BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

REPLY TESTIMONY OF JEAN-PAUL WALLIS IN SUPPORT OF JOINT APPLICATION OF HORIZON WEST TRANSMISSION, LLC (U222E), FORMERLY KNOWN AS NEXTERA ENERGY TRANSMISSION WEST, LLC, AND PACIFIC GAS AND ELECTRIC COMPANY (U39E) FOR PERMITS TO CONSTRUCT THE ESTRELLA SUBSTATION AND PASO ROBLES REINFORCEMENT PROJECT APPLICATION 17-01-023

1. I, Jean-Paul Wallis, offer this testimony in support of the Joint Application of Horizon West Transmission, LLC (U222E), formerly known as NextEra Energy Transmission West, LLC, and Pacific Gas and Electric Company (U39E) for Permits to Construct the Estrella Substation and Paso Robles Reinforcement Project ("Estrella Project"), Application 17-01-023 (the "Application").

2. My name is Jean-Paul Wallis. I am a Project Manager at Pacific Gas and Electric Company ("PG&E"). My business address at PG&E is 300 Lakeside Drive, Oakland, CA 94612. I received a Bachelor of Science in Civil Engineering (Structural Engineering Focus) from Seattle University, Seattle Washington and a Master of Science in Civil Engineering (Energy, Civil Infrastructure and Climate Focus) from the University of California, Berkeley. I am a California licensed professional engineer (civil), License No. 93619, and have a Project Management Professional Certification.

3. I currently work as a Project Manager in the PG&E Transmission Line Bay/Central Project Management team. In this role, I manage projects and project controls, including cost and schedule, for transmission lines in the Bay Area region, including overhead and underground projects. I have completed a major project business case for eight miles of underground transmission construction in an urban setting and completed a historical cost analyses of recent underground transmission projects in a variety of environments including rural

and urban. I have also researched costs and feasibility of underground transmission cable technologies.

4. In January 2017, PG&E and Horizon West Transmission, LLC ("Horizon West") (together, the "Applicants") submitted the Application to the California Public Utilities Commission ("Commission") requesting separate Permits to Construct ("PTCs") for their respective portions of the Estrella Project. Specifically, Horizon West applied for a PTC to construct its portion of the proposed substation (known as "Estrella Substation"). PG&E applied for a PTC to: (i) construct its portion of the proposed substation (known as "Union Substation"); (ii) interconnect the Morro Bay-California Flats 230 kilovolt ("kV") line to Estrella Substation; (iii) construct a new double circuit 70 kV line from Union Substation through the City of Paso Robles and connect it to the existing San Miguel-Paso Robles 70 kV line; and (iv) reconductor a portion of the existing San Miguel-Paso Robles 70 kV line from the point at which the new 70 kV line would connect southward to the existing Paso Robles Substation ("Proposed Project").

5. In March 2023, the Commission issued a Final Environmental Impact Report ("FEIR") on the Estrella Project that identified an alternative route for the proposed new 70 kV line as the "environmentally superior" route, which is referred to in the FEIR as Alternative PLR-1A and Alternative 2 in Table 5-3 ("Environmentally Superior Alternative").[1] The Environmentally Superior Alternative includes construction of a new 70 kV line that is 10.5 miles long, approximately 3.5 miles longer than the applicant's Proposed Project and traverses a predominantly agricultural area as opposed to through the City of Paso Robles. The Environmentally Superior Alternative also includes reconductoring approximately three more

[1] California Public Utilities Commission, Estrella Substation and Paso Robles Area Reinforcement Project, Final Environmental Impact Report (March 2023), Chapter 5, *available at* https://ia.cpuc.ca.gov/environment/info/horizonh2o/estrella/docs/feir/Vol%201/05_CPUC_Estrella_Public_FEIR_Vol.1_AlternativesSummary_March2023.pdf

miles of the existing San Miguel-Paso Robles 70 kV line than the Proposed Project because the new 70 kV line would connect to the existing San Miguel-Paso Robles 70 kV line further to the north.

6. On August 1, 2023, Commissioner Karen Douglas issued a Scoping Memo and Ruling for the Application. The Commissioner determined factual issues may exist on Issue Numbers 5 and 7. On September 1, 2023, James Clark, on behalf of California Unions for Reliable Energy provided testimony on Issue Number 7, which asks whether the proposed project and or environmentally superior project alternative is designed in compliance with the Commission's policies governing the mitigation of EMF effects using no-cost and low-cost measures. This testimony is in reply to the portion of Clark's testimony regarding Issue Number 7.

7. In Decision 06-01-042, the Commission outlines California's EMF Design Policy which requires utilities to consider no-cost and low-cost EMF reduction measures for new and upgrade projects. The Commission establishes a benchmark of 4% of the total project cost for low-cost measures and finds that these measures must achieve 15% or greater EMF reductions.[2] The policy states that the Commission will consider "minor increases above the 4% benchmark if justified under unique circumstances," but that "total costs should be relatively low."[3]

8. Clark's testimony asserts that undergrounding will reduce EMF impacts in compliance with the 15% EMF reduction threshold in CPUC's EMF Design Policy.[4] Clark's testimony questions the costs for undergrounding provided in the FEIR, but does not provide

[2] California Public Utilities Commission, EMF Design Guidelines for Electrical Facilities (July 21, 2006), 2, available at https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/infrastructure/emfs/ca_emf_design_guidelines.pdf.
[3] *Id*.
[4] Testimony of James Clark on Behalf of California Unions for Reliable Energy (Filed September. 1, 2023), 17.

alternative undergrounding costs to substantiate his claim that undergrounding can be accomplished to meet the no-cost or low-cost guidelines in Decision 06-01-042.

9. Based on my review of the projected costs and my experience with other PG&E underground transmission projects, the estimated costs to underground the double circuit 70 kV transmission line proposed in the Environmentally Superior Alternative and the Proposed Project far exceed the Commission's EMF Design Policy threshold guideline of 4% of the total project cost. I am not aware of any projects in the PG&E system where complete undergrounding of transmission lines has been found to be a viable no-cost or low-cost EMF mitigation.

10. Costs to install underground transmission lines are typically estimated on a per mile basis. These costs vary based on a number of factors including: material and labor; cable design, voltage level, and circuit ampacity requirements; construction method and duct bank design; length of alignment; surrounding land use; presence of nearby underground utilities; soil types; environmental avoidance and mitigation; groundwater presence; and permitting.

11. For the Estrella Project, I reviewed the description and estimated costs of the Environmentally Superior Alternative and the Proposed Project, including the per mile costs for new overhead and underground 70 kV power line, provided in the FEIR[5] against costs of other projects that I have managed or reviewed as part of my work with PG&E.

12. I find that the FEIR estimate of $17,705,000 per mile of underground 70 kV line is at the lower end of the range of costs for single-circuit projects and lower than the range of costs expected for double-circuit line installations, as proposed for the Estrella Project. The range of project costs for other PG&E single-circuit underground transmission projects is approximately $15,000,000 to $35,000,000 per mile. More recent projects have fallen in the

[5] FEIR, Table 5-3.

upper end of this range due to escalating labor and material costs. As is noted in Footnote 2 of FEIR Table 5-3, a double-circuit underground transmission line, which is proposed for both the Environmentally Superior Alternative and Proposed Project, will likely result in significantly higher costs, well above the $17,705,000 estimated in the FEIR. PG&E's underground transmission design standard requires lines to be placed in concrete-encased duct banks in all environments (urban, suburban, rural) to improve public and coworker safety as well as improve asset longevity and cable access. Because of this standard, typical PG&E costs for new underground transmission lines may exceed the costs of other utilities and developers who may direct-bury transmission cables.

13. I find the FEIR estimate of $3,008,000 per mile of new overhead 70 kV line is within the expected range of costs.

14. Undergrounding of the new transmission lines proposed in the Environmentally Superior Alternative would result in an estimated cost increase of $154,318,500 which is 147% of the estimated project cost of $105,000,000. The increase in costs to underground the proposed transmission lines is $14,697,000 per mile, or $17,705,000 per mile for new underground lines minus the avoided cost for the installation of new overhead lines of $3,008,000 per mile. The distance of the proposed new transmission lines for the Environmentally Superior Alternative is 10.5 miles resulting in a total cost increase for undergrounding of $154,318,500. If the additional six miles of existing overhead transmission lines proposed for reconductoring are also included in the undergrounding estimate, the total cost increase raises to $250,120,500 which is 238% of the project cost.

15. Undergrounding of the Proposed Project, which is not identified as an alternative in the FEIR, would result in an estimated cost increase of $102,879,000 which is 107% of the

Proposed Project cost of $96,000,000. This estimated project cost increase for undergrounding the Proposed Project uses the same costs per mile discussed in my evaluation of the Environmentally Superior Alternative. This estimate assumes seven miles of undergrounding new transmission lines. If the additional three miles of existing overhead transmission lines proposed for reconductoring are also included in the undergrounding estimate, the total cost increase raises to $150,780,000 which is 157% of the project cost.

16. Clark's testimony erroneously cites a cost-per mile for undergrounding published by Horizon West. Clark states that Horizon West recently undergrounded a 1-mile segment of existing 230 kV single-circuit transmission line at a cost of $4,427,550.[6] However, this project only undergrounded a 0.5-mile section of the 1-mile segment, resulting in per-mile cost of $8,855,010.[7] I was not able to confirm any of the details of this project to determine if the per-mile cost would be applicable to the Estrella Project. However, even using this lower estimate results in a total undergrounding cost increase of $61,393,605, which is 58% of the Environmentally Superior Alternative total project costs, well above the Commission's 4% guideline.

Executed on September 15, 2023, at Oakland, California.

/s/

JEAN-PAUL WALLIS

[6] Clark Testimony at 19.

[7] Horizon West Transmission Wildfire Mitigation Plan, 2022, p. 106. Available at https://www.horizonwesttransmission.com/content/dam/horizonwest/us/en/pdf/2022/2022-05-06_HWT_%202022_WMP.pdf