

Evolving Grid Project Portfolio Update

10/17/2024



Overview

- Background
- Project Criteria
- Project Descriptions
- Schedule
- Conclusion

Evolving Grid Projects Background

- Progressive de-carbonization policies in the states of Washington and Oregon, accelerated need for carbon-free resources, load growth accelerating due to high-tech industries, and operational challenges due to extreme temperatures are creating a rapidly evolving Northwest landscape.
- Last year, BPA brought forward a set of capital projects called the ‘Evolving Grid Projects’ to respond to this increasing demand of BPA for forward looking Transmission projects. With the next set of projects, BPA is continuing to pull commitment decisions forward in time to provide more certainty to the region regarding critical projects.
- Evolving Grid Projects are just one aspect of the larger [BPA’s Transmission Plan](#) to meet the needs of our customers by investing in our infrastructure and enabling economic growth in the region.

Project Criteria for Regional Needs

- Necessary main grid reinforcement regardless of specific generator locations
- Necessary for load service
- Excellent economics (supports BPA financial ability to support other activities)
- Provides transmission service for substantial MW of “mature” generation
- Supports regional resource diversity
- Supports network load growth and/or interconnection needs
- Avoids future (within 10-year horizon) reliability need/costs
- Regional level support of public policy

Evolving Grid Portfolio Review

- 11 EGP 1.0 projects currently underway
- 13 EGP 2.0 projects (NEW) in the initiation phase

EGP 1.0 Project Update



Project

Next Milestone

Cross-Cascades North: Schultz – Raver #3 & #4



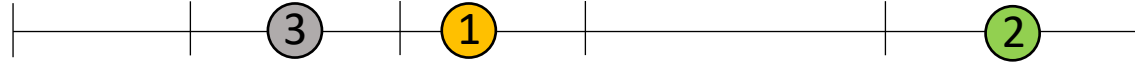
Project is moving into Scoping with the OC later this summer. ISD 2030

Cross-Cascades South: Big Eddy – Chemawa Rebuild



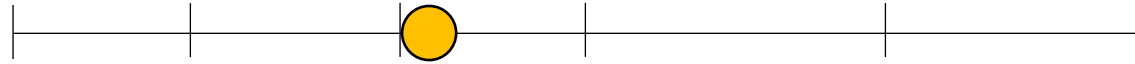
Project will be starting Scoping with the OC later this summer. ISD 2030

Portland Area: Multiple projects



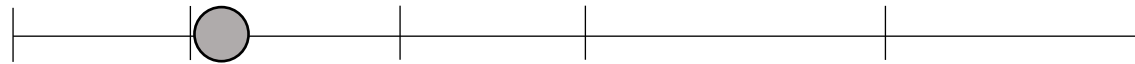
1. Pearl-Sherwood-Mcloughlin: Project is in Design with an estimated energization in early 2026. 2. Keeler-Horizon#2: Energized. 3. Keeler Transformer Addition: Project is in Scoping.

Raver-Paul: 230 kV Line Upgrade



Project has finished Scoping and will be starting Design later this summer. ISD 2028

Ross - Rivergate 230 kV Line Upgrade



Project will be starting Scoping with the OC later this summer. ISD 2030

Rock Creek – John Day 500 kV Line Upgrade



Project will be completing Scoping with the OC later this summer. ISD 2028

EGP 1.0 Project Update

Project



Next Milestone

SixMile 500/230kV Sub



Project is in Scoping. A feasible site has been selected. Longest Lead Material have been placed on order. Estimated energization in late 2027.

Bonanza 500/230 kV Sub



Project will be starting Scoping with the OC later this summer. ISD late 2027

La Pine – Bonanza 230 kV Line



Plan of Service is in development.

Buckley Sub Rebuild



Project is in Design. Estimated energization is 2028.

Longhorn 500/230 kV Sub



Project is under construction. Initial energization planned for December 2024 with final energization in April 2025.

Evolving Grid 2.0 Projects – Beyond 2030

Based on Preliminary Estimates, Estimated EGP 2.0 Cost:
~\$3B

Project Names

GRAND COULEE-COLUMBIA-SCHULTZ 500KV

SCHULTZ-OLYMPIA 500KV

CENTRAL OR 500KV DYNAMIC REACTIVE UPGRADES

RENO-ALTURAS REACTIVE ADDITION

NORTH OF MARION UPGRADE #1

NORTH OF MARION UPGRADE #2

NORTH OF PEARL 500KV UPGRADE

OSTRANDER-PEARL #1 UPGRADE

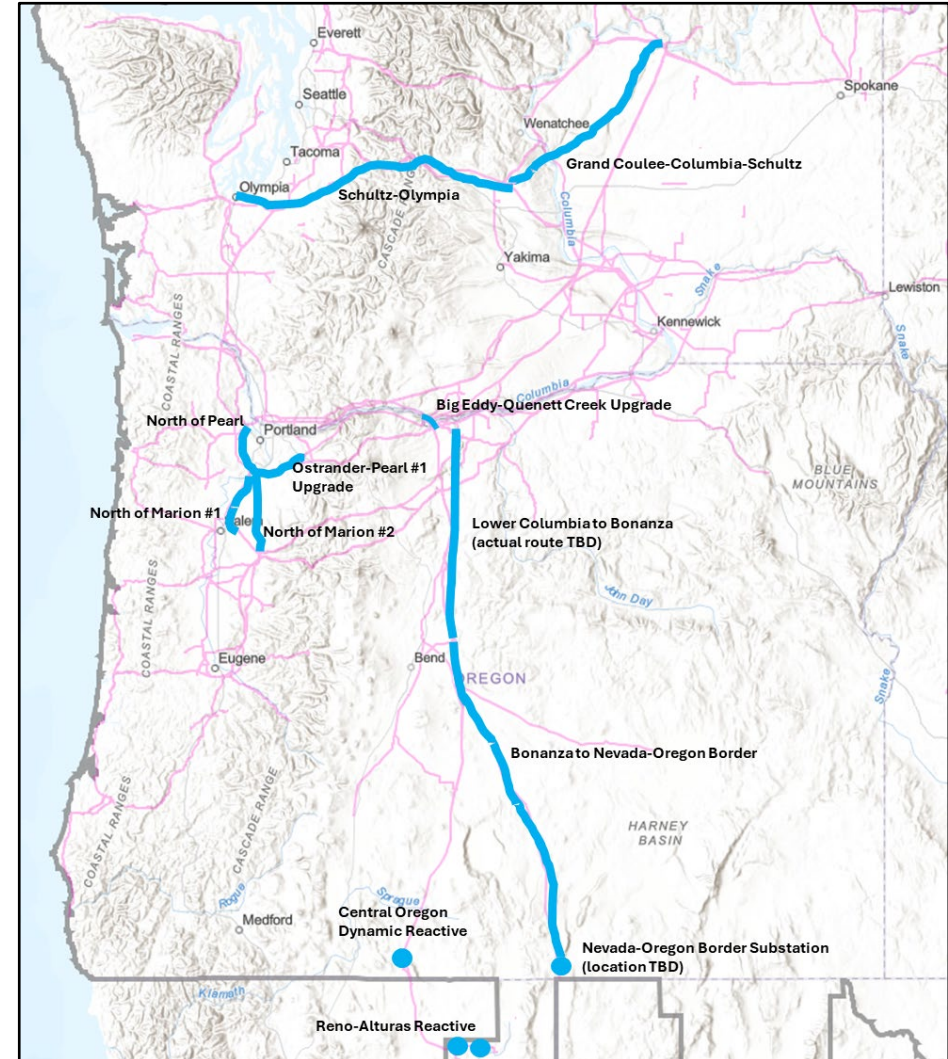
BIG EDDY-QUENETT CREEK UPGRADE

BIG EDDY-THE DALLES #1 REBUILD

LOWER COLUMBIA TO BONANZA

NEVADA/OREGON BORDER (NOB) SUBSTATION

BONANZA TO NOB

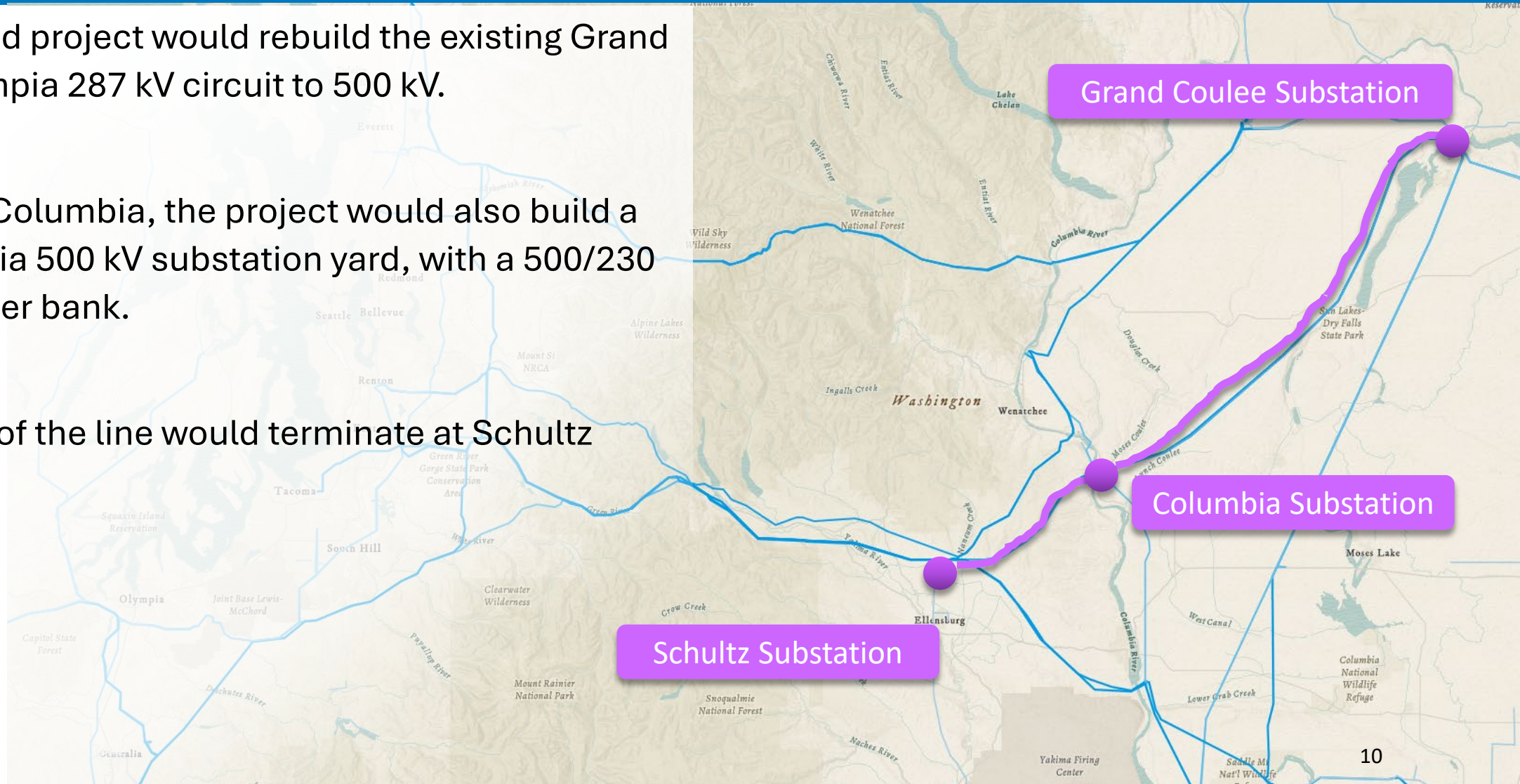


EGP 2.0 Project Initiation Timeline

- We've refined the 2.0 project list and the projects are approved to begin preliminary engineering through BPA's capital process.
- Each project may have various methods of funding (BPA funded sustain, Customer funded TSEP, or a combination).
- Once the projects are fully scoped, with plan of service and estimates matured, BPA plans to proceed with further approvals and share target completion dates.

Grand Coulee-Columbia-Schultz 500 kV

- This proposed project would rebuild the existing Grand Coulee-Olympia 287 kV circuit to 500 kV.
- To loop into Columbia, the project would also build a new Columbia 500 kV substation yard, with a 500/230 kV transformer bank.
- This section of the line would terminate at Schultz Substation.



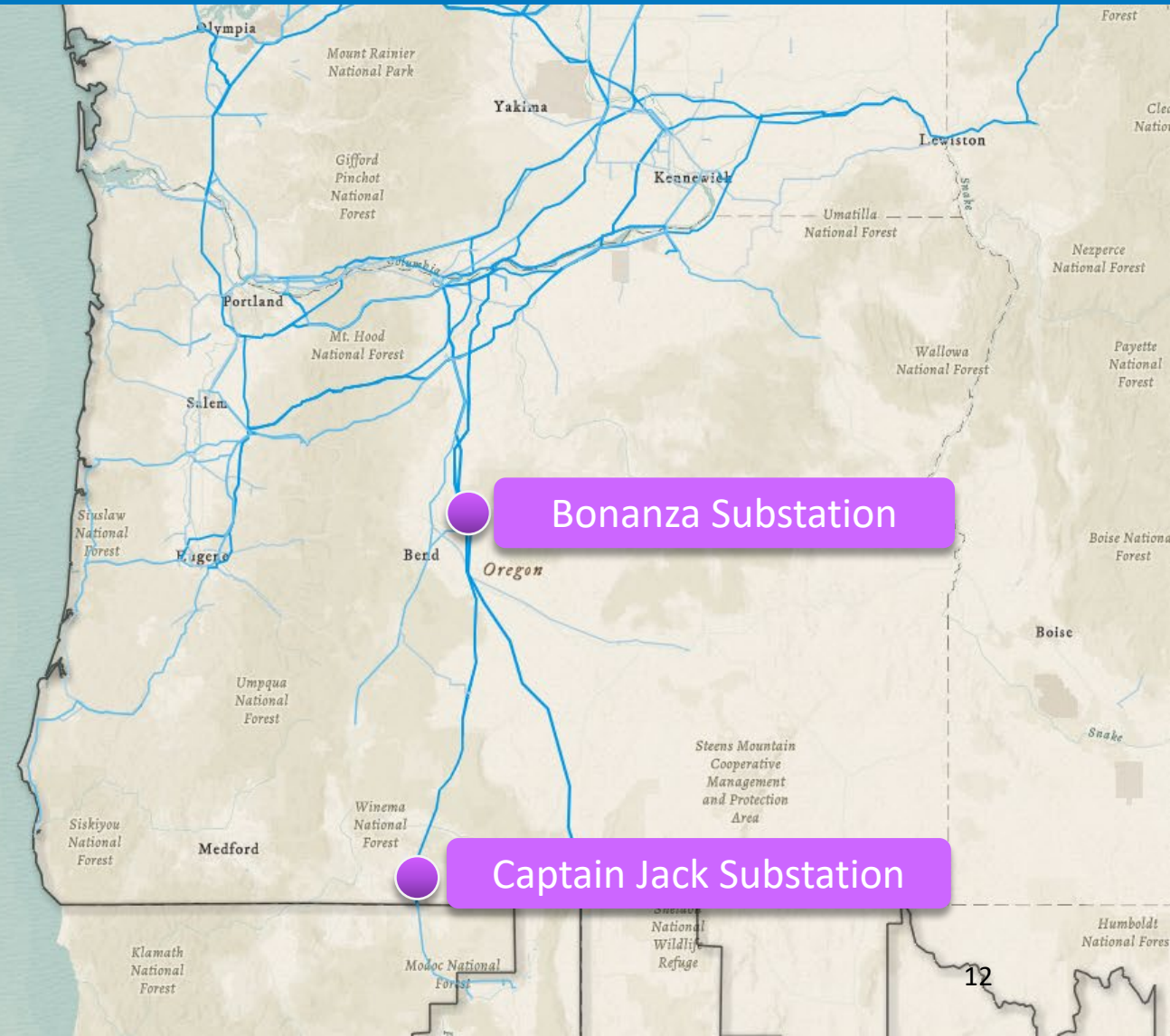
Schultz-Olympia 500 kV

- This proposed project would rebuild the Schultz-Olympia portion of the Coulee-Olympia 287 kV to 500 kV.
- The project would also include an expansion of an Olympia 500 kV yard, a new 500/230 kV transformer bank, and three new 500 kV shunt capacitors.



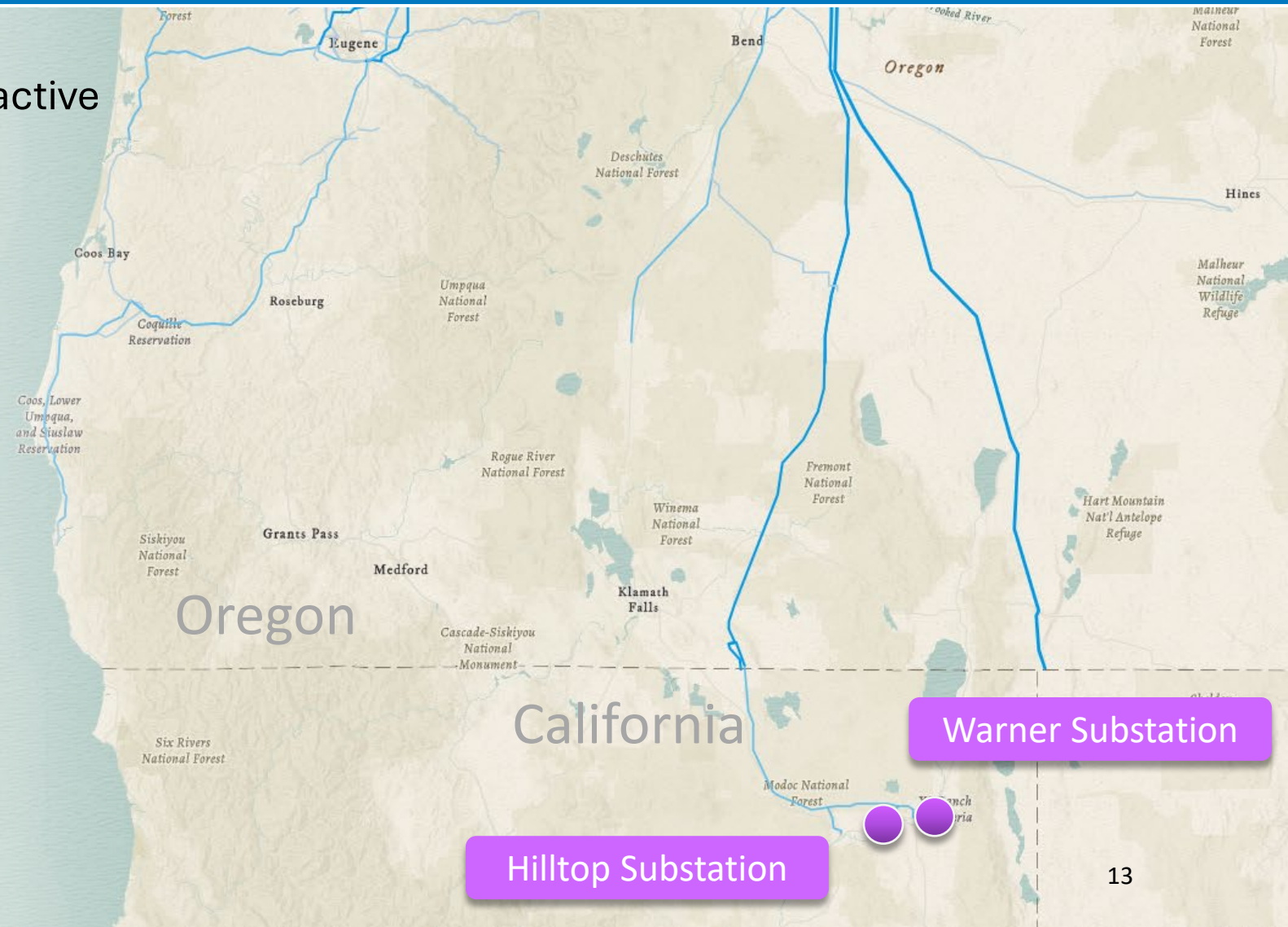
Central Oregon 500 kV Dynamic Reactive Upgrades

- This proposed project would install reactive support (STATCOM) at:
 - Central Oregon at Bonanza 500kV
 - Captain Jack 500 kV



Reno-Alturas Reactive Addition

- This proposed project would install reactive support (STATCOM) at:
 - Warner 115 kV
 - Hilltop 230 kV



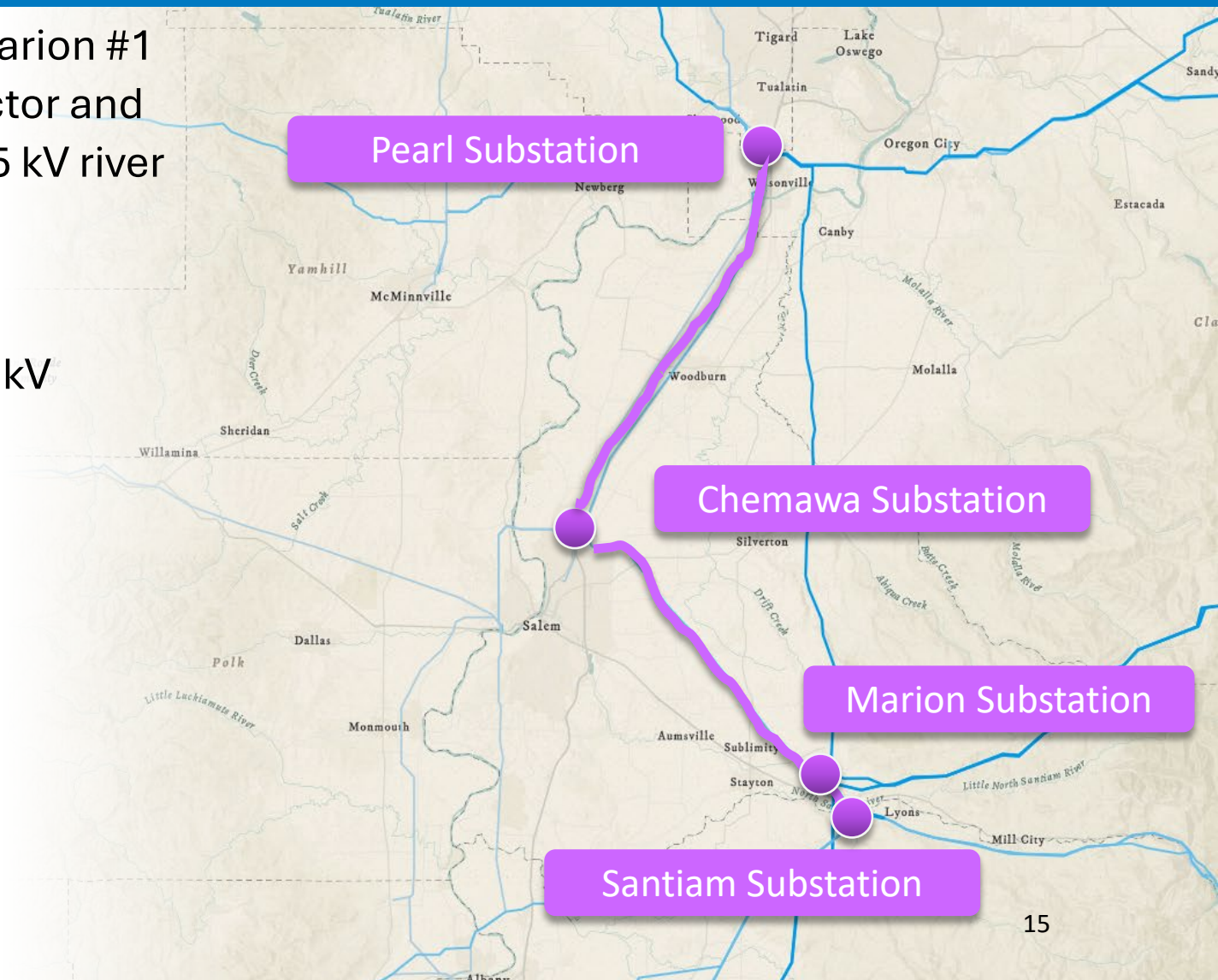
North of Marion Upgrade #1

- This proposed project would build on the Big Eddy-Chemawa project, constructing a new 500 kV yard at Chemawa, including a new 500/230 kV transformer bank.
- The project would also rebuild the Pearl – Chemawa section of Big Eddy-Chemawa from 230 kV to 500 kV.
- Additionally, the project would also rebuild the Chemawa – Santiam #1 from 230 kV to 500 kV.



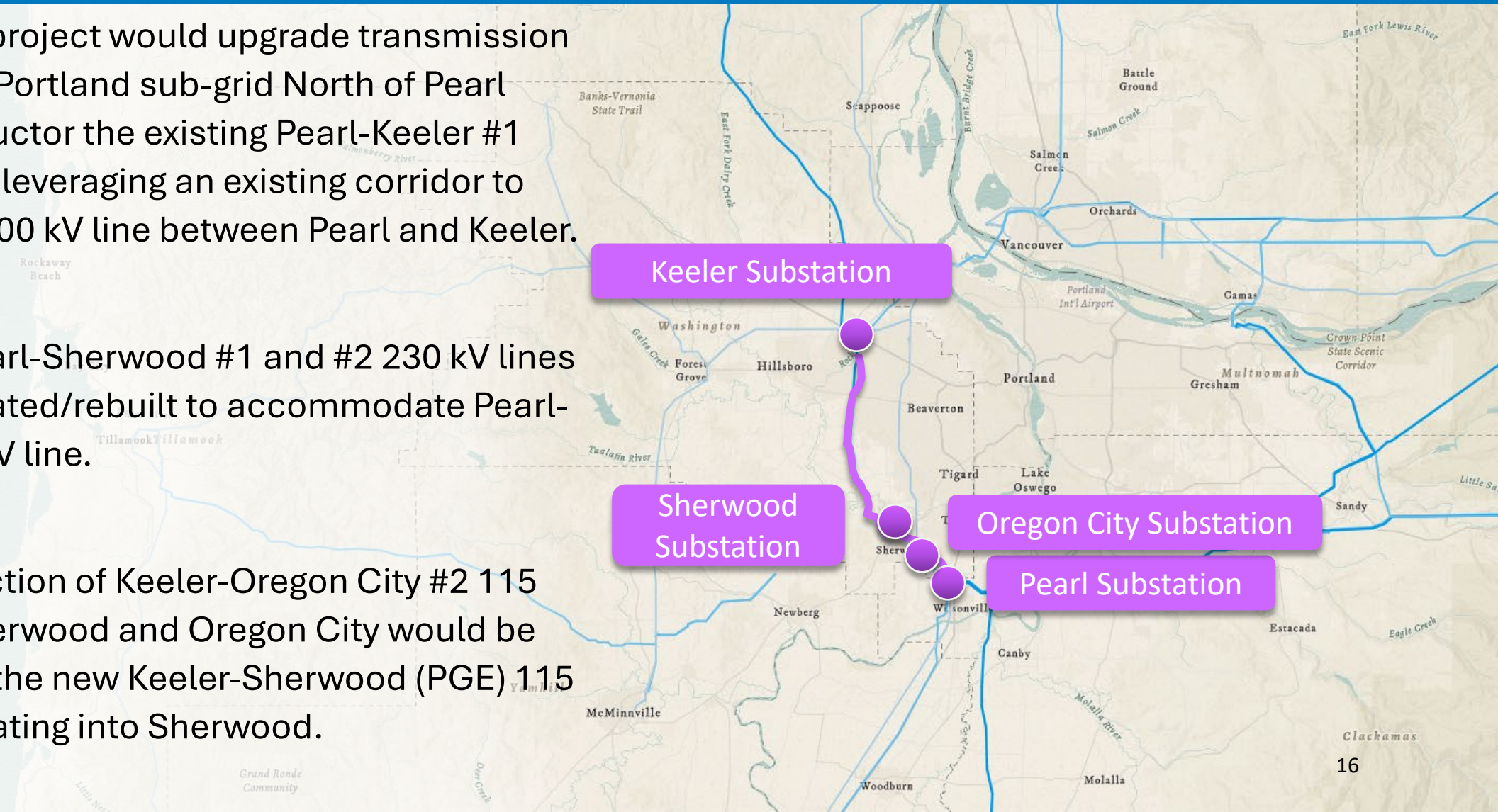
North of Marion Upgrade #2

- This proposed project would rebuild Pearl – Marion #1 500 kV and replace the 2.5” expanded conductor and would rebuild the Oregon City – Chemawa 115 kV river crossing.
- The project would also add a second 230/115 kV transformer bank at Chemawa Substation.



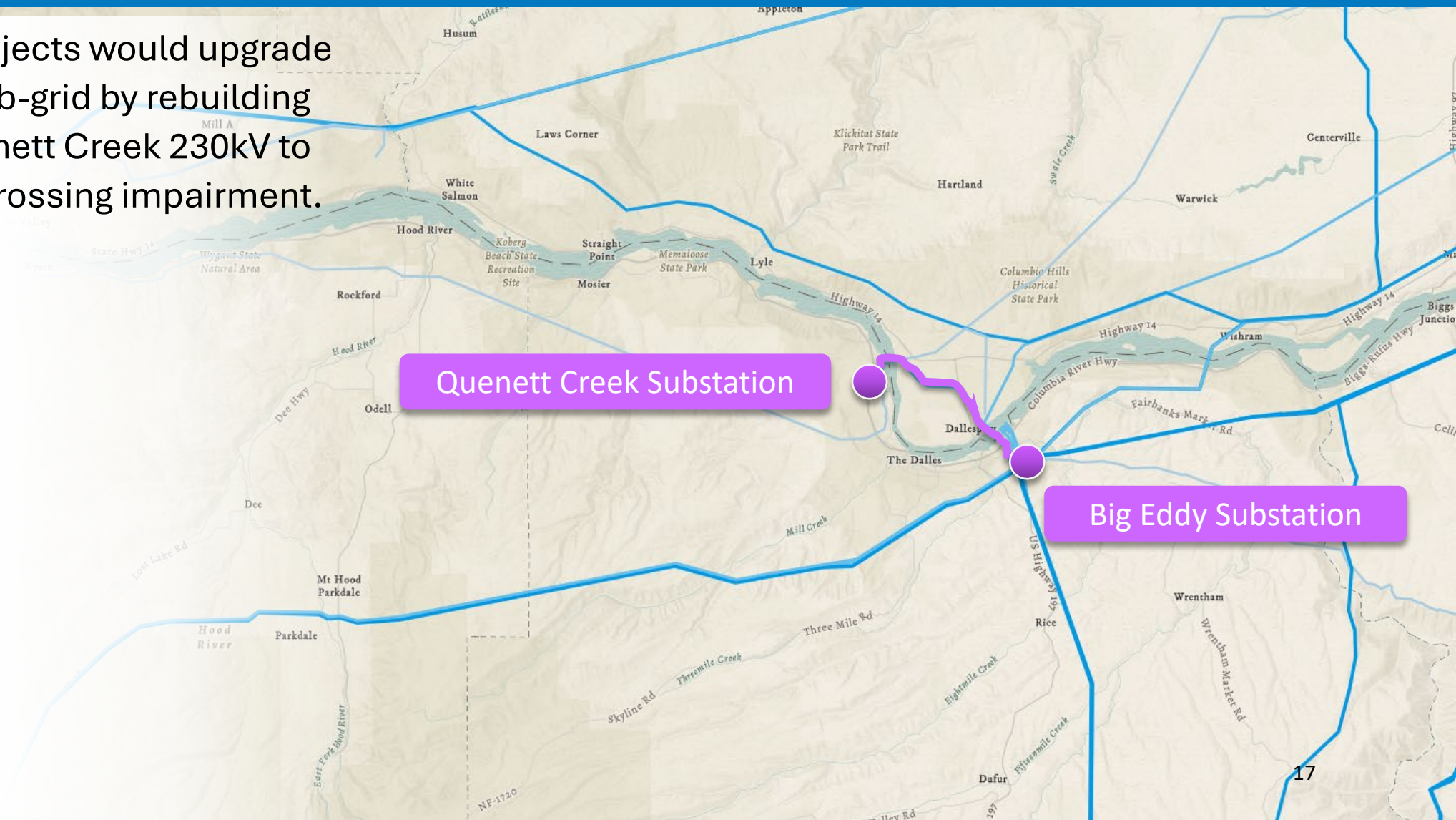
North of Pearl 500 kV Upgrade

- This proposed project would upgrade transmission capacity in the Portland sub-grid North of Pearl area by reconductor the existing Pearl-Keeler #1 500 kV line and leveraging an existing corridor to add a second 500 kV line between Pearl and Keeler.
- The existing Pearl-Sherwood #1 and #2 230 kV lines would be relocated/rebuilt to accommodate Pearl-Keeler #2 500 kV line.
- The existing section of Keeler-Oregon City #2 115 kV between Sherwood and Oregon City would be repurposed as the new Keeler-Sherwood (PGE) 115 kV Line, terminating into Sherwood.



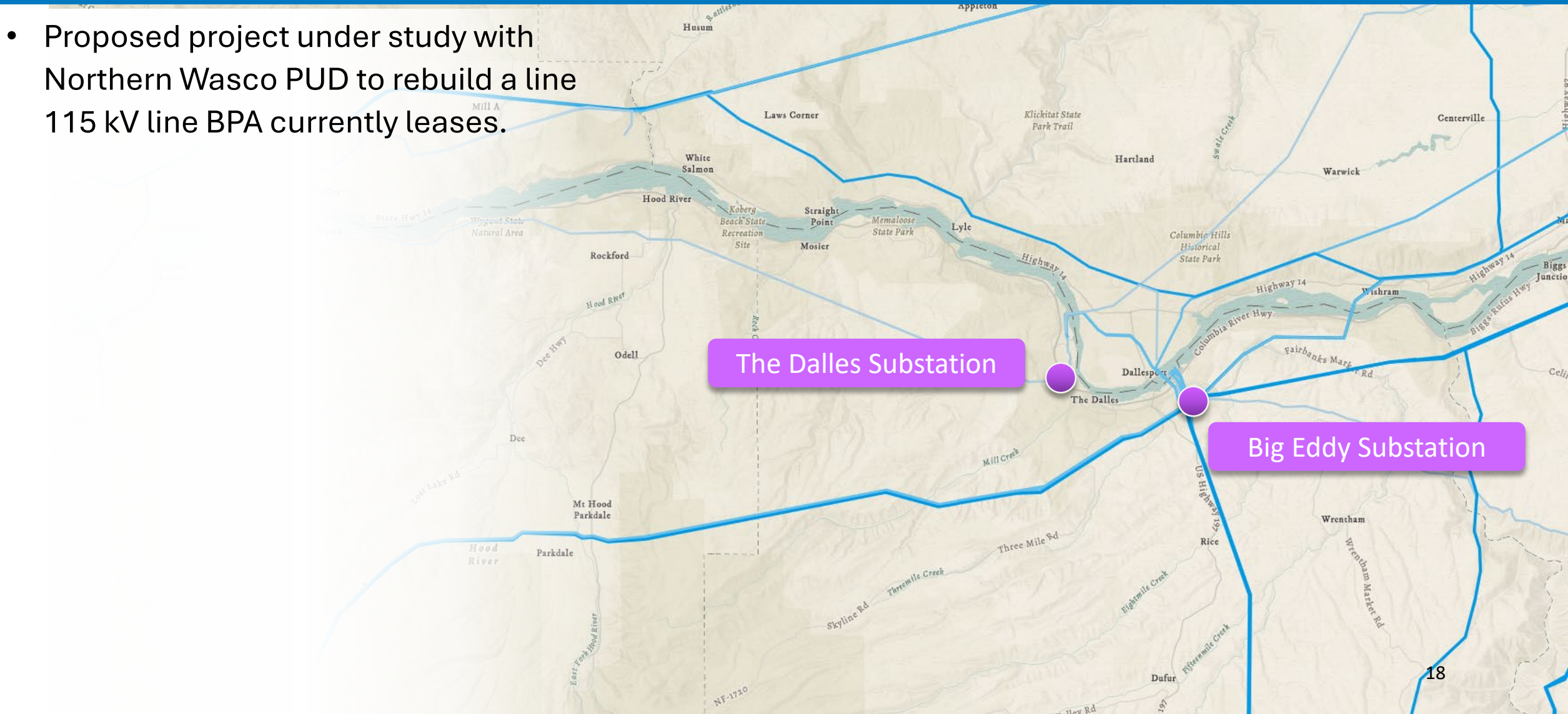
Big Eddy-Quenett Creek Upgrade

- This proposed projects would upgrade the Hood River sub-grid by rebuilding the Big Eddy-Quenett Creek 230kV to resolve the river crossing impairment.



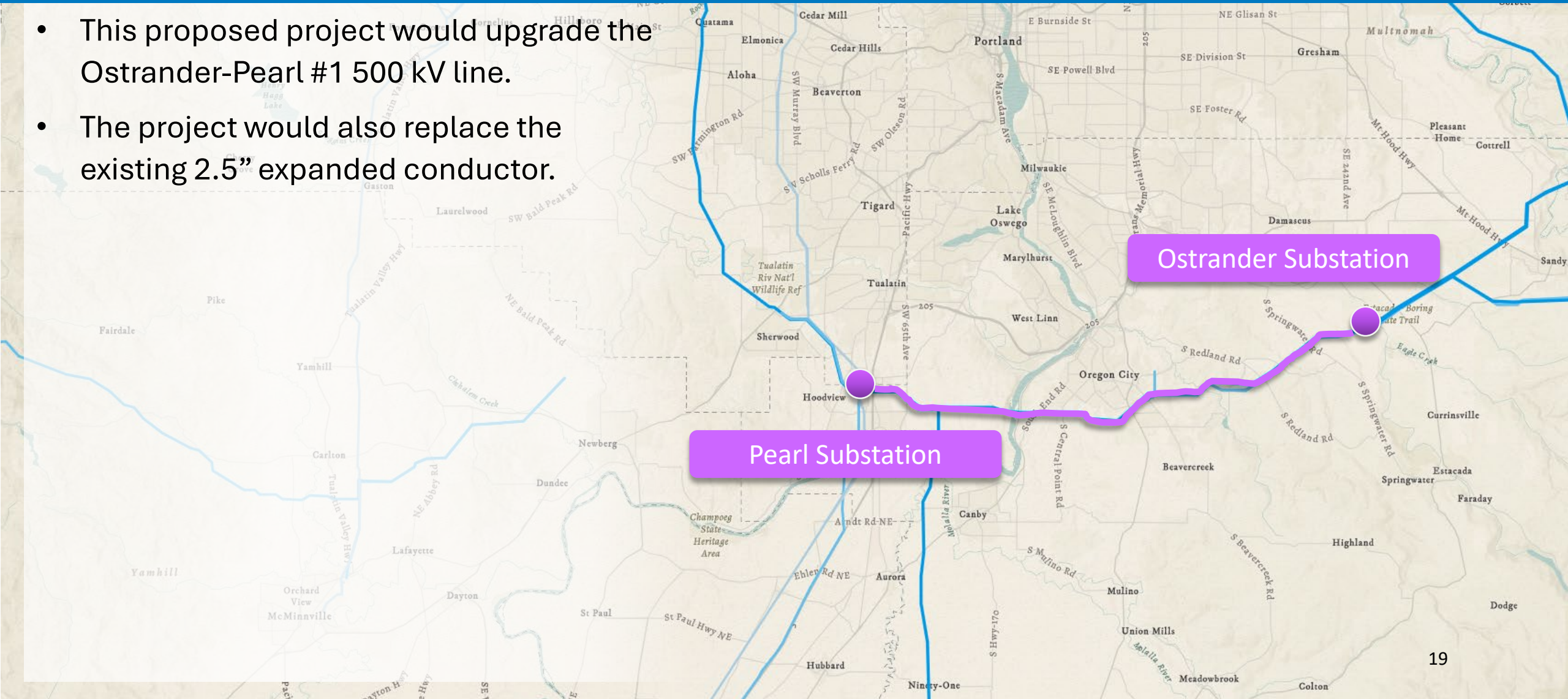
Big Eddy-The Dalles #1 Rebuild

- Proposed project under study with Northern Wasco PUD to rebuild a line 115 kV line BPA currently leases.



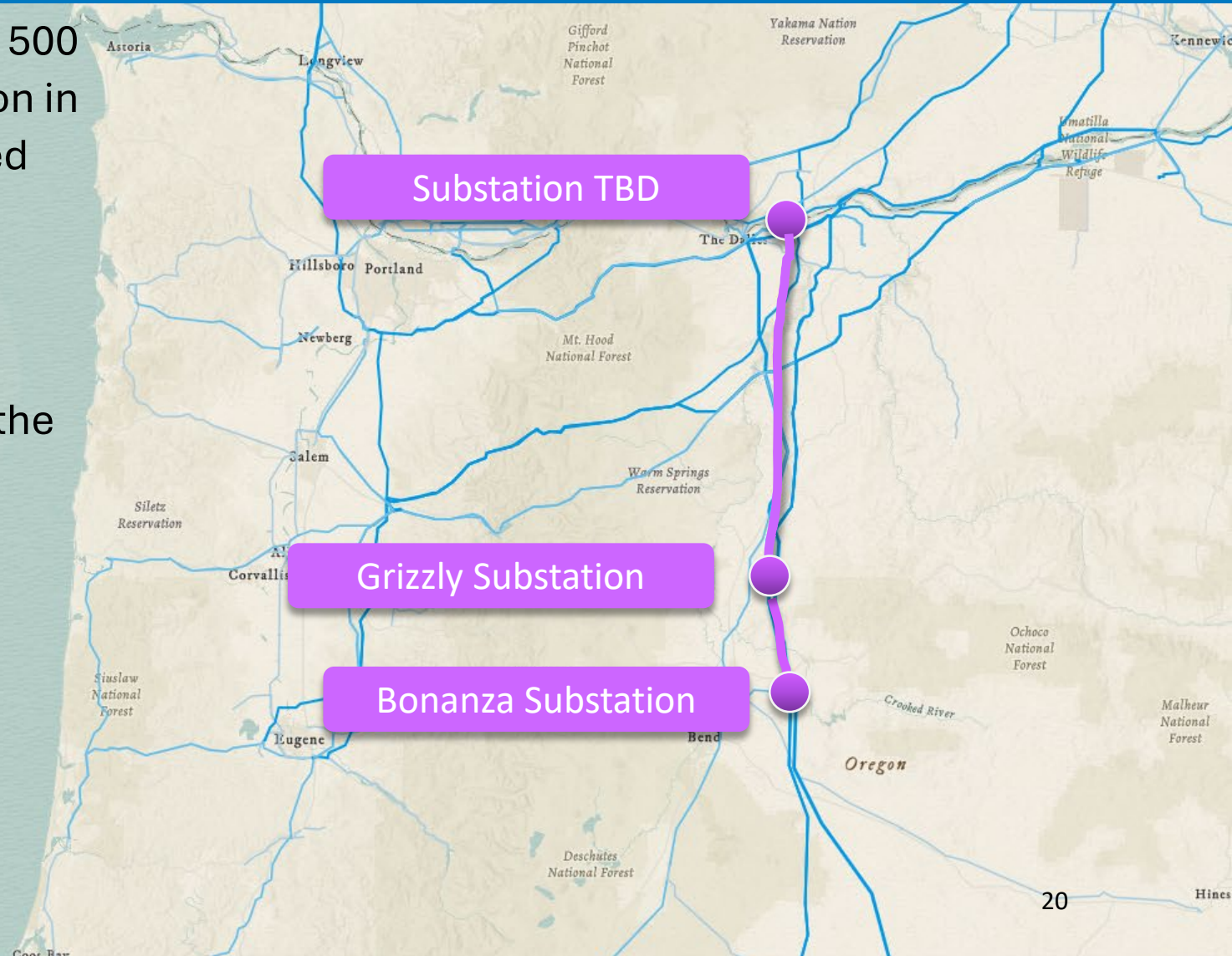
Ostrander-Pearl #1 Upgrade

- This proposed project would upgrade the Ostrander-Pearl #1 500 kV line.
- The project would also replace the existing 2.5" expanded conductor.



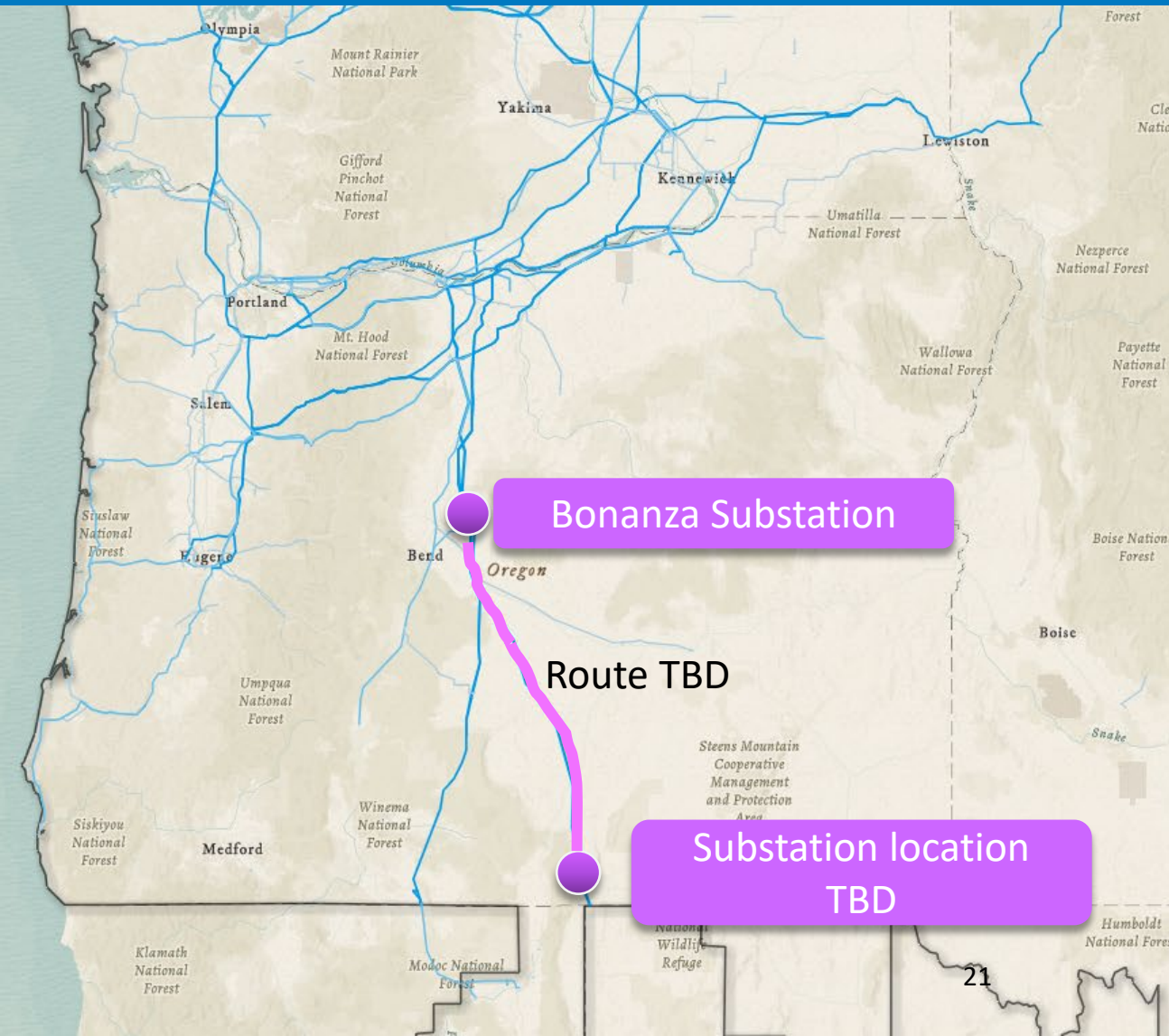
Lower Columbia to Bonanza

- This proposed project would build a new 500 kV transmission line between a substation in the Lower Columbia area and the planned Bonanza Substation in Central Oregon.
- The project may also include additional connections to 500 kV substations near the line route as well as new 500 kV series capacitors



Bonanza to Nevada-Oregon Border & Substation

- This proposed project would build a new 500 kV transmission line from Bonanza Substation toward the Nevada-Oregon border (NOB).
- The project would also include new 500 kV series capacitors.
- This proposed project would build a new 500 kV substation at the Nevada-Oregon border.



On Deck/Under Joint Study Review

BPA Transmission Planning is still evaluating and studying the following:

- Additional Portland area reinforcement
- Umatilla County expansion (Stanfield/Echo Lake)
- Reinforcement to Roundup

Conclusion

- All EGP 2.0 project details are promising but preliminary at this point; scoping, analysis, and collaboration will occur before full project design and construction funding approval.
- Acquisition of long-lead items for EGP 2.0 projects is not forecasted until 2026.
- Currently, approvals for EGP 2.0 projects is for scoping only, full business case approval using preliminary engineering and scoping findings is estimated in FY26.
- Environmental analysis required before BPA can construct.