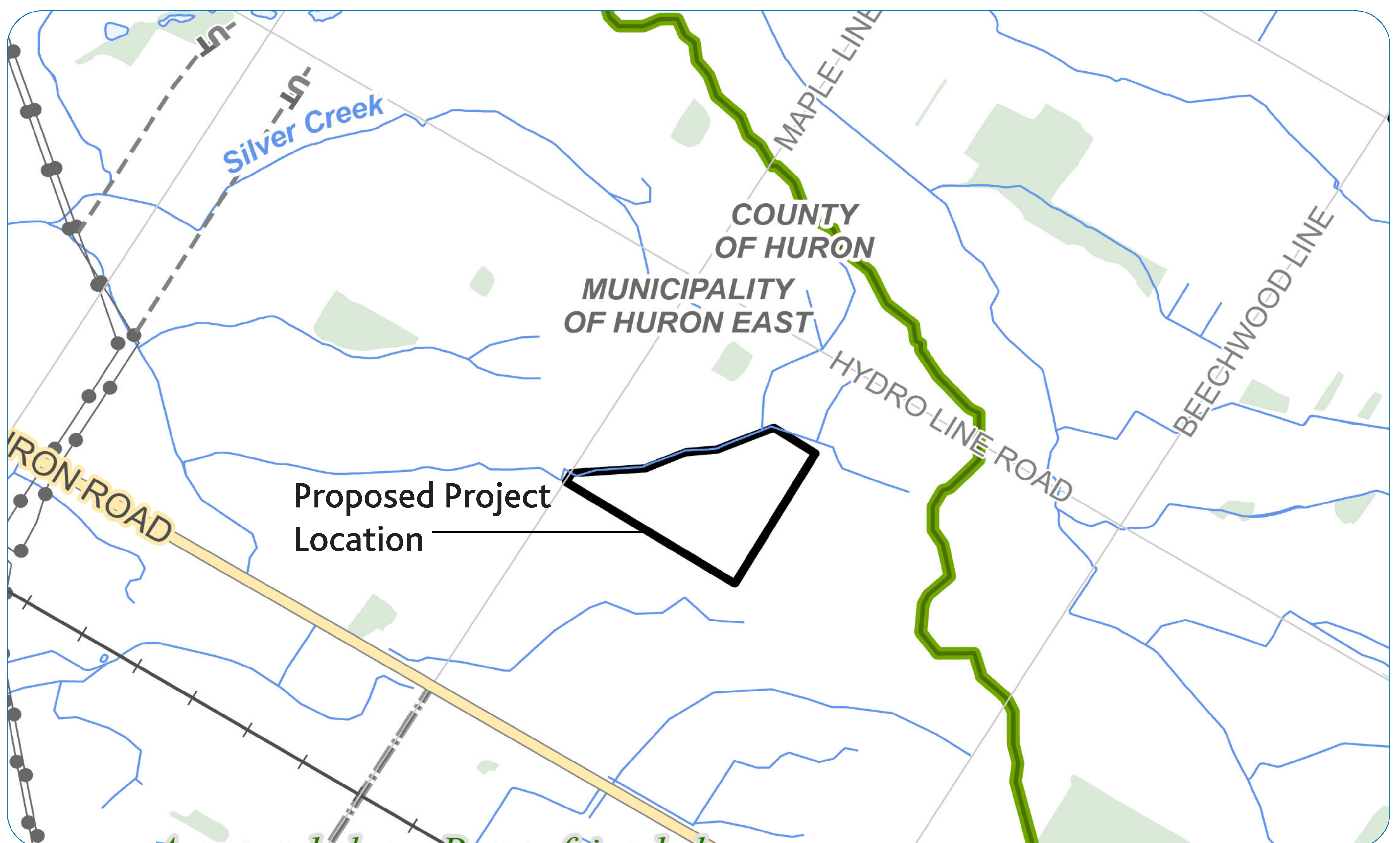
Power to Change THE FUTURE™

Seaforth Energy Storage Project

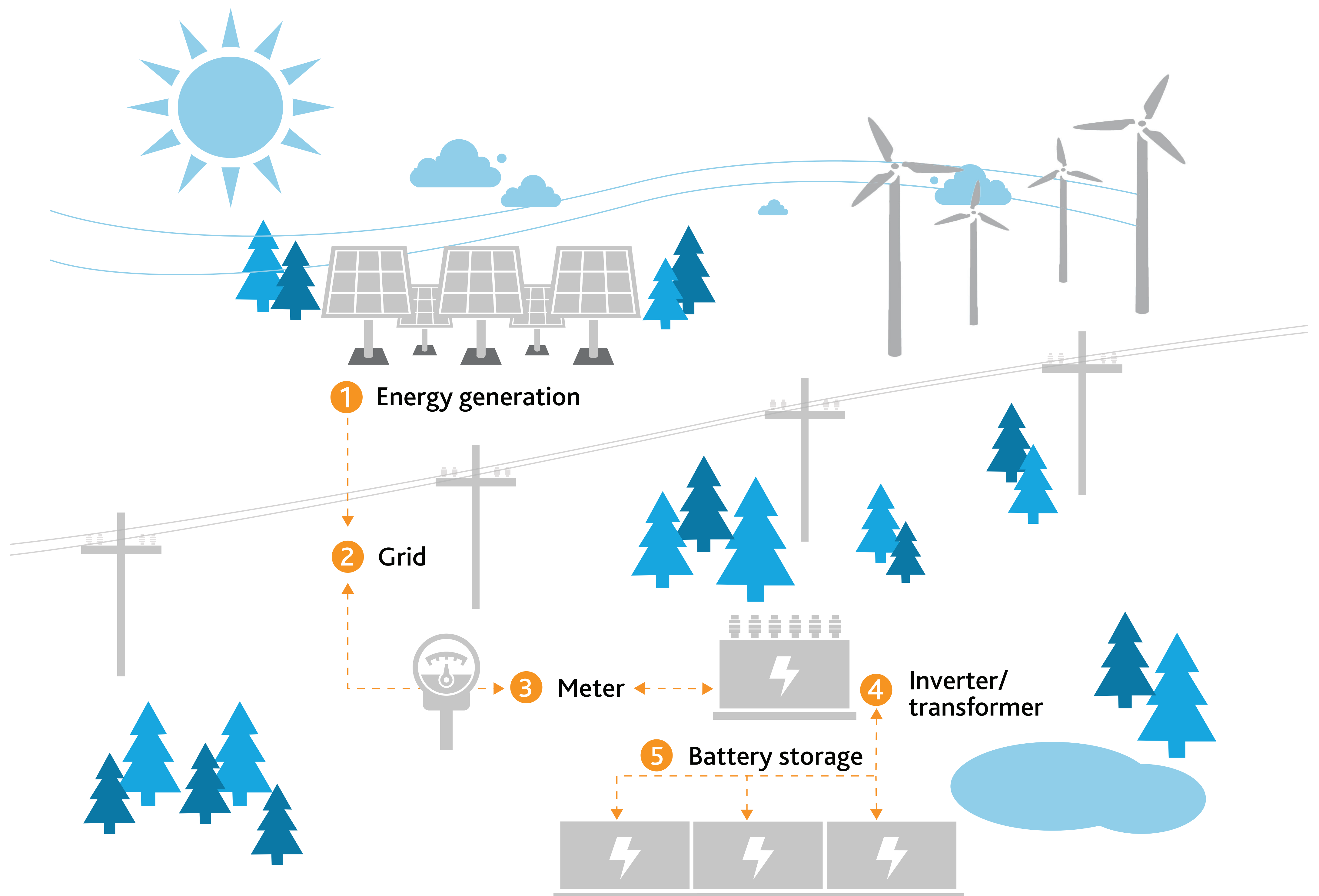
Project Description

The Seaforth Storage Project has a nameplate capacity of 200 MW, which is enough to power approximately 184,000 homes in Ontario for four hours during times of grid instability.

- The proposed Project is located on leased land within the Municipality of Huron East, approximately 4 km from the town of Seaforth.
- 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 200 MW/800 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.

Seaforth Energy Storage Project

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.

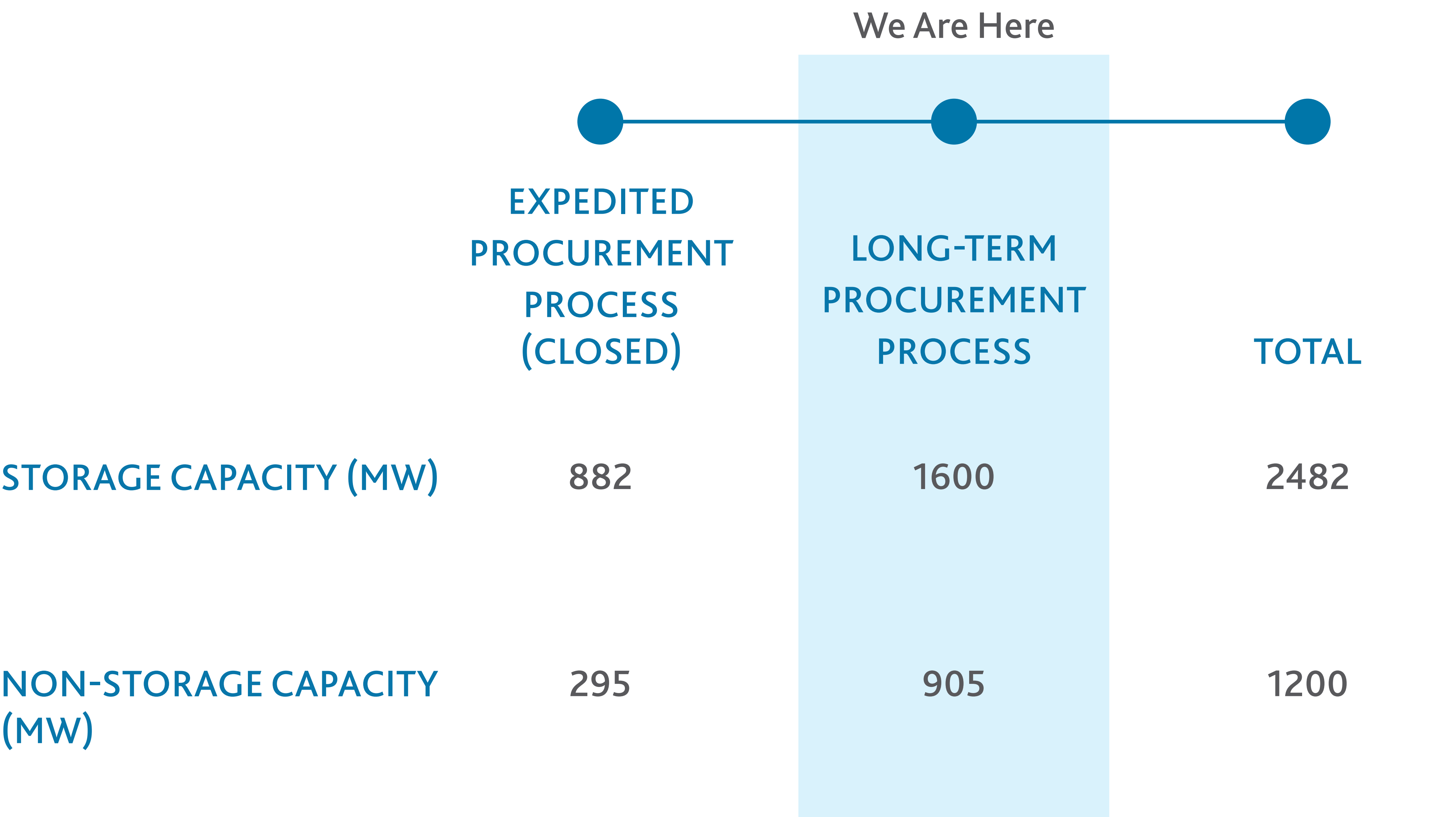
Balance of electrical equipment includes a project substation with High Voltage (HV) metering, breakers, main power transformer and control building. Alternating current (AC) collection cables are used to interconnect the project substation to the battery system rows.



Why Storage?

The Seaforth Storage Project is being proposed in response to the Independent Electricity System Operator’s (IESO) goal to secure approximately 2500 MW of new capacity through competitive procurement processes.

- The process is being undertaken by the IESO to address an upcoming period of emerging electricity needs in the province driven by increased demand, the retirement of the Pickering nuclear plant, the refurbishment of other nuclear generating units, as well as contracts for existing generation facilities that will be expiring in the next few years.
- 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.



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 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 200 MW, which is enough to power approximately 184,000 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.

Seaforth Energy Storage Project

Benefits of Energy Storage

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



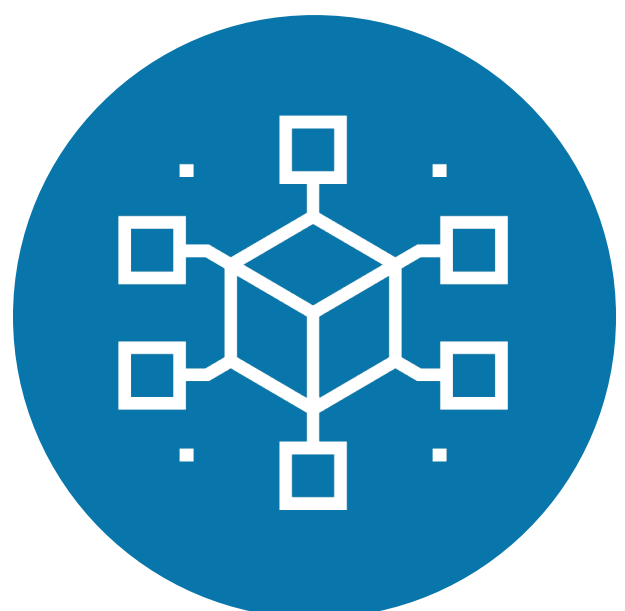
Cost savings

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.

Environmental Assessment

We are pursuing an extensive field study program for the Project and our team is committed to incorporating the information obtained from field studies into the Project design to ensure that impacts to wildlife and wildlife habitats are avoided or minimized.

Based on initial feedback provided from regulatory agencies and stakeholders on the Project, we are planning or have completed the following studies/assessments:

- Environmental field studies and habitat verification (Completed Spring/Summer 2023)
- Archaeological assessment
- Cultural heritage evaluation
- Hydrology study
- Waterbody assessment to support potential Ausable Bayfield Conservation Authority permitting
- Visual impact modeling
- Stormwater management assessment
- Acoustic modeling
- Air quality dispersion modeling and risk assessment

The results of these studies, the majority of which will be completed in 2023, will inform the overall site design and regulatory schedule. Below is a high-level schedule for obtaining the main approvals/permits for the Project:

- Environmental Assessment (EA) Screening: Oct – Nov 2023
- Ministry of Tourism Culture and Sport (MTCS) Cultural Heritage Confirmation Letter: Oct – Nov 2023
- MTCS Archaeological Assessment Confirmation Letter: Oct – Nov 2023
- Environmental Compliance Assessment (ECA) Approval: Oct – Dec 2025
- Environmental Activity and Sector Registry (EASR) Registration: Oct – Dec 2025
- Ausable Bayfield Conservation Authority Permit (if required): Oct – Dec 2025
- Municipality of Huron East Site Plan Application and Approval: Oct – Dec 2025

Stormwater Management

Minimizing and mitigating potential stormwater impacts are top of mind for BluEarth and we are planning to complete geotechnical and hydrology studies in the Project area to better understand the existing conditions and potential impacts associated with Project activities.

The results of these studies will be used to inform the overall design of the facility, including the development of a stormwater management plan. The stormwater management, erosion, and sediment control mitigations included within the stormwater management plan will also be incorporated into the Environmental Protection Plan (EPP) for the Project. The EPP will ensure that all potential impacts are appropriately mitigated throughout all phases of the Project, including ensuring that adjacent properties are not impacted by runoff from the proposed Project site.

BluEarth will also be likely seeking an Environmental Compliance Approval from the Ministry of Environment and Parks (MECP) for potential impacts to stormwater management systems. The timing of these studies is dependent on the results of the IESO procurement, which we expect to receive in May/June 2024.

The Project is still in the early stage of development and final site design will be informed by studies, such as those mentioned above.



Fire Protection

Ensuring the safe operations of all our facilities is of the utmost importance to BluEarth. We place the safety of the community, our team, and our projects above all else.

The storage system and battery containers are designed with fire detection and suppression capabilities. In addition, all BluEarth facilities have a site-specific emergency response plan (ERP) and a plan would be developed specifically for this proposed facility which will consider the battery technology selected and the overall design and layout of the Project, including access points. In the event of a fire, emergency services would be called and would focus on preventative measures to ensure nothing else is impacted.

The BESS technology for this Project is still being finalized, however BluEarth is looking at technology that has the following safety features:

- Heat detector
- Smoke detector
- Combustible gas detector (CO, G2, CHx)
- Fire suppression (dry gas)
- Strobe and horn alarms
- Local and remote emergency shutoffs (BluEarth has 24/7 remote operations monitoring and four local operations staff in the area)
- Thermal management
 - Liquid cooling/heating for batteries
 - Air cooling for electrical components
 - Humidity control

BluEarth will engage with the local fire department and emergency service providers throughout the development of the Project to receive input on the overall site design and layout, as well as the emergency response plan. We are committed to ensuring that these service providers are adequately resourced and trained to respond to any emergency event(s) associated with the Project.

Seaforth Energy Storage Project

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 200 MW, with a targeted storage duration of four hours. That equates to energy storage capacity of approximately 800 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 size are the battery structures? How many will there be?

The exact number of battery containers is still being determined and is contingent on both the battery supplier and the Project capacity. Our preliminary estimates assume 400 containers. The proposed battery structures are similar to a sea can, and the dimensions are roughly 6 m long x 2.5 m wide x 3 m wide.

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.

Seaforth Energy Storage Project

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 June 2024. Tentative Project schedule dates based on this milestone date are outlined in the table below.

Project Milestone/Activity	Timeline
RFP Submission	December 2023
RFP Contract Award	May/June 2024 (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	October 2026 - May 2027
Commercial Operation	May 2027

The background of the entire slide is a photograph of a grassy field with several large, light-colored storage containers in the distance under a clear blue sky. The text is overlaid on this image.

Thank you for attending!

We appreciate the opportunity to share more information with you about the Seaforth 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

Email: projects@blueearth.ca

Phone: 1-844-214-2578

ATTACHMENT 4 - ENERGY STORAGE FACT SHEET

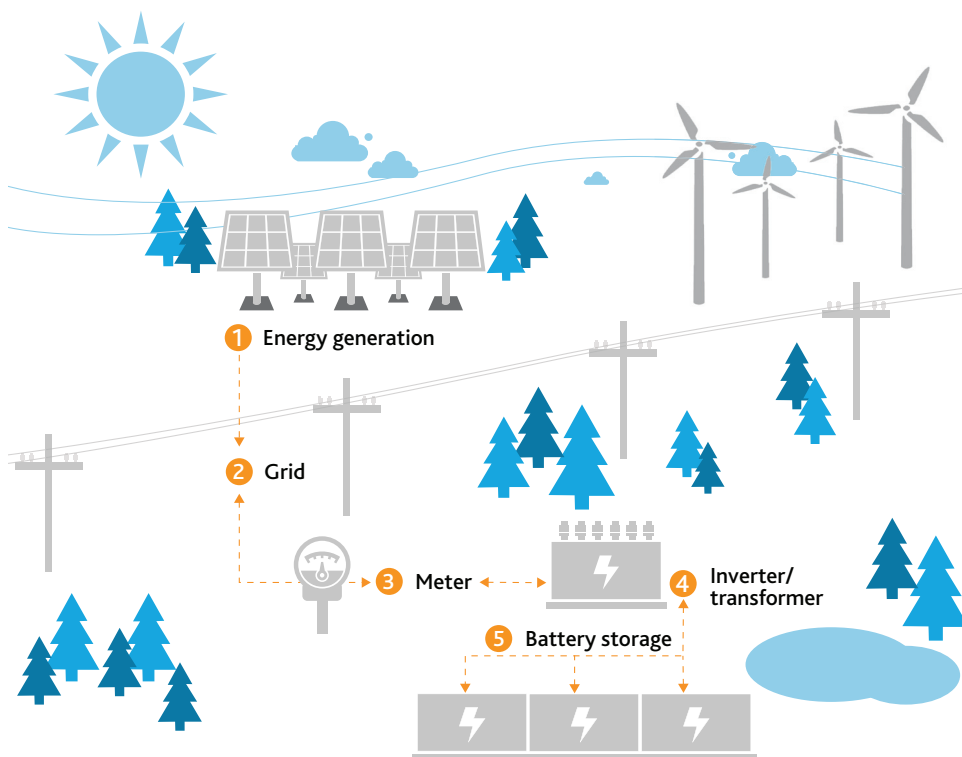
Energy Storage 101

Building an Energy Storage Facility

The steps to construct an energy storage facility include:

- **Civil Works.** The ground area is prepared to ensure the facility is built on a flat surface.
- **Perimeter Fencing.** A fence and safety signage is installed around the perimeter of the facility.
- **Foundation Work.** Concrete slabs will be installed as foundations that will accommodate the battery modules and electrical components.
- **Battery Installation.** Modular containers that host the batteries are installed in conjunction with a power conversion system (PCS) and medium voltage (MV) transformer.
- **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.

How does an Energy Storage Facility 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.

Did you know?

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.

Frequently Asked Questions

Battery Storage

What is energy 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.

Why is energy storage needed?

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 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.

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 200 MW, with a targeted storage duration of four hours. That equates to energy storage capacity of approximately 800 MWh, which is enough to power approximately 184,000 homes in Ontario for four hours during times of grid instability.

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.

**If you have additional questions, please reach out to our Project Team at 1-844-214-2578 or projects@bluearth.ca.
To learn more about BluEarth and what community partners think about working with us,
[visit our YouTube channel.](#)**

