

WaterCharger Battery Storage Project

October 2021
Project Information Newsletter

Introduction

TransAlta Corporation (“TransAlta”) is proposing the construction of the WaterCharger Battery Storage Project (“the Project”) located on the south side of the Ghost Hydro-electric facility. TransAlta wishes to develop this Project to provide reliable electricity service to the Alberta electrical grid and support the development of additional renewable energy for Albertans.



The Project will cover an area of approximately nine acres on TransAlta owned lands that are part of the Ghost Hydro-electric facility. The approximate site location is shown in the above photograph.

Why Battery Storage?

This Project can provide critical support for the electricity grid by storing renewable energy generated at times of low demand for deployment when there are periods of higher demand.

Project Location

The Project is located on approximately nine acres of land at TransAlta’s Ghost Hydro-electric facility in Rocky View County (about 18 kilometers west of the Town of Cochrane). A detailed map showing the location of the Project is provided on page eight.

Project Capacity and Development

TransAlta anticipates constructing the Project in two phases to store up to a maximum of 180 megawatts ("MW") of power to provide support to the Alberta Interconnected Electric System ("AIES").

- Phase 1 (2021-2023) – 80-100 MW
 - As outlined in the map on page eight, the first phase of the battery Project will have a capacity of 80-100 MW on approximately three acres of land with an anticipated operation date in 2023.
- Phase 2 (Potentially 2025) – 80-100 MW
 - Depending on future market conditions and available technology, the second phase will have a similar capacity and will be located east of the Phase 1 site.

The battery facility will typically be charged by electricity produced by the existing Ghost Hydro-electric facility when demand is lower, for example at night. The electricity stored within the battery will be used to support the reliability of Alberta's electricity grid.

Battery Energy Storage System

TransAlta continues to review different battery manufacturers to select a battery that utilizes industry-leading technology taking into consideration safety, reliability and performance. The modules that house the battery can vary in size depending on the manufacturer but will generally look similar when placed together within the fence line of the storage site.



Although TransAlta is determining the battery vendor to be used, the 3D architectural rendering above provides a potential visual of the Project layout at the site.

Modules may vary per phase and the 3D architectural rendering on the previous page shows complete usage of the area, however the space may not be completely filled depending on the battery manufacturer that is chosen. TransAlta anticipates the size of the modules will be in the ranges noted below. The dimensions will be finalized once a battery type is determined.

Width	Depth	Height
5 - 10 meters	1 - 35 meters	2 - 3 meters

Depending on the type of battery storage technology used, the number of modules anticipated for both Project phases would not exceed 200 modules.

Proposed On-site Equipment

The majority of the onsite equipment will be the individual battery modules as described above, but will also include medium-voltage step-up transformers, an electrical collection system, switchgear, automation and controls and a connection to the substation. The connection to the existing substation is expected to be through a distribution line(s) at 13.8 kV or 34.5 kV as shown in the orange boundary in the map on page eight.



Battery modules located at TransAlta's 10 MW WindCharger facility in southern Alberta - the first utility-scale lithium-ion battery storage facility in Alberta.

Connection to AIES

TransAlta is working with the Transmission Facility Owner and the Alberta Electric System Operator to understand potential options that may exist to connect at, or adjacent to, the Ghost substation. Once a connection is determined it will be shared with the public for feedback.

Project Construction

After receipt of regulatory approvals, the first phase of Project construction is expected to commence in the second quarter of 2023. Construction will continue into the third quarter of 2023, with commissioning and commercial operations scheduled for the fourth quarter of 2023. A construction workforce of approximately 60-80 people will be on site during the peak construction period in either the second or third quarter of 2023. A second phase of the battery storage modules may be constructed starting in the 2025 timeframe however, this timeframe is subject to change.

Environmental Assessments

The following field surveys were completed from the spring to the fall of 2021:

- Amphibian surveys
- Wildlife sweep, including raptors
- Early rare plant survey and vegetation assessment
- Sharp-tailed grouse survey
- Topsoil survey
- Wetland survey

The results of the assessments completed so far indicate that no species at risk were found in the immediate area. The Project will also not impact any identified wetlands.

Additionally, a Historical Resources Impact Assessment (“HRIA”) will be completed in the fall of 2021 to ensure no historical resources could be impacted. Findings of the HRIA will be included within the Alberta Utilities Commission (“AUC”) application.

The Project does not require water and there will be no impact to river flows and/or fish and fish habitat.

Noise Impact Assessment

A Noise Impact Assessment (“NIA”) will be conducted in the fall of 2021. The NIA will evaluate the potential noise impacts taking into consideration existing and proposed infrastructure in the area. The Project has a low noise profile and it is expected that the NIA will confirm that the Project will meet the permissible sound levels per the Alberta Utilities Commission Rule 012: Noise Control. A copy of the NIA will be included as part of the AUC application.

Regulatory Requirements

TransAlta is planning to file its Project application to the AUC in December 2021. Prior to filing our AUC application, TransAlta is seeking feedback related to the Project from Indigenous groups and local stakeholders. Please forward any questions or concerns to the Project email at: TransAltaWaterCharger@maskwaenv.com or telephone: **1-888-893-8054**.

The AUC is committed to ensuring that Albertans whose rights may be directly and adversely affected by a project are informed of the application and have the opportunity to have their concerns, heard, understood and considered. We recommend a review of the AUC brochure - [Participating in the AUC's independent review process](#), which provides an overview of the application process.

If you have questions regarding the AUC's process, please contact the AUC at: 310-4282 (in Alberta) or 1-833-511-4282 (outside Alberta) or by email at: info@auc.ab.ca

Alternatively, for additional information visit the AUC's website at: www.auc.ab.ca

Development and building permits will be filed with Rocky View County as required.

Preliminary Project Schedule (Subject to Change)

	Q2/Q3 2021	Q4 2021	2022	2023	2025
Environmental assessments					
Stakeholder & Indigenous engagement					
AUC application submission					
Receipt of approvals & permits			Q2/Q3		
1 st Phase Construction				Q2/Q3	
1 st Phase Commissioning				Q4	
2 nd Phase Construction (TBD)					

Emergency Response Plan

TransAlta maintains detailed Hydro Emergency Response Guides for its hydro-electric facilities with specific information for each facility. The Hydro Emergency Response Guides provide detailed actions for TransAlta personnel to take in the event of a medical emergency, a dam breach or flooding, fire and evacuation, an environmental spill and security incidents. TransAlta also maintains Emergency Response Preparedness Plans and shares these plans with Indigenous groups, municipalities and other stakeholders.

TransAlta will review the Emergency Response Plan for the Ghost Hydro-electric site and adjust as required to ensure detailed plans are developed for the battery energy storage facility. Emergency response training sessions for the battery facility will be provided for local authorities (Rocky View County and the Municipal District of Bighorn) and Indigenous groups as necessary.

Questions and Answers

1. Why did you choose the Ghost Hydro-electric facility for the location of the WaterCharger Project?

TransAlta took into consideration several criteria when evaluating our different hydro-electric sites within Alberta. The criteria included environmental impacts, flooding risks and other hazards, transmission capacity, terrain and land availability. The Ghost Hydro-electric facility was the most viable choice taking into consideration the selection criteria.

2. Do the batteries create any emissions?

Normal operation of the battery storage facility will not result in any emissions and will provide support for non-emitting renewable generation on the Alberta electricity grid.

3. Is there any waste from the battery modules that could leach into the ground?

TransAlta is selecting the batteries keeping safety top-of-mind and no waste is produced from the batteries during normal operation. The battery is self-contained and TransAlta will perform ongoing maintenance and inspections to ensure the integrity of the system.

4. What is the lifespan of the batteries?

The batteries are projected to have a lifespan of 20-25 years and at the end of their useful life, the batteries will be disposed of or recycled in a safe manner according to environmental regulations and the manufacturer's recycling programs.

5. Will the operation of the batteries change water flow in the Bow River?

The Project will not impact river flows and/or fish and fish habitat in the Bow River. In addition, the Project does not require water for operations.

6. Are the battery units noisy?

While TransAlta has not yet selected the specific battery vendor, in general, battery energy storage systems have a low noise profile as there are limited moving parts in each module with the exception of the Heating, Ventilation and Cooling (HVAC) systems. Since the HVAC system is enclosed within each battery storage module, noise is minimal.

Questions and Answers (continued)

TransAlta is preparing a (NIA) for the Project. The NIA will evaluate the potential noise impacts taking into consideration existing and proposed infrastructure in the area. The NIA will confirm that the Project will meet the permissible sound levels per the Alberta Utilities Commission Rule 012: Noise Control. A copy of the NIA will be included as part of the AUC application.

7. What steps is TransAlta taking to maintain a safe battery storage facility?

Safety is paramount to TransAlta and is considered in determining the type of battery, the placement of the batteries, our emergency response plans and throughout the construction and operation of the facility. TransAlta will prepare emergency response plans for the battery storage facility and local first responders will be provided with information and training on how to respond in the unlikely event of a fire or other emergency.

8. How do you determine the placement of the battery modules?

TransAlta is working with an engineering firm on the front-end engineering and design and part of this analysis includes the selection of the battery storage manufacturer. Once the front-end engineering and design is complete and a manufacturer is selected, TransAlta intends to provide details regarding the footprint and the placement of the battery modules within its application to the AUC.

9. What type of foundation will the batteries be built onto?

Foundations for battery energy storage systems are typically concrete slabs however, soil conditions may require steel-pile foundations with a steel skid or platform on top.

10. How many workers will be on site during the construction period?

TransAlta is anticipating there will be approximately 60-80 workers on site during the peak construction period for the first phase of the Project.

11. What type of equipment will be onsite during construction?

Typical equipment anticipated during construction may include flat-bed trucks, skid steers, fork lifts, excavators, compaction machines, pile drivers, concrete trucks and cranes. Size and quantity of the equipment may vary depending on the type of battery installation.

Questions? Comments? Concerns?

If you have any questions about the WaterCharger Project please contact TransAlta at:

Information about the Project is available on our website www.transalta.com/projects-in-development

Email:

TransAltaWaterCharger@maskwaenv.com

Phone:

1-888-893-8054

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Project Overview

Project Map



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