**PGE 230kV Transmission Configuration Diagrams**

We had difficulty keeping all the lines, their connections, and their routes straight, so we created these diagrams. We hope you find them helpful. We think we got all the lines in the right places.

Please start by reviewing the attached Figures 2 and 3 from Appendix D, the Mitigation Plan.

The first diagram A shows the powerlines for PGE’s proposed Phase 3 project. Diagram B shows using either Alternate Routes 2 or 4 that was evaluated in the Toth Report[[1]](#footnote-1) instead of PGE’s proposal. These Alternate Routes 2 and 4 are similar, so we pretend they are in the same location and simply refer to them as Routes. The Toth report describes each Route and any impediments in detail -- we’re just trying to show where the power lines would go for each option. Please forgive small gaps and misalignments in the diagram -- we don’t have high end graphics tools. Nothing is to scale.

The green blocks represent Forest Park, to show which power lines are in and out of the park.

North is at the top of each diagram, so the Willamette River is to the right and Skyline Blvd is to the left. The Trojan substation is to our north in all these diagrams.

Blue lines are existing powerlines that will remain. Red lines are new powerline segments.

1. **PGE 230kV Transmission Configurations: PGE’s Proposed Phase 3 Project**

This shows the results of PGE’s Proposed Phase 3 project, with 3 new line segments added (red) to connect them into Harborton substation.

**PGE Proposed Project:**

Harborton-Trojan #1 & #2 Existing Line  
 New Line

Route thru Forest Park

Evergreen-Harborton Harborton Substation  
Harborton-St Marys

This proposal requires a new 1400’ long Transmission Corridor through the park for the bottom pair of red powerline segments. 4.7 acres of mature forest will be clearcut for this option.

1. **If Route #2 or #4 from Toth Report were used instead**

Harborton-Trojan #1 & #2 Existing Line  
 New Line  
 Northern  
 Termination Point

Routes 2 and 4 run  
 parallel to Hwy 30 outside  
 Forest Park.   
 Route 2 is west of Hwy 30.  
 Route 4 is east of Hwy 30.  
 Using one minimizes harm in the Park.

Evergreen-Harborton Harborton Substation  
Harborton-St Marys

Using either Route 2 or Route 4 would move both Harborton-Trojan #1 and #2 lines outside of Forest Park. They would leave the current Transmission Corridor at the Northern Termination Point identified in the Toth Report (near Wapato Bridge). The lines will run east from that Point and then turn again and parallel Hwy 30 to get to the Harborton substation. Moving these two lines outside of Forest Park may free up the north-south right-of-way in the park for the 115kV line that currently occupies Route 4.

A possibility not considered in the Toth report is to follow the example of existing powerlines in the Hwy 30 public ROW – cross the road to avoid an impediment and cross back afterwards.  
  
In this diagram, the Evergreen-Harborton and Harborton-St Marys lines can use the existing towers 2997 and 2998[[2]](#footnote-2) (see attached Figures 2 and 3) and available right-of-way that is freed up in the lower part of Forest Park, in PGE’s proposed project area. Extensive tree removal would no longer required in the park and most of the 4.7 could remain undisturbed. Pole 2999 may still need to relocate. New Steel Poles 2, 3, 5, and 8[[3]](#footnote-3) would not be needed in Forest Park or outside the Harborton substation.

Re-use of the existing Transmission Corridor in Forest Park would minimize harm to Forest Park compared to PGE’s Proposed Project.

1. **PGE 230kV Transmission Configurations: Adding Phases 4 and 5**

These three diagrams show PGE’s proposed Phases 4 and 5 added to diagrams A and B representing Phase 3 (A. the PGE Proposed Project and B. using Route 2 or 4 from the Toth Report). PGE’s Transmission Plans show that Phase 4 would reconductor (upgrade the wires) on the hill in Forest Park between Phase 3 (at Tower 2996) and Skyline Blvd at the top of the hill. Phase 5 would add two more 230kV Harborton to Trojan circuits, #3 and #4. PGE says they will use “existing right-of-way”[[4]](#footnote-4) which can only mean they intend to add them in their easement in Forest Park, which would eliminate another 15 acres of mature forest plus the last small piece of forest in the Phase 3 area.

**PGE Proposed Project Phase 3 with Phases 4 & 5 added:**

Four lines go to Trojan: Harborton-Trojan #1 & #2 plus #3 & #4 added Existing Line  
 New Line   
 Upgraded Wire

Route thru Forest Park

Evergreen-Harborton Harborton Substation  
Harborton-St Marys

To bring the new Harborton-Trojan #3 and #4 lines into the Harborton substation, PGE will have to use all their remaining easement right-of-way, eliminating the wedge of forest they have temporarily protected in their Phase 3 project. There is no other “existing right-of-way” for them to use.  
  
According to PGE’s application materials, reconductoring (upgrading wires) on existing towers is not a low-impact operation for the park:

String new transmission wire between Harborton Substation and Tower 2996 to create new … transmission lines on the existing transmission towers… This will require the establishment of temporary work areas for construction access, temporary soil storage, line-pulling, and equipment turnaround space.[[5]](#footnote-5)

1. **Route 2 or 4 from Toth Report with Phases 4 & 5 added in Forest Park**

Four lines go to Trojan: Harborton-Trojan #1 & #2 plus #3 & #4 added Existing Line  
 New Line  
 Northern Upgraded Wire  
 Termination Point

Routes 2 and 4 run  
 parallel to Hwy 30 outside Forest Park.   
 Route 2 is west of Hwy 30.  
 Route 4 is east of Hwy 30.   
 Using one minimizes harm in the Park.

Harborton-Trojan #3 & #4 use  
PGE right-of-way in Forest Park.

Evergreen-Harborton Harborton Substation  
Harborton-St Marys

In this scenario, the new Harborton-Trojan lines #3 and #4 can use the existing towers in the north/south right-of-way in Forest Park, but a new connection into Harborton in the lower part of Forest Park would be needed, requiring a project like PGE’s proposed Phase 3 project and eliminating about 4.7 acres of mature forest in Forest Park.

1. **Use Both Routes 2 and 4 from Toth Report so Phase 5 is added outside Forest Park. Includes Phase 4**

Four lines go to Trojan: Harborton-Trojan #1 & #2 plus #3 & #4 added Existing Line  
 New Line  
 Northern Upgraded Wire  
 Termination Point

Routes 2 and 4 run  
 parallel to Hwy 30 outside Forest Park.   
 Route 2 is west of Hwy 30.  
 Route 4 is east of Hwy 30.  
 Using both minimizes harm in the Park.

All Harborton-Trojan lines use   
Routes 2 and 4 outside the park.

Evergreen-Harborton Harborton Substation  
Harborton-St Marys

In this version, all four Harborton-Trojan lines use routes outside Forest Park. Installing new wires for Evergreen-Harborton and Harborton-St Marys will result in some harm to the park.

We believe that given the 5+ years available to plan for Harborton-Trojan #3 and #4, PGE can identify, design, and acquire an Alternate Route outside Forest Park, perhaps Route 2 if Route 4 is used in Phase 3. If a right-of-way for the existing 115kV line currently located in Route 4 is needed, it could be located in the PGE right-of-way in Forest Park. 115kV lines have a narrower Transmission Corridor than 230kV lines. PGE’s plans show a target completion date of April 2030 for this project.[[6]](#footnote-6)

This is the scenario best aligned with the Forest Park Natural Resources Management Plan (FP NRMP) -- for all four Harborton-Trojan 230kV lines to be located outside of Forest Park, which would allow most or all the north-south part of the right-of-way to be restored to mature forest. This would be truly consistent with Conservation Goal 1 in the FP NRMP:

*Protect Forest Park’s native plant and animal communities, its soil and its water resources while managing the forest ecosystem in order to grow a self-sustaining ancient forest for the enjoyment and benefit of future generations.*

**Figure 2 from Appendix D, the Mitigation Plan, the existing power lines and towers.**

Roughly speaking, the Trojan substation is to the right (mostly north). The Willamette River is at the bottom. Skyline Blvd is at the top. Downtown Portland is to the left. This is rotated 90 degrees from our diagrams. The colors have different meanings.



**Figure 3 from Appendix D, the Mitigation Plan.** PGE’s proposed configuration.

Roughly speaking, the Trojan substation is to the right (mostly north). The Willamette River is at the bottom. Skyline Blvd is at the top. Downtown Portland is to the left. This is rotated 90 degrees from our diagrams. The colors have different meanings.



1. Toth, *Harborton 230 kV Alternatives Analysis*, October 24, 2022. [↑](#footnote-ref-1)
2. *Appendix D* Harborton Reliability Project Habitat Mitigation Plan**,** October 25, 2024, Figure 3 on p. 7. [↑](#footnote-ref-2)
3. *Appendix D*, Figure 3 on p. 7. [↑](#footnote-ref-3)
4. *PGE Long Term Local Transmission Plan For the 2023-2024 Planning Cycle*, December 26th, 2023. **“**Harborton-Trojan #3 and #4 230kV Project Completion April 2030,” p. 43; “**Scope:** PGE to construct two 230kV lines from Harborton to Trojan using existing right-of-way.” page 44.   
    [↑](#footnote-ref-4)
5. *Revised Application for: Portland General Electric Company (PGE) Harborton Reliability Project*, October 28, 2024. Narrative, Applicant’s Written Statement, page 7. [↑](#footnote-ref-5)
6. *PGE Long Term Local Transmission Plan For the 2023-2024 Planning Cycle*, p. 43 [↑](#footnote-ref-6)