



Sage Park
Department of Ecology
Central Region Office
Attn: Goldendale Energy DEIS
1250 W. Alder Street
Union Gap, WA 98903-0009

RE: Turlock Irrigation District's and Tuolumne Wind Project Authority's Comments on the Draft Environmental Impact Statement for the Goldendale Energy Storage Project.

Dear Ms. Park,

The Turlock Irrigation District ("TID") on behalf of itself and the Tuolumne Wind Project Authority ("TWPA") hereby submits comments on the draft Environmental Impact Statement ("EIS") for the Goldendale Energy Storage Project ("GES Project"), which is owned by Free Flow Power Project 101, LLC ("FFP") and is being developed by Rye Development ("Rye"). TID and TWPA thank the Washington State Department of Ecology for providing them an opportunity to comment on the draft EIS.

FFP proposes to construct the GES Project's massive upper reservoir, which would be the equivalent of a 19-story building that covers 38 square city blocks, in the middle of TWPA's 62-turbine wind farm, immediately adjacent to 15 turbines. Since TID purchases all the energy and Renewable Energy Credits ("RECs") produced by TWPA's wind farm and pays all the wind farm's costs, TID has raised the following concerns to Rye and the Federal Energy Regulatory Commission ("FERC" or "Commission") throughout FERC's licensing process for the project:

1. The GES Project should not proceed as the proposed location for the upper reservoir has not been adequately secured by FFP and could change, because the TWPA-NSC Lease prohibits NSC from entering into a lease that would interfere with TWPA's turbines, use of the property, or other rights under the lease.
2. The GES Project's new reservoirs would change the area's topography, causing changes to wind patterns within TWPA's wind farm, which would:
 - (a) reduce the output of energy and RECs that TWPA's turbines produce;
 - (b) increase wind turbulence intensity, potentially causing: (i) damage to the turbines, (ii) increased maintenance and repairs to address this damage, and/or (iii) a reduction in the turbines' design and service lives, which would reduce the turbines' overall energy output; and/or
 - (c) potentially invalidate the warranties that TWPA has on the wind turbines, depriving TWPA of their crucial energy output and design and service lives guarantees.
3. The GES Project's new reservoirs could saturate the foundations of the turbines making them unstable and could:
 - (a) damage to the turbines;



- (b) increase maintenance and repairs on the turbines to address this instability and damage;
 - (c) reduce the turbines' design and service lives, thereby reducing their overall energy output; and/or
 - (d) invalidate the warranties that TWPA has on the wind turbines.
4. The GES Project's new reservoirs will increase the presence of avian species and their prey near the turbines, which will increase the risk of birds and bats colliding with the turbines' blades (i.e., avian strikes) potentially causing:
- (a) increased bird and bat deaths, including the deaths of some protected bird and bat species that would cause TWPA to incur significant fines;
 - (b) increased damage to TWPA's turbines due to these strikes, which in turn would require increased maintenance and repairs to address this damage, a reduction in the turbines' design and service lives, and a reduction in the turbines' overall energy output; and/or
 - (c) regulators to require TWPA to reduce or cease its operation of one or more turbines due to the increased avian strikes.
5. The GES Project could damage or interfere with the operations or output of TWPA's turbines during construction, when FFP does the excavation or drilling for the reservoirs and underground tunnels.

Rye has not adequately addressed any of these concerns. Rather, it merely conducted a narrow set of studies, which are reflected in the Wind Resource Effects Analysis – Study Report (dated April 2021) (“2021 WREA Study Report”) that was prepared by Rye’s consultant Environmental Resources Management (“ERM”). Although incredibly flawed and intentionally engineered to underestimate the potential effects that the upper reservoir will have on the wind patterns in TWPA’s wind farm, the 2021 WREA Study Report nonetheless shows that construction of the upper reservoir in its currently proposed location would change wind patterns enough to reduce each affected turbine’s output by thousands of megawatt hours, resulting in *each turbine* suffering hundreds of thousands of dollars in lost annual generation and RECs. The reason the 2021 WREA Study Report inaccurately concludes that the changes in wind patterns will not cause a material reduction in the output of TWPA’s turbines is that ERM did not have access to the turbines’ power curves, so it could not accurately determine how the wind pattern changes it identified would affect the turbines’ output. The 2021 WREA Study Report also reaches this inaccurate conclusion because it relies on limited, “cherry picked,” and erroneous data, as well as unproven study methodologies which do not follow industry practices. Even with these flaws, the 2021 WREA Study Report still produced data that, when applied to the turbines’ power curves, showed the upper reservoir would significantly reduce the output of TWPA’s turbines. These reductions are a direct violation of the TWPA-NSC Lease’s provisions that expressly prohibit NSC from causing such adverse impacts.

Unfortunately, the draft EIS appears to rely on the 2021 WREA Study Report’s inaccurate conclusions and certain unsupported statements made by Rye in response the concerns raised by TID. The purpose of the EIS is to provide “an unbiased and scientifically based analysis, which

provides a comprehensive and objective evaluation of probable environmental impacts, reasonable alternatives, and mitigation measures that would avoid or minimize impacts,” and “will be used to inform permit decisions and potential changes to the proposed project.”¹ Therefore, TID submits these comments and requests that the Department of Ecology direct FFP to pay for additional, independent studies, in the hope that the EIS will be amended to fulfill its purpose by adequately and accurately addressing the potential effects that the GES Project will have on TWPA, TWPA’s production of renewable generation, and the birds and bats that could be killed due to increased avian strikes.

SUMMARY OF TID’S COMMENTS

TID has attempted to raise its concerns with FFP, but FFP has not taken any concrete steps to address these concerns. Therefore, TID has no choice but to continue to seek relief in the state and federal proceedings that regulate the GES Project’s development and construction. TID’s comments demonstrate why the GES Project cannot go forward until TID’s concerns are resolved and its ratepayers are protected from the potentially significant adverse effects that could result from FFP’s decision to site the GES Project in the middle of the TWPA’s wind farm.

TID believes that the Final EIS should not be issued and that the EIS process should not proceed at this time. FFP’s submission is fundamentally flawed because the proposed location for the upper reservoir has not been adequately secured by FFP and could change. The proposed location is on property TWPA leases from NSC. Under the TWPA-NSC Lease, NSC is prohibited from constructing buildings or other structures – or allowing anyone else to take any of these actions – if such actions would interfere with TWPA’s operations, the output of TWPA’s turbines, TWPA’s use of the property, or adversely affect any other rights TWPA enjoys under the TWPA-NSC Lease. Because the 2021 WREA Study Report found that construction of the upper reservoir in the proposed location would cause wind pattern changes that would significantly reduce the energy output of TWPA’s turbines, proceeding with the reservoir in this location would be a direct violation of the aforementioned Lease provisions. Hence, the only way the upper reservoir can be built in the currently proposed location is if TWPA waives its rights under the TWPA-NSC Lease and consents to its construction there. *TWPA has not waived these rights and has not given such consent.* If FFP is unable to get TWPA’s consent, the upper reservoir’s location will have to be moved. Such a move would nullify the findings in the draft EIS and would make the final EIS premature because the draft EIS would not address the upper reservoir’s correct, ultimate location.

To correct this fundamental flaw in FFP’s proposal, the Department of Ecology should hold the EIS process in abeyance until FFP demonstrates that it has: (1) secured the requisite property rights to construct the upper reservoir on property currently leased by TWPA, which would include FFP obtaining TWPA’s written consent to the construction of the GES Project, as the proposed location for the project could change without such consent; (2) mitigated the adverse impacts on TWPA’s wind farm caused by the GES Project and TWPA has approved the mitigation measures; and (3) entered into an agreement with TWPA to compensate TWPA for any adverse

¹ Washington Department of Ecology, State Environmental Policy Act Draft Environmental Impact Statement, for the Proposed Goldendale Energy Storage Project, Publication No. 22-06-006 (dated June 2022) (“draft EIS”), Appendix A Scoping Summary Report, Section 1.2 EIS Process at p. 1.



impacts that the GES Project causes to the TWPA wind farm that are not mitigated, so that TID's ratepayers are not stuck paying the costs of such adverse impacts.

If FFP can make the foregoing demonstration to the Department of Ecology, the Final EIS should be amended to more accurately and adequately address all the potential environmental impacts that will result from the construction and operation of the GES Project. In particular, the Department of Ecology should amend the statements and findings in the following sections of the draft EIS to ensure that they address all the potential impacts that the GES Project could have on TWPA, TWPA's turbines, TWPA's renewable energy output, the avian species in the area, as well as the measures that FFP must take to mitigate these impacts:

- Section 4.4 Energy Resources
- Section 4.5 Public Services and Utilities
- Section 4.7 Terrestrial Species and Habitats
- Section 4.11 Land Use
- Section 6.2 Cumulative Impacts by Resource
- Appendix E Energy Resource Analysis Report
- Appendix G Terrestrial Species and Habitats Resource Analysis Report
- Appendix I Environmental Health Resource Analysis Report

The Department of Ecology should also disregard the 2021 WREA Study Report's conclusion that the upper reservoir will cause minimal impacts on wind patterns because the Weather Research Forecasting ("WRF") model used in the report was employed improperly and used limited, inaccurate data. For example, the WRF model inappropriately relied on meteorological tower ("Met Tower") data that did not accurately represent the wind patterns experienced by the turbines at the wind farm. In addition, the WRF model inappropriately used only two years of turbine generation data that did not accurately represent how changes in wind patterns would affect the output of the turbines at the wind farm. The WRF model also does not comport with the standard industry practice of using an uncertainty assessment to predict the changes to wind patterns and speeds. The WRF model is merely a weather forecasting model, which alone cannot and should not be used to determine wind pattern changes caused by the upper reservoir.

In addition, the 2021 WREA Study Report does not adequately address any of TID's above-referenced concerns and fails to address the following issues that FERC directed it to address: First, it does not provide an accurate analysis of how the change in airflows would affect the output of TWPA's turbines or how they would affect wind turbine operations. Second, the 2021 WREA Study Report does not provide an adequate analysis of the project's potential effects on golden eagles because it does not address the increase in prey around the two new reservoirs. Third, the 2021 WREA Study Report does not provide analysis of the number of turbines potentially affected by project's operation relative to the number of turbines in the project area. Fourth, the 2021 WREA Study Report was not developed in consultation with TID and TWPA, as directed by the Commission.

Because the 2021 WREA Study Report does not adequately address these issues or TID’s concerns, the Department of Ecology should order new studies that: (1) fully and adequately address each of the issues raised by TID and the FERC; (2) identify the potential risks associated with each issue; and (3) provide mitigation measures to reduce these risks and prevent the occurrence of adverse impacts. The Department of Ecology should require that these new studies be performed by an independent third-party chosen by TID and FFP and paid for by FFP. These new studies should comport with industry practices and should rely on data, models, and methodologies (*e.g.*, an uncertainty assessment) that are commonly used, with abundant prior case examples reflecting their use. The Department of Ecology should order that any study addressing the effects of the GES Project on wildlife should include input from the U.S. Fish and Wildlife Service (“USFWS”), and the State of Washington Department of Fish and Wildlife (“WDFW”). The Department of Ecology should also order that any study addressing the impacts of the GES Project on TWPA’s wind turbines should include input from Siemens Gamesa Renewable Energy, Inc. (“SGRE” or “Siemens”) as it is the manufacturer of the turbines and the entity that has been responsible for their operations and maintenance (“O&M”) since they were erected on the property. Such input is necessary to accurately determine the various potential impacts that the upper reservoir could have on the turbines and on the warranties that Siemens has provided on the turbines. These independent studies are the only way to ensure that the Final EIS sets forth unbiased, scientifically grounded, objective, and comprehensive conclusions regarding the potential effects that the GES Project will have on TWPA, TWPA’s production of renewable generation, and the birds and bats that could be killed due to increased avian strikes.

The Final EIS should set forth a process for TWPA and other stakeholders to be compensated if the mitigation measures identified in the studies fail, causing them to suffer losses or other damages. This process should include a requirement that FFP enter into an agreement with TWPA and any other affected stakeholder that would allow them to receive compensation from FFP for any adverse impacts that the GES Project causes them to suffer.

BACKGROUND

A. Description of the GES Project

The proposed Goldendale Energy Storage Project (“GES Project”) is owned by FFP and is a closed-loop pumped storage facility. Completing the GES Project would require the construction of the following new facilities:

- (1) a 61-acre upper reservoir formed by a 175-foot-high, 8,000-foot-long rockfill embankment dam at an elevation of 2,950 feet mean sea level (MSL) with a vertical concrete intake-outlet structure, ***which is equivalent to a 19-story building that covers 38 square city blocks;***
- (2) a 63-acre lower reservoir formed by a 205-foot-high, 6,100-foot-long embankment at an elevation of 590 feet MSL with a horizontal concrete intake-outlet structure and vertical steel slide gates;
- (3) *an underground conveyance tunnel system connecting the two reservoirs* consisting of a 2,200-foot-long, 29-foot-diameter concrete-lined vertical shaft, a 3,300-foot-long, 29-



foot-diameter concrete-lined high pressure tunnel, a 200-foot-long, 22-foot-diameter high pressure manifold tunnel, three 600-foot-long, 15-foot-diameter steel/concrete penstocks, three 200-foot-long, 20-foot-diameter steel-lined draft tube tunnels with bonneted slide gates, a 200-foot-long, 26-foot-diameter concrete-lined low-pressure tunnel, and a 3,200-foot-long, 30-foot-diameter concrete-lined tailrace tunnel;

(4) *an underground powerhouse located between the upper and lower reservoir in a 0.83-acre powerhouse cavern* containing three 400-megawatt (MW) Francis-type pump-turbine units for a total installed capacity of 1,200 MW;

(5) a 0.48-acre underground transformer cavern adjacent to the powerhouse containing intermediate step-up transformers that will step up the voltage from 18 kilovolts (kV) to 115 kV;

(6) *two 30-foot-diameter tunnels for accessing the powerhouse and transformer caverns;*

(7) a 0.84-mile-long, 115-kV underground transmission line extending from the transformer gallery through the combined access/transmission tunnel to where it emerges aboveground near the west side of the lower reservoir and extending an additional 0.27 miles to an outdoor 7.3-acre substation/switchyard where the voltage would be stepped up to 500 kV;

(8) a 3.13-mile-long, 500-kV transmission line routed from the substation/switchyard south across the Columbia River and connecting to Bonneville Power Administration's existing John Day Substation;

(9) a buried 30-inch-diameter water fill line leading from a shut-off and throttling valve within a non-project water supply vault owned by Klickitat Public Utility District (KPUD) to an outlet structure within the lower reservoir to convey water to fill the reservoirs; and

(10) appurtenant facilities. The project would also include an existing 0.7-mile road for accessing the lower reservoir site and an existing 8.6-mile-long road for accessing the upper reservoir site both of which may be modified to provide access for construction vehicles.²

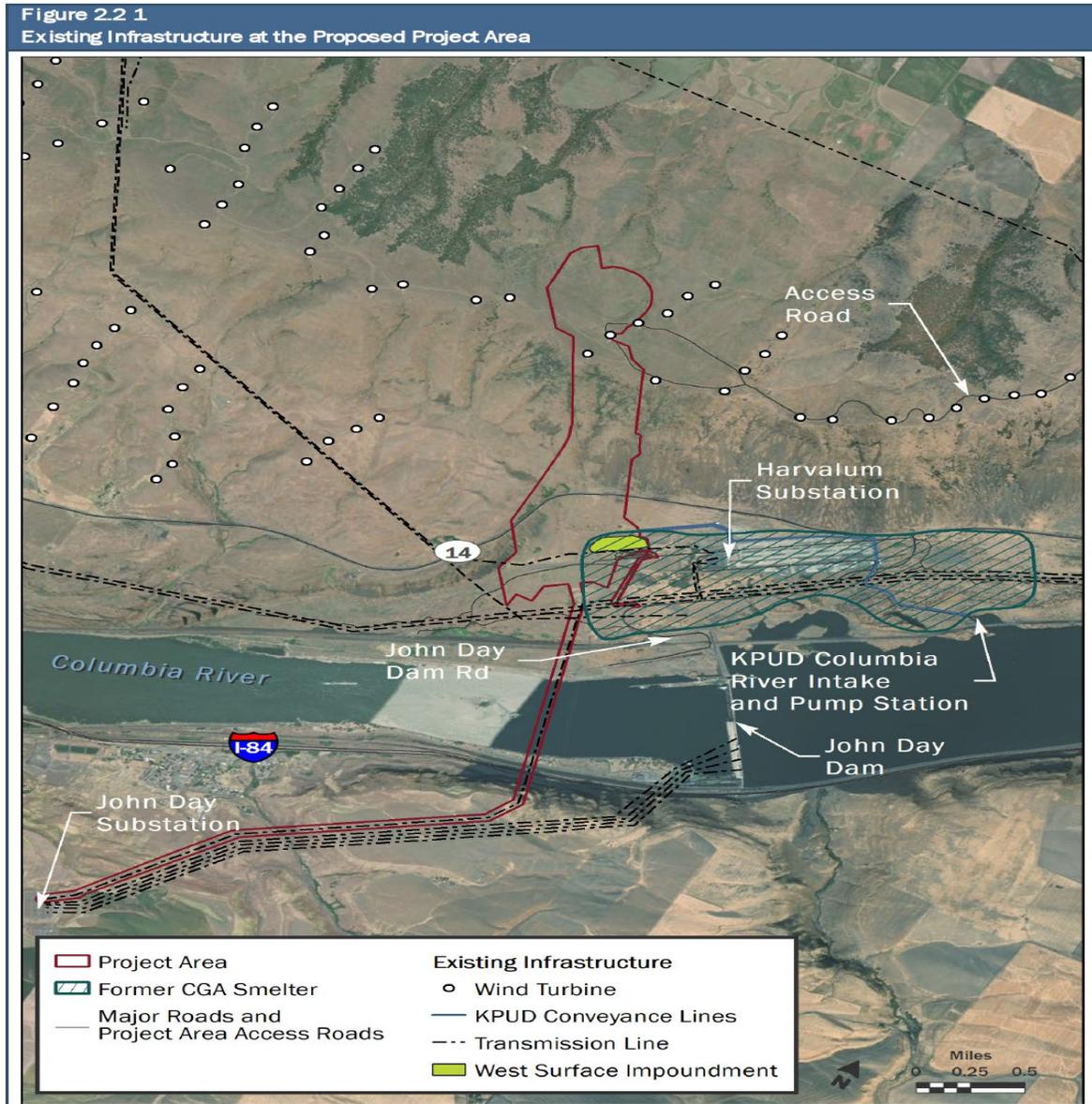
As proposed, the GES Project is to be located approximately 8 miles southeast of the City of Goldendale in Klickitat County, Washington. The upper reservoir of the project will be located on lands owned by NSC. with some project features on lands associated with the historic Columbia Gorge Aluminum Smelter. The "Major Land Uses" section of the "Environmental Report" in Section 1.2 of Exhibit E to the Draft License Application ("DLA") for the GES Project, filed with the Federal Energy Regulatory Commission ("Commission" or "FERC") on December 16, 2020, (in FERC Docket No. P-14861-002) states that the GES Project's upper reservoir is located within the footprint of the TWPA wind farm:

The upper reservoir vicinity includes wind farms and dry-land agriculture/rangeland. A wind farm is located just east of and adjacent to the Project Boundary and consists of 13 wind turbines owned by Tuolumne Wind

² Notice of Application Accepted for Filing and Soliciting Motions to Intervene and Protest, (dated December 17, 2020) FERC Docket No. P-14861-002 ("NOA") (emphasis added).

Project Authority. These wind turbines are part of the Windy Point Phase I Project, which is comprised of 62 wind turbines (Ecology and Environment 2006).³

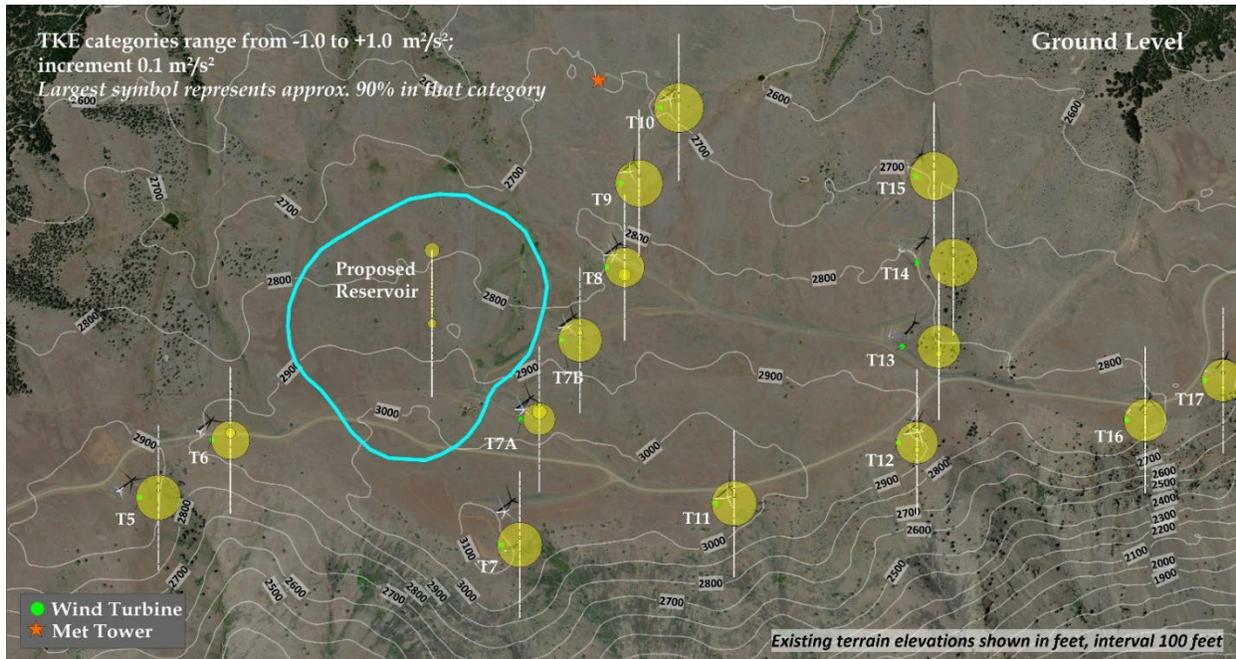
Figure 2.2.1 from the draft EIS shows the approximate location of the upper reservoir and adjacent TWPA wind turbines. Figure 2.2.1 does not show the elevations of the reservoir or the turbines.



However, Figure 5-10 in the 2021 WREA Study Report shows the proposed upper reservoir located in the middle of the TWPA wind farm with at least 15 turbines adjacent: 2 located on one

³ FFP's Draft License Application ("DLA"), Exhibit E at p.1 (emphasis added); see also Section 9.2, entitled "Potential Land Use Resource Impacts," also states "the upper reservoir site is utilized for wind energy and non-irrigated agriculture (grazing). Project area and adjacent land uses are shown in Figure 9.1-2." DLA, Exhibit E at p. 132.

side of the reservoir and 13 located on the other. Several of the turbines are within a couple of meters of the location for the proposed upper reservoir.



B. Description of the TWPA Wind Farm, TID and the Siemen’s warranties.

The TWPA wind farm is owned by the TWPA, a California Joint Powers Agency formed in 2008 by TID and the Walnut Energy Center Authority. The TWPA wind farm represents a \$400 million investment by TID. The TWPA wind farm is located in Klickitat County, Washington and constructed on land TWPA leases from several landowners, one of which is by NSC Smelter, LLC (“NSC”).

TID is a not-for-profit, consumer-owned irrigation district organized under the laws of the State of California (California Water Code §§ 20500-29978). TID supplies electric power and energy to the residents and businesses within its service area. TID serves approximately 100,000 electric retail customers and has annual electric sales of approximately 2 million MWhs. On behalf of its consumer-owners – i.e., its ratepayers – TID purchases all the capacity and energy from the wind farm and pays all its costs. TID also relies on this energy and capacity to meet its California State mandated Renewable Portfolio Standard (“RPS”) obligations.

Siemens is the manufacturer of the wind turbines surrounding the GES Project’s upper reservoir and of most of the other turbines on TWPA’s wind farm. Siemens performs operations and maintenance (“O&M”) services for the entire wind farm. Upon installing these turbines, Siemens issued certain warranties that cover various aspects of their design and service lives, their O&M, and guarantee the energy output of the turbines. These warranties are common in the industry and are based on studies conducted by Siemens which analyze, among other things, the

following factors in and around the wind farm: (1) the geological features and topography, (2) wind speeds, patterns, and flows, (3) the impacts that the geology will have on the foundations and structural integrity of the turbines, and (4) the relationship between the topography and the energy output of the turbines. Therefore, any material change to these factors could invalidate the Siemens warranties. This, in turn, would cause TWPA to suffer significant damages and, by extension, TID's ratepayers would suffer these damages, as they are ultimately responsible for paying the costs of any losses or damages suffered by the TWPA.

COMMENTS

A. The Department of Ecology should hold the EIS in abeyance until FFP can demonstrate that it has secured the property rights necessary to construct the upper reservoir in its proposed location and resolved the each of the issues raised by TID.

The TWPA-NSC Lease provides TWPA the right to quiet enjoyment of its leasehold, obligates NSC to protect and defend TWPA's rights under the lease, and prohibits NSC from using, leasing, or giving easements over the Property that would infringe on this quiet enjoyment. Section 5.5 of the TWPA-NSC Lease requires that:

During the entire term of this Lease, as long as Lessee is not in default of its obligations hereunder, (a) *Lessee shall have peaceful and quiet enjoyment of the Property, without hindrance or interruption by Lessor or any other person or entity* and (b) *Lessor shall protect and defend the right, title and interest of Lessee hereunder* from any other rights, interests, title and claims of or by any Related Person of Lessor or any other third person or entity.⁴

Section 13.4 requires NSC to "fully support and cooperate (and shall cause each Related Person of Lessor to fully support and cooperate) with" TWPA "in the conduct of its Operations and the exercise of [its] rights hereunder, and in carrying out and otherwise giving full force and effect to the purpose and intent of this Agreement."⁵

Section 1.5(b) of the TWPA-NSC Lease limits NSC's ability to use, lease, and grant easements on the Property. It states that "such uses, leases and easements shall be for purposes and activities that are not and will not unreasonably interfere with any of Lessee's or any Sublessee's Operations on the Property, or Lessee's enjoyment of the rights granted to it under this Lease."⁶ Therefore, NSC's rights under Section 1.5(b) of the TWPA-NSC Lease *do not* include the right to grant an easement or lease on the Property to FFP if such an easement or lease will result in the GES Project unreasonably interfering with TWP's Operations on the Property, or with TWP's enjoyment of the rights granted to it under this Lease.

Section 1.5(c) of the TWPA-NSC Lease also restricts NSC's rights under the lease by limiting the terms and conditions of the leases and easements NSC can enter into "after the

⁴ NSC Lease at p. 14 (emphasis added).

⁵ *Id.* at p. 26.

⁶ *Id.* at p. 4.

Effective Date.”⁷ It requires that “any such leases and easements . . . shall expressly provide that they are subject and subordinate in all respects to this Lease and to the rights of Lessee [i.e., TWP] and any Sublessees hereunder.”⁸ Since the Effective Date is long past, under Section 1.5(c), NSC’s rights under the TWPA-NSC Lease *do not* include the right to lease the Property to any third party (including FFP) unless the third party’s rights are subject and subordinate to TWP’s rights under the TWPA-NSC Lease. Therefore, any leases or easements that NSC enters into with any third-party would also be subject and subordinate to TWP’s rights under the TWPA-NSC Lease.

Under Section 5.2, NSC’s rights under the TWPA-NSC Lease also *do not* include the right to “engage in any activity on the Property that has, or could reasonably be expected to have, a Material Adverse Effect on . . . (iv) the output or efficiency of Lessee’s . . . Generating Units located on the Property or that are part of a Project.”⁹ Section 5.2 further provides:

The terms "**Material Adverse Effect**" and "**Materially Adversely Affect**" shall mean the causing of an adverse or negative effect, impact, diminution (including any diminution in value), impairment or interference on, with, to or of (a) Lessee's business or operations, (b) the amount of electricity generated by the Wind Power Facilities or (c) Lessee's Project, which, when cumulated with all other such effects, impacts, diminutions, impairments and interferences over the course of a single calendar year, results in decreased Gross Revenue or increased costs and expenses (excluding any consulting or professional fees) to Lessee of Twenty-Five Thousand Dollars (\$25,000) or more.¹⁰

The evidence shows that the reduction in wind speed attributable to the GES Project could seriously reduce the amount of power produced by TWPA’s turbines, resulting in potential financial losses to TWPA that greatly exceed the \$25,000 threshold for Material Adverse Effects under the TWPA-NSC Lease. Table 4-3 of the 2021 WREA Study Report indicates that if the upper reservoir is built, it would cause annual wind speed changes (measured at 80 meters) that have a Root Mean Square Error (“RMSE”) of 3.56.¹¹ When a RMSE of 3.56 is applied to the power curves for the TWPA’s turbines, it shows that the reduction in wind speed caused by the upper reservoir would reduce each affected turbine’s output by thousands of megawatt hours, resulting in each experiencing hundreds of thousands of dollars in lost generation revenues and lost RECs. If such losses are experienced by just the wind turbines adjacent to the proposed upper reservoir site, it will cause TWPA millions of dollars in annual losses.

Because the TWPA-NSC Lease expressly prohibits NSC from doing anything that would interfere with TWPA’s rights under the lease, NSC cannot lease or grant an easement on the Property to FFP for the GES Project. The only way this could occur is if TWPA consents to the project’s construction and agrees to waive its rights under the lease. *TWPA has not given this consent or waived its rights.* Therefore, the Department of Ecology should issue an order that the EIS process shall be held in abeyance until FFP demonstrates that it has: (1) secured the requisite

⁷ *Id.*

⁸ *Id.*

⁹ *Id.* at p. 13.

¹⁰ *Id.*

¹¹ 2021 WREA Study Report at p. 23.



property rights to construct the upper reservoir on property currently leased by TWPA, which would include FFP obtaining TWPA's written consent to the construction of the GES Project, as the proposed location; (2) mitigated the adverse impacts on TWPA's wind farm caused by the GES Project and TWPA has approved the mitigation measures; and (3) entered into an agreement with TWPA to compensate TWPA for any adverse impacts that the GES Project causes to the TWPA wind farm that are not or cannot be mitigated, so that TID's ratepayers are not stuck paying the costs of such adverse impacts.

B. The Department of Ecology should reject the 2021 WREA Study Report and order that a new, independent study be performed that accurately addresses all of the GES Project's potential impacts on TWPA's wind farm.

The 2021 WREA Study Report should still not be relied upon by the Department of Ecology because it substantially underestimates the wind pattern changes and energy output reductions caused by the upper reservoir and fails to address the other potential impacts that the GES Project could have on TWPA's turbines. This underestimation occurs because the 2021 WREA Study Report is extremely flawed and does not comport with commonly accepted wind power study practices and industry standards.

1. The 2021 WREA Study Report relies on insufficient and inapplicable data, which underestimates the effects that the GES Project will have on wind patterns.

The 2021 WREA Study Report concluded that there would be minimal impact on wind flow by examining data from an inappropriately limited sample. In fact, the study examined the data from *only one* Met Tower. Several characteristics of this source demonstrate that it is not representative of the significant adverse effects that the upper reservoir's 19-story embankment would have on TWPA's power generation activities. For one, the Met Tower is at a significantly lower elevation than is necessary to estimate the impact that the upper reservoir's embankment would have wind flows. For another, the Met Tower is a long distance away from TWPA's turbines, meaning it may have underestimated the impact of reduced wind flow on those turbines. Both of these limitations of the Met Tower as a source of data are demonstrated by the following "Figure ES-1: Location Plot," which "displays the area surrounding the [upper] reservoir."¹² The red star at the top (labeled "T10P"), is the location of the Met Tower. The elevations are the figures in the grey boxes (*e.g.*, 2600, 2700, 2800, *etc.*).

¹² 2021 WREA Study Report at p. 2.

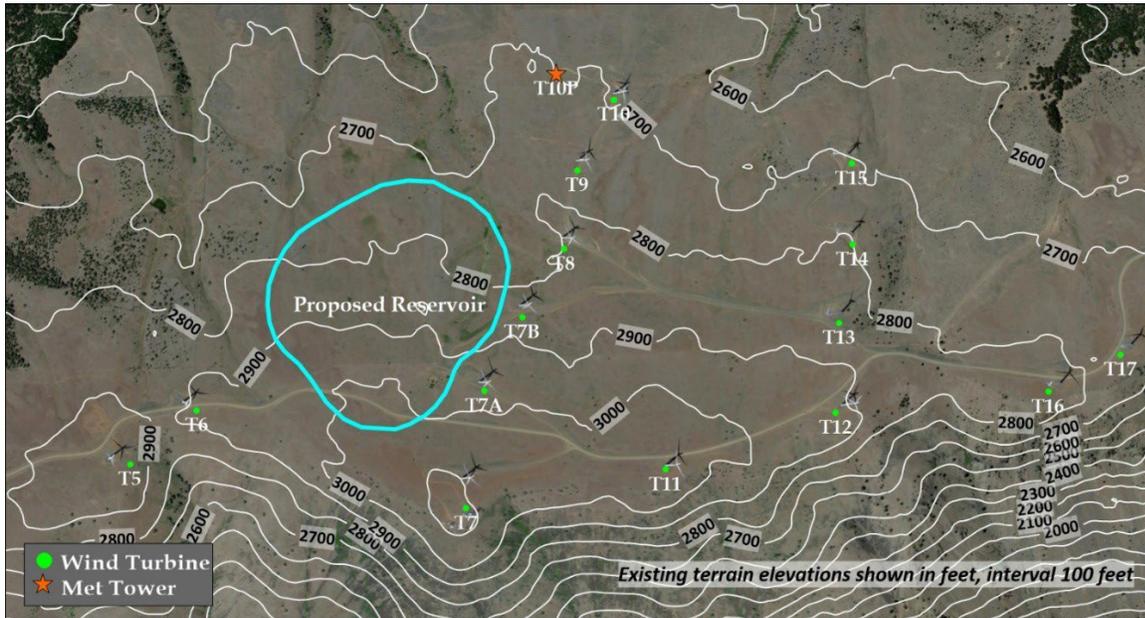


Figure ES-1 (above) shows that the Met Tower is a significant distance from all the turbines in the wind farm except one (T10) and is at an elevation that is 100 meters or more lower than all but two of the turbines (T10 and T15).¹³ More importantly, the data from this Met Tower is inapplicable to most of the turbines at the wind farm because the tower’s wind readings are taken from an elevation of between 40 and 80 meters above the tower’s 2700-meter elevation, which means that these wind readings are at most from a 2780-meter elevation. This elevation is well below the elevation of all but two of the turbines (T10 and T15). All other turbines are located at ground level elevations of 2800 to 3000 meters and their blade height is 120 meters above these ground elevations. Therefore, the Met Tower’s wind pattern readings used in the WRF model, and incorporated into 2021 WREA Study Report through the latter’s use of the WRF, are unsuitable to determine wind pattern changes for 13 of the 15 nearby turbines because they are taken from an elevation that is hundreds of meters below the wind patterns experienced by these 13 turbines.¹⁴ As such, the WRF model does not provide relevant, accurate data regarding wind patterns for the vast majority of the turbines at the wind farm. To be accurate and reflective of the wind patterns these turbines experience, the wind pattern readings should have been taken at much higher elevations.

The Met Tower’s wind pattern readings would not even be accurate for turbines T10 and T15 because they were only taken from elevations between 40 and 80 meters above their 2700-meter ground level elevation. However, to examine relevant wind patterns for turbines, data from at least a 120-meter height is needed because the turbines’ swept area¹⁵ extends to approximately 120 meters above the ground. Section 3 of the 2021 WREA Study Report states:

¹³ *Id.*

¹⁴ *Id.* (referencing Figure ES-1).

¹⁵ The swept area is the area of the circle created by the blades as they sweep through the air. The variable swept area is used to improve efficiency of the wind turbines.

Existing data was provided by TID consisting of 10-minute meteorological data (wind speed, wind direction, and horizontal turbulence) measured on the 80-meter tower shown in Figure 3-1, and 10-minute power generation for all wind turbines.¹⁶

On January 4, 2021, TID asked the following question to FFP, the listed owner of the GES Project, regarding the 80-meter height:

Have results across the swept area of the WTG rotors been analyzed to assess changes in the variation over its height? Does the model show a change in wind shear from before and after reservoir construction in terms of wind speed, direction or turbulence?¹⁷

FFP responded:

Yes, although the modeling was conducted for heights above 80-m (turbine hub height), the results are presented only for surface level, 40-m and 80-m heights. Both 40-m and 80-m represents the lower half and center of the swept area of the WTG rotors respectively. The effect on wind parameters decreases with height, therefore focusing on the 40-m to 80-m range is a conservative approach (i.e., effects above 80 m will be lower than at this level).¹⁸

In its May 27, 2021 questions, TID asked this follow-up question to the question above:

Referring to FFP’s response, ***please state whether ERM studied the wind shear across the rotor swept area between 40 meters and 120 meters above the ground.***¹⁹

FFP responded:

ERM examined the changes in wind due to the presence of the proposed upper reservoir for the vertical heights of 40-80 meters. In our analysis the layer from the surface (near ground level) and 40 meters had the greatest impact from the reservoir, although this was very small at the turbine locations and largest directly over the reservoir. ***As stated previously our analysis was based on the region from the ground surface up to 80 meters.***²⁰

FFP admits that it relied on wind readings only from “vertical heights of 40-80 meters” above the ground level of the Met Tower, which Figure ES-1 shows to be 2700 meters. Therefore, the WRF

¹⁶ 2021 WREA Study Report at p. 2.

¹⁷ FFP’s July 1, 2021 Response, Attachment 10, Q&A No. 7.

¹⁸ *Id.*

¹⁹ *Id.* (emphasis added).

²⁰ *Id.* (emphasis added).

model relied on wind readings from only 2780 meters and below, even though 13 of the 15 turbines adjacent to the upper reservoir are located at ground elevations of 2800 meters or higher.

In addition, in response to a question from TID regarding the need for a larger Met Tower dataset, FFP indicated that “**observed data for 2014 at the 80-meter meteorological tower were requested but not available.**”²¹ Therefore, the Met Tower data used in the WRF model for 2014 did not include tower readings from 80-meters. The *only* 80-meter Met Tower data used in the WRF model was from one year (2019). ERM’s statements suggest that it only used 40-meter Met Tower data from 2014. However, tower readings from that elevation are worthless, especially when you factor in that the Met Tower is at least 100 meters below 13 of the 15 turbines located near the upper reservoir, including T7A and T7B. Thus, the Met Tower data used in the WRF model is completely unrepresentative of the wind patterns experienced by any of the turbines at the wind farm.

Had the 2021 WREA Study Report used Met Tower data from a 120-meter elevation, it would have been able to more accurately address wind patterns and wind pattern changes – *e.g.*, wind shear across the swept area, which is necessary to determine effects that wind pattern changes can have on the turbine blades’ rotation, structural loading variations on the rotor, as well as rotor fatigue. The report’s failure to use data from elevations of at least 120-meters above the ground level of turbines T10 and T15 demonstrates that the Met Tower’s wind pattern readings were even inapplicable to these two turbines. Put another way, the WRF model’s use of wind readings from elevations between 40 and 80 meters above the Met Tower’s 2700-meter ground level elevation proves that all the data used in the model is erroneous because the data is inapplicable to and cannot predict wind pattern changes for any of the turbines in the wind farm. Therefore, the WRF model’s conclusions are equally erroneous and should not be relied upon.

2. The 2021 WREA Study Report relies on insufficient turbine generation data, which underestimates the effects that the GES Project will have on wind patterns and on the energy output of TWPA’s turbines.

The 2021 WREA Study Report used only two years of turbine generation data to estimate how changes in wind patterns would affect TWPA’s power generation, which likely resulted in an underestimate of the harm to TWPA. Section 1.3 of the 2021 WREA Study Report provides the following description of the “Study Approach” ERM used with WRF model:

WRF modeling was conducted for 2 full years (2014 and 2019); based on an examination of **historical generation data, the May–July period of each year from 2014 through 2019 showed the highest periods of monthly generation, with 2014 and 2019 showing the highest monthly generation over all 6 years.** 2014 and 2019, therefore, were analyzed to determine whether the proposed reservoir would have any effects on winds and turbulence in the vicinity of the reservoir, specifically at the wind turbines closest to the reservoir.²²

²¹ *Id.*

²² 2021 WREA Study Report at p. 2 (emphasis added).



The foregoing shows that although ERM had six years of generation data, it only chose to include in its modeling two years of data from 2014 and 2019 because these two years had the “highest monthly generation over all 6 years.”²³ ERM “cherry picked” these two years to increase, and thereby overstate, the average monthly generation. This overstated average monthly generation was then used to overstate the average, assumed monthly wind speeds for the entire wind farm. Overstating these average monthly wind speeds resulted in the WRF model finding that wind speed and direction changes caused by the upper reservoir were lower relative to this overstated average. Put another way, by overstating wind speeds, ERM was able to understate the potential wind pattern changes the reservoir would cause. However, if the average wind speeds had been based on all six years of generation data, these average assumed wind speeds would have been much lower and the wind speed and wind direction changes identified in the model would represent a much more significant effect on these wind patterns.

On March 31, 2021, TID submitted the following statement and question to FFP:

A single (or two) year of data does not establish whether the model represents interannual variability patterns or possible wind speed frequency distributions. We suggest a minimum of five years of data be used, modeled from 2014 – 2019. Please state whether Rye is willing to update its analysis to use a minimum of five years of data. If not, *please explain why and how a one- or two-year model is superior to a five to ten year model.*²⁴

FFP responded:

Given the similar characteristics of both the modeled meteorology for 2014 and 2019 and the results of the WRF modeling for all time periods, it is reasonable to conclude that *additional modeling would not alter the conclusions described in this report.*²⁵

The modeled meteorology for 2014 and 2019 have “similar characteristics” because the data has been “cherry picked” and manipulated so that it yields similar results. The reason ERM did not use a larger dataset is because it would have showed greater adverse effects on the wind patterns.

In its May 27, 2021 questions, TID asked this follow-up question to the question above:

Referring to FFP’s response, *please explain the scientific basis ERM relies on to make such speculations?*²⁶

FFP responded:

²³ *Id.*
²⁴ FFP’s July 1, 2021 Response, Attachment 10, Q&A No. 21 (emphasis added).
²⁵ *Id.* (emphasis added).
²⁶ *Id.* (emphasis added).



The basis for our conclusion is based on examination of the time series of both the observed and WRF wind data which showed two distinct wind characteristics. One is the dominant westerly flow regime. This regime typically had the largest wind speeds, correlated well with the largest power production and was consistent with wind statistics at other National Weather Service observed data in the region. The second was a northeast-east wind regime which typically had lower wind speeds, lasted for shorter periods, and would not result in wind flow from the proposed reservoir to the wind turbines.²⁷

The foregoing answers show that FFP and ERM cannot scientifically justify ERM’s use of only two years of generation data in its model. The “observed” wind data from the Met Tower is inapplicable for the reasons detailed above and the WRF wind data alone is not granular enough to make any predictions about specific wind pattern changes at the wind farm. A basic tenet of any scientific analysis is that more data is always better than less data, especially when that data is from the very data points (*i.e.*, the turbines) that the analysis is intended to address. It is clear that ERM “cherry picked” this generation data because it wanted to engineer the WRF model’s results to show minimal impacts from the upper reservoir. Simply put, ERM did not want to reveal the truth.

ERM’s attempts to manipulate the results of the WRF model are further demonstrated in its responses to the following questions. On March 31, 2021, TID stated:

Regarding FFP’s response to Question 3 of February 22, 2021 questions, ERM states that “a climatological analysis would define the existing wind characteristics for a longer period of record than a single year but would not address potential impacts from the proposed reservoir, which may occur during specific short-term wind conditions.” ***The establishment of a climatological set of statistics would allow for a more robust and statistically significant analysis. This will ensure a better understanding of whether the years being modeled (2014 and 2019) are at all different than normal operating conditions. Please explain how ERM plans to ensure the years being modeled are representative of normal operating conditions.***²⁸

FFP responded:

The time period selected for this study provides assurance that selection of a different time period or length of record would not alter the conclusions of the study. It is useful to point out the primary objective of this study, which is to determine whether or not presence of the reservoir will adversely affect winds and TKE in a way that could also adversely affect power generation (lower wind speeds, higher TKE). Changes in winds and TKE

²⁷ *Id.*

²⁸ FFP’s July 1, 2021 Response, Attachment 10, Q&A No. 18 (emphasis added).



are estimated by running the WRF model with sufficient resolution to resolve the surface characteristics of the upper reservoir (i.e., terrain and land use) and examining differences that are predicted to occur for wind speed, wind direction, and turbulence, both without the presence of the upper reservoir and then with the reservoir added. The representative wind conditions that were used for the modeling (2014 and 2019) reflect wind characteristics that correlate with peak wind power generation but also contain periods of low wind speed and low generation. As explained in this report, on average there is no change in wind speed or turbulence at turbine locations due to the addition of the reservoir and these results are consistent across all time periods modeled. Increases and decreases do occur but are balanced such that for every increase there is a corresponding decrease, and vice versa.”²⁹

In its May 27, 2021 questions, TID asked this follow-up question to the question above:

Referring to FFP’s response, *please explain whether it is ERM’s position that a data set with a longer duration would not produce statistically more significant results.*³⁰

FFP responded:

The specific limited periods used in for the high-resolution WRF analysis reflect wind characteristics that are dominant in a long period of record. ERM believes that a full multi-year WRF analysis would not alter the conclusions. In ERM’s initial phase of the study we used a full one-year WRF simulation coupled with the observed data to isolate specific periods for the high-resolution simulations with and without the reservoir. ERM then repeated this analysis for a second full year (2014), extracted a new set of periods to conduct higher resolution WRF simulations, again, with and without the reservoir. The full year wind statistics from the WRF simulations for 2014 showed essentially the same effects on wind and turbulence characteristics as found in the simulations for 2019. **Observed data for 2014 at the 80-meter meteorological tower were requested but not available.** Our conclusions regarding the wind impacts of the proposed reservoir for the 2014 simulations were unchanged from the 2019 results.³¹

FFP’s foregoing answer reflects its weak attempt to evade the fundamental flaw in its analysis, which is the exclusion of multiple years of lower generation data. This lower generation data, would have yielded lower average, assumed monthly wind speeds in the model. When called out on this, FFP says that ERM compared the data from the two highest generation years (2014

²⁹ *Id.*

³⁰ *Id.* (emphasis added).

³¹ *Id.* (emphasis added).

and 2019) and that this data showed “essentially the same effects on wind and turbulence.”³² This statement makes sense because the data has been “cherry picked” so that it yields these similar results. However, had FFP answered the question asked, it would have had to admit that if it used the generation data from the other four years, this data would have yielded much lower wind speeds in the WRF model. These lower wind speeds would have shown much more significant impacts on wind patterns from the construction of the upper reservoir. The more significant the change in wind patterns, the higher the likelihood that the energy output of TWPA’s turbines will be reduced. Moreover, significant changes in wind patterns are likely to cause increased turbulence intensity, which in turn is likely to increase wear and tear on the turbine blades.

FFP’s answer also shows that it only used one year (2019) of 80-meter Met Tower data. ERM contends that this data was requested but was not available. What ERM fails to mention is that it could have asked Siemens for additional data but it and FFP chose not to do so. Because the WRF model only used one year (2014) of 80-meter Met Tower, and because the Met Tower is located at an elevation that is 100 meters or more below all but two of the turbines near the upper reservoir, this Met Tower data is worthless and cannot be relied upon. ERM’s use of this limited and unrepresentative data, coupled with the perverse effects it has on the WRF model’s conclusions, demonstrates that the model’s results and the associated conclusions in the 2021 WREA Study Report are inaccurate and unreliable.

3. The 2021 WREA Study Report does not use the necessary uncertainty analysis to estimate the GES Project’s effects on wind patterns and on the energy output of TWPA’s turbines.

The 2021 WREA Study Report deviated from industry practice in failing to use an uncertainty analysis to estimate the changes to wind flows caused by the GES Project’s construction. Thus, it is not a sound basis to estimate reductions in wind flows in the project area. The production of *wind energy* involves *uncertainties* due to the stochastic nature of wind speeds and the variation of the power curve. Because the energy production in a wind farm follows a stochastic principle, modeling such production requires a statistical analysis in which production estimates are associated with occurrences probabilities. The evaluation of a wind resource and the subsequent estimation of that wind resource’s annual energy production (“AEP”) is a highly uncertain process. Uncertainty arises at all points in the process, from measuring the wind speed to the uncertainty inherent in a power curve. A proper assessment of uncertainty is critical for predicting future wind patterns and speeds. An uncertainty analysis is always performed as part of a wind farm energy yield assessment because the economic viability of a wind farm requires an analysis of the risks associated with production uncertainties. Thus, it is standard industry practice for an uncertainty assessment to be used when judging the feasibility of any potential wind energy development.

Each wind farm development’s uncertainties must be individually determined and then calculated for the entire project. Often, project uncertainties are presented by giving the probabilities of exceedance in terms of the expected annual production of the wind farm. Two

³² *Id.*

methods for calculating uncertainties are the deterministic method and the Monte Carlo analysis.³³ The deterministic method is based around the assumptions that the different uncertainties are independent and that there is a linear relationship between the input uncertainties and the output uncertainty. The various individual uncertainties are summed using the Root Means Squared (“RMS”). This method allows for the magnitude of the individual uncertainties to be determined. The Monte Carlo method for estimating energy uncertainties is a stochastic method simulating the behavior of a physical system multiple times. In a wind farm uncertainty analysis, these simulations produce wind farm outputs while randomly varying the uncertainties according to a defined probability distribution. The final uncertainty estimates are then determined from the distribution of the simulated outputs. This allows for non-linear relationships between the different uncertainties since the final uncertainty is not the result of summing the various uncertainties.³⁴ It is almost certain that Siemens conducted such an uncertainty assessment when it analyzed the feasibility and risks of TWPA’s wind farm.

The WRF model used by ERM in this case *does not* rely on any such uncertainty assessment. On January 4, 2021, TID submitted the following questions to FFP:

What is the change in power generation from the model? *What [is] the associated uncertainty?*³⁵

FFP responded:

Wind is the driving force for wind turbines to generate power. Since WRF predicted changes in wind speed at hub height after the proposed reservoir are small enough not to be distinguishable in terms of the amount of power generated from other factors, and are on average close to zero, there is no need for further modeling of power generation.³⁶

FFP’s response to the foregoing questions means that ERM did not perform an uncertainty analysis because it did not believe it was needed. ERM is wrong. The WRF predicted changes in wind that did in fact reduce the power generated by the two turbines the WRF model measured (*i.e.*, turbines T7A and T7B). As detailed above, when TID applied the 3.56 annual RMSE, referenced in Table 4-3 of the WREA,³⁷ to the power curves for turbines T7A and T7B, it determined the wind speed impacts identified would reduce the output of these turbines by thousands of megawatt hours, resulting in hundreds of thousands of dollars in lost generation revenues and lost RECs.

ERM’s stated reason for failing to perform an uncertainty analysis was that the data it was relying on for the WRF model was too limited. This fact was laid bare in FFP’s response to questions submitted to it by TID on February 22, 2021. In this response, ERM states “*we do not believe that uncertainty can be calculated meaningfully for these modeled data, as they are not*

³³ *Id.*

³⁴ *Id.*

³⁵ FFP’s July 1, 2021 Response, Attachment 10, Q&A No. 13 (emphasis added).

³⁶ *Id.*

³⁷ 2021 WREA at p. 23.

measurements with known instrument uncertainty ranges.”³⁸ However, to the extent that the data was insufficient, it was *only because* ERM and FFP chose to artificially limit the data they considered and refused to get the necessary data from Siemens.

C. Because the 2021 WREA Study Report is flawed and reaches inaccurate conclusions, the Department of Ecology should reject it and direct FFP to pay for a new, independent study to be performed.

Because the WRF model does not comport with the standard industry practice of using an uncertainty analysis and relies on extremely limited and faulty turbine generation data that does not accurately reflect how changes in wind patterns would affect the output of the turbines at the wind farm, TID requests that the Department of Ecology reject the WRF model and the 2021 WREA Study Report, which relies on this model, and direct that a new study be performed which more accurately addresses these issues and uses a more robust data set. Specifically, the Department of Ecology should require that this new study: (1) be performed by an independent third-party chosen by TID and FFP and paid for by FFP; (2) comport with industry practices and rely on data and input from Siemens and models and methodologies that are commonly used, with abundant prior case examples reflecting the use of these models and methodologies; (3) provide measures to mitigate any identified adverse impacts the GES Project causes; and (4) be used to inform the development of the Final EIS so that the Final EIS’s conclusions regarding the impacts of the GES Project on TWPA’s operations are based on sound evidence.

The Department of Ecology should require that this new study address the following issues regarding the turbines’ output and operations:

1. Whether the GES Project’s upper reservoir, with its 19-story embankment, will change the area’s topography enough to cause changes to wind patterns within TWPA’s wind farm, which could:
 - (a) reduce the output of energy and RECs that TWPA’s turbines produce;
 - (b) increase wind turbulence intensity causing: (i) damage to the turbines, (ii) increased maintenance and repairs to address this damage, and/or (iii) a reduction in the turbines’ design and service lives, which would reduce the turbines’ overall output; and/or
 - (c) invalidate the warranties that TWPA has on the wind turbines, depriving TWPA of their crucial energy output and design and service lives guarantees.
2. Whether the GES Project’s new reservoirs could saturate the foundations of the turbines, making them unstable and could:
 - (d) damage the turbines;
 - (e) increase maintenance and repairs on the turbines to address this instability and damage;
 - (f) reduce the turbines’ design and service lives, thereby reducing their overall output; and/or

³⁸ *Id.* at Q&A No. 19 (emphasis added).

- (g) invalidate the warranties that TWPA has on the wind turbines.
3. Whether the GES Project could damage or interfere with the operations or output of TWPA's turbines during construction when, for example, FFP performs the excavation or drilling for the reservoirs and underground tunnels.

Each of these studies are crucial to determining all of the potential adverse impacts that the GES Project could have on TWPA and its operations. The following provides additional information regarding why these studies are so crucial.

1. The study addressing the GES Project's impacts on TWPA's turbine warranties is crucial and should not be ignored.

Most of TWPA's turbines were manufactured by Siemens. Siemens has provided TWPA with a series of warranties on the energy output, design life, and service life of these turbines. Siemens issued these warranties to TWPA contingent on a series of factors: (1) Siemens's analyses of the wind patterns and conditions around the turbines (e.g., wind direction and turbulence); (2) the effect of existing land uses and topography on these wind conditions; and (3) the turbines' performance and operational wear and tear observed under the foregoing conditions. Because existing land uses and topography were used to establish the terms and conditions of the turbines' generation output, design life and service life warranties, any change to these conditions or any change to the wind patterns and conditions could invalidate these warranties, thereby causing significant economic harm to TID's ratepayers.

Like the FLA, which failed to address the possible changes to the design or service lives of TWPA's turbines, the draft EIS does not appropriately reckon with these serious potential harms to TWPA and its ratepayers. In refusing to analyze the impact of changed wind patterns on the design and service lives of the turbines (and, by extension, the risk that the construction of the GES Project would lead to the invalidation of TWPA's warranties with Siemens), FFP cited a study produced by ERM entitled Meteorological Analysis of the Impacts of a Proposed Reservoir on the TWPA Wind Farm ("Wind Effects Report"). However, the Wind Effects Report is not a reliable estimate of the degree to which the GES Project would alter wind patterns in the project area. In particular, the Wind Effects Report relied on the WRF model to claim that the proposed GES Project would minimally impact the wind flows in and around two TWPA turbines located near the proposed project site. As discussed previously, however, the WRF model is seriously deficient as a measure of changes to wind patterns in the area because it uses misleading and "cherry-picked" data to understate the level of harm to TWPA's operations. Moreover, FFP has not provided any other evidence besides the flawed Wind Effects Report to show that changes to wind patterns will be minimal.

In particular, changes to wind patterns in the project area may adversely affect the service and/or design lives of TWPA's turbines. A turbine's service life is determined by examining the mechanical loading on several of the turbine's key components: specifically, its blades, drive train, generator, tower, and foundation. The International Electrotechnical Commission ("IEC") "61400" is the international technical standard published by the IEC for wind turbines. The IEC

61400 is a set of design requirements made to ensure that wind turbines are appropriately engineered against damage from hazards within their planned lifetime. In accordance with IEC 61400, wind turbines are classified based on the specific wind climate the turbine will be exposed to. That wind climate is modeled during the construction and design phase using long-term wind measurements. These models look at three parameters to determine the turbine's winds class: (i) annual average wind speed at hub height, (ii) the turbulence intensity at a wind speed of 15 m/s and (iii) the extreme 50-year gust that is sustained for 3 seconds.

A turbine must be certified for the corresponding wind class of the site. This requires the turbine's design to fall within the loading envelope of the above three wind parameters. The suitability is typically assessed by the turbine manufacturer and certified with a design life warranty. TWPA's existing turbines are warranted by Siemens under the existing wind regime – that is, on the assumption that wind patterns will stay largely the same. However, it is an undisputed fact that the upper reservoir will change the wind regime for at least two of the fifteen turbines surrounding it.³⁹ The analysis provided by ERM – FFP's own consulting firm – shows that the upper reservoir's construction would have a significant impact on the energy output of two of TWPA's turbines. In particular, the data under the "Statistical Analysis" header in Section 4 of the WREA shows a significant reduction in the energy output of turbines T7A and T7B when the 3.56 annual RMSE in Table 4-3⁴⁰ is applied to their power curves. Although there is not enough data to confirm that the reservoir's construction would adversely impact the other turbines, the reservoir's significant impacts on these two turbines suggest that other turbines in the area may be similarly affected. Therefore, the GES Project is likely to cause significant changes to wind patterns in the area, which could cause the Siemens turbine warranties to be invalidated.

The invalidation of the warranties would cause significant harm to TID and its ratepayers because these warranties guarantee that turbines will produce a certain amount of energy and RECs and if they fail to do so, TID is compensated for this shortfall. Removing this safeguard risks exposing TID to serious economic losses if turbine power generation is reduced for a period of time. Importantly, because TID is a not-for-profit, "non-public utility," any costs it incurs from such economic impacts would be passed on to its ratepayers. Thus, the draft EIS did not give appropriate consideration to the risks associated with the possible invalidation of the Siemens warranties, which in turn could be caused by significant changes to wind patterns in the area associated with the GES Project.

In addition to incorporating findings of the requested studies identified herein, the draft EIS should be modified to make construction of the GES Project contingent on: (1) TWPA consenting to the project proceeding; (2) FFP demonstrating that it has taken the necessary actions, identified by TID, TWPA and Siemens, to prevent the GES Project from invalidating Siemens' warranties on TWPA's turbines; and (3) FFP entering into an agreement with TWPA that would make FFP and the GES Project liable for any damages or other losses resulting from the invalidation of Siemens' warranties due to the construction of the GES Project.

³⁹ 2021 WREA Study Report at p. 23.

⁴⁰ *Id.*

2. The study addressing the GES Project’s impacts on TWPA should include an analysis of how the vibrations from construction could damage TWPA’s turbines.

The independent studies TID proposes should consider the potential damage to TWPA’s turbines that could result from vibrations produced by the GES Project’s construction. As the draft EIS itself notes, the GES Project would require a number of construction-related activities to take place in the project area. The draft EIS points out that some of these construction activities are “[l]arge-scale excavation and blasting to construct the reservoirs,” in addition to “[b]lasting and tunneling to construct the underground powerhouse and conveyance system.”⁴¹ Therefore, a study of the potential impacts of these vibrations on TWPA’s turbines should be included in the new, independent studies directed by Department of Ecology.

TID proposes the foregoing independent studies because they are the only way to ensure that the Final EIS is unbiased, scientifically based, objective and comprehensive. If the study determines that the GES Project will cause any of the foregoing adverse impacts to TWPA’s wind farm, the study should propose mitigation measures that would enable FFP to prevent these impacts. The Department of Ecology should also include in the Final EIS a process for TWPA and other stakeholders to be compensated if the mitigation measures identified in the studies fail, causing them to suffer losses or other damages.

D. The draft EIS should be amended to more adequately and accurately address all the potential environmental impacts that will result from the construction and operation of the GES Project, including those raised by TID and FERC.

The purpose of the EIS is to provide “an unbiased and scientifically based analysis, which provides a comprehensive and objective evaluation of probable environmental impacts, reasonable alternatives, and mitigation measures that would avoid or minimize impacts,” and “will be used to inform permit decisions and potential changes to the proposed project.”⁴² As currently written, the draft EIS *does not* fulfill this purpose, because it fails to accurately and adequately address all of potential adverse impacts that could result from the construction of the GES Project in the middle of TWPA’s wind farm. Therefore, TID submits comments regarding the following sections of the draft EIS in the hope that the Final EIS will be more fully and accurately address all of the potential impacts that the GES Project could have on TWPA, TWPA’s turbines, TWPA’s renewable energy output, and the avian species in the area:

- Section 4.4 Energy Resources
- Section 4.5 Public Services and Utilities
- Section 4.7 Terrestrial Species and Habitats
- Section 4.11 Land Use
- Section 6.2 Cumulative Impacts by Resource
- Appendix E Energy Resource Analysis Report

⁴¹ Draft EIS Section Appendix I at p. 28.

⁴² Washington Department of Ecology, State Environmental Policy Act Draft Environmental Impact Statement, for the Proposed Goldendale Energy Storage Project, Publication No. 22-06-006 (dated June 2022) (“draft EIS”), Appendix A Scoping Summary Report, Section 1.2 EIS Process at p. 1.

- Appendix G Terrestrial Species and Habitats Resource Analysis Report
- Appendix I Environmental Health Resource Analysis Report

TID's comments request that the Department of Ecology require FFP to pay for certain independent studies that: (1) would evaluate the probable environmental impacts of FFP building the GES Project in the middle of the TWPA wind farm, (2) identify reasonable alternatives to the GES Project, and (3) identify mitigation measures that would avoid or minimize impacts. TID believes that such independent studies are the only way to ensure that the Final EIS reaches unbiased, scientifically based, objective and comprehensive conclusions regarding the potential effects that the GES Project will have on TWPA, TWPA's production of renewable generation, and the birds and bats that could be killed due to increased avian strikes.

1. The discussion of Energy Resources in Section 4.4 and the Energy Resource Analysis Report in Appendix E of the draft EIS should be amended to reflect that the GES Project will impact TWPA's wind farm.

Draft EIS Section 4.4, which is entitled "Energy Resources," indicates that it addresses "the type and quantity of energy resources used in construction and operation of a project can affect overall availability of energy sources for other uses."⁴³ The "Key Findings of the Energy Analysis" states:

Local energy resources would not be constrained by construction or operation of the proposed Project. *Energy use would be consistent with local and regional energy plans and would not impact adjacent uses.*⁴⁴

Draft EIS Section 4.4.2.1, which addresses the direct and indirect impacts from construction of the GES Project, indicates that "the structures that are planned to be part of the operating proposed project would not have prominence above ground level tall enough to affect the generating potential of adjacent wind turbines."⁴⁵ Section 4.4.2.1 concludes that "there would be no significant adverse impacts with respect to adjacent energy uses during construction."⁴⁶

Draft EIS Section 4.4.2.2, which addresses the direct and indirect impacts from operation of the GES Project, does not identify any impacts from the operation of the project and concludes in the discussion of indirect impacts that:

The project would influence the energy flow at the interconnection point to the surrounding electrical grid. The analysis in Appendix E determined that additional reinforcement is not necessary for transmission infrastructure near the interconnection point. Therefore, *the proposed project would have*

⁴³ Draft EIS Section 4.4 at p. 93.

⁴⁴ *Id.* (emphasis added).

⁴⁵ Draft EIS 4.4.2.1 at p. 95.

⁴⁶ *Id.*

*no significant adverse impacts on adjacent energy sources with respect to energy flow fluctuations.*⁴⁷

Draft EIS Section 4.4.2.3, which addresses “Proposed Mitigation Measures,” indicates that “[n]o mitigation measures would be required because there would be no significant adverse impacts.”⁴⁸ Therefore, draft EIS Section 4.4.2.4 concludes that there “would be no significant and unavoidable adverse impacts related to energy resources from construction or operation of the proposed project.”⁴⁹

The Energy Resource Analysis Report in Appendix E of the draft EIS contains nearly identical statements and reaches the same conclusions as those set forth above.⁵⁰ Neither Section 4.4 of the draft EIS nor Appendix E identifies the particular source used to support the foregoing statements. However, Appendix E does list the FLA and the attached 2021 WREA Study Report among its references.⁵¹ To the extent the above-quoted EIS statements are premised on the 2021 WREA Study Report, these statements are erroneous and should be amended. As detailed above, when the 2021 WREA Study Report’s findings are applied to the power curves for TWPA’s turbines, it is apparent that the GES Project will significantly reduce their energy output. In addition, as also detailed above, the 2021 WREA Study Report’s findings significantly understate the effects that the GES Project will have on TWPA’s turbines because these findings are based on extremely limited, “cherry picked” and erroneous data, as well as faulty assumptions and unproven study methodologies. Therefore, if the above-quoted statements and conclusions from the draft EIS are based on the 2021 WREA Study Report, they too are erroneous and should be amended to reflect the findings made by the independent studies TID proposes in these comments. These studies would correct the errors in the 2021 WREA Study Report and would ensure that the Final EIS reaches unbiased, scientifically based and comprehensive conclusions regarding whether the structures that are planned to be part of the operating proposed project would have prominence above ground level tall enough to affect the generating potential of adjacent wind turbines.

In addition, the draft EIS’s conclusions are unreasonable in light of the proposed location of the upper reservoir. Besides being inside TWPA’s wind farm, the proposed location of the upper reservoir is “on the Columbia Hills adjacent to a high desert plateau above the Columbia River (upper plateau) at an elevation approximately 2,800 feet above sea level.”⁵² This area of the Columbia Hills is extremely important to the wind farm because it is relatively unobstructed and allows wind speeds to increase as they are entering the wind farm from the west. Therefore, the installation of structure that would obstruct wind flows in this area will have significant adverse impacts on the wind farm’s energy output. The upper reservoir will be a massive structure with the height of a 19-story building that covers 38 square city blocks and would have turbines less than a few meters away. Hence, it is disingenuous for the draft EIS to suggest that the upper reservoir would not have prominence above ground level tall enough to affect the generating potential of adjacent wind turbines.

⁴⁷ Draft EIS 4.4.2.2 at p. 96.

⁴⁸ Draft EIS 4.4.2.2 at p. 96.

⁴⁹ Draft EIS 4.4.2.4 at p. 97.

⁵⁰ See e.g., Draft EIS Appendix E at p. 11.

⁵¹ Draft EIS Appendix E at p. 14.

⁵² Draft EIS Section 2.2 at p. 6.



The draft EIS’s discussion of the prominence of the upper reservoir also fails to adequately address TID’s concerns regarding other potential adverse effects that could result from the construction of these two large reservoirs adjacent to TWPA’s wind farm. These concerns are detailed below.

2. The discussion of Public Services and Utilities in Section 4.5 of the draft EIS should be amended to reflect that GES Project will impact neighboring utilities because it will impact TWPA’s wind farm.

Draft EIS Section 4.5, which is entitled “Public Services and Utilities,” indicates that it “describes the current services and facilities in the study area and potential impacts and mitigation measures related to public services and utilities.”⁵³ The “Key Findings of the Public Services and Utilities Analysis” states:

The analysis found the proposed project would have *no significant and unavoidable adverse impacts* related to public services and utilities.⁵⁴

Section 4.5.1 indicates that one of the factors considered for the analysis of potential impacts to public services and utilities infrastructure is “[w]hether there would be potential for disruption of services.”⁵⁵ Regarding the potential impacts from construction of the GES Project, Draft EIS Section 4.5.2.1 indicates:

Given the scale of the proposed infrastructure changes, it is anticipated that the addition and relocation of utility infrastructure during construction could result in the short-term disruption of utility services, but there would not be a significant adverse impact on utility infrastructure.⁵⁶

Regarding the potential impacts from the operation of the project, Draft EIS Section 4.5.2.2 states:

Operation of the proposed project would not result in the relocation, replacement, or addition of public service or utility infrastructure, and no disruption of services would occur related to infrastructure. Therefore, there would be no significant adverse impact on public service and utility infrastructure during operation.⁵⁷

Draft EIS Section 4.5.2.3, which addresses “Proposed Mitigation Measures,” indicates that “[n]o mitigation measures would be required because there would be no significant adverse impacts.”⁵⁸ Therefore, draft EIS Section 4.5.2.4 concludes that there “would be no significant and

⁵³ Draft EIS 4.5 at p. 98.

⁵⁴ *Id* (emphasis added).

⁵⁵ Draft EIS 4.5.1 at p. 101.

⁵⁶ Draft EIS 4.5.2.1 at p. 101.

⁵⁷ Draft EIS 4.5.2.2 at p. 103.

⁵⁸ Draft EIS 4.4.2.2 at p. 96.

unavoidable adverse impacts related to public services and utilities from construction or operation of the proposed project.”⁵⁹

Draft EIS Section 4.5 does not identify the particular source used to support the above-quoted statements. To the extent these statements are premised on the 2021 WREA Study Report, these statements are erroneous for the reasons detailed in the preceding section of these comments. These statements should be amended to reflect the findings made by the independent studies TID proposes herein. These studies would correct the errors in the 2021 WREA Study Report and would ensure that the Final EIS reaches unbiased, scientifically based, and comprehensive conclusions regarding whether the GES Project would have significant adverse impacts on utility infrastructure during operation.

3. The discussion of Terrestrial Species and Habitats in Section 4.7 and the Terrestrial Species and Habitats Resource Analysis Report in Appendix G of the draft EIS should be amended to more accurately reflect that the GES Project could impact TWPA’s wind farm by increasing avian strikes.

Draft EIS Section 4.7, which is entitled “Terrestrial Species and Habitats,” indicates that it “addresses terrestrial species and habitats. Terrestrial habitats refer to non-aquatic or upland areas of the landscape that support land-dwelling plants and animals.”⁶⁰ The “Key Findings of the Public Services and Utilities Analysis” states:

The analysis found the proposed project would have *no significant and unavoidable adverse impacts* related to terrestrial species and habitats, *with inclusion of mitigation to reduce significant impacts*.⁶¹

These findings are inaccurate because the draft EIS does not give due consideration to the GES Project’s potential impacts on protected species and on wildlife in general.

a. Section 4.7 of the draft EIS does not give due consideration to the GES Project’s potential impacts on protected species like the golden eagle.

The draft EIS does recognize that the GES Project would result in significant adverse effects on golden eagles, a protected species. As the draft EIS notes, golden eagles inhabit the project area in sizable numbers:

During bird surveys conducted from 1994 to 2003, golden eagles were observed in the study area during all seasons (WEST 2006) and golden eagle nests are documented within a 36-square-mile area overlapping the proposed project (FFP 2020a).⁶²

⁵⁹ Draft EIS 4.5.2.4 at p. 104.

⁶⁰ Draft EIS 4.7 at p. 115.

⁶¹ *Id* (emphasis added).

⁶² Draft EIS Section 4.7 at p. 124.

The draft EIS also notes that the GES Project’s construction has the potential to disrupt breeding and nesting golden eagles:

If present, actively breeding and nesting golden eagles at previously documented cliff sites directly adjacent to the lower reservoir area could be disturbed by heavy equipment operation and drilling and blasting noise and vibration, which could affect species viability. Additionally, extended construction activities occurring within 1 to 3 miles may cause golden eagle disturbance, including nest abandonment, which would constitute “take” under the Bald and Golden Eagle Act.⁶³

The draft EIS further observes that the project’s operation could reduce the availability of certain types of prey for golden eagles:

Operation of the project could permanently reduce the density of small prey species in the study area, thereby affecting raptor species such as prairie falcons and golden eagles.⁶⁴

The draft EIS insists that “implementation of proposed mitigation measures . . . would reduce or eliminate impacts on breeding and nesting golden eagles.”⁶⁵ These mitigation measures are outlined in FFP’s draft VMMP and draft WMP and are summarized in Tables 4.7-4 and 4.7-5 of the draft EIS.

But given its apparent concern for the species, it is baffling that the draft EIS does not extensively discuss perhaps the most serious impact on golden eagles that the GES Project threatens: a significant increase in golden eagle strikes on nearby wind turbines. As TID has made clear in other public comment proceedings related to the GES Project, it is very concerned that the construction of the project may increase the availability of prey for golden eagles, attracting them to the project area and increasing the risk of avian strikes on wind turbines. That the draft EIS largely ignores this risk is all the more striking given that one study it cites in discussing golden eagles notes that golden eagles “may use different habitats based on breeding, migration, and wintering [or the] availability of prey.”⁶⁶ In fact, the presence of the upper reservoir in the middle of TWPA’s wind farm will attract insects, small mammals, waterfowl, migratory birds, and other prey, which currently are not attracted to the area. This new prey will attract bats, raptors, and other avian predators to areas they currently are not found, which will increase the risk that these predators will be killed by one of the turbines’ blades when they attempt to pursue prey near the reservoir. An increase in waterfowl and other birds that are attracted to the reservoir will also increase the risk of avian strikes as the flight path to and from the reservoir is through the wind farm.

Moreover, the mitigation measures described in the VMMP and WMP, as well as in Tables 4.7-4 and 4.7-5 of the draft EIS, are very attentive to other threats facing golden eagles, but pay

⁶³ Draft EIS Section 4.7.2.1 at p. 132.

⁶⁴ Draft EIS Section 4.7.2.2 at p. 134.

⁶⁵ Draft EIS Section 4.7.2.1 at p. 132.

⁶⁶ Draft EIS Section 4.7 at p. 123-24.

comparatively little attention to the threat of eagle strikes on turbines. In particular, the “Raptor Nest Surveys and Monitoring” pre-construction mitigation measure specifies that the GES Project will “[c]onduct pre-construction surveys to identify and locate raptor (bald eagle, golden eagle, and prairie falcon) nests based on historically documented nest locations and all areas of suitable nesting habitat within 1-mile of the project area”⁶⁷ and will use this information to limit adverse effects on nests. Another mitigation measure, “Noise Control,” specifies that no blasting will be done within a certain distance of golden eagle nests.⁶⁸

One mitigation measure, “Wildlife Deterrents for Reservoirs,” aims to “[r]educe potential attractants to mammals that are potential raptor prey species”⁶⁹ and take other steps to reduce the availability of prey in the area. But as described in Table 4.7-5, this mitigation measure is not aimed at deterring golden eagles specifically, but wildlife in general. The same is true of the proposal for a pre-construction “Literature Review” that aims to “[i]nform the development of measures to reduce the attractiveness of the future reservoirs to migratory birds and bats.”⁷⁰ Finally, although both the “Light Pollution Management” and “Carcass Removal Program” proposals are focused on reducing attractants for wildlife, they are not tailored to golden eagles specifically.⁷¹ Even more importantly, neither of these proposed mitigation measures addresses the particular danger TID has raised again and again in public comment proceedings: the risk of avian strikes on wind turbines involving golden eagles. Like the 2021 WREA study report, the draft EIS does not focus on particularized threats to this protected species, so it cannot give appropriate consideration to the effects of the project on vulnerable wildlife.

Because the draft EIS does not address all of the GES Project’s potential effects on golden eagles, a new study should be performed to address this issue. TID requests that the study be done by an independent third-party chosen by TID and FFP and paid for by FFP. This new study should comport with industry practices. USFWS, WDFW, and any other relevant regulatory agency should be consulted, and a determination should be made by these entities as to relevant study parameters and data. These agencies have already been consulted about the mitigation measures contained in the VMPP and WMP, and it stands to reason that they should be consulted regarding any further mitigation measures taken to protect golden eagles in particular.⁷² The study should comport with the USFWS Eagle Conservation Plan Guidance, which is generally viewed as the standard for assessing eagle impacts due to wind farm operations. TID wants to be sure any study performed comports with the applicable regulators’ requirements.

In addition, TID requests that this new study be used to establish baseline, pre-construction data regarding average golden eagle strikes over the past 25 years. Then, prospectively, for the life of the TWPA turbines, an annual study should be performed to determine whether the GES Project’s presence is causing an increase in golden eagle strikes when compared to the baseline’s average data. The TWPA wind farm has experienced only one golden eagle strike since TWPA

⁶⁷ Table 4.7-5, Draft EIS at p. 138.

⁶⁸ Table 4.7-5, Draft EIS at p. 139.

⁶⁹ Table 4.7-5, Draft EIS at p. 140.

⁷⁰ Table 4.7-5, Draft EIS at p. 138.

⁷¹ Table 4.7-5, Draft EIS at p. 140-41.

⁷² EIS 4.6.2.3 at p. 12-13.

has owned it. The data in the 2021 WREA Study Plan shows that such strikes have been a rare event for all wind farms in the region and nationally:

Based on consultation with the WDFW and USFWS, the Applicant has knowledge of known golden eagle mortalities associated with the nearby Windy Flats Wind Energy Facility. Pagel et al. (2010) document golden eagle fatalities at wind energy facilities in the contiguous United States, including six golden eagles in Oregon and five in Washington from 1997 through 2012. . . . The American Wind Wildlife Institute summarized bird fatality incidents and adjusted fatality estimates by avifaunal biome (e.g., aggregations of Bird Conservation Regions) at wind energy facilities (AWWI 2019). An estimated 17 golden eagles (0.3 percent of all fatality incidents) were reported in 11 scheduled searches, including 12 within the Pacific biome.⁷³

This independent study is the only way to ensure that the Final EIS will contain analyses, conclusions and mitigation measures regarding the potential impacts of the GES Project on golden eagles that is unbiased, scientifically based, objective and comprehensive. The Department of Ecology should require FFP to enter into an agreement with TWPA which provides that, if the GES Project's reservoirs cause an increase in golden eagle strikes above the average that TWPA has experienced under the relevant baseline study data, FFP will implement proactive measures to prevent these strikes from continuing to occur and will compensate TWPA for any losses, penalties, costs, or damages that TWPA experiences due to such strikes. Such a study would ensure that the Final EIS reaches unbiased, scientifically based and comprehensive conclusions regarding the GES Project's potential impacts on golden eagles.

b. Section 4.7 of the draft EIS does not give due consideration to the GES Project's potential impacts on wildlife generally, and especially to the risk of avian strikes.

Aside from largely ignoring the issue of avian strikes as it relates to golden eagles, the draft EIS avoids the issue of avian strikes in general. One of the draft EIS's only references to avian strikes is the following:

"The reservoir open water areas are not intended to provide habitat, but would likely attract birds, bats, and flying insects, potentially resulting in injury or mortality from wind turbines near the upper reservoir."⁷⁴

The draft EIS acknowledges that "[i]nsects and spiders would provide a food source to birds and bats, potentially attracting them to the area."⁷⁵ This would attract even more wildlife to an area already inhabited by a number of avian species. In particular, the draft EIS notes that

⁷³ 2021 WREA Study Report at p. 54.

⁷⁴ Draft EIS Section 4.7.2.2, pp. 132

⁷⁵ *Id.*



“nesting bald eagles have the potential to be present in the study area.”⁷⁶ Moreover, the little brown bat, which the draft EIS notes is “likely” to be present in the project area, “makes up approximately 1.3% of bat fatalities at wind farms in the Columbia Plateau Ecoregion (WEST 2010, 2011).”⁷⁷ These are just a few of the many avian species that inhabit the project area and would be attracted in even greater numbers by the presence of the project’s reservoirs, exposing them to the danger of collision with TWPA’s turbines.

In fact, the draft EIS also notes that “[b]irds and bats that congregate around the open water areas of the reservoirs because of increased insect prey resources would be more likely to experience a collision with existing project power lines or nearby wind turbines.”⁷⁸ The draft EIS proposes to solve this problem with “floating shade balls,” one part of the “Wildlife Deterrents for Reservoirs” mitigation measure.⁷⁹ But though the “Wildlife Deterrents for Reservoirs” mitigation measure was indeed developed in consultation with the appropriate government agencies, it is aimed at deterring birds, not necessarily preventing avian strikes. Indeed, as noted previously, none of the mitigation measures provided for in the VMPP or WMP are expressly aimed at preventing avian strikes. Without an assessment of how effective this measure is in mitigating avian strikes specifically, and not just mitigating the presence of wildlife near the reservoir generally, TID’s concerns will go unheeded yet again.

The draft EIS has a blinkered view of the “adverse effects” that would result from the increased presence of wildlife in and around the reservoir. The draft EIS states that “[n]o state or federally endangered or threatened species are expected to be among those that would congregate near the reservoirs.”⁸⁰ Thus, the draft EIS concludes, “this would not result in a significant adverse effect.”⁸¹ Limiting “significant adverse effects” to impacts on protected wildlife ignores the serious threats to TWPA’s turbines posed by the increased presence of wildlife in and around the proposed reservoir, and the project should not be approved until TID’s legitimate concerns are addressed.

TID’s concerns regarding the increased presence of wildlife in and around the proposed reservoir are substantial. TID has raised concerns regarding the reservoirs’ potential impact on avian strikes in every set of public comments it has filed in relation to the GES Project. TID has raised these concerns because an increase in avian strikes would have significant adverse environmental impacts and would adversely impact TID ratepayers in a variety of ways. First, increased avian strikes could result in increased fines that will be imposed on Tuolumne and ultimately paid for by TID ratepayers. Second, if such avian strikes were to increase significantly, they could lead to legal actions that force TWPA to take some or all of the wind turbines out-of-service, which would also harm the environment because if the turbines are off-line, they cannot produce carbon free energy. Third, increased avian strikes could damage the wind turbines’ blades, thereby increasing repair costs and reducing the wind turbines’ energy output because they would need to be taken out-of-service to conduct such repairs. For the same reasons mentioned

⁷⁶ Draft EIS Section 4.7 at p. 124.
⁷⁷ Draft EIS Section 4.7 at p. 127.
⁷⁸ Draft EIS Section 4.7.2.2, pp. 134
⁷⁹ *Id.*
⁸⁰ *Id.*
⁸¹ *Id.*

above, any increase in the amount of time the turbines are off-line harms the environment because the turbines are not producing carbon free energy.

If any of the foregoing were to occur, TID's ratepayers would ultimately be stuck paying for any costs that result from such events. If all or a portion of TWPA's wind turbines were ordered to cease operations due to increased avian strikes, this would have considerable socioeconomic impacts both on the region, as the wind farm employs a number of different trades to provide O&M services. Moreover, TID's ratepayers would be adversely affected because they would have to bear the costs of unusable wind turbines. Thus, this issue needs to be fully vetted and studied and mitigation measures must be identified and instituted to prevent any increase in avian strikes.

Because the draft EIS does not address all of the GES Project's potential effects on other species of birds and bats, a new study should be performed to address this issue. TID requests that the study be done by an independent third-party chosen by TID and FFP and paid for by FFP. This new study should comport with industry practices. USFWS, WDFW, and any other relevant regulatory agency should be consulted, and a determination should be made by these entities as to relevant study parameters and data. TID wants to be sure any study performed comports with the applicable regulators' requirements. This independent study is the only way to ensure that the Final EIS will contain analyses, conclusions and mitigation measures regarding the potential impacts of the GES Project on all non-golden eagle, avian species, which is unbiased, scientifically based, objective and comprehensive.

In addition, TID requests that this new study be used to establish baseline, pre-construction data regarding the annual number of avian strikes. Then, prospectively, for the life of the TWPA turbines, an annual study should be performed to determine whether the GES Project's presence is causing an increase in avian strikes when compared to the baseline's average data.

4. The discussion of Land Use in Section 4.11 of the draft EIS should be amended to reflect that GES Project will impact TWPA's wind farm.

Draft EIS Section 4.5, which is entitled "Land Use," indicates that it "describes the current land use conditions in the study area, potential changes or impacts, and mitigation measures."⁸² The "Key Findings of the Public Services and Utilities Analysis" states:

The analysis found the proposed project would have *no significant and unavoidable adverse impacts* related to land use.⁸³

In discussing impacts from the operation of the Project, the Draft EIS Section 4.11.2.2 claims that: (1) "[t]here would not be a significant adverse impact related to land use conflicts during operation," (2) "[l]and use in the upper reservoir area would be converted from undeveloped open space but *would not impact . . . [TWPA's] adjacent wind farm,*" and (3) *The proposed*

⁸² Draft EIS 4.11 at p. 179.

⁸³ *Id* (emphasis added).

project would be compatible with adjacent energy infrastructure such as existing transmission lines, substations, and *wind energy infrastructure*.⁸⁴

Draft EIS Section 4.11.2.3, which addresses “Proposed Mitigation Measures,” does not identify any mitigation measures that would address potential impacts the GES Project would have on TWPA’s wind farm.⁸⁵ Therefore, draft EIS Section 4.11.2.4 concludes that there “would be no significant and unavoidable adverse impacts related to land use from construction or operation of the proposed project.”⁸⁶

Draft EIS Section 4.11 does not identify the particular source used to support the above quoted statements. To the extent these statements are premised on the 2021 WREA Study Report these statements are erroneous for the reasons detailed in the preceding section of these comments. These statements should be amended to reflect the findings made by the independent studies TID proposes herein. These studies would correct the errors in the 2021 WREA Study Report and would ensure that the Final EIS reaches unbiased, scientifically based and comprehensive conclusions regarding whether the GES Project would have significant adverse impacts on utility infrastructure during operation.

In any case, the claim that there would be no significant unavoidable adverse impacts with respect to land use is not true, as a great deal of evidence shows that land use in the upper reservoir area would greatly increase the risk of Material Adverse effects within the meaning of Section 5.2 of the TWPA-NSC Lease. One Material Adverse Effect, and one of TID’s primary concerns with the GES Project, is the potential of the GES Project to reduce the amount of power TWPA is capable of generating from its turbines. Reductions in power generation capabilities and other adverse effects on the turbines as a result of the construction of the GES Project would occur in two distinct ways: 1) the GES Project would redirect the wind used by the existing wind turbines, reducing wind flow in the project area and 2) the GES Project would increase wind turbulence intensity, which would reduce energy output and increase wear and tear on the turbines.

In addition, because the 2021 WREA Study Report authored by Rye’s consultant ERM shows that the upper reservoir will cause such significant reductions in the energy and RECs produced by TWPA’s turbines, the EIS’s claim that “[t]he proposed *project would be compatible with adjacent energy infrastructure* such as . . . *wind energy infrastructure*”⁸⁷ is unsupportable and inaccurate. Therefore, these provisions in Section 4.11 of the draft EIS should be amended to acknowledge that the 2021 WREA Study Report identifies changes to wind patterns caused by the GES Project that will significantly reduce the energy output of TWPA’s wind turbines. Section 4.11 should also be amended to add the findings of the new study that TID proposes be performed to more accurately address the GES Project’s impacts on TWPA’s turbines. Again, such study-based amendments are the only way to ensure that the Final EIS presents unbiased, scientifically based, objective and comprehensive conclusions regarding the potential effects that the GES

⁸⁴ Draft EIS Section 4.11.2.2 at pp. 185-186 (emphasis added).

⁸⁵ Draft EIS 4.11.2.3 at p. 186.

⁸⁶ Draft EIS 4.11.2.3 at p. 186.

⁸⁷ Draft EIS 4.11.2.4 at p. 186.

Project will have on TWPA, TWPA’s production of renewable generation, and the birds and bats that could be killed due to increased avian strikes.

Section 4.11 of the draft EIS also ignores several other significant adverse effects on TWPA’s power generation activities and operations that will likely result from the construction of the GES Project. These include the possible invalidation of TWPA’s warranty with the manufacturer of its turbines, the incompatibility of the land uses, and the risk that the GES Project will cause increased noise output from TWPA’s turbines and expose TWPA to legal liability. Therefore, Section 4.11 of the Final EIS should incorporate the findings of TID’s proposed independent studies addressing these issues.

The draft EIS’s failure to acknowledge the aforementioned adverse effects is not surprising, given that its land use analysis relies solely on information provided by FFP. Section 4.11.1 of the draft EIS states:

Land use information within the study area was identified by using information provided by the Applicant, Klickitat County plans and documents, the Klickitat Zoning Ordinance (Klickitat County 2018), aerial photographs, and Klickitat County GIS data.⁸⁸

Thus, the draft EIS apparently did not take into account any evidence about the likelihood of avian strikes, reduction in wind flows, or other adverse effects particularized to TWPA’s land uses. To fully capture the range of adverse effects on surrounding land uses, the environmental impact analysis must take TID’s concerns seriously.

a. Section 4.11 of the EIS should also be amended to more accurately reflect the fact that vibrations from construction could damage TWPA’s turbines.

The draft EIS also fails to adequately consider the potential damage to TWPA’s turbines as a result of vibrations produced by the GES Project’s construction. As the draft EIS itself notes, the GES Project would require a number of construction-related activities to take place in the project area. The draft EIS points out that some of these construction activities are “[l]arge-scale excavation and blasting to construct the reservoirs,” in addition to “[b]lasting and tunneling to construct the underground powerhouse and conveyance system.”⁸⁹ Further, the draft EIS correctly acknowledges that vibrations from these activities pose a significant risk to structures in the area:

Trains, heavy trucks, blasting, and jackhammers can all cause ground-borne vibrations, as well as noise. Ground-borne vibration is a technical term to define human-made vibratory motions through the ground, as opposed to vibration caused by geological changes such as earthquakes. Vibrations can affect any structure.⁹⁰

⁸⁸ Draft EIS Section 4.11.1 at p. 184.

⁸⁹ Draft EIS Section Appendix I at p. 28.

⁹⁰ Draft EIS Section Appendix I at p. 22.

However, the draft EIS gives scant attention to possible adverse effects on TID’s turbines from project-related vibrations. Although it does acknowledge that “[w]ind turbines are located within and immediately adjacent to the upper reservoir project footprint,”⁹¹ the draft EIS seems satisfied with a vague promise from FFP to adopt mitigation measures:

To reduce the effects of construction vibration on wind turbines, the Applicant intends to implement best management practices and to develop a construction vibration monitoring program, including definition of vibration criteria, to ensure no damage to those existing wind farm facilities and no interruptions to their operation.⁹²

FFP has previously promised in similar terms to take such mitigation measures but has not yet followed through. In fact, in an August 7, 2020 letter submitted in relation to another public comment proceeding, FFP promised to develop detailed contractor requirements related to maximum construction vibrations from the GES Project and to develop a construction vibration monitoring program, including a definition of vibration criteria, to ensure no damage to TWPA’s existing wind farm facilities and no interruptions to their operation. Without more specificity as to what these measures will entail, the draft EIS should not dismiss the risk of vibration-related damage to TWPA’s turbines out of hand.

The importance of clarifying the risks and developing mitigation measures to address possible adverse effects on TWPA’s turbines from construction vibration is underscored by the draft EIS’s equivocal position on the risk to those turbines. In particular, the draft EIS states:

Vibration from construction of the facility is not expected to affect any nearby structures because vibration levels for common construction equipment would be below FTA requirements (Table 5). The nearest structures are located within 500 feet of the lower reservoir footprint but are part of the decommissioned smelter plant and not in use (Tetra Tech et al. 2021).⁹³

Although the previous passage suggests that TWPA’s turbines – which doubtlessly fall within the category of “nearby structures” – will be totally unaffected by vibration from construction activities, the passage then goes on to suggest that the mitigation measures outlined above, including the “vibration monitoring program,” would be used “to ensure no damage to those existing wind farm facilities and no interruptions to their operation.”⁹⁴ The draft EIS, then, seems to claim both that TWPA’s turbines will be unaffected by construction-related vibrations and that mitigation measures will be needed to avoid harm to TWPA’s turbines as a result of construction-related vibrations. This confusing position only highlights the importance of ensuring that the GES Project will not result in serious adverse effects to TWPA’s operations by causing significant vibrations in the affected area.

⁹¹ Draft EIS Section Appendix I at p. 29.

⁹² Draft EIS Section 4.10.2.1 at p. 173.

⁹³ Draft EIS Section Appendix I at p. 29. “FTA requirements” refers to regulations developed by the Federal Transit Administration to ensure that vibrations from certain activities do not damage nearby structures.

⁹⁴ *Id.*



Because the above evidence suggests a strong likelihood that the GES Project will be incompatible with TWPA’s land uses, TID requests that FFP develop mitigation measures to address these harms. Developing mitigation measures is an appropriate response to the risk of adverse effects to TWPA’s operations, given that the draft EIS specifies that “significant adverse effects” must be addressed via mitigation measures before the project can proceed.⁹⁵

Again, thank you for this opportunity to provide TID’s and TWPA’s comments on the draft EIS. TID hopes the Department of Ecology will adopt TID’s recommendations in these comments. If you have any questions regarding these comments, please do not hesitate to contact me.

Sincerely,

/s/ Dan Severson

Dan Severson

Assistant General Manager

⁹⁵ Draft EIS Section at S-6.