

# Cascade Renewable Transmission Project

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Presentation ~ Community Renewable Energy Association

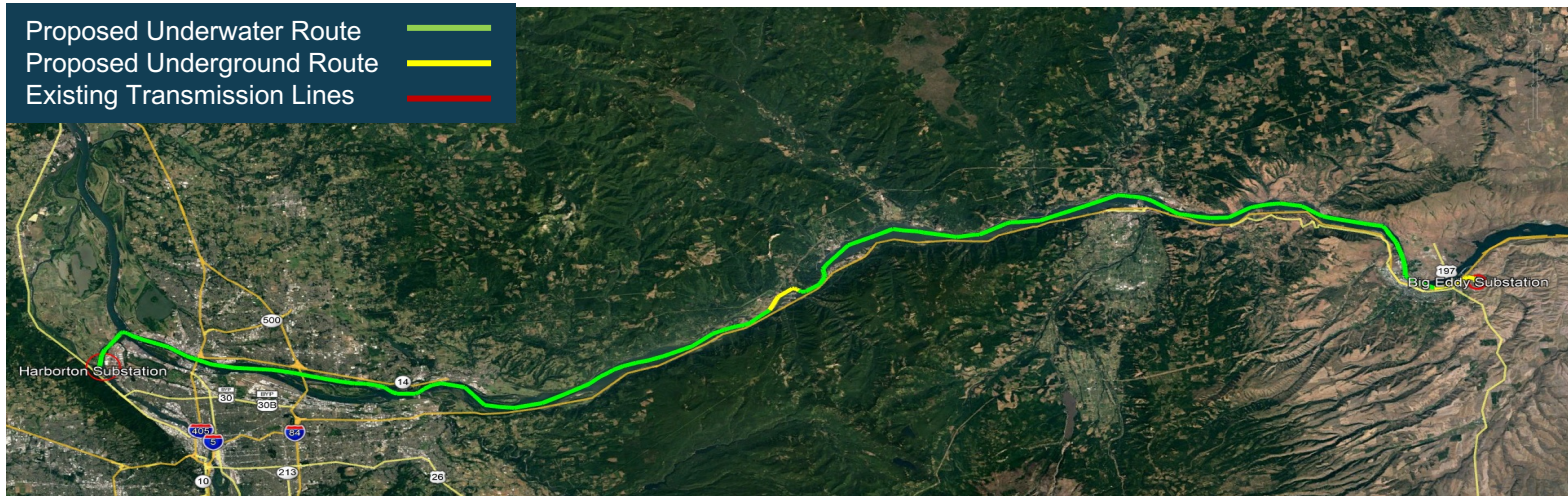
April 9, 2021

# Executive Summary

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- Cascade Renewable Transmission, LLC is developing the Cascade Renewable Transmission System, a 1,100MW (+/-10%) HVDC transmission line running ~100 miles between The Dalles and greater Portland, Oregon (“Cascade Project” or “Project”)
- Cascade Project offers numerous benefits for the Pacific Northwest, including:
  - A secure new pathway for delivering affordable renewable energy generation from east of the Cascades to the I-5 load corridor to meet growing demand and public policy requirements
  - New jobs for project construction, plus the potential for hundreds of additional jobs to build and operate new renewable generation facilities that will use the new transmission capacity and provide permanent economic tax bases east of the Cascades
  - Proven state-of-the-art HVDC technology, with additional black start capability available, that enhances the stability and reliability of the transmission system in addition to increasing transmission capacity
- Cascade Project will be installed entirely underground and underwater using proven non-invasive construction techniques, resulting in minimal impact on sensitive natural resources along the Columbia River corridor and enhanced resiliency to the risks of severe weather events and fires
- Experienced development team with success building and operating similar transmission facilities -- Neptune and Hudson -- in New York

# Project Route



## Western Interconnection (Harborton)

- Converter Station with direct connection to Harborton substation outside Portland
- Deliver renewable energy located east of the Cascades into Portland and up the I-5 corridor to Seattle

## Overview

- 1,100 MW (+/- 10%) line rating
- VSC HVDC System
- ~100 Miles underwater and underground
- Bridge the Cascade Mountains while minimizing environmental impact

## Eastern Interconnection (Big Eddy)

- Converter Station with direct connection to BPA's Big Eddy Substation outside The Dalles
- Source abundant renewable energy in the heart of BPA's transmission network

# Current Status

## Highlights

- Project Team is active in NorthernGrid and Project was accepted to be studied for inclusion in the first NorthernGrid Regional Transmission Plan
- Phase 1 Path Rating and Project Coordination initiated with WECC
- Pre-Feasibility study completed by leading regional consultant and no environmental, siting, or constructability fatal flaws identified along Project route
- Experienced development team, led by PowerBridge and Sun2o Partners, and committed development capital to move the Project forward
- Active discussion with key regional stakeholders, utilities, and regulators
- Dedicated [Project website](#) including educational materials

## Upcoming Milestones

- Extensive stakeholder outreach and feedback gathering initiated throughout Q2 2021
- Additional environmental and constructability studies underway to further evaluate any Project constraints and mitigation options
- Initiation of WECC Phase 2 Path Rating studies expected in early 2021
- NorthernGrid Draft Final Regional Transmission Plan expected Q4 2021
- Targeting Q1 2026 Commercial Operation Date

# Transmission Need Drivers

Long term Available Transfer Capacity (“ATC”) across the Cascades is insufficient to address five key regional drivers:

1

West of Cascades traditional load growth driven by the Seattle and Portland load centers

2

Retirement of the 1,340 MW Centralia Coal Plant located west of the Cascades

3

State climate policies requiring a significant ramp in renewable procurement

4

State climate policies driving electrification of buildings and transportation

5

Replacement of >4GW of east of Cascades ‘baseload’ generation with eastern renewables

Cascade Project can help the PNW meet climate policies while maintaining system reliability

# Renewable Energy Need

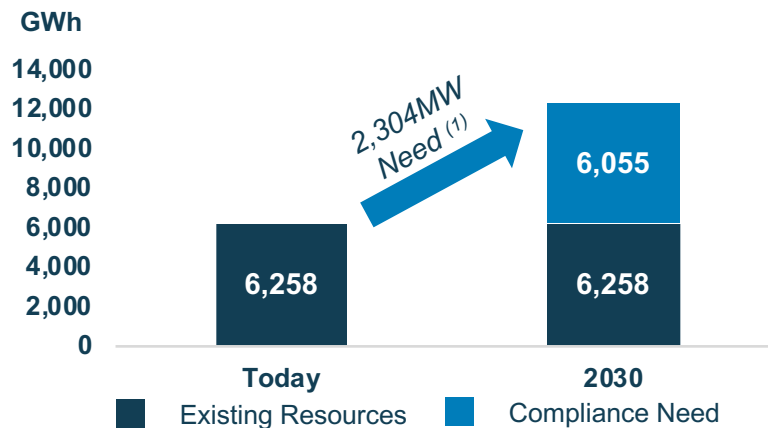
## Washington

- Washington utilities need to procure significant quantities of new renewable energy to meet Clean Energy Transformation Act (“CETA”) targets in 2030
- PSE has estimated a renewable energy shortfall of over 4GW of nameplate capacity by 2030
- Driven both by siting feasibility and economics, new renewable projects will be mainly located east of the Cascades

## Oregon

- Driven by a 50% 2040 Renewable Portfolio Standard (“RPS”), Oregon utilities such as PGE will need to continue large renewable energy procurement
- Beginning in 2022, PGE estimated it needs to procure up to 193MW of renewable capacity per year through 2040 to meet its requirements <sup>(2)</sup>

### PSE 2030 Renewable Energy Shortfall <sup>(1)</sup>

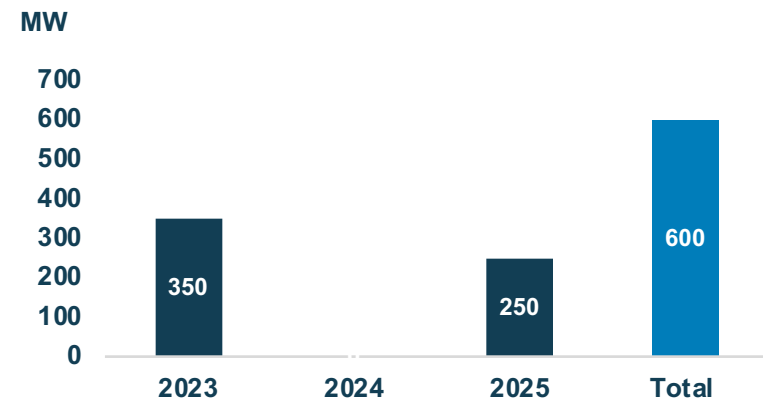


1) PSE 2021 Draft IRP, assuming 30% average resource capacity factor.

2) PGE 2019 IRP identified a yearly renewable energy need of 25-58 aMW. 193MW is 58 aMW and implied 30% resource capacity factor.

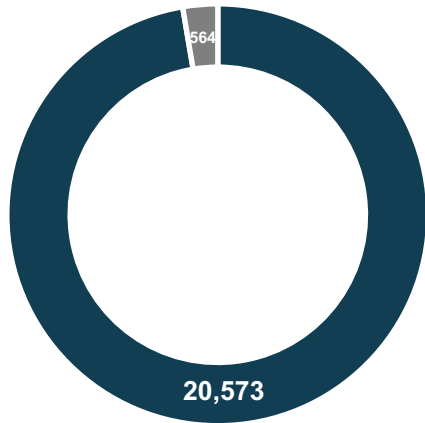
3) PGE Updated 2019 IRP Preferred Resource Plan.

### PGE Renewable Procurement Plan <sup>(3)</sup>



# Cross Cascade Constraint

## Renewable Interconnection Queue Analysis (MW)

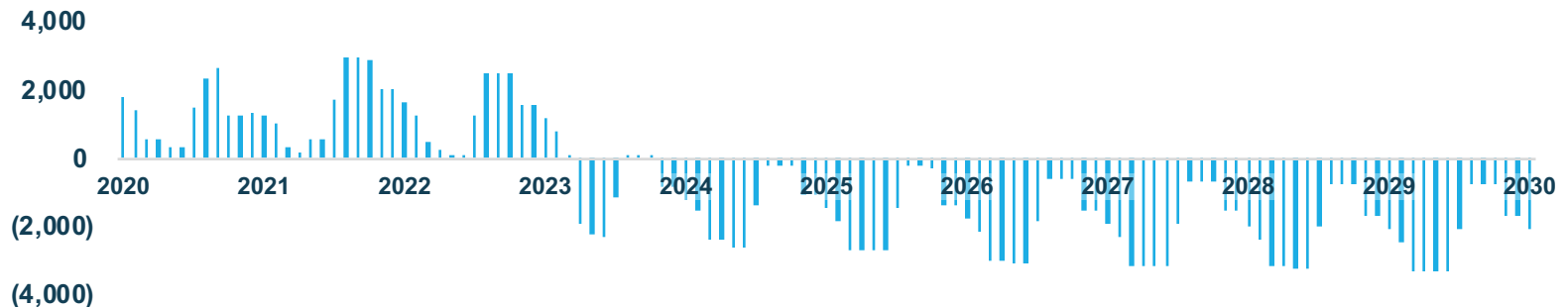


■ East of Cascades ■ West of Cascades

## Renewable Large Generator Queue Breakdown

| Utility      | East of Cascade (MW) | West of Cascade (MW) |
|--------------|----------------------|----------------------|
| BPA          | 13,913               | 427                  |
| PGE          | 5,930 <sup>(1)</sup> | 0                    |
| PSE          | 730 <sup>(1)</sup>   | 137                  |
| <b>Total</b> | <b>20,573</b>        | <b>564</b>           |

## BPA ATC Less Pending Queue on Cross Cascades South (MW)



**New Transmission is needed to deliver east of Cascade renewables to west of Cascade load centers**

Source: BPA ATC Less Pending Queue as of 9/25/2020, BPA Generator Interconnection Queue as of 10/10/2020, PGE Large Generator Interconnection Queue as of 10/10/2020, and PSE Interconnection Queue as of 10/10/2020. Includes interconnection requests Received, In Study, and Completed Study. Does not include Withdrawn or Energized projects or any proposed Energy Storage projects.

1) Note that PSE total does not include requests on the CTS in MT. CTS generator interconnection requests are included in the PGE total, but cleared from PSE total so that they are not double counted.

# Questions?

# Thank you

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