Public Comment

Submitted for the July 25, 2019
RCEA Board of Directors Meeting

Lori Taketa

From: Greg King <siskiyouland@gmail.com>
Sent: Monday, July 22, 2019 5:04 PM
To: Lori Taketa
Cc: Ken Miller
Subject: Comments regarding RCEA's position on Terr-Gen Wind Farm proposal
Attachments: Ellin Beltz Terra_Gen comments.pdf; RCEA Board re Windfarm_SLC_2019.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

July 22, 2019

Redwood Coast Energy Authority

Via email: ltaketa@redwoodenergy.org

Re: Proposed Terra-Gen Wind Farm

Dear RCEA Board,

Following are comments from Siskiyou Land Conservancy, a 501(c)3 non-profit conservation organization, regarding the Terra-Gen wind farm proposal for Monument and Bear River Ridges. Also attached are comments made recently by Ellin Beltz, for reference.

Please distribute these comments to all RCEA Board members.

Thank you,

Greg King
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Siskiyou Land Conservancy

July 22, 2019

Redwood Coast Energy Authority
Via email: ltaketa@redwoodenergy.org

Re: Proposed Terra-Gen Wind Farm

Dear RCEA Board,

Recently the RCEA Board of Directors voted to contract with Terra-Gen (TG) for a Power Purchase Agreement (PPA) pending TG's success in permitting.

Your unanimous vote to acquire PPA from TG's proposed wind factory before you have even considered any public input to the Draft Environmental Impact Report (DEIR) sends a strong message of support for a project irrespective of it's social or environmental consequences. Because this project is in the permitting pipeline dependent on the votes of the Planning Commission (PC) and the Humboldt County Board of Supervisors (BoS), your decision is politically influential and could adversely impact local carbon reduction initiatives well into the future.

You have therefore prejudicially influenced the PC and the BoS, and disregarded public concerns, signaling to an alarmed public that overriding concerns will trump biological impacts, threats of wildfire, local opposition, and the loss of opportunities to genuinely create a working example of what it takes to be a rural model of energy resilience.

The climate-watch organization 350.org recognizes this influence in its July update celebrating your vote: "The vote may bolster Terra-Gen's approval chances…"

Every time I ask someone, including RCEA Board members, why we should settle for Terra-Gen's ultimately destructive proposal, I hear the same irrational response: *"We have to do this now because of our climate emergency."*

Actually, what we have to do now is to respond to this emergency in a way that brings people together and shares our energy wealth with a broad spectrum of residents, rather than handing that power of local decision making over to a huge multinational corporation.

Terra-Gen's project neither brings people together nor shares energy wealth. At its core the project is extremely dirty and benefits very few. The impacts, however, will be numerous and robust, starting with the decimation of the biologically unique, and critical, habitat that exists on and around Monument and Bear River Ridges. The windmills will actually worsen our climate crisis because of the massive greenhouse gas (GHG) emissions that will occur during

the 18 months of construction, the logging of over 1000 acres of trees plus other vegetation, and disruption of 3 million cubic feet of ancient soils. As a recent University of California Davis study warned: “In Wildfire-Prone California, Grasslands [are] a Less Vulnerable Carbon Offset Than Forests.” (*Environmental Research Letters, 2018*)

Aside from all its terrible impacts, TG’s project also opens up our wind market to significant and ultimately destructive levels of exploitation by global fossil fuel powerhouses such as Energy Capital Partners, Terra Gen’s parent company, and other major energy conglomerates. Allowing Terra-Gen to pursue this project represents an extremely misguided collaboration with RCEA, Schatz and Humboldt County. Our shift to reliance on onshore windpower to make us “net energy exporters” would render us perfect servants to these multinational entities.

When fears of this unholy alliance surface, we are reassured that expensive transmission upgrades or lack of other acceptable wind sites limit this threat.

Similarly, whenever the decentralized energy option is proffered, RCEA staff and Board are quick to proclaim that: “large daily and seasonal variability of PV greatly limits the amount of energy that the electric grid can carry without major transmission upgrades.” (North Coast Journal 6/27/19).

However, RCEA’s strategic plans for implementing onshore wind, as noted in the minutes from a recent RCEA meeting, reveal that in fact you are prioritizing onshore wind development for energy export, which of course will require major transmission upgrades:

“Power Resources: Onshore Wind

Promote Large-Scale Wind Energy. Provide information about the potential for cost effective commercial-scale wind farms in the county. Educate the public about the benefits and impacts of wind energy systems. Work with utilities, local government, and private companies to develop ***onshore*** *wind energy project**s**.”*

And to accommodate the aptly named IOU (Investor Owned utility) electricity, our limited transmission capacity is simply on the to-do list:

“Upgrade the Electricity Transmission and Distribution System. Upgrade the regional transmission and distribution electrical grid to enable increased development of both utility-scale renewable energy projects as well as community-scale distributed generation systems, including capability to export surplus renewable electricity generation from Humboldt County to other areas of the state.”

Considering our terrestrial wind habitat as a resource to exploit with belittling regard for the impacts reminds me of the gold miners who hosed our watersheds, the dam-builders who plugged our streams, and the salmon canners who depleted the salmon runs before the coup de grace delivered by the clearcutters who decimated our forests. All these short-sighted entrepreneurs were blinded by seemingly irresistible resources, just like the oil and gas or uranium peddlers of today. In doing so they defiled the original home of Native inhabitants

who lived here for thousands of years, and who most recently came out in full opposition to the proposed Terra-Gen wind farm.

It is irresponsible and arrogant to state, as Michael Winkler did in the NCJ recently, that "Potential negative impacts of the project can be reduced to levels acceptable to the community," before public concerns are even considered. Tell that to the Wiyots and Eel River and Bear River Valley residents. Tell that to California and U.S. taxpayers who shelled out half a billion dollars for Headwaters Forest, in large part to protect marbled murrelets, one of several protected species that could be decimated by Terra-Gen's project.

But our main observation is this: Humboldt County does not need to generate 135 MW of electricity to feed the grid, or purchase 90MW from a dirty local power source in order to do our part to reduce our carbon footprint.

We have far superior ways to answer the climate emergency, secure our energy future, share our energy wealth, preserve our biodiversity, protect our neighbors, and reduce our GHG emissions.

It's called by many names: widespread distributed rooftop solar PV, networked smart grids, genius grids.

Widespread incentivized rooftop solar PV reduces our fossil fuel use in ways that benefit the most people and cause the least harm, along with enhancing forest carbon sequestration and passive solar in our local planning.

And it fits Mr. Winkler's definition of an ideal energy source, which would be "…low-cost, available when we need it and *have low impacts*."

Cost comparisons of solar with onshore wind must consider the absence of undesirable impacts with solar compared to the astronomical ones of onshore wind; the equity wealth to homeowners; the advantage of electric vehicles as clean, quiet, transportation and mobile storage and supply; the resilience of dynamic independence from the grid; the affordable electrification of heating and cooking, thereby eliminating much of our current use of natural gas (the GHG methane).

Meanwhile, TerraGen's power will contribute less than ½ of 1% of California's renewable energy portfolio, and we will have to buy our 90MW of their dirty electricity at market rates.

Transportation GHGs, Electric Vehicles (EVs), and minigrids

Transportation in Humboldt accounts for 60% of our GHG emissions. California has recognized that we have to electrify our transportation if we are to meet our climate goals. The smartest way to generate that electricity is with local solar:

"We found that technically feasible levels of energy efficiency and decarbonized energy supply alone are not sufficient; widespread electrification of transportation and other

sectors is required." ("The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity" *Science* 06 Jan 2012)

According to Michael Winkler's OpEd in the NCJ:

"In Humboldt County, energy is used as a transportation fuel and as electrical and heat energy in homes, businesses, industries, and agriculture. In 2010 it is estimated that Humboldt County spent $460 million to meet local energy demands, the majority of which left the county. Approximately half of the energy was used as a transportation fuel (gasoline and diesel), with large amounts also used to meet end use electrical demands and end use natural gas heating demands. Primary energy sources were comprised mainly of natural gas, gasoline, diesel, and biomass (wood waste and firewood)."

Electrification from home-grown solar generation can replace most of these fossil fuel sources.

EVs & V2G

The best way to interest people in electric vehicles is with rooftop solar, since the fuel comes form one's own roof. The car then becomes a mobile electrical supply and storage vehicle.

EVs are clean and quiet, require very little maintenance and no petroleum products, and they can run for over 500,000 miles.

Genius minigrids pair EVs with sophisticated interfaces so that multiple users can draw power as needed, cars can be charged, and electricity can be sold to the grid:

"Vehicle to grid [V2G] uses excess rechargeable battery capacity to provide power to the electric grid and money to the vehicle owner during times when peak load demands exceed the power being currently generated by the renewable energy source. It is essentially a distributed battery system to complement the distributed energy system serving as a buffer." (Forbes 12/18, 2018)

Southern California Edison Vice President Lisa Cagnolatti reinforced the concept: "…allows EVs to go from simply consuming energy to potentially becoming a fully functioning component of the smart grid." (Forbes 12/18,2018)

Dynamic independence from the grid along with mobile storage contributes to resilience during emergencies, including planned shutdowns when the risk of wildfires is high.

Feeding dirty electricity to the grid from this Terra-Gen project does none of that. We would buy it anyway from the grid. We already buy hydro from Shasta and solar from Fresno instead of from here, there's no logical reason to destroy the critical biodiversity hotspot of Bear River and Monument Ridges, and assault Scotia, Rio Dell and the Wiyot, when we could buy clean re-powered wind power from the grid, and develop our own local solar resources now.

Wind power can be clean or dirty, and Terra-Gen's is the dirtiest. Wind power from new virgin sites is much dirtier than wind power from re-powered sites. This site is particularly dirty, because no one has ever installed a wind power factory in a site like this, and doing so will transform this biologically rich and diverse habitat into a nightmare of extensive roads and transmission lines, cement, noise, vibration, and constant human activity.

The rural pastoral setting so hospitable to endemic populations of rare and threatened species is all the more vulnerable to cumulative impacts precisely because it is managed; and it harbors islands of untouched habitat and grasslands, all of which would be terribly degraded.

Only in Terra-Gen's high priced PR do we find the incredible assertion that such an industrial facility can be hidden in the midst of forest, ridge, range and grasslands, and that 500-600 foot tall lighted windmills will somehow be invisible from 3,000-foot ridgetops that are visible from three Counties. The same PR uses "virtue signaling" to inspire our knee-jerk reaction to our climate emergency with unquestioning support of their otherwise destructive project.

Sonoma Clean Power is re-powering 283 old wind turbines in Alameda County with 20 modern ones to provide Mendocino and Sonoma Counties with electricity. Vestas is replacing 400 wind turbines with 20 in Tehachapi, where Terra-Gen has over 300 MW of power from turbines 20 years or older that could be re-powered and cleaned up. Re-powering actually reduces impacts at these old sites, where the landscape impacts have already occurred and transmission infrastructure is nearby, which is why it has been so popular in Europe for years, and is gaining traction here.

Currently, RCEA treats distributed energy as a poor stepchild to onshore and offshore wind, rather than as the priority, despite solar being the fastest growing power source in the US. Affordable, off the shelf, behind the meter, modular minigrids are already available with financing that "…enables customers to get the benefits of the microgrid without upfront capital outlay."(www.scalemicrogridsolutions.com.)

RCEA includes in its mission the implementation of: "Distributed Generation & Storage," described in detail in its own policies that appear to be superseded by the Terra-Gen wind farm proposal:

"RCEA will support the deployment of distribution connected solar and storage technologies as core strategies toward achieving the program's environmental, economic, and community goals.

"Administer and Implement the Public Agency Solar Program. Continue to implement the solar and energy-storage technical assistance program for public agencies; ***integrate grid-connected resources and microgrids as feasible.***

"Administer and Implement the Community Solar and Storage Program. Evaluate, design and launch community solar and storage program services that support the increased adoption of ***grid- connected solar and storage technologies.***

"Integrate Vehicle to Grid Storage. Integrate vehicle to grid storage solutions with transportation and IDSM goals and objectives.

"Low-carbon Transportation

"RCEA will ***decarbonize regional transportation*** through efforts to reduce vehicle miles travelled, increase advanced fuel vehicles adoption and fuel efficiency, and expand advanced fuel infrastructure.

"***Designate 'Renewable Energy Parks.'*** Work with County and City planning departments to designate areas of the county preferred for renewable energy development.

"Develop Distributed Generation. Encourage studies to identify key facilities throughout the county that would benefit from distributed generation and cogeneration energy systems. Encourage development of responsive environmentally preferable distributed generation and cogeneration energy systems where appropriate. Encourage and publicize demonstration sites.

"Provide Education on Renewable Energy and Distributed Generation. Provide educational and promotional programs that encourage and demonstrate the use of renewable energy and environmentally preferable distributed energy generation and cogeneration systems.

"Provide Feed-In-Tariff Power Procurement Program for Small Generators. Offer long-term contracts at a set rate for Renewable Portfolio Standard-eligible renewable energy generators of 1MW or smaller.

"Power Resources: Solar:

"Support Solar Energy Development. Support local efforts to develop ***solar electric systems and solar hot water systems in the county***. Support development of local training programs for solar contractors and installers. Educate the public about the benefits of solar energy systems. Develop programs that facilitate an increase in the number of solar energy systems in the County."

Mortgage Backed Rooftop Solar

To prioritize and actualize this package of laudable goals, we must include efforts to amortize the cost of rooftop solar with a home mortgage, and concentrate Requests for Proposals (RFPs) on commercial entities (hopefully more local than Terra-Gen) for widespread installations. Fortunately, paired with an EV, the payback time for such installations is on the order of 4-5 years.

Local expertise at RCEA, Schatz, and elsewhere contain all the technical and social skills to develop resilient energy, and become leaders in its inevitable deployment everywhere.

However, RCEA's priority does not appear to be the production and support of resilient energy, but instead of net energy exporting.

This failure is not a financial, technological, or meteorological problem, it is a political one. We are already implementing smart grids in Blue Lake, at the airport, and with plans for others. Conferences on implementing the emerging smart grid technologies are happening all over. California plans to triple subsidies of EVs, and solar panels and battery costs are plummeting. Real local jobs associated with this strategy dwarf the 15 imported ones that Terra-Gen will use to monitor its windmills 24/7—monitoring that is necessary because these complex machines fail, and the transmission lines and turbines risk wildfires.

Offshore Wind

The impacts from terrestrial onshore windpower at the proposed site are unacceptable, divisive, and especially irrational in light of our immense offshore wind resource, which may be developed with acceptable impacts.

There are potentially in excess of 1,100 MW of electric power 20-30 miles offshore to feed the grid and Humboldt County. A pilot 120 MW offshore wind project could be on-line by 2025, serving Humboldt it's 90MW of homegrown electricity, exporting the additional 30MW, with none of the awful consequences of Terra-Gen's proposed wind farm—a project that would not be online until 2021, and would emit thousands of tons of greenhouse gas emissions before then. The 5-year window of dirty Terra-Gen electricity is simply not worth it!

Resilient Energy=Resilient Economy

Shift in RCEA Paradigm to "Resilient Energy"

•Distributed energy should be our priority, along with offshore wind. It should NOT be the poor stepchild of a centralized grid feed.

•Our policymakers should be instituting mortgage-based financing for rooftop solar, soliciting RFPs and consultations regarding genius minigrids, including solar in codes and zoning initiatives, and attending the many conferences on mini-grids.

•Net Energy Exporting should rely on offshore wind.

•Clean windpower should be purchased from the grid, as we do hydro and solar, from companies that re-power aging windpower sites.

•Imported solar electricity should be replaced with electricity generated from solar PV in Humboldt County.

•Eschew onshore windpower.

•Emphasize regeneration and protection of carbon-sequestering forests and grassland soils.

•Continue to encourage passive solar zoning and conservation strategies.

V2G support from current published sources:

"Thus, EVs support the state's renewable integration targets while avoiding much of the tremendous capital investment of stationary storage that can instead be applied towards further deployment of clean vehicles."

"Achieving deep global greenhouse gas reductions targets requires the electrification of transportation soon and at significant scale."

"By displacing the need for construction of new stationary grid storage, EVs can provide a dual benefit of decarbonizing transportation while lowering the capital costs for widespread renewables integration"

"With some vehicles being V2G capable by 2025, vehicles provide renewables integration capability far exceeding that of the Storage Mandate during critical days. Thus, our results show that substantial capital investment, as much as several billion dollars, can be avoided if EVs are used in lieu of stationary storage. In other words, the California Storage Mandate can be accomplished through the ZEV Man- date, provided that controlled charging is also widely deployed. The capital investment for stationary stor- age can instead be redirected to further accelerate the deployment of clean vehicles and vehicle-grid integration, and could even be used to pay EV owners when their vehicles are grid-connected with controlled charging. In this manner, not only are clean vehicles an enabler for a clean electricity grid at substantially lower capital investment, but the avoided costs of supporting renewables with stationary storage can be used to further accelerate the deployment of clean vehicles." (Environmental Research Letters 13(5):054031 · May 2018)

"Vehicle-to-grid (V2G) refers to efforts to bi-directionally link the electric power system and the transportation system in ways that can improve the sustainability and security of both. A transition to V2G could enable vehicles to simultaneously improve the efficiency (and profitability) of electricity grids, reduce greenhouse gas emissions for transport, accommodate low-carbon sources of energy, and reap cost savings for owners, drivers, and other users." *(Environ. Res. Lett.* **13** (2018)

/s/ Ken Miller, Director
Siskiyou Land Conservancy

/s/ Greg King, President
Siskiyou Land Conservancy

HUMBOLDT WIND ENERGY PROJECT

Photo Credit: Los Alamos National Laboratory
Christian Steiness/Vattenfall/Flickr

DRAFT ENVIRONMENTAL IMPACT REPORT

DEIR SCH #2018072076

Comments by Ellin Beltz

June 14, 2019

Comments must be directed to:
Humboldt Wind Energy Project Planner County of Humboldt Planning Department 3015 H Street
Eureka, CA 95501 CEQAResponses@co.humboldt.ca.us

June 14, 2019

Humboldt Wind Energy Project Planner
County of Humboldt Planning Department
3015 H Street
Eureka, CA 95501

CEQAResponses@co.humboldt.ca.us

Dear Sir or Madam:

Thank you for the opportunity to comment on the Humboldt Wind Energy Project.

I am a retired university lecturer from New York City and Chicago. Before moving to Humboldt County in 2001, I taught at Northeastern Illinois University, University of Chicago, Field Museum and Morton Arboretum among other academic institutions. I helped write the Master Gardener Program which is taught here by others. After moving here, I taught for College of the Redwoods at their Hoopa Extension campus and continue to teach online. My degrees are an B.S. in Biology and an M.S. in Environmental Geology I have published a book on Frogs of the world with Firefly (formerly Facts-on-File) Press. I was an official delegate to the First World Congress of Herpetology in Canterbury England. I served for three years on the Planning Commission of the City of Ferndale and have more than passing familiarity with the CEQA process.

This DEIR runs to nearly 1000 pages. The maps and figures are scattered throughout the appendices and the document internally contradicts itself in multiple locations.

I initially planned to comment only on the impacts, but as I went through the document I found so many mistakes, things overlooked, contradictions, and other signs of rushed document preparation, that I began to write the list which became this comment.

Back in the day, if a student of mine had handed this in for credit, I would have marked it with an big red "F" and said "try again next semester." I would hope you would have the same reaction - and that the document is sent back to be redone and recirculated. As it stands presently there is no support for any statement of overriding concern. Based on this DEIR as detailed in my comments, I support the "no project" alternative.

Sincerely yours,

Ellin Beltz
[redacted]
Ferndale, California 95536
[redacted]

2.0 PROJECT DESCRIPTION

2.1 INTRODUCTION

Contains the map, objectives, purpose, alternatives, statement of overriding considerations, etc

2.2 Proposed Project

2.2.1 Project Location & map

Currently Figure 1 is missing some information that a reasonable person would need to understand the impacts of the project. Suggest updating Figure 1, accurately labeling Federal and State areas, such as the National Wildlife Refuge, Six Rivers National Forest, Headwaters Forest, Humboldt Redwoods State Park and accurately showing the boundaries of each. Additionally, all aspects of this project should be indicated on this single figure: siting locations, Gen-tie route, staging areas, permanent Operations facility, and so on.

2.2.2 Project Objectives

I have listed the objectives and Humboldt County Policies affected by this project and comment on each as follows.

•Tax credits to TerraGen if built before December 2020
Yes, profits and tax credits will go out of Humboldt to the developers LLC and their financiers.

•Statewide portfolio renewable and volatility
"Because the project would generate energy from wind power, a renewable source, it would assist the state in meeting the goals and targets established under SB 100 to procure 60 percent of its power from renewable sources by 2030."
No. Project provides 0.005% of California's renewable power generation according to this document. That's half a penny on the dollar of the whole. I wouldn't consider a half-penny "assistance" for much of anything. Besides, for this, at least 1,058,658 gallons of diesel will burn over 18 months of construction. Transportation gas was not broken out, nor was oceanic transport costs and delivery of specialized cranes and other equipment.

• Promote sustainable energy in Humboldt County
No. Continues purchases of transmitted grid power.

Create 155 MW green energy
•No. By the time the electrons get to Bridgeville, Planned losses to transmission are 12% of generation. Thus 20MW will vanish and the result will be 135MW maximum.
•No. Besides planned transmission losses mitigation measures for flying things include shut downs and slow downs, further reducing the power generated to an unknown level.

•Displace 372K MT/yr CO2 that would otherwise be required to generate 155MW with natural gas

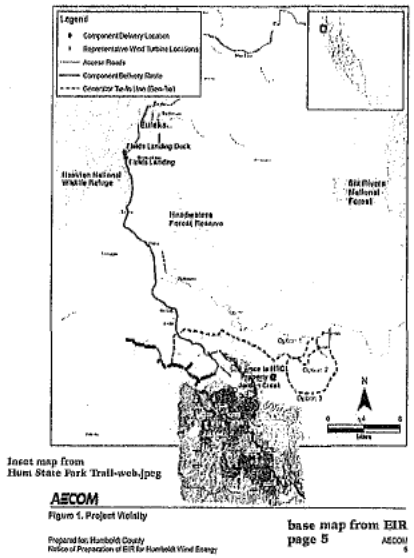

FIGURE 1
Site map with Humboldt Redwoods State Park Overlay and additional captions.

Yes, but significant and incompletely calculated emissions occurring in the first year and a half and amortized over 25 years to hide their true effects on the environment. Greenhouse gasses should be accounted for accurately. Millions of gallons of diesel fuel are going to burn in Humboldt County. Air quality will be exceeded. The CO2 is going up in 2019 and 2020, not in little chunks over the 25 years. While this may fulfill some form of bureaucratic checklist from the standpoint of global warming it's a huge lie. The CO2 goes up now, in the 12 years we need most. Account for it accurately.

• Near transmission infrastructure
No. It's 20 miles South of Eureka, 12 miles South East of Fortuna, 22 miles North of Garberville and just South of Scotia. The Bridgeville substation is 25 miles from the project site and 44 miles from Eureka.

•Employment
Unclear. Variable numbers in the DEIR, at most 300 temporary plus 15 permanent jobs by imported employees who may rotate. Transportation workers seem to have been omitted. In contrast, the Eureka McDonalds employs 30 people, Target about 65-125 people, Blue Lake Casino more than 100, and so on up to the larger employers including St. Joseph Hospital (900+), and Humboldt State University (1400+). Adding 15 jobs for 30 years is statistically insignificant even in Humboldt County.

• Promote walkable cities and alternative transport
No. The entire project is rural. Everyone will drive everything and themselves.

•Tax revenue
Miniscule. TerraGen leases, not owns, so will directly pay no property taxes. The landowners would be paying the taxes anyway, some of them are apparently in or adjacent to Williamson Act parcels - which was not mentioned in the DEIR. The tax is stated to be 1 percent of total cost less deductibles, thus at most around $2.5m annually, 14% into General Fund with the remainder to schools and other funds. An additional $7 million would be paid during construction. (TerraGen slide show) This amount is so small compared to the amount of staff and legal time that the tax revenues may not displace early costs for years to come. The project will not pay for the damaged Highway 101, taxpayers of the state of California will have to do that; the developer only offers to repair county roads damaged in transport and construction.

•Provide environmentally safe power (county goal)

No - modeling inaccuracies. They state this will displace 372,000 metric tons per year of carbon dioxide due to generating 155 MW. I question this number because their calculations do not take into effect the Carbon sink effect of all the trees removed for the project and Gen-tie line, and the disruptions to the present carbon sink in the grasslands where 3 million cubic tons of soil will be moved around.

No - environment. Entire construction is fossil fuel powered, transportation fuels were not included, and the accounting method amortized this greenhouse gas injection over 25 years. The earth is supposed to pass a tipping point in 12 years, there is no reason to add to it like this.

No - environment. Clearing is 895 acres of forest habitat alone; 759 acres will be replanted planned to regrow for 30 years. By then, the project will have to be decommissioned, and much of this area may have to be cut down again to get the stuff out. We don't know - decommissioning statements are put off until 30 years from now. The nearly 900 acres of forest cutover alone is greater than the entire area needed to replace the proposed 155 MW with local solar.

No - environment. Recent peer-reviewed studies have shown major down-wind effects on air and fog created by wind turbines. The down-wind effects of the project, while mandated by the county, are not analyzed in this DEIR.

2.2.3 Project Components

This section is very vague.

"Theoretical maximum energy generation" is stated like that because the wind does not blow all the time and if they have to turn them on and off to protect the condor, eagles, raptors, marbled murrelets, bats and other creatures to avoid potential significant impacts, so the generation will be less than this. However, they do not calculate how much less this might be.

Nine hundred acres of temporary or permanent impacts are stated, but I am unable to match their math by going through the rest of document and adding up the information given in the other tables and discussion. Perhaps they had so many possible alternatives that some disturbance figures are for different configurations. No table that I recall seeing sets up the disturbances for the various alternatives, although there is one showing claimed reductions.

There is no name, brand, size or actual model of turbine stated, nor exact locations. This is supposedly to be left to "final design." Therefore all statements of any form of detail about these throughout the rest of the document are entirely hypothetical as each type of machine has different noise, maintenance, size, blade configuration, and so on. There is no "one-size-fits-all" wind turbine.

TerraGen spokesperson Natalynne DeLapp informed me there are no operating 600-foot tip height wind turbines in the United States. While the impact analysis is as they say for the maximum number of turbines, and the maximum height, studies have shown that the various heights of these machines have different effects on wildlife due to their different sweep heights through the air column.

The DEIR discusses the Gen-tie across/under the Eel River and the Bridgeville Substation connection to PG&E which will lose 20MW to transmission, for just 25 miles.

The project would include the following components...
(*) up to 60 WTGs (capable of generating 2–5 MW of electricity each) erected on tubular steel towers set on concrete foundations, as well as the associated WTG pads, temporary staging areas, and transformers;
(*) temporary construction access roads and permanent service roads, as well as temporary improvements to public roads at two locations along U.S. 101 to facilitate the delivery of WTGs from the Fields Landing Drive delivery site to the staging yard at Jordan Creek;
(*) an up to 25-mile, 115 kV gen-tie, including an underground crossing of the Eel River, following Shively Ridge and ultimately connecting to the existing PG&E transmission system at the Bridgeville Substation;
(*) a project substation located on-site;
(*) an underground electrical collection system linking WTGs to each other and to the project substation;
(*) an underground communication system (fiber optic cable) adjacent to the collection system;
(*) a Supervisory Control and Data Acquisition (SCADA) system between each WTG and the substation and between the project substation and the Bridgeville Substation to monitor and control project output and the transmission of energy into the system;
(*) an up to 5-acre O&M facility, including an operations building, a parking area, and an outdoor storage area with perimeter fencing;
(*) a 10-acre temporary staging area and a construction trailer and parking area located within the O&M facility;
(*) a component offloading location at Fields Landing;
(*) two temporary bypasses off U.S. 101 (Hookton Overpass and 12th Street Bypass) for transporting oversize loads;
(*) up to six permanent meteorological towers;
(*) three 5-acre, temporary staging areas distributed throughout the project site, one of which would include one
temporary cement batch plant on Monument Ridge; and
(*) up to 17 miles of new 24-foot access roads.

Table 2-1 lists each component and its function and the disturbance areas for temporary and permanent conditions.

One math question, 60 x 2 = 120 so there have to be some larger and some smaller turbine included to get to the 155 MW number. This is not discussed at any time that there could be two or more different types of turbines used.

Modern turbines of extreme height now produce 10MW, but the DEIR says none of these will be more than 5MW. Please clarify.

The EIR describes the parts of a generalized turbine as well as FAA lighting and lightning protection, but again fails to state a model, make and actual type to be installed in this project.

Generator pads and base pads 350x350-feet, no more than 2% slope... That's big. That's a football field long and wide, each one, times 60 plus a permanent gravel ring around the base, temporary impact areas to be "stabilized" with the storm water pollution prevention plan and a site-specific restoration plan. These are permanent scars to the landscape which will be clearly visible from outer space forever.

Are there any fees, repayments to the county relative to adding impermeable surfaces (i.e. concrete) to areas which were formerly permeable? If so, how much?

ACCESS ROADS

page 2-12

This road is now 12 foot wide, to be widened to 24 foot wide, with 20 foot shoulder for crane travel. "In areas with steep slopes, the total width of the disturbance area along access roads could be up to 200 feet." Each watercrossing is to be made to bear the traffic with rip rap, culverts and geofabric. Finally permanent access roads would be taken back to 24 feet with 1 foot wide shoulder, but cuts and fills to 60 feet might be left behind.

Please explain how roads compacted with heavy equipment can be considered to be a "temporary disturbance" as 100-year-old road scars still show clearly from outer space? Cuts and fills left behind would be permanent and need to be identified to location.

pages 2-16 & 17

The expansion of Bridgeville Substation covers an existing road, and would appear to block traffic - is this permanent? This figure is not very clear as to intent and the text on page 2-17 does not address the existing road at all. This is of concern due to fire access in this heavily wooded area adjacent to power lines.

page 2-18

O&M Facility with water and septic on 5 acres at Jordan Creek. Will this be visible from the highway and the return of Avenue of the Giants to 101?

Meteorological Towers ... up to 12 mets. 6 permanent with blinking lights.
Same with Met towers, it doesn't say where they actually go, but they are the same height as the HUB height of the "Final WTGs selected." This is circular.

page 2-19 - 2-21 Construction

"Construction would begin in fall 2019 and would last 12–18 months. The sequence of construction activities would generally be as follows: tree clearing, site preparation/grading, access road construction, construction of WTG foundations, WTG installation, installation of the collection system, substation construction, gen-tie installation, switchyard installation, final testing and WTG commissioning, installation of O&M facilities, and cleanup and restoration. Approximately 3 million cubic feet of earth would be excavated on-site to construct the proposed

project. All grading would remain balanced within the project site, so no export of soil is anticipated."

- Things I could not find in the document which relate to this section include:
- Where is that 3 million cubic feet of earth going to go? The DEIR reads elsewhere that they will minimize disturbance on site, but the dirt has to go somewhere if they are not exporting it.
- Did they account for the carbon released by disturbing this soil? I couldn't find it in the DEIR.
- What will be done with the trees logged? Exported, chipped, burned, or what is the plan? Is there a Timber Harvest Plan?
- Winter and its effects on weather, flooding, road conditions, landslides on newly cleared roads is not mentioned. Local conditions and winter weather are limiting for construction. Examples of mega-projects delayed by local weather include the St. George Lighthouse (1883-1891) and the 2016-present Route 36 project.
- To finish on the applicant's schedule and timeline means being able to ship into and drive away from Humboldt Bay for 30 days without delay. This may result in the project not achieving one of its most important goals - getting up and running by December 2020 when the Federal subsidies run out.
- A description of the applicants understanding of how onshore and offshore weather influences schedule compliance during winter operations should be provided. Note that the Humboldt Redwoods HCP mentioned in section 3.5b does not permit winter operations as described by the DEIR.
- A description of how the project would meet the subsidy goal if delayed.

Section 2.3.1 Component shipping and staging.
page 2-19 "Transportation by sea would take place when weather conditions and the sea state are acceptable," summary: Barged by 2,200 foot towline to tugboat, dragged through the jetty on a shortened towline, mooring barge, components offloaded by crane at

One of the appendices has a drawing of the barge and components another section describes 20 tower bases on a barge, 2 rows of 10 ... each one 157,630 pounds. These Appendix figures could be incorporated in the DEIR, or at least referenced to Appendix letter and page number. At over 1000 pages, it should be on the applicant to be sure information is available - not on the public to index their document for them.

How does the crane/s get into the county? It just appears on page 2-20 deux ex machina. The unloading crane is not alone, there are other cranes required to assemble components which are also not mentioned. According to published reports each one of these cranes requires multiple oversized truck trips to deliver - and remove. In a public meeting to the Board of

Supervisors, one of the TerraGen representatives mentioned that these would come overland from I5 via 299 or 36. This transport is nowhere mentioned in the DEIR.

Offloaded they might ship components directly, or let it all pile up in Field's Landing. Barge activities are only scheduled for 30-day period which seems rather short duration of component arrival due to difficult offshore conditions. Working to 10 p.m. in a residential community seems late. In fall and winter, useful daylight is over at 3 p.m. so it seems they would also need supplemental lighting, which is not addressed in this document.

Night lighting can attract invertebrates and associated bats and birds to the project. Due to Eagle Cams on the Internet, it is known that this part of the bay is Bald Eagle nesting territory. Humboldt Bay has night herons, brown pelicans, harbor seals and other marine mammals. No mention of natural history at the offloading site, and no wildlife studies were performed there.

No Eelgrass survey was found. The Eelgrass map figure 3.5-4. data was copied from an agency and is out of date.

No night lighting or studies on wildlife were done at Humboldt Bay delivery site. This should be discussed, otherwise it is either an unaddressed or impact to be dealt with later on the Bald Eagles, marine mammals like harbor seals, bats and night flying birds. Noise at Fields landing was not discussed later in the document and not specified here. Impacts of noise on residents and creatures was not mentioned. This is a major omission due to plans to work 7 a.m. to 10 p.m. at this location for at least one month continuously.

page 2-21 gives a general description of South Bay Depot Road modifications to get trucks in and out. Later in the DEIR this generalization is rephrased "This turn would require repositioning one communications pole a short distance to the north, increasing the right-hand turn radius, and possibly repositioning the stop sign and other road signs a short distance to the south given the need for wide right-hand turns."

Ownership of the modified land is not mentioned, but to prevent concerns about imminent domain or encroachment, it should be discussed.

The wetland to the west of this onramp in not discussed.

While shown as a small red outline on Appendix M, Figure 2, Page 1 of 5, a larger scale more detailed drawing should be provided showing the ownership of all parcels and easements affected by these changes and how public access will be maintained to the freeway during component transport. This comment pertains to all bypass and overpass drawings for project which - if they exist at all - are currently split in two parts, and buried in the Appendix.

As an unaddressed point of public safety later in the document, this on-ramp is the only south-bound access for the Field's Landing community, and it is one of the few turn around points for emergency vehicles to go from northbound to southbound lanes on 101.

2.3.2 Component transport.

Wind turbine component transport is a highly specialized profession and series of vehicles. The folks who do this travel the country with their own pilot cars, flaggers, RVs and so on. (https://www.houstonchronicle.com/business/energy/article/As-wind-turbines-grow-larger-so-does-the-6840315.php)

Each turbine will take up to 15 loads to deliver the parts, 9 to 12 loads are oversized. This quantity of trips is stated several ways in the document, and there is considerable difference between the results. This will be pointed out at relative points.

The effects of changes to Highway 101 which is a vital lifeline to all the residents of the county, as well as visitors and tourists, is of great concern. The highway was landscaped when it was built in the 1960s, many of the plantings are mature, some are rhododendrons and other native plants specifically placed in the understory by CalTrans as part of floristic beautification over the last 50 years.

It does not appear the project applicant has done any bird/bat surveys or assessments, identified actual trees for removal or considered riparian or wetland impacts of their proposed changes to 101.

page 2-21 "Transport of heavy components may require localized clearing or pruning of vegetation, temporary relocation of obstacles such as fences and overhead power lines, and/or placement of temporary mats and fill material to support the loaded vehicle weight."

page 2-21 "Most project components could be transported directly to the project laydown yard at Jordan Creek without requiring any improvements to the U.S. 101 corridor. However, depending on final WTG selection and the transportation plan, the base tower section may exceed the allowable height of two overpasses: Hookton Road and 12th Street."

page 2-25 "Additional detours off U.S. 101 are planned that would not require physical improvements other than trimming vegetation to provide truck clearance:" at Loleta, 'Finch Creek' and Palmer Boulevard."

This section seems incomplete and information is missing. Two exits are confused with each other ("Finch Creek" is actually "Singley Road Separation" at Fernbridge Exit), two overpasses are named to be a problem but three are bypassed, as are two flat-deck bridges. The other 18 bridges and overpasses on the route are not discussed. It is not possible to tell if they were examined for any project limiting features.

Some of the bypasses are mentioned in Project Description 2.0 text and figures, others are mentioned in figures in Appendix M. Not all the bypasses are mapped. Not all the bypass maps of the same bypass show the same changes.

Due to this incomplete information, it is impossible to know the actual scope of effects on Highway 101.

Specifically I request the following improvements to the DEIR for all bridges, over passes, underpasses and exits (including grade crossings) from Fields Landing to Jordan Creek:

* Add Highway Exit numbers to discussion about bypass areas to standardize discussion and prevent error.
* Provide accurate descriptions and maps in one place in the DEIR. Currently bypass maps and descriptions are located in Section 2.0, the Transportation section 3.12 https://humboldtgov.org/DocumentCenter/View/72214/30-31-Environmental-Setting-Impacts-and-Mitigation-Measures and the maps in Appendix M. https://humboldtgov.org/DocumentCenter/View/72237/M-Biological-Resources-Wildlife-Assessment-Humboldt-County-Ca
* Provide detailed information where "fill material to support the loaded vehicle weight" (page 2-21) would be used.
* Perform and provide appropriate wildlife assessments for all exit areas to be bypassed, native plants and mature trees to be removed.
* Discuss direct and indirect impacts on the National Wildlife Refuge, the Bear River Casino, Humboldt Creamery, Mercer-Fraser, the City of Fortuna Waste Water Plant, the City of Fortuna Park, Recology and steel waste yards, and the other businesses at Dinsmore Road and 12th Street.
* Update the project description to include grading at Fernbridge/"Finch Creek" and removal of native plants on CalTrans berm apparently not noticed during DEIR preparation. Describe in detail the mitigation for changes.
* Provide details where cuts will be created at other locations for passage.
* Provide detailed maps or descriptions of revegetation and restoration plans for any bypasses affected.
* Discuss effect of transport on Rohner Creek at 12th Street and the creek at Hookton slough and describe how the small county bridges in those locations will bear the weight of the components and transport.
* Review and update the 12th Street re-entry to 101, it appears some details for this ramp have been omitted, including no outlines on any drawings of area of effect.
* Provide a statement of need for Fernbridge/"Finch Creek" (Exit #692) bypass.
* Address why the **Tompkins Hill Road Overhead, #04-0121**, and the actual Finch Creek Exit #691 are not being bypassed while the Fernbridge/"Finch Creek" and Palmer Boulevard exits are. The ages and weight restrictions are similar.

* Directly address in table or text why 18 other bridges and overpasses on the route do not need to be bypassed. This is important because it would be difficult to achieve the December 2020 subsidy cut off date Goal if any one of these were found to be inadequate during transport.

Comment and request for changes about Hookton Slough bypass.
* Describe why this lengthy and discontinuous bypass (shown on drawings Appendix M as below) is needed to get around Exit #696 Hookton Road OC Overcrossing #04-0166.
* Accurately represent the Hookton bypass in maps and text in the DEIR. Half of this bypass is in the Coastal Zone (Appendix M, Figure 2, page 2 of 5 in red outline; vegetation types are shown in Appendix M, Figure 3, pages 2 through 6 of 9). Neither of these two figures are directly comparable to Figure 2-19, (page 2-26).
* Obtain Coastal Commission permission and any required consultation with the National Wildlife Refuge at Hookton.
* Study and provide mitigation measures in the DEIR for the proposed culvert, gravel and geofabric bypass on the Northern Red-legged Frog (Rana aurora), a species of special concern.
* Perform wildlife assessments to determine the potential impact on birds, birds of prey and bats and provide mitigation measures in the DEIR as needed for endangered, threatened and species of special concern at Hookton Slough. This was done for ridgetop habitats, but not for the port, bypasses or gen-tie line.
* Describe dust control measures from construction and use of the gravel "Visitor Access Road" which directly abuts and accesses the National Wildlife Refuge.
* Prepare crossing or culvert plan for the bridge crossing the stream which runs into the Slough.
* Describe in detail the post construction revegetation of mature trees, snags and willows removed for the bypass.
* Prepare a winter plan for when Hookton intersection and/or the temporary bypass floods in the winter with particular attention to keeping the gravel out of the slough and the Bay.
* Provide mitigation measures in this DEIR for the modifications to or loss of riparian habitat marked on the map in Appendix M, Figure 3, page 5 of 9.
* Describe emergency and public access to the coast, the Humboldt Bay National Wildlife Refuge, Table Bluff County Park and Table Bluff Ecological Reserve as well as to the Wiyot Reservation and adjoining residences during construction/removal of the bypass and/or during transport operations.

Summary concerning constructing bypasses:
There is insufficient information in the DEIR, considering all sections and appendices to fully understand the plans and associated impacts to the natural landscape, freeway roadside with historic plantings, side roads, small waterways and access.
Sufficient information should be included in the final DEIR along with updated maps in all sections they occur. Unplanned detours to move turbine components would create unanticipated and unplanned impacts some of which may be severe.
page 2-25 "All improvements would be removed following WTG delivery, which is expected to last up to 6 months. The sites would be restored to pre-installation conditions" and "After construction, all temporary impact areas would be restored to their preconstruction state as

appropriate for the project site, in accordance with County requirements or permits and authorizations issued by other regulatory agencies. All construction debris and waste would be stored outside of any jurisdictional drainage and in locations that would avoid unnecessary movement of the material. When removed, material would be disposed of at an appropriate location by a local, licensed disposal company."
There is no statement how they will restore the mature trees and vegetation removed along and adjacent to Highway 101 to make these changes.
* See also **page 2.3.11**. Provide clarity about "in accordance with County requirements or permits and authorizations..." repeated in both places. Otherwise this seems like piecemealing or figuring it out later might result as there are currently no assessments of the pre-construction condition in the DEIR.

* Provide waste disposal information, information on storage sites, what is to become waste and method of disposal. This is not a discussion of which landfill to ship to. This is more a question of how much fuel will be used to truck out the construction debris and the anticipated tons of operational debris cited later in the DEIR. It is consistent in this document that the effects of subcontractors are not included in Fuel, Greenhouse Gas, (sometimes) Noise and other sections. I think all the effects of the proposed project should be included - not just some of them.

* Discuss why this section says "all improvements would be removed" when other sections say that access roads are permanent. Perhaps a map should be provided to show the applicant's intent of "all improvements" versus "access roads."
In conclusion for this section, Highway 101 is the lifeline of Humboldt and Del Norte Counties and the shutdown or loss of any bridge would be a disaster. Of particular concern are bridges at Tompkins Hill Road, Fortuna Main Street, three crossings of the Eel River, near approaches to Humboldt Bay, several crossings of smaller waterways, and the Van Duzen Bridge.
*As the document tends to repeat items, some are skipped here but will be discussed in their appropriate section of my comments.

page 2.3.13 Staging area and batch plant.
* How many trees and of what species and age composition will be removed for the nearly 20 acres of development for this part of the project? I do not see a timber plan, I do not see where the dead trees will be taken, used, sold, or transported.

* Is the fuel for the batch plant generators included in the fossil fuel tables, greenhouse gas and air quality calculations?

"All waste and debris from batch plant operations would be hauled off-site and disposed of at appropriate locations." Do these appropriate locations match those defined later in document or are these somewhere else? It's not clear.

page 2.3.14 Construction traffic

Table 2-2, page 2-33 presents heavy truck trips but it appears not to be included in any calculations for fossil fuels or greenhouse gasses. It is not comparable to the table in on **page 2.13.17** which shows construction vehicles - that does not include the transporters or their 30 vehicle pace teams described elsewhere in Transportation, Noise and Air Quality. It is not enough to discuss the heavy truck trips, also included should be fuel, water, and waste disposal vehicles, pace cars, flaggers trucks, vehicles to place and remove cones and signs and so on to be comparable and to complete tables equivalent to that for construction labor and equipment. The lack of accounting for these vehicles extends to their fuel uses not being included in the Construction fuel figures and also not in the green house gas figures - which is a serious omission.

All the transport should be placed in one section. There is no reason for anyone to have to flip around to find out what matches, and what doesn't match between, Section 2.0, Section 3.12, Section 3.11, Section 3.8 and other locations where project traffic is discussed.

page 2.3.15

Does not say where the 5,000 gallons diesel in temporary earthen berms will be built or stored other than "above ground" probably somewhere near the batch plants. Perhaps a description of where on the project footprint and a discussion of any earthquake or groundwater proofing for these tanks could be provided.

The fuel deliveries may not be accounted for on **pages 2.3.14 and 2.13.17** because it reads "It is assumed that commercial vendors would replenish diesel fuel stored on-site as necessary." Which means they are not accounting for the fuel needed to deliver the fuel they will use.

Lubricating oils are also used on the nacelles and takes up to 400 gallons per oil change per turbine (agreed to at TerraGen presentation by Natalynne DeLappe). I do not see this mentioned on Table 2-3.

Herbicides are listed and claimed to be for fire management. No further details are given. Additional chemicals are mentioned only in the footnotes. Later in the document keeping the Gen-tie grass down is mentioned, but again no details of mowing, or herbicide use.

No mention is made of chemicals planned for the O&E septic system at Jordan Creek.

Regarding: The project applicant would develop and implement a fire protection plan before construction and operation. This is one of the over thirty-five (35) deferred sub-plans and permit applications referenced in this document but not included.

Besides making it impossible for public comment, if this is approved in Summer 2019 and they want to start in September 2019, that leaves them about 30 days to develop and implement a fire protection plan for thousands of acres of agricultural and farm lands relative to their

construction activities - one cigarette and the entire grassland could go up - trailers dragging chains - hot mufflers in dry grass - diesels that can't be shut off - workers from somewhere else unaware of local hazards - electrical transmission lines (remember Paradise) - there's many potential hazards and not a lot of time left to plan for them. The omissions in the DEIR do not give me great confidence that later plans presented to local districts will be complete.

Table 2-3, page 2-34 lists lead-acid storage batteries, but fails to mention their addition to the Bridgeville substation mentioned elsewhere.

Table 2-3, page 2-34 The presentation of herbicides does not seem to include their use on or along the transmission corridor - although that is mentioned elsewhere in the DEIR.

2.3.16 Water Supply and Use

This summary will be discussed later in comments with **3.1.3 Utilities page 3-8** as it would otherwise just be repeated.

2.13.17 Construction Schedule, Personnel and Equipment
pages 2-35, 36 & 37

There are two tables in this section that will be referenced. Table 2-4, **page 2-35** and Table 2-5, **pages 2-36 and 2-37**.

Three hundred workers are listed on "Work force and Equipment," Table 2-4. Of those 30 are listed as "laborers" the rest are specialized.

I think this list overlooks a significant number of workers for activities described elsewhere in the DEIR.

- There are no truck drivers.
- There are no vegetation removal workers, no loggers, no log truck drivers.
- There are no workers for bypass construction.
- There are no workers for batch plants and concrete delivery.
- Aquatic delivery and operations are not mentioned; no barge delivery or winch operators. Crane operators at delivery point in Fields Landing are excluded because it reads "Turbine component unloading crew (pad site)" and does not mention the Fields Landing site.
- No component delivery workers

I think this list overlooks a significant number of pieces and types of equipment for activities described elsewhere in the DEIR.
The Equipment list, named "Typical Construction Equipment," has similar omissions.

- Trucks are listed here (there were no drivers on Table 2-4).

- No bypass construction equipment listed, all the work is relevant to the project footprint, Bridgeville and the Gen-tie construction .
- No vegetation removal equipment, even for Gen-tie.
- No aquatic delivery equipment, no tugboats, barges, dock generators, crane for dock, and generators/lights as needed for night work.
- No component delivery equipment. Not listed are the oversized vehicles for turbine components and cranes, chase cars, and pilot vehicles associated with turbine component and oversize crane deliveries.
- No batch plant equipment is listed including powering generators.

Because this equipment, almost all fossil-fuel powered, is not listed, I have no confidence in the Fuel calculations, Emissions calculations, Greenhouse Gas and Air Quality statements and assurances.

Table 2-2, page 2-33 presents heavy truck trips but fuel for those appears not to be included in any calculations for fossil fuels or greenhouse gasses.

It is obvious that these tables were used to generate the fuel calculations. Since the above activities are not listed on these tables, I am assuming that the fossil fuel for them is not calculated in the other parts of this DEIR.

It looks like the amount of fossil fuel needed to build this might be up to double or more what is presented in this DEIR if all vehicles and equipment were included.

Fossil fuel requirements and/or emissions for significant construction associated activities do not appear to be presented and discussed in the Greenhouse Gases and Air Quality sections.

Thus all the CO2 figures are off, all the air quality figures need adjustment and the places that need to be modified to more accurately reflect reality are located throughout the document.

2.4 Operations and Maintenance Activities

2.4.1 Operations and Maintenance Plan

Standard maintenance results in 30 years of human disruptions in area where presently there is hardly any.

2.4.2 Public access and safety

Night lighting and daytime strobes in this area is a potentially significant impact in an area which currently has none. Yes, lights are mandated by the FAA, but no they wouldn't need to be there without the proposed project.

The DEIR's only concerns about fire seem to be vegetation fires, but in other areas of the country the turbines themselves catch fire. Elsewhere in the country wildfires have been started by nacelles catching fire, lightning strikes and other ignition sources. Please address in detail the fires caused by turbines themselves, not the turbine response to a wildfire started somewhere else and arriving at a turbine as well as any hazardous materials issues first responders might encounter in such a situation.

The wind farm fires reported in the news are mostly of the "nacelle catches fire" with clouds of black smoke. Over 2000 acres in Arlington, Oregon, were burned on August 2, 2018.

First responders around the U.S. have also responded for injuries and deaths in turbine construction and maintenance accidents. The DEIR did not address the need for high-angle rescue gear and training for local first responders.

2.5 DECOMMISSIONING

The decommissioning plan is extremely vague. Decommissioning discussion and any DEIR for same is deferred thirty years in the future. The county has already had experience with large landowners and employers filing for bankruptcy, it would be good to learn from this experience.

The decommissioning bond is stated to be between TerraGen LLC and Humboldt Redwoods Company (Natalynne DeLappe, public comm. 2019). If both entities dissolved, willingly or in any other way, the county is exposed for the full amount of decommissioning - without even an outline of a plan in this EIR.

An actual plan and irrevocable performance bond should be deposited with the County as a mitigation measure prior to any permits being issued. The applicant can also deposit a bond with Humboldt Redwoods, Russ Ranch and any other landowners for decommissioning, so taxpayers are not impacted if one, or all these entities dissolve. The ownership of TerraGen is currently by two Hedge Funds: ~ARC Light Capital Partnership (NYC) @ 60% and Global Infrastructure Partnership (Great Britain) @ 40%. There is no guarantee that any of these entities will exist in 30 years.

Missing in the Maintenance Plans

There is little to no discussion about maintenance needs of component parts, but other places in the country have had to replace blades, nacelles and towers long before 30 years of operations. Repairs are not mentioned in this DEIR. Repairs and replacements would create secondary impacts - but we do not know what they are since this section doesn't list them. Nacelles and tower parts are oversize components according to this DEIR and replacing them is not discussed. Los Alamos National Laboratory states "Modern wind turbines have a design life of 20 years, and yet break down 2-3 times in the first 10 years."
(https://www.lanl.gov/discover/publications/1663/2014-april/wasted-wind.php)

Blade replacement is not discussed. The blades have at most a 25-year life. With no specifics on the turbines to be used, it is impossible to be more specific. Some blades have failed immediately post-construction, some bend like rabbit ears in high winds, or break off and land at a distance, others are fine until they're in their double decades. Wind speed alone is not the only factor in blade life. An entire sub-industry of wind energy is devoted to blades, but I do not see any plan for what to do with these blades when they have to be replaced - at 25 years of age, which is during the 30 year anticipated age of project. Each would have to be transported out, with the same problems as getting them in (roads, bridges and port) or chipped up and then disposed of. In a presentation, TerraGen spokesperson Natalynne DeLapp stated used blades are garbage and blamed our "disposable" culture. And giggled.

With a rotor diameter of 492 feet (ES.3.1 Project Location and Components), each blade would be about 240 feet long. If we would assume that they are about 25 feet wide and 25 feet thick, multiplying by that length gives a volume of 150,000 cubic feet or 5,556 cubic yards. If the size were less, (240 x 25 x 10) the result would be 60,000 cubic feet or 2,222 cubic yards. For reference a typical garbage truck holds about 180 cubic yards resulting in about 13 to 25 garbage truck loads per blade - assuming the chips could be perfectly placed without air in between.

Since garbage in Humboldt County is trucked out, where exactly will this 2222-5556 cubic yards per blade, times three blades, times 60 turbines (399,960 - 1,000,080 cubic yards) of debris, for one renewal of the blades end up? These projects typically renew the blades every ten to fifteen years, resulting in those figures needing to be doubled or tripled.

New blades, nacelles and towers would have to be shipped in and the old parts removed. Whether any of this would require the bypasses be reopened is not mentioned in the DEIR.

I do not think this has been adequately discussed and could leave the county with a massive liability if there is no performance bond to guarantee removal of all blades, parts of blades and other components.

The county might be left holding the bag for decommissioning costs if there was no performance bond. This has happened to other wind farms in other parts of the country and the ability for corporations to declare bankruptcy and hand off parts of their operations, but not all of the associated liabilities is so common that they teach classes in it. Let it not happen to Humboldt County.

Table 2.6 Permits

Nowhere do I see a timber harvest plan for all the trees being removed. Later, in Impacts, the DEIR says that the first project construction phase is inconsistent with the provisions of the Humboldt Redwood Company HCP. This impact would be potentially significant.

I think timber removal should be addressed in a manner consistent with a Timber Harvest Plan which requires information about trees. The DEIR approaches trees like acres of corn. "OK, boys, get out the harvester and let's cut everything in the corridor." I don't think that's the way to save species, creating miles of edge habitat willy nilly through one of the last great places on earth.

Note: The Permits section is the only place I have seen marine aquatics listed, but I think it's standard boilerplate because it relates to biological opinions and incidental take permits, not anything specific to Fields Landing.

Sections 3.0 & 3.1 ENVIRONMENTAL SETTING, IMPACTS, and MITIGATION MEASURES

This part of the document defines terms and then discusses impacts that they did not find to be significant in areas related to planning, water, and so on. It discusses short-term, long term and permanent effects, defines direct / indirect impacts and cumulative impact.

3.0.3 pages 3-3, 3-4 and 3-5. "No feasible mitigation measures are available ... if the impact would be significant and unavoidable, and no feasible mitigation is available to reduce the magnitude of the impact to a less-than-significant level."

This statement is directly applicable to California Fully Protected species as discussed below

Impacts Found not to be Significant 3-5
3.1.1 Land Use and Planning
page 3-5
The DEIR presents the Humbold County General Plan, as amended... Zoning ... "The impact related to a conflict with an applicable habitat conservation plan or natural community conservation plan is addressed in Section 3.5, "Biological Resources." See Section 3.3, "Agriculture and Forestry Resources," for a discussion of the effects of the generation component related to agricultural land and timberland use regulations. To the extent that the proposed project meets the findings of Standard E-S3 in the General Plan Energy Element and the required findings and conditions for CUP approval, the project would not conflict with any land use regulations adopted for avoiding or mitigating an environmental effect, as described above."

This part of the DEIR is talking about regulations for General Plan and Zoning. The significant impacts that cannot be overlooked come later in the document. This section essentially lays out the rules the document is to follow.

"Electromagnetic interference and other safety issues are discussed in Section 3.9, "Hazards and Hazardous Materials." Noise impacts are discussed in Section 3.11, "Noise." Appearance and design, including height, are discussed in Section 3.2, "Aesthetics." Utilities are discussed in

Section 3.1.3, "Utilities." Compliance with the Uniform Building Code is discussed in Section 3.7, "Geology and Soils."

My comments will follow along in the same order as the project documents.

page 3-6
Military overflights are noted, this requires the County to get with the Government to ensure no problem. I do not see they anyone has contacted the military about it. Elsewhere military has stopped erection of turbines in their flyways.
(https://www.news9.com/story/39239744/florida-company-halts-wind-turbine-construction-in-western-oklahoma)

3.1.2 Population and Housing
page 3-8
"It is expected that specialized workers with unique skills to erect the wind turbine generators and construct the collection line, gen-tie, and project substation would typically travel to a project site and stay in the community temporarily until the job is complete. These workers would relocate to the next job site rather than residing in Humboldt County permanently once the job is completed."

"None of the project components would result in displacement of housing, and thus, none of the options would require the construction of new housing."

Summary: 315 workers will be needed. 300 for 12-18 months and 15 over 30 years. They do not expect the 300 workers to be from this community or to remain here (in one part); they do expect the workers to be from here and remain here (in another part). (Referencing Section 3.1.2. Population and Housing, contrasted to Section 3.1.4 Recreation, and 3.1.5 Public Services)

If the workers are brought in from outside, there appears to be a significant impact that is not addressed in the DEIR. There is no suggestion of where these 300 people will be housed for 18 months. There is little spare housing and a substantial homeless problem here already. Even some HSU and CR students are homeless. The DEIR does not say they will provide housing, and there's no RV park big enough to handle an influx of 300 RVs and trailers (prohibited in cannabis areas like the Rio Dell log deck) and would require sewer hookups.

I do not understand how 300 temporary workers be brushed off as "no impact" when there's no housing available for so many people (not students) at one time. For scale, they would be about 10% of the population of Rio Dell. This is a significant impact to housing. (See also Section 3.1.4 Recreation, and 3.1.5 Public Services)

3.1.3 Utilities
page 3-8

WATER SUPPLY
The DEIR calculates 60 gallons per day potable well-water for each of the the 15 permanent workers and that they will use it for each of the 365 days a year (60 x 15 x 365 = 328,500 gallons) Acre-foot = 325,851.43 U.S. Gallons.

Use of 62-acre-feet of treated sewage water from Scotia was planned for construction-related activities, dust, soil and concrete. It will be delivered by truck, but I do not see water trucks listed in the construction vehicles in Section 2.0 as mentioned. Subsequent to writing this comment, I have been informed in writing that City of Scotia is unable to provide this water - it would violate their agreement with the state - and TerraGen never asked to use the water. So where is the construction water going to come from now?

Additionally the DEIR does not address the water needs of the 300 temporary workers.

At the 60 gallons per worker per day as above
300 temporary workers [tw] x 60 gallons per day [g/pd/tw] = 18,000 gallons per day [gpd]

12 months: 365 days x 18,000 g/pd = 6,570,000 gallons (20 acre-feet)
18 months: 547 days x 18,000 g/pd = 9,846,000 gallons (30.21 acre-feet)

Notice that Table 3.1-1 on page 3-9 is only for post construction water use by this project. There is no table for during construction water use.

If they will have potable water delivered by truck for their temporary workers, those trips need to be accounted for in fuel use and air quality and a source of the water provided.

This appears to be a significant impact that is not addressed in the DEIR.

WASTEWATER
While the 15 permanent employees dump 60 gallons per day into a new "appropriately sized septic system" (no map or location and no chemicals listed) where the 300 temporary workers will be depositing liquid and solid personal waste is not addressed.

If it's portable toilets or other transportable facilities, they never said where they go relative to waterways, and did not account for the fuel or vehicles to transport them.

If it's some other method, it has not been defined. Therefore I do not think they can say "no impact" here as they have left off at least 20-acre-feet per year of liquid discharge from the daily needs of their temporary workers as well as 100% of temporary worker solid personal waste, which could be as high as 300 pounds per day.

If temporary workers use less water, and/or less sewage for some reason, that should be defined and discussed in this document because significant potential for stream contamination exists because the ridges are the headwaters for all waters flowing downwards from the ridge tops.

No water or sewer use was described in relation to the construction route transport, Gen-tie or Bridgeville substation expansion. Worker sanitation features should be available along the route, as transporters are too big to dodge in and out of gas stations and it is just not an option to use the bushes.

Dry Waste
The project in operation will produce up to 4,000 pounds per week of solid waste (0.28 ton/day) of solid waste, although what exactly they are doing to create that much trash is not mentioned.

If they've amortized their construction waste into a weekly over the life of the project, they do not mention it. If it is construction waste all generated at the same time, what will be the effects on our roads 299 and 36 of having that kind of load removed on a fairly fast timetable?

They mention that they are within the permitted amounts of garbage for the various open landfills. However they do not mention or calculate the energy used to transport 208,000 pounds per year of trash to the landfill.

I do not have enough information to really understand why 2 tons a week of garbage would be produced by wind turbines in operation. There are 15 people in the operations center, that would be 266 pounds per person of trash, which doesn't make sense.

This level of dry waste is what a factory would create - not green energy.

3.1.4 Recreation
page 3-11
They say no new residents and completely forget their 300 bored out-of-town workers. I think this is significant and needs to be addressed

3.1.5 Public Services
page 3-11
"As discussed above in Section 3.1.2, "Population and Housing," many construction workers and O&M employees would come from the local labor pool, and the available labor force in the county would be sufficient to meet much of the employment demand."

That is the exact opposite of what was stated on page 3-8, Section 3.1.2 Population and Housing. Previously - and per standard procedure for wind farms - the DEIR said that the

builders are specialized and will come and leave. That the workers leave at the end of the job was the basis of the no impact in Section 3.1.2!

Even if Section 3.1.2 is wrong, and if it were possible for them to hire the specialized wind turbine workers they need from the local population - what is the effect on the local economy when they are released from their jobs at one time?

If they are hiring all 300 local, please state how hiring unqualified and untrained workers for specialized high-angle work up to 50 stories affects their insurance and dates of completion.

3.1.6 Energy pages 3-12 and 3-13

This discussion omits all marine activities (tugs, barges, dock installation) and do not account for the delivery crane or turbine erection cranes.

"Energy demands during construction would be associated primarily with construction equipment and vehicle fueling; energy (fuel and electricity) would be consumed by construction vehicles and equipment operating on site, trucks delivering equipment and (page 12) supplies to the project site, and construction workers driving to and from the site. Operational activities would include energy consumption associated with vehicular use and the O&M facility." (p. 13)

No mention is made of the additional fuel barges that would be required to deliver the additional gasoline and/or diesel fuels for the project over and above what is already imported.

I also do not believe they have adequately accounted for water and waste transport fuel use as previously mentioned.

The fuel use of the extra barges and their effects - if any - on protected mammals such as Harbor seals is not included in the discussions. I believe if it were included that this section would change from "no impact" to "significant."

3.1.7 Mineral Resources

page 3-14

I fail to see how the "applicant is not proposing any form of mineral extraction" when they will use an enormous amount of sand and gravel in their construction. The minerals will have to come from somewhere, they cannot brush this off as no impact because they may already exist somewhere in the county. I would like to see an accounting of the actual amount of material they require compared with the regular rate of extraction per year in the County. It may be that what they feel is "Common" would require extraordinary effort to extract which they have not considered.

3.1.8 Paleontological Resources

page 3-15

I do not disagree with their findings or have any questions on this section.

Section 3.2 AESTHETICS
page 3.2-1
"The region contains many notable recreation areas and resources, such as Humboldt Redwoods State Park along U.S. Highway 101 (U.S. 101), the King Range National Conservation Area/Lost Coast, and the Humboldt Bay National Wildlife Refuge."

No view points were shown from within Humboldt Redwoods State Park.

As shown in Figure 1, the turbines are close to - just over one valley - from the the Thornton Multi-Use Trail, the Peavine Multi-Use Trail, The Peavine Ridge Spur at Prairie Road - part of the Carl A. Anderson Redwoods Natural Preserve which runs north of the Mattole Road. The Bull Creek State Wilderness is to the south of the road as shown on State Parks maps. (https://www.parks.ca.gov/pages/425/files/HumboldtRedwoodsSP_WebBrochure2014.pdf)

The proximity to the trails is clearly shown on Figure 3.2-1 where the Monument Ridge turbines would be the next thing over the valley for nearly the entire length of the trail and from parts of Grasshopper Trail, and from Grasshopper Peak, the high point. No mention of these viewpoints - or the effects on visibility from the Natural Preserve and Wilderness Sections of the Humboldt Redwoods State Park was made in the DEIR. No "KOP"s (key observation points) were modeled from inside the State Park.

pages 3.2-7 through 24 are images from the various KOPs.
All these images of visualization share a single repeating problem. The faceplate maker, size, width of column and quantity of turbines has never been defined. It's left to "final design." So these images are about as imaginary as possible. I object to using imagery that does not accurately reflect the actual appearance and I request that they also show imagery at night to show the number and location of flashing red dots that would be present on the horizon. From their own maps these will be visible from Fields Landing to Scotia with views from within the State Park and high point views as far as the King Wilderness.

These effects on view are huge for an area dependent on tourism. As is stated in this DEIR section, regular commuters and visitors prefer an orderly vista. The turbines - at twice the height of the nearest large redwood - are vastly out of scale for this landscape.

I have listened to three of spokesperson's Natalynne DeLapp's presentations on the subject so far, and I have to say, that I prefer the look of the reforesting hillside without the turbines a lot better than I like it with the turbines in Figure 3.2-4 - from Scotia. The turbines dominate the town poking up from the ridgetop, and look extremely untidy because all the arms are at different angles all the time. They don't look modern, the same designs have been used since the 1980s.

It would be instructive to have views with midwinter lighting, when the sun is nearly behind the ridges and the turbines would cast long shadows in the pale light. A sunrise view from the Mattole Road with the line of spinners backlit with the red orb. Or perhaps backlit and multiplied many times their size as shadows in the fog with dark shadows cast many miles away. These lighting conditions occur now with 300 foot tall redwoods, it's unlikely they would not occur with these towers. Light conditions are not always perfect, and views aren't always from roads. Just because tourists like blue skies, doesn't mean we have them 365 days a year on the North Coast.

Figure 3.2-5 is perhaps the most afflicted view - except for Scotia - mere 5 miles away, the turbines stick up out of the forested hillsides like some kind of space invasion. They are just not scaled to the landscapes of the county. I disagree with spokesperson DeLapp who claims that cows ruin the view for her (KHUM Radio 5-27-19 8:20 a.m.). The cows are far more natural than the giant metal things in the background of the mockup and they are in scale with deer and elk.

Figure 3.2-6 View from Riverwalk. Clearly visible on the horizon in a high sun photo and again would be more obvious in winter with low angle sun. This is a popular walkway and convention center.

Compare and contrast the visitor friendly Riverwalk and Lodge with the project. No one visits wind turbines as a tourist attraction. If they did, there would be a visitor center, fancy videos and maybe docents to explain what is going on. But instead there's chain link fences surrounding closed off plain industrial buildings - with no relevance to the redwood architecture of the region - just metal industrial, and blinking lights all night long on the ridge.

Figure 3.2-8 The Mattole has been called "one of the last great places on earth, perhaps too beautiful to stay that way." The mockup in this figure shows a lineup of turbines like two opposing football teams, one on each ridge. Again the blades are pointing every which way, they look very sloppy compared to the natural beauty shown in the figure without them. What day of the year would the sun rise directly behind the project and cause shadows all over the Mattole? As it is south east of the KOP this will obviously occur.

Figure 3.2-9 KOP#8 first caption says 17 miles from "the Project," second caption says "nearest turbine 10 miles" - a difference of a mere ten miles in one photo. Again, the turbines loom on the horizon. I disagree they have any relevance to the foreground even if the occasional piece of farm equipment has a wheel. That's like saying that you can put them on the freeway because trucks and cars have wheels. They are over sized to this environment. Whether this is 10 or 17 miles away - this is too much visual impact on too many residents and visitors for the huge release of greenhouse gases from fossil fuels to build them and the pittance in taxes the county will take in over 30 years.

Figure 3.2-10 Visible from Table Bluff at 23 miles from Project and nearly 17 miles from nearest turbine. Twenty-three miles of visual effect from one project everything between here and there has a pretty clear view of them too.

Personal observation, they will be visible from the turn at Tompkins Hill Road along 101 to Scotia without difficulty wherever you can see the ridges now. They will be up to six times taller visually than the Doppler Radar Station currently visible above Ferndale, which is slightly over 100 feet tall.

While a 50mm lens might model the natural world, it has no peripheral vision. These will be visible front on, sideways, and in all views from now until decommissioning in 2049.

Besides the lack of imagery from areas not along roads and parking lots, and the odd lighting to minimize the tower bases, and the lack of accurate width of tower bases and heights in the simulations, a mitigation measure in this section states "The WTGs shall be clustered or grouped to break up overly long lines of WTGs." Based on Figure 2-1, it appears that the placement of the WTGs does in fact create overly long lines.

This project will change the views for longer than it would take a baby born this year to graduate college. I consider that very significant, especially for Scotia, a town barely getting started after being owned by a single entity for all prior history.

This is too much of a visual and aesthetic effect for an area described in the DEIR
page 3.2-2 "Most of Humboldt County's land area is rural, without urban development (e.g., streetlights, nightlights, interior lighting, and paved areas) that create skyglow and light trespass, commonly referred to as light pollution. Skyglow is defined as the added sky brightness caused by the scattering of light into the atmosphere."

Table 3.2-1 Rates current landscape units and current conditions. It does not make any statement about how the visual quality would change with the turbines. Half, 18 out of 36 boxes, are rated "moderately high." This is the kind of aesthetic experience desired by tourists and residents, and one which the county has previously worked very hard to maintain.

page 3.2-27
Discusses FAA lights being added to an area without nighttime lighting. Adding night time lighting will create light pollution where currently there is none. This is an impact for which no mitigation is possible.

There is no mention in Biological Section 3.5b of the effects of blinking red FAA mandated lights, or day time strobes on bats or birds. Migrating birds have been known to be affected by lights; bats are of course attracted to lights because insects concentrate there.

page 3.2-27
The DEIR states the FAA requires a bright white color. In 5.3b for bats they mention a possible mitigation of painting them purple. Paint is not included in hazardous materials lists (section 3.9), in fact it says the pieces would be painted prior to shipping.

page 3.2.27 Presents aspects of the Humboldt County Plan.
CO-G1 Conservation of Open Spaces: distinguish and showcase ... natural environment... while not impacting the ability to provide livelihoods, profitable economic returns and ecological values.

This project fails this goal. It will damage nearly 1000 acres of land, with effects on the highway and port. If the owners of the lands for lease are broke, they can sell. There is no requirement to turn a profit for local residents or outside corporations at the expense of the environment. The jobs will go to outsiders. There are no mitigation methods proposed that will make up for the take of fully protected, endangered, threatened and SSC species, thus it fails on ecological values.

Standard SR-G1 Conservation of Scenic Resources: Protect high-value scenic forest, agriculture, river, and coastal areas that contribute to the enjoyment of Humboldt County's beauty and abundant natural resources.

This project fails this goal. Policy SR-P1, cutting the gen-tie line removes high value scenic forest, tall turbines dominate agricultural lands in the figures for Rio Dell and Ferndale, the Gen-tie over or under will impact the Eel River, and the turbines are visible from Table Bluff on the Coast and the Humboldt Redwoods State Park - the latter within a couple of miles which was not modeled in this section.

Standard SR-S2: The Jordan Creek O-M building is plain steel industrial ugly with chain link fence. This hardly feels like it is designed to "create a harmonious visual relationship with surrounding development and the natural terrain and vegetation." It would be the first building seen after leaving Avenue of the Giants and rejoining 101.

Standard SR-S4: Obviously fails. Red flashing lights while mandated by the FAA do not fit the character and aesthetics of the county.

Standard E-S3, Item B: This DEIR has not addressed effect on potential down-wind sites other than in technical discussion of the effect of drafting on other wind turbines in the array. But it should. Recent work by researchers at Harvard found that large-scale U.S. wind power would cause warming that would take roughly a century to offset. "Extracting energy from the wind causes climatic impacts that are small compared to current projections of 21st century warming, but large compared to the effect of reducing US electricity emissions to zero with solar... 'Wind turbines generate electricity but also alter the atmospheric flow,' says first author Lee Miller. 'Those effects redistribute heat and moisture in the atmosphere, which impacts climate.'... More

than ten previous studies have now observed local warming caused by US wind farms." (Lee M. Miller, David W. Keith. Climatic Impacts of Wind Power. Joule, 2018; DOI: 10.1016/j.joule.2018.09.009 https://iopscience.iop.org/article/10.1088/1748-9326/aae102 https://www.sciencedaily.com/releases/2018/10/181004112553.htm, https://www.city-journal.org/wind-power-is-not-the-answer) None of these ten studies were cited in this DEIR, down wind conditions were never mentioned.

Another peer-reviewed article with information about down-wind effects is "Simulating impacts of wind farms on local hydrometeorology" which showed that "impacts are caused by enhanced vertical mixing due to turbulence in the wake of wind turbine rotors." (Somnath Baidya Roy, (2011). Simulating impacts of wind farms on local hydrometeorology. Journal of Wind Engineering and Industrial Aerodynamics 99. 491-498. 10.1016/j.jweia.2010.12.013. (https://www.researchgate.net/publication/251518442_Simulating_impacts_of_wind_farms_on_local_hydrometeorology)

Since a down wind site is the Humboldt Redwoods State Park, this should be analyzed. It is obvious that trees along Highway 101 suffer wind damage; it's not hard to extrapolate that these 600 foot tall fans could change the fog layer over the Redwoods and have unexpected secondary impacts.

page 3.2-30
Mentions the Fields Landing dock is in the Coastal Zone but fails to mention that so is most of the Hookton Slough bypass as well as parts of the other bypasses as shown on the figures in Appendix M.

page 3.2-30 Wild and Scenic Rivers.
Both the Eel and the Van Duzen Rivers are designated. The images of the turbines as shown from Riverwalk clearly indicate that the "natural beauty" and "wildness" are damaged.

Section 3.2.3 Impacts and Mitigation
page 3.2-31 THRESHOLDS OF SIGNIFICANCE
The following thresholds of significance are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended in 2018. Implementing the project would result in a significant impact related to aesthetics if it would:
> have a substantial adverse effect on a scenic vista; **(YES)**
> substantially damage scenic resources, including trees, rock outcroppings, and historic buildings within a state scenic highway; (NO)
> in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from a publicly accessible vantage point), or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or **(YES)**
. create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. **(YES)**

That's three YES and one procedural NO because there is no state scenic highway.

Impact 3.2-1
Project Impacts on Scenic Vistas and Potential for Substantial Degradation of Existing Visual Character or Quality of Public Views of the Site and Surroundings. The Humboldt County General Plan does not identify specific scenic vistas. However, the project would introduce wind turbine generators, which would be noticeable at all viewing distances depending on atmospheric conditions. The introduction of these tall vertical structures would degrade visual quality. **This impact would be significant.**

Particular attention should be paid to these paragraphs
pages 3.2-53 & 54 "Ground disturbance to widen shoulders and cut and fill slopes, WTG pads, staging/equipment laydown areas, and batch plant pads would result in adverse effects on scenic vistas along Bear River Ridge and on the visual character of the ridge as viewed from surrounding locations. Grading, compaction, and vegetation removal would increase the potential for erosion, which could further degrade visual resources along the ridge."

"The operation of WTGs in the project area would cause long-term effects from the introduction of encroaching vertical elements (towers and blades) and distractive movement (when the rotor blades are in motion)."

"When spinning, the rotor blades would further contrast with the mostly static elements in view. The WTGs would appear silhouetted above the ridgetop trees. Thus, the project would redefine the skyline. The intactness and unity of the views would be reduced substantially. Vividness would be reduced as well for many of the KOPs, because the WTGs placed along the ridgeline would detract from the surrounding views, described above. However, for some KOPs, the vividness would be increased because of the addition of memorable features. Introducing a wind energy generation facility into landscapes that predominantly feature rural residential and agricultural uses would generally reduce the compositional harmony of these views."

Notice, however that blade flicker was dismissed **(page 3.2-65)**, but it says here they would contrast and create visual distractive movement.

page 3.2-60 "Viewers looking south from SR 211 west of the Ferndale Bridge would perceive nearly the entire 34-WTG layout, entirely within a background view. Thirty-one of the 34 WTGs would be partially or mostly visible from this location, and the project would appear to extend across nearly the entire KOP view. Viewer awareness from this area would be high. Despite the distance between the viewpoint and the project, unobstructed views of long duration and the area's inferior vantage point would allow for moderately high viewer exposure... "It is likely that some viewers would perceive the project as a backdrop to a working, nearly entirely managed landscape. ... In nonurbanized areas, substantially degrade the existing visual character or

quality of public views of the site and its surroundings (public views are those that are experienced from a publicly accessible vantage point),"

The images of the turbines from Riverwalk in Fortuna substantially degrade the quality of the views, according to the DEIR.

Even choosing their own sites and the best light, it is obvious even to the writer of this part DEIR that the effects on visual quality are not desirable.

going back to page 3.2-34 "Introducing WTGs to Monument and Bear River ridges would generally reduce visual quality from most locations with views of the project site. The WTGs would be visible from the set of publicly accessible representative views discussed here, although the degree to which they would be prominent would vary, and their presence would be restricted to horizons."

I think the project has shown it would have a substantial adverse effect on a scenic vista for over seventeen miles as shown in the project images. This would affect both residents and visitors - and perhaps the tourism economy. Most disturbing is the added night lighting and flashing red lights where currently there are none. There is no way to mitigate for this change.

As no mention was made of down wind effects, as required by the General Plan (Standard E-S3, Item B) no data was provided of these effects on either the adjacent Humboldt Redwoods State Park - with named natural areas - or the adjacent Humboldt Redwoods timber, or the agricultural fields of the Eel River Valley. I think this is a significant omission and that it should be fixed prior to acceptance of this DEIR.

Truly implementing the project would result in a significant impact related to aesthetics because it would have a substantial adverse effect on [many] scenic vista[s] and add night lighting, flashing red lights, where currently there are none.

returning to page 3.2-62
The proposals for mitigation for aesthetics lists a series of "storm water pollution prevention plan, a grading and erosion control plan, and a reclamation, revegetation, and weed control plan would be prepared to reduce impacts as discussed in Section 3.5, "Biological Resources"; Section 3.7, "Geology and Soils"; and Section 3.10, "Hydrology and Water Quality." ... the same problem here as before, with fast-track construction time table - when would these plans be filed, and how would they be able to be reviewed carefully in the timeframe presented. There is simply not enough information to know if this will be able to be done in the time frame provided by applicants.

Section 3.3 Agriculture and Forestry Resources.
page 3.3-2

Discusses parcels in the project footprint currently within Williamson Act contracts. In general, Bear River Ridge and part of the Gen-tie are most overlapped with these parcels. The DEIR does not mention changes to taxation - if any - for these parcels if affected by or built upon as part of this project. Many of these parcels pay reduced taxes because they are in the Act which intends to protect prime agricultural land. Realizing that the general plan allows wind power in this Zoning type, does not mean that these particular parcels are the best fit for this kind of project. Noted elsewhere (page 3.3-11) 27 acres of Williamson Act land would be permanently unavailable to agriculture, which is claimed to be less than significant. My question, if 27 acres is taken out of agricultural production, does the land still get the tax break?

page 3.3-8 Policy AG-P6: Agricultural Land Conversion
I do not think an overriding public interest exists in this conversion, nor do I think there are no feasible alternatives.

page 3.3-9 Policy FR-P8 Protection of High Quality Timberlands
I think this project is in conflict with this goal because elsewhere in the DEIR they plan to do things (like build in winter) which violates the Humboldt Redwoods Habitat Conservation Plan. If the HCP says that these things are required to maintain forest health, then this DEIR cannot come along and say the opposite. But that is what is happening. More trees than the HCP specifies will be cut; the agreements of which kind and where just tossed because all the cutting will be where the developer wants it to be.

There is no discussion of down wind effects at all in the DEIR, this is required by Standard E-S3, Item B (page 3.2-28+). Down wind effects along the highway damage and kill redwoods, which is obvious to anyone driving 101 between Stafford and Garberville. Since there is no data provided by the DEIR, we must rely on observation and common sense and say that - like elsewhere in the U.S. - the changing wind patterns created by the industrial turbines will have an effect on adjacent property. Since they are surrounded by Humboldt Redwood timber company and Humboldt Redwood State Park (also full of trees), I think the down wind effects will occur first on those trees and damage High Quality Timberlands.

Since I wrote the foregoing paragraph, I read a recent work by researchers at Harvard which found that large-scale U.S. wind power would cause warming that would take roughly a century to offset. "Extracting energy from the wind causes climatic impacts that are small compared to current projections of 21st century warming, but large compared to the effect of reducing US electricity emissions to zero with solar... 'Wind turbines generate electricity but also alter the atmospheric flow,' says first author Lee Miller. 'Those effects redistribute heat and moisture in the atmosphere, which impacts climate.'... More than ten previous studies have now observed local warming caused by US wind farms." (Lee M. Miller, David W. Keith. Climatic Impacts of Wind Power. Joule, 2018; DOI: 10.1016/j.joule.2018.09.009 https://iopscience.iop.org/article/10.1088/1748-9326/aae102 https://www.sciencedaily.com/releases/2018/10/181004112553.htm, https://www.city-journal.org/wind-power-is-not-the-answer) None of these ten studies were cited in this DEIR, down wind conditions were never mentioned.

page 3.3-12
For all the trees they cut, if they are "merchantable timber" do they plan to cut, haul and process at local mills? Ninety-one acres of foot print will never be able to be reforested, but they do not mention the trees that will be cut on the Gen-tie line and the open space maintained with herbicides. There is no mention of TPZ (Timber Protection Zone) or a HCP (Habitat Conservation Plan) or a Timber Harvest Plan associated with the Gen-tie clear cut. I think that the Gen-Tie clear cut should be addressed as part of the total impact. And while it is compatible with The California Codes Government Code Section 51100-51104 reads in part "This chapter shall be known and may be cited as the California Timberland Productivity Act of 1982...(b) The state's increasing population threatens to erode the timberland base and diminish forest resource productivity through pressures to divert timberland to urban and other uses ... Legislature (2) Discourage premature or unnecessary conversion of timberland to urban and other uses. (3) Discourage expansion of urban services into timberland... compatible use: (4) The erection, construction, alteration, or maintenance of gas, electric, water, or communication transmission facilities."

Wherein compatible uses include electrical transmission facilities; Generation Facilities do not appear to be a conforming use. I think the DEIR should address this.

Section 3.4 AIR QUALITY
Impact 3.4-1
"Short-Term, Construction-Generated Emissions of ROG, NOX, and PM10. Short-term, construction- generated emissions would exceed NCUAQMD's significance threshold for NOX. This impact would be significant."

page 3.4-15 & 16
The DEIR models construction related emissions, but fails to include any logging equipment, or logging trucks removing the trees they will have to cut down for access roads. Logging is not even mentioned in this section, although it is said to be the first thing that will have to happen to allow construction. **(page 3.3-12)** Two-stroke engines such as chainsaws are some of the worst air polluting gasoline devices, but they're not even mentioned - although obviously they will be in use.

The impact of the loss of 75 to 100 foot wide corridor of forest which will be cleared for the transmission lines is not mentioned.

Trees absorb CO2, removing trees will lead to more CO2 in the atmosphere. Is the amount of CO2 "saved" by this project greater than the amount displaced by the project's removal of vegetation? I did not see this calculated anywhere in this section. They do mention construction transportation emissions, but not logging and removal emissions.

There are no emissions modeled from ocean transport and delivery operations.

There are no emissions modeled for bypass construction and removal.

There are no emissions modeled for subcontractor operations although the subs wouldn't be here if the general wasn't working.

3.4-17
Omits transportation of components - focusing on the construction not delivery.

Dust is stated to be planned to be controlled here, but it is unclear where they plan to control dust as they have only mentioned it in connection with the batch plants and construction on their actual footprint. Obviously pouring gravel along Highway 101 would also produce dust, but this is not accounted for in this section. Nor is a water source given for any dust control at Hookton or Fields Landing.

page 3.4-18
Table 3.4-3 is for Construction-Related Emissions only
"As shown in Table 3.4-3, emissions associated with construction of the proposed project would exceed the NCUAQMD maximum daily thresholds of significance for NOX. Therefore, construction of the proposed project could result in the short-term generation of a substantial level of emissions of criteria air pollutants and precursors. This impact would be significant."

page 3.4-19
"As shown in Tables 3.4-5 and 3.4-6, maximum daily emissions of NOX would still exceed NCUAQMD threshold of significance. Therefore, this impact would be significant and unavoidable." An either/or mitigation is proposed but its not really mitigation, but minimization as it does not eliminate the problem but attempts to reduce by temporal dilution, slowing work to reduce less.

page 3.4-20
Please explain how this sentence is accurate. "Construction of the proposed project would result in emissions that would exceed NCUAQMD's daily emissions thresholds for NOX, even with implementation of mitigation. Project construction would not exceed annual emissions thresholds."

If daily emissions are exceeded, and the project takes a year to 18 months to complete (as stated elsewhere), then the exceeded time for emissions would be 18 months and it would exceed annual emissions thresholds.

page 3.4-22
"Each of these activities would occur in a distinct location, and emissions would be distributed throughout the region, not concentrated in the immediate vicinity of sensitive receptors."

This is the "dilution is the solution to pollution" logic and also introduces sampling bias. In this pathway it's presumed ok to create a whole bunch of places of new pollution, adding greenhouse gasses, NOX and other pollutants to a landscape which is currently functioning as a large carbon sink because the work places are far apart. If I built three factories all at the same time, I would have to consider the cumulative impact of my three factories, not brush off my impacts as "they are too far apart to matter."

This section also omits to mention the barging/unloading/transport of components at Field's Landing which is primarily a residential community. I think the effects of air pollution on that community should be studied since they will be affected 7 a.m. to 10 p.m. for up to half a year.

This is currently one of cleanest air basins in California. There is no reason to change that for a year to a year and a half for a construction project, no matter how noble the goal thereof.

Section 3.5b Biological Resources

Operational Impacts

page 3.5-70 "The project's primary operational impacts of concern would be collisions of birds and bats with WTGs while flying through the rotor swept area, and barotrauma for bats. Operational impacts on birds may also result from (page 3.5-71) collisions with the Gen-tie, though this would be limited because all energized project components, including the entire Gen-tie and all power lines, would be constructed in accordance with the current suggested practices of the Avian Power Line Interaction Committee (APLIC) (2006, 2012) to protect birds from electrocution and collisions."

Barotrauma is not discussed elsewhere in the document, or listed on "IMPACT 3.5-18 Operational Impacts on Bats. Operation of the proposed project could result in mortality of and injury to a large number of bats, including special-status bat species, as a result of interaction with wind turbine generators. This impact would be potentially significant." (Section 3.5-134.)

page 3.5-72

Project site is one quarter mile from Federally Designated Critical Habitat for Special Status Marbled Murrelets. This doesn't seem like the best choice for a wind turbine site. Certainly there are sites in California where the wind blows that doesn't have this - and the many other following environmental impacts.

page 3.5-72

What is "Marbled Murrelet Compenstory [sic] Mitigation," please?

Discussion follows of corvid (crows, ravens and jays) predating on murrelet nests. The proposal to retrofit Van Duzen County Park is insufficient. This approach has been tried in multiple places - if it helped murrelets recover as a species, by now they would be increasing in population. And they're not.

Going back to 5.3-72 to 5.3-75

Mitigation Measure 3.1-1 in three sections. First part, Mitigation Measure 3.5-1a. (page 73) says "to the extent feasible" - which is again putting off to the future information which should be included in this DEIR, and also giving the power to change things to the applicant without public review. Mitigation Measure 3.5-1b reads "if the above is infeasible" (page 74) and 3.5-1c Plans a Worker Awareness Program which does not currently exist. Some of the items on their list such as "identification and values of special status... species" often take years to actually learn; else why would people have biology degrees to identify things. That the "on-call biological services provider (page 75) is not on-site seems to be a bad idea. Notice that while this training is said to include all species, it's mentioned in Marbled murrelets.

page 3.5-78

Corvid numbers are known to decline where trash is covered and drains filtered "in these parks, jay abundance has been successfully reduced by minimizing food accessibility since 2005." Notice the data shows that corvids are reduced, not that murrelets have increased. Coincidence is not causation.

This species has been studied and USFWS has issued recovery guidelines which were not cited in the DEIR. For a full list of papers and guidelines for this Threatened species, please see ECOS, Environmental Conservation System, USF&WS,
https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=4467

page 3.5-79

"The area of the old-growth/mature tree stands associated with the compensatory mitigation was measured using Google Earth." How accurate is Google Earth for this measurement? Please provide citations for the Google Earth method of measuring old growth and mature tree stands, as well as the date of the imagery - along with discussion and ground truthing that those stands are still there. It is, after all a timber producing area and most of the Google imagery of Humboldt County is several years out of date. Just because the bottom of the page says (C) 2019 doesn't mean that's when the images were taken.

Why were previous studies of the area not cited?

"Predation rates by corvids on murrelet eggs were based on studies within the redwood forest regions of California, and the effectiveness of changes in predator presence was assessed using predator impact data from the scientific literature."
This literature should be cited here in the DEIR - but there is nothing.
I think their calculations are very precise for having little to no input data and not including the 25 mile long new corvid habitat being created along the Gen-tie route.
Now the DEIR breaks away from murrelets specifically for a section on mortality.

3.5-80 Mortality searches
This section gives parameters for finding carcasses, but does not define "the area where carcasses are expected to land" in repeatable way. The section continues with a discussion of small, medium and large sized carcasses.

page 3.5-80
Describes how they do carcass detection, but nowhere says how far from each turbine they will look. "The wind energy facility search area (the amount of area searched for carcasses relative to the area where carcasses are expected to land around a WTG);" Which is not an acceptable definition of area to be searched. They do propose that "the absence of detected mortality does not necessarily mean that no mortality has occurred." Because you cannot prove a negative, of course and - predators.

I think this search area radius needs to be defined. At a minimum it should be the sweep of the blades relative to the base, meaning, if the blades (all three of them) measure 100 feet from side to side, that a circle centered on the tower, with a radius of 100 feet (circumference 200 feet) be the search area. So Blade sweep times 2 = Mortality Search Area. This would be a minimum measurement for two reasons: (1) The blades sweep items and heave them sometimes quite a distance; (2) The wind vortex created by the blades moves corpses on their way to the ground.

Cadaver dogs have been used successfully at other sites to accurately assess mortality. In every account I have read, searchers describe amazement at how far things get thrown from the turbines. I have personally witnessed bird strike and blade throw at Palm Springs, California and in Indiana. The tossing distances were considerably farther than I would have expected.

Searches should be conducted by independent biologists at not less than annual levels. The DEIR proposes monitoring for the first three years, and "road and pad" searches subsequently. I do not feel this is sufficient.

Mitigation Measure 3.5-2b needs to have clearly defined search areas, times and methods of search. The effectiveness of these methods should be defined and augmented by peer-reviewed literature not personal communications.

Next, the DEIR document has a series of sections about impacts to species.

For all the following sections, biological observations and mitigation measures are proposed, but only the ridge-top footprint was studied. The Gen-tie line (approximately 25 miles by 100-feet wide) was not studied. Fields Landing environment was not mentioned. No Eelgrass survey was performed. Night lighting is not mentioned, although Scope, Transportation, and other sections mention night work. Night time lighting would not only be a problem for the species on the ridge-tops but for Brown Pelicans, Bald Eagles and Harbor Seals (Phoca vitulina) at the delivery site in Fields Landing.

In general, the mitigation methods proposed are disappointing. Mostly they are not true mitigation but an attempt at minimization or even post-mortality "what do we do now" committee forming approach with meetings and reports generated.

Many of the proposed mitigation methods contain the phrase "if feasible" which is great for the developer and potentially terrible if at some point in the future the developer decides that something is no longer "feasible," this would permit it to not get done. Also the way that "feasible" is decided is not mentioned, so any subcontractor could basically do whatever they wanted and it could become "feasible" after the fact. These methods do not seem to honor the goal of environmentally sensitive development stipulated by the county or the goals and intents of CEQA.

Some sections of the DEIR are light on scientific reference and citation, have one year or less of data, and are supported by too many personal communications (pers. comms.). The Biological section needs to include hard science, proper survey durations, accurate citation to published and peer reviewed materials as well as functional mitigation measures backed.

page 3.5-81+

The Marbled Murrelets proposed mitigation includes:

* slowing turbines (creating less MW)
* avoiding murrelet areas - they found 135 total, is that statistically significant for placement?
* "if the Gen-tie is to be placed on a ridgeline", show that it's not high use for murrelets. During construction they are unlikely to remain in the area. That is circular logic.
* Gen-tie won't go within 200 meters of old-growth or mature conifers big enough to have murrelets.

But, "If the two criteria above are demonstrated to be infeasible..." the Gen-tie will get built anyway.

Here's one of the uses of "infeasible" which essentially hands all the power in the relationship to the applicant after the preparation of the DEIR. The CEQA process is supposed to provide a snapshot of all conditions and plans prior to project approval, allowing agencies and the public input to the process. This one does not.

It is known and referenced in this document that Marbled murrelets travel up to 80Km inland, at air heights between 90 and 250 meters. Wind turbine mortality has occurred at other wind farms. The DEIR states "We sampled marbled murrelet activity from seven radar stations located along the Bear River and Monument ridges and one low-elevation station located near the Eel River."

No murrelets were sampled along the 25 mile by 100 foot wide planned footprint of the Gen-tie. I think this is a significant absence of data collection as the creation of that electrical corridor will open the entire area to predation by corvids, fragment habitat, and lead to wind death of

adjoining trees to the corridor - as demonstrated by tree thinning and death where other openings have been made.

The only transmission line area studied for the DEIR was at the Eel River. This is insufficient data to make decisions about a 25 mile corridor elsewhere .

"We recorded more morning flights (83% of all flights) than evening flights across the sampling period." *Which means a lot of murrelets coming home got missed.

Consider their natural history: A single egg, laid on the branch of an old tree, up to 88 km inland. Pairs bond, reuse the same nest or nest stand. They forage at sea, averaging 1.4 km off-shore and up to 99 km along-shore in northern California. Hébert, Percy & Golightly, Richard. (2008). At-sea distribution and movements of nesting and non-nesting Marbled Murrelets Brachyramphus marmoratus in northern California. Marine Ornithology. 36. https://www.researchgate.net/publication/242735372_At-sea_distribution_and_movements_of_nesting_and_non-nesting_Marbled_Murrelets_Brachyramphus_marmoratus_in_northern_California

Marbled murrelets live about 10 years, and reach sexual maturity at 2 to 3 years old. They have long-term pair parents share foraging in 24 hour shifts. Imagine if one of them does not come home. How is the other to eat or feed chicks? Since they average 10 years old, there are not many natural accidents which take them out in their prime and their slow rate of breeding would have been an advantage prior to about 1860 when there may have been as many as 60,000 marbled murrelets on the California coast. They have been reduced to 10% of their pre-1860 populations.

Simply put, two long-living bonded murrelets produce one egg at a time on a branch in a special kind of forest. This is not a recipe for a fast breeding or easy to replace organism.

Taking any one murrelet will break a life-partnership, may result in nest abandonment if the loss is in the same season, reduces the breeding population and probably reduces breeding success of the remaining partner in subsequent years. This is not able to be "mitigated" with trash can lids and drain filters in Van Duzen County Park. The 25 miles of new clear cuts are likely to increase corvid predation. The turbines are likely to kill at least as many as they predict - perhaps more - it's a very flexible model with wiggly input data. Change one factor a tiny bit and you get big changes in output. This DEIR's proposed mitigation does nothing to change or minimize the impacts on the species. The new transmission cut through the forest will allow corvids and other predators into murrelet habitat they've not had easy access to before.

Impact 3.5-1 is said to become "less than significant" based on the above mitigations proposed - however since they are modified with "feasible" and "infeasible" I do not think that this truly reduces the "potentially significant" impact because too much is left to some unknown time in the future when something might change.

page 3.5-85
"However, given the uncertainty as to the feasibility and effectiveness of these compensatory mitigation and yet-to-be developed adaptive management measures, operational impacts on marbled murrelet would be significant and unavoidable."

"Yet to be developed ..." means there's no mitigation - it's put off to some vague time in the future at the whim of the applicant

As a creature that lives in two realms, land and ocean - the murrelet is susceptible to two sets of impacts. "In 1992, the Oregon, Washington, and California population of this species was listed as threatened under the Endangered Species Act (ESA) due to the loss of nesting habitat from logging and urbanization, as well as mortality associated with gill-net fisheries and oil pollution." (https://www.fws.gov/wafwo/species/Fact%20sheets/5%20Year%20Status%20Review%202004.pdf McShane, C., T. Hamer, H. Carter, G. Swartzman, V. Friesen, D. Ainley, R. Tressler, K. Nelson, A. Burger, L. Spear, T. Mohagen, R. Martin, L. Henkel, K. Prindle, C. Strong, and J. Keany. 2004. Evaluation report for the 5-year status review of the marbled murrelet in Washington, Oregon, and California. Unpublished report. EDAW, Inc. Seattle, Washington. Prepared for the U.S. Fish and Wildlife Service, Region 1. Portland, Oregon. pages 1-370)

This declining species does not do well with disturbance. Murrelets have been proposed to be extinct by 2050 due to their annual loss of 4-7% a year. (Center for Biological Diversity Natural History Marbled Murrelet
https://www.biologicaldiversity.org/species/birds/marbled_murrelet/natural_history.html) This area is one of their last great places. Economically the area receives benefit from birdwatching tourism and the ecology benefits from the completeness provided by non-extinct species. Every one that is lost breaks the fabric in ways that are impossible to describe in advance, but which have long-reaching implications for all the DNA-beings on earth.

page 3.5-84
Has a controversial proposed measure, but there is no statement of who would pay for the proposed canopy manipulation work in the California Parks, that it would benefit the species, and if it were done, it would change the Carbon benefit of this project by releasing stored carbon from even more trees being harvested.

At the end, the compensatory mitigation proposed is changes at Van Duzen Park, and statements that they will "achieve the performance standard of creating at least one marbled murrelet for every indiviudal [sic] taken as a result of the project." These are not widgets being stamped out in a factory. The model for the numbers is based on assumptions. The 25-mile-long Gen-tie predator corridor is still not addressed.

They also do not address impacts from Gen-tie 25-mile clearcut, trash and waste from 300 temporary workers, changes to the habitat by clear cutting at the ridgetops which might result in

changes to marbled murrelet use of those ridgetops, and worst of all - every source says - minimize human disturbance. Building this project guarantees 30 years of constant human disturbance in an area where now there is very little. The turbines require maintenance, the road vegetation must be cut, the grass around the turbines mowed, herbicides applied, and so on. None of this is "lack of human disturbance."

The "mitigation" measures proposed for the murrelet (3.5-2a/2b and 2c) do not seem to have any relationship to even the most cursory natural history of the species, the amount of disturbance, and outright take of the species this project would incur. They are - instead of mitigation - minimizations based on untested ideas but which would have no apparent benefit to keeping the population relatively undisturbed and subject to the HCP already agreed upon by Humboldt Redwood. The impacts from the Gen-tie line clearcuts are not offset by proposed mitigation. Mortality searches need to be accurate and independent. Prepare all documents prior to the approval of the DEIR - not at some unspecified time in the future.

Impact 3.5-2 Operational Impacts on Marbled Murrelet is still considered potentially significant even with these measures. I agree because the proposed mitigation methods have no documented success - and because they say they will be taking adults.

California Fully Protected Species

At this point I digress into a discussion of California Fully Protected Species which I feel should have been included in the DEIR.

California has a law dating back to the 1970s which was implemented to protect animals at risk of going extinct before the Federal Endangered Species act was signed into law. In short, "Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock." (https://www.dfg.ca.gov/wildlife/nongame/t_e_spp/fully_pro.html)

Fully protected species of birds and mammals found in this area which may be affected by the project include:
American peregrine falcon (Falco peregrinus anatum)
Bald eagle (Haliaeetus leucocephalus)
Brown Pelican (Pelecanus occidentalis californicus)
California condor (Gymnogyps californianus)
Golden Eagle (Aquila chrysaetos)
Ring-tailed cat (Bassariscus astutus)
White-tailed kite (Elanus leucurus)
https://www.dfg.ca.gov/wildlife/nongame/t_e_spp/fully_pro.html

Any discussion of animals on this list should reference their status as "fully protected species" in the state of California.

Since the state says "no licenses or permits may be issued for their take," I do not understand why the following sections are based upon the idea of getting incidental take permits. This law seems to be clear-cut, there is no way to get a permit to take one of these, let alone taking hundreds as discussed in the following sections.

I will not reference this every time I mention these animals but by definition include the concept of certain fully protected species in all sections of my comments whether specifically referenced or not.

Referencing Appendix E - Eagle & Raptor Aerial Nest Survey

Eagle nest surveys were conducted March 27 & 29, 2018 and Mary 1 & 3, 2018 from helicopter. They did not fly around the Monument turbine proposed sites. (Appendix E - Eagle and Raptor Aerial Nest Survey Report, Figure 5, unpaginated, but 22/25 in the pdf file) The same figure shows few to no flights over the immediately adjoining Humboldt Redwoods State Park.

Referencing Appendix H - Eagle Use Survey Report
Table 1. Survey effort by plot number for eagle use surveys.

Notice the lack of data for plots #28, #29, #30 & #31 during peak raptor season. The reason given is "Biologists conducted 6 survey events at plots 28–31, which were added later when land access was granted."

The accompanying Figure 3 Appendix H (page 22/28 - unpaginated in report) shows that #28, #29, #30 and #31 are on Bear River Ridge - a concept not made clear in the text.

Anyone who likes eagle watching knows that Bear River Ridge from October to April is eagle watcher heaven. Eagles are more active and easier to see. So I read on with interest to see how many eagles the trained biologists had found in this area that I visit often and in which I regularly see eagles - often times without looking for them, they are just there. I expected paid professionals would see a lot more eagles than I do.

I was very surprised. Tables 4 & 5 and Graph 1 (pages 6 & 7, Appendix H) show they spent 129.75 hours to see 11 eagles for 32 minutes total.

Even adding in the one they saw incidentally, their total is only 12 eagles during a year. All were within 800 meters (874 yards) and below 223.2 meters (732.61 feet) in height. This is one of the few places in the document that metric is used. But once you convert it - it's obvious they use area swept by the rotor blades.

Graph 1 (page 7, Appendix H) shows they saw next to nothing in the winter which is atypical. Graph 2 (page 8, Appendix H) lumps together all the sample sites - even though we know they

didn't have access to the Bear River Ridge sites until later. Figure 4 (page 23/28) also lumps the data and doesn't point out the absence of months of data from Bear River Ridge - which skews the optics of this image.

page 8: Section 4.5 Age Class and Behaviors
They saw three sub-adult and one juvenile eagle - the rest were adult. That 4 of 11 sightings were not adult shows that there must be breeding occurring in the area.

Table 6 (Appendix H) breaks it out even further, both Bald Eagles and Golden Eagles - California State Fully Protected Species have to be breeding in the area, twenty-five percent (25%) of Bald Eagles and fifty-seven percent (57%) of the Golden Eagles seen were sub-adult.

However as shown in Appendix E - Eagle & Raptor Aerial Nest Survey, they were unable to locate these nests. "Stantec found no active bald eagle or golden eagle nests in the survey area during the aerial surveys, including all the previously-documented (i.e., historic) sites." (Appendix E - page 6)

Conclusion regarding Appendix E & Appendix H
I have a great deal of trouble accepting this part of the data. I am just flabbergasted that they couldn't find eagles - although the lack of Bear River Ridge data may be part of it. They didn't find any active nests - even though what they saw flying around proves that nesting is happening. I never thought of myself as an awesome bird watcher, but I've seen more than a dozen in the last year, with being outside probably less hours than they spent - and certainly less hours in prime habitat.

I think this data set is missing and needs to be redone with different observers with a consistent access to all sites during all seasons of the year.

On the good side, these Appendices have much better project maps than the main portions of the DEIR. Perhaps the good maps could be added to the main body of the document for greater clarity - as these show Staging Areas, and other features glossed over in the main portion of the document.

Back to Section 3.5b, page 3.5-85
For every dead eagle the DEIR proposes retrofitting 32 electrical poles. Why is this necessary if their lines are to be built to current code - it would seem unnecessary to go along and re-build the poles 32 at a time, right after they were just built. If they are retrofitting old poles, will they wait until they have hundreds to do, or do 32 at a time, and if so where? None of this is clear from this section.

page 3.5-86
Eagle populations are going up in Humboldt County. Six historic nesting sites within 2 miles of turbines. Project site is in the Mid-Latitude Pacific Flyway Eagle Management Unit, so it seems

counterproductive to place an impact right there especially as eagles are doing less well out here than they are in the Midwest where there are greater remaining grasslands. The DEIR states no active eagle nests have been detected by their surveyors. Nests are used over time, one was "abandoned" for 22 years and then became active again. Next they hide their dismal observation rate by calling it 0.031 eagle per 1 hour survey period.

page 3.5-86
The DEIR offers pre-construction eagle nest surveys, but remember these are the folks who couldn't find any nests from a helicopter and did find sub-adult eagles showing breeding is happening. I really don't expect a lot from their efforts on this deferred set of surveys - as one can easily see the results from the first time.

page 3.5-88
Suggests that clearing the 25 miles long Gen-tie will create foraging habitat for eagles - and of course eagles get electrocuted on electric wires. I think this creates an unaddressed potential impact because if they make habitat - the eagles will use it and may run into the new lines as well.

page 3.5-89
"Based on a visual assessment of satellite imagery..." seems to mean * we glanced at an air photo and guessed * as the range is "a minimum of 25-50 percent grassland."

Please provide peer-reviewed citations for the "Glance and Guess Grasslands Areal Assumption Determination Method" used at this point in the DEIR. This is important because "Glance, Guess and Assume" results in "less than significant" impact findings.

"Impact 3.5-5 Operational impacts on Bald and Golden Eagles. Operation of the WTGs would pose a risk of collision to bald and golden eagles. This impact would be potentially significant." And blame the eagles, "direct impacts on bald and golden eagles through injury or mortality if they were to collide with operating WTGs." Not if they were struck by a blade.

As for the potentially significant impact, I totally agree, both are fully protected species and under California law no permit can be given for take. This isn't research or livestock. However the DEIR continues as if taking bald and golden eagles is an option, so we shall follow along.

page 3.5-90
After the millions of tax dollars spent on their conservation, it's very hard for me to wrap my head around accepting the death of 114 eagles and other large birds every year as they estimated. These birds would not die of wind turbine strike if this project were not built. "Mitigation" measures are again minimization, not mitigation. No habitat is being bought, no ratios are offered. And both eagles are fully protected so no permits for take should be granted.

They state that the mortality detection outlined for Murrelets will also find Eagles, but as stated before there is no actual method for mortality detection outlined in this DEIR.

The DEIR says they will only study deaths for three years. Given the project is 30 years, they're only offering to sample for ten percent (10%) of the project duration which seems insufficient.

Regarding the same statement quoted at the beginning of this section, all CEQA mitigation measures must be identified in the document, they cannot be counted toward mitigation later. Essentially the DEIR says that if anything is harmed, then they plan to consult on how not to harm things. This is backwards. How to not harm things is the purpose of the DEIR, not to be done after the fact.

There is no mention of any birds in any roadside trees or vegetation to be removed, no mention of the Bald Eagles and Brown Pelicans known from Fields Landing. Eagles are known to nest there from the Eagle Cam on the Internet.

There is no mention of the effects of night work lighting effects on large birds and raptors - or pelicans, shorebirds, night herons, brants or marine mammals - at either Fields Landing or the project site, but Scope, Transportation, and other sections mention night work.

page 3.5-93 Owls
There are 33,213 acres of spotted owl habitat within 0.7 miles of this project.

page 3.5-100
"The Northern spotted owl is covered under the Humboldt Redwood Company HCP and the majority of forested northern spotted owl habitat in the project area is on HRC land. Consistency with the Humboldt Redwood Company HCP is analyzed in Impact 3.5-28 below."

One of the inconsistencies with the HCP is simple. The HCP will wipe out 18% of spotted owl habitat - spread out over 50 years. Clearing of northern spotted owl habitat for the project foot print Gen-tie corridor and other project construction will fragment northern spotted owl habitat. The effect of this fragmentation will be potential increases in predator presence, and increased exposure to wind and sunlight that could alter the microclimate of what was formerly part of the stand interior. These impacts are potentially significant and unaddressed in the DEIR.

The DEIR says 276.9 "temporary loss of owl habitat through timber harvesting" and permanent loss ... 196.7 acres." Since owls use mature and old growth timber, how is any cutting down of owl habitat temporary? The project will last a minimum of 30 years - by then the trees planted after disturbance would only be 30 years old - not yet spotted owl habitat. I think that they underestimate "temporary" here and that the effects are actually permanent - and cumulative because Humboldt Redwood Company will be simultaneously logging as well.

Elsewhere in the DEIR it is stated that the project will not necessarily be in compliance with the Humboldt Redwoods HCP. It is possible that this inconsistency will harm spotted owls, but the information given is incomplete to fully understand their intent.

page 3.5-101
"Develop a map based on the best available information depicting the locations of foraging, nesting, and roosting habitat for northern spotted owls on the project site. This information will guide efforts to minimize habitat impacts during the project's final design."

So, if the project begins in September 2019, and the footprint and faceplate information has been deferred to "final design," and clearing and logging begin immediately - exactly when will this map of all habitat be created?

If that information had been available in this DEIR understanding the potential impacts on species would have been a lot more easily transmitted and understood. This project is obviously time sensitive, but that's no excuse to push required elements off to later dates. Time won't get longer if the planning is procrastinated. There really is no time for a good job to be done on final design under this timeline. Which may result in a situation of the developer insisting the project must go through no matter the environmental cost because they have run out of time to do it right. I think this repeated pushing off to later what should be essential parts of any plan violate the intent of the process and betray the intent of the County Plan for "environmentally sensitive" renewable energy.

Mitigation is suggested as easements on land, or habitat purchase, at some point in the future, but it's not outlined in detail in the DEIR. Some of the land suggested for conservation easement is already publicly owned and should not required additional protection. This looks like another place where important details are being put off to some future date. It looks like procrastinate and avoid because there was no specific commitment in the DEIR - and many commitments are modified with "if feasible."

I disagree with the findings of "Impact 3.5-27 Impacts on Nursery Sites. Construction of the proposed project would avoid colonial bird-nesting sites (rookeries), and would avoid and minimize impacts on bat nursery roost sites. The project site would remain largely undeveloped, and project operation would not result in additional impacts on suitable nursery sites. This impact would be less than significant."

Due to the lack of Highway 101 surveys, as well as Gen-tie surveys, I disagree with their conclusion that this is less than significant due to insufficient data.

page 3.5-100
Impact 3.5-7 - again potentially significant, for disturbing "approximately 546.8 acres" of spotted owl habitat, of which 89.7 are permanent. The easiest way to avoid this is the "no project" alternative.

page 3.5-100 Has an interesting discussion, wherein it states that they will create a "temporary loss of owl habitat" and permanent loss. My question is this. Since spotted owl habitat is "preferably in closed-canopy, uneven-aged, late-successional, and old-growth forests," how does the project applicant intend to turn "temporary" lost habitat into habitat the owls can use again.

Please describe in detail how late-successional or old-growth forests can regrow in the 30-year-life of the project mitigating a "temporary" impact. Mitigation proposed is for permanently affected habitat only.

Referencing Appendix I Biological Resources... Spotted Owls, Section 5.2, page 6
"... sound sources can be expected to range from low (e.g. chainsaws) to Moderate (e.g., pickup truck), to High (e.g., concrete batch plant)."

In the real world, using a chainsaw requires ear protection and standing next to a pickup truck doesn't. I think there is something wrong with this section; and if they can't get something this simple correct - I tend to doubt the attention to detail and veracity of other parts of their work. The sound levels of the construction equipment should be actually described in correct relationship. Sound conclusions throughout the document should be checked to see if this caused any kind of cascading error.

Looking at the figures in this Appendix shows how close the proposed project is to Foraging, Nesting and Roosting Habitat as well as non-Habitat. The former three occupy far more land than the last; showing that the project is setting itself directly into the landscape utilized by Spotted Owls. And there is not a protocol level survey yet for this project.

Return to Section 3.5 page 3.5-101
The proposed mitigation for spotted owls will not happen until about 1 to 2 years after the facility is running. Many owls can die in that time. Barred owl management is mentioned, but its controversial and not widely supported.

page 3.5-102
"...permanent protection of suitable habitat at a 3:1 ratio."
Is it usual to wait two years for project applicants to purchase mitigation land - or acquire conservation easements? Seems like more "Effects now, repairs later" which isn't in the spirit of this process.

page 3.5-103
Existing roads are 30 feet, to grow to 200 feet wide during construction. This scar will stay even if the roads are reduced to less than 200 feet later.

page 3.5-104
Barred owl data being used to extrapolate to spotted owls. If the two were the same they'd have the same name. Just because there was no data from elsewhere doesn't mean that collision likelihood is low. It means you have no data for this species. How many WTGs in spotted owl territory now? None, right? i.e. No Data.

One comment from page 105 needs to be mentioned here. The biologists surveyed in daylight. Owls are active at night. The biologists did not get a lot of Owl data. There is most likely an obvious and good reason for that, since you have to be out there, looking for Owls at night to find any.

"The benefit to the affected population shall be demonstrated to offset take by creating one northern spotted owl for every spotted owl taken as a result of project operation."

So if we took any single human being out of the population, we could just replace him/her with a tiny baby with no parents and it would be a benefit? Forgive my sarcasm in the foregoing, but it is biologically obvious that any old bird doesn't just replace any other old bird in a long-lived bonded mating, slow reproducing species in decline.

Some birds are better breeders than others, some are past their breeding lifespan but of course still have habitat and social value within their own community. To say that one bird is as good as another shows that this is not about conservation.

Notice also on page 104 that Mitigation Measure 3.5-8 "Avoid ... Northern Spotted Owls" then just goes into Mitigation measures listed earlier for Eagles (maintain landscape, tower design, electrified armoring) ... part of which is if they kill any, they'll get together with the agencies, and everyone will feel terrible together, but the animals will still be dead. There is not a single value added for the spotted owl here until at least 3.5 years after construction starts. They live within 0.7 miles of 30,000 plus acres of the project site. It's in the middle of prime spotted owl habitat; owls are known to get chopped up by turbines; and there is no spotted owl data for wind turbines. This whole section is guess work with no data and "mitigation measures" that are not even minimization until after take.

IMPACT 3.5-8 Operational impacts on spotted owls are also considered potentially significant prior to some minimization measures as listed above. The owls are blamed for colliding with the blades, not the blades hitting owls who have not evolved to deal with giant objects whirling at a hundred miles an hour.

page 3.5-103
What is the peer-reviewed citation for 30 years of dispersal data? Obviously I would not be able to find it if it were in Hamm, pers. comm., 2019 - the first following citation. Usually three decades of data would be published somewhere responsible - not summarized in a personal communication. I find this section weak for lack of citations. There is no way to verify anything.

page 3.5-104
This area is great for raptors. There are 21 species including vultures.

page 3.5-105
Stantec surveyed for birds in the daytime. The DEIR says daytime bird surveys probably missed night owls. At least they acknowledge the sampling bias - although they did nothing to offset it.

page 3.5-106+
Besides the two eagles & the spotted owl, twelve special-status could occur on the site, nine were observed (Table 3.5-5).

Removing trees removes nests. Even if the birds aren't using them right away is not a good idea. Raptors reuse nests. So a bird not there when they survey is not *this has no effect,* but *we didn't see any.* Yet again, no data. It is not possible to draw valid conclusions when data is missing.

Construction impacts are potentially significant. Habitat removal is apparently less than significant. But it is not well explained and it feels like information that should and could be provided here was omitted.

page 3.5-109
Operational impacts are expected to be potentially significant, and again the birds are blamed for colliding with operating WTGs.

The highest rate they found was 5.69 avians dead per WTG/year. So for this project 300 birds a year, lowest estimate. Special status raptors comprised 12/227 (of all raptors) in Stantec Survey, or 5%, thus we can suggest that 5% of the raptors killed every year would be dead special status raptors.

Notice that of the 16 facilities in the region, Peregrine falcon (1), and five other special-status raptors have been killed. Peregrine falcons are a California Fully Protected Species for which no take permits can be issued.

page 3.5-110
Another way they calculated was median raptor mortality of 0.74 raptor per mW per year. There could have up to 114 dead raptors per year. This would be 5.7 Special Status Raptors per year (5%).

They note that mortality is higher at wind farms in the Pacific Region and promptly try to compare the project to an inland site in a Christmas Tree Farm. "...[T]he habitat at Hatchet Ridge is similar to that at the project site," and add "Because raptors generally occur at low

densities given their large territory sizes and are long-lived, often with a relatively low reproductive rate, this impact on raptors could be potentially significant, particularly for special-status species expected to occur regularly on the project site such as the Cooper's hawk, sharp-shinned hawk, burrowing owl, ferruginous hawk, and northern harrier. This impact would be potentially significant." I agree that this is potentially significant. From a taxpayer standpoint, millions of dollars have been spent to conserve species we are now being asked to chop up to benefit project investors.

The suggestion to compare to Burney came up so many times that I read the Burney EIR. Burney is a far inland site, nowhere near a redwood, outside of murrelet and spotted owl habitat and with fewer biological issues compared with this DEIR. Their turbines are also shorter than 600 feet and there are fewer of them in Burney, so really no comparison.

page 3.5-111+
The DEIR proposes mitigation which would not begin for three years. "After collection of 3 years of post-construction monitoring data, the Humboldt County Planning & Building Department will review the data and, in consultation with USFWS and CDFW, will determine which, if any, specific WTGs generate disproportionately high levels of avian mortalities (based on evidence of statistically significant higher levels of mortality relative to other WTGs)"

They do not state if the Humboldt County Planning and Building Department is able to review the data on dead birds. But that would be after - by their own estimates - 342 Raptors had died. You or I kill one - we go to jail. They plan to kill over 300 and sit around and talk about how not to do it again - three years later? The phrase "any feasible measures" reappears, if the applicant decides something isn't feasible, it won't happen. There is no attempt to purchase habitat or do anything that would actually benefit these species. Finally on 3.5-111 it's stated that the take of as many as 114 raptors/year is "significant and unavoidable."

Besides all the other bird mortality discussed, I think discussion of taking any of California Fully Protected species, with forethought - as expressed in this DEIR - is no different that expressing intent to break any other law of the state. This is not the only law this DEIR is intending to ignore; they state they will do winter construction in violation of the Humboldt Redwoods HCP.

I would like to know why it is ok for corporations - otherwise judged to be individuals - to be treated any differently than any other individual when it comes to Fully Protected species for which none of the permit loopholes are applicable to industrial scale wind. This is not a casual question. Please describe in detail.

The DEIR mentions that the Cape Mendocino Grasslands Important Bird area at the project footprint, and that Fields Landing on the edge of Humboldt Bay is an Important Bird area, without making the connection that citing this project in areas recognized as important bird habitat is only setting up for impact later.

page 3.5-115
The Horned larks section is troubling. There are two citations for Horned larks.

One from 1931 when 50 pairs were observed nesting (Grinnell, J. 1931. The Streaked Horned Lark Breeds in Northwestern California. Condor 33:74–75.) The entire text of this publication reads "The Streaked Horned Lark Breeds in Northwestern California.--Through the special effort and generosity of Mr. George D. Atwell, of Eureka, the Museum of Vertebrate Zoology possesses four horned larks from Humboldt County which I identify as Otocoris alpestris strigata. Mr. Atwell collected these on the prairie-topped divide at about 1800 feet altitude between Bear River and Eel River in Humboldt County about seven miles from Capetown. The birds there numbered about fifty pairs in the early summer of 1929. One of the birds, a male, no. 63976, was taken on May 9 with a nest and four fresh eggs which Mr. Atwell collected. Another ofthe four birds is a juvenile (no. 63983) not quite fully grown, taken June 2. In so far as known to Mr. Atwell in May and June, 1929, this colony, occupying a territory about one by one-half mile in extent, was the only one in Humboldt County. While perhaps not extreme for strigata, the three adult males collected by Mr. Atwell are, together, as regards both measurements and color tones, much nearer that race than any other; indeed I cannot distinguish one of them from a breeding male from Salem, Oregon. The juvenile is darker colored than any juvenile, of whatever race, I have seen from elsewhere in California. J. GRINNELL,--Museum of Vertebrate Zoology, University of California, Berkeley, December 7, 1930."

The second citation is a document review by "Stantec 2018g/Appendix J." Please turn to Appendix J, page 46, where the only cited reference to Stantec occurs at 2018, "Draft Humboldt Wind Energy Project Biological Resources Work Plan, Prepared for Humboldt Wind, LLC. 49 pages + appendices." So this report is unpublished and the data from it is unavailable for Horned larks. And it's not 2018g, so I am not even sure it's the paper being referenced here. There is no Stantec 2018g in the References section either.

The lack of citation continues, the remainder of this section is credited to unpublished "personal communications." While I agree that amateur naturalists have and continue to make a great contribution to anecdotes in natural history - as in the Grinnell citation above; basing a study of this importance on one published paragraph and a conversation or two is not at all the same as utilizing published peer-reviewed papers from scientific journals.

At a minimum, the California Department of Fish and Game species page https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1971 and range map https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=68696 could have provided recent citations and range information. They were apparently not consulted.

This reinforces the view that this DEIR was rushed because a complete literature review has not been performed. Other special status birds which may occur on the project footprint were not found. Whether that is sampling bias or lack of occurrence was not made clear. Owl sampling

bias of only looking in the daytime would certainly reduce the number of owls observed, and so on.

page 3.5-112 & 115
Contains the only mention of birds at Humboldt Bay, but does not list the Pelican or the Bald Eagle, only special-status birds. It mentions the Eelgrass at Fields Landing and references figure 3.5-4. But it still doesn't regard this as part of the project area. It claims no impacts on Eelgrass, it claims no impacts on avian habitat in Humboldt Bay, but it doesn't mention night lighting.

I think that's incomplete. All species should be listed and the effects of 3 p.m. to 10 p.m. every night lighting for more than 30 days plus the noise and human activity will be significant.

This section also mentions why they don't do any impact on riparian areas is because the Gen-tie will go under the Eel River. However, if one of the other options is chosen and the line goes over the river, this section is incomplete because then construction would shift to the river banks - for which no data is presented.

page 3.5-121
How will the compensatory mitigation be provided? There are no details.

page 3.5-126
"Operational impacts on the project area's horned lark population could cause this population to decrease below self-sustaining levels. This operational impact would be potentially significant." I suspect the horned larks might find it unfortunate, too. This is followed by exactly zero mitigation for this identified potentially significant impact.

page 3.5-128
The DEIR proposes to only do post construction mortality monitoring for the first 3 years of project operation and "road and pad" thereafter. I think that mortality monitoring for all species should continue for the entire life of the project with outside biologists, not company workers, doing the mortality surveys in a large enough area and with the use of specialized wildlife cadaver dogs to obtain accurate count of dead creatures in all the foregoing categories. If we must have this project and they must die for global warming, we should document and honor their deaths by recording them and publishing the data.

page 3.5-121
"Regionally, horned larks are only known to breed in grassland areas of eastern Bear River Ridge, so any loss of grassland habitat on Bear River and Monument Ridge would be potentially significant for this small and disjunct population."
Another page, another impact.

pages 3.5 - 128 +
The bat appendix stated that 1.3 million bats are hit by existing wind farms across the U.S. and that to study the bats in this area, 10 or 11 detectors near the ground and one detector at 40 meters up were used to collect data. All their results are generalized from these 11 or 12 data points, all on the ridge area of the project footprint, none from 101 transport corridor, Fields Landing, the Gen-tie route or Bridgeville. Data was collected for a relatively short period of time.

Appendix L: Biological Resources - Acoustic monitoring Page 2
They used 10 sample locations. "Nine of these locations were located along the Bear River and Monument ridgelines and one was located at a low elevation site, near the Eel River"

Their conclusion: "California myotis (Myotis californicus) was the most frequently identified species at five individual detectors and overall, accounting for 25,642 of 53,281 (48.1%) identified passes (Table 3). Big brown bat was the second most frequently identified species and accounted for 9,555 passes overall (17.9%); however, most big brown bat passes occurred at a single detector (Monument 5). Silver-haired bats were also identified often and were the most commonly identified species at two detectors (Monument 3 and Monument 4). Yuma myotis (Myotis yumanensis) were the most commonly identified species at the lower elevation Eel River detector and Mexican free-tailed bats (Tadarida brasiliensis) were most commonly identified at the Bear River Ridge and MET High detectors. Species composition was notably different at the met High detector, where high frequency Myotis species were notably absent in comparison to other detectors (Table 3).

Graphs 13–18 illustrate species composition per detector...."Myotis activity was lesser at the Met High detector, with silverhaired [sic] bats and Mexican free-tailed bats accounting for most activity recorded in the airspace that will be within the rotor-swept zone of turbines. Previous studies have documented vertical stratification of bats within redwood forests, with Myotis more active near ground level and species including silver-haired, hoary, and Mexican free-tailed bats more active at and near the forest canopy (Kennedy et al. 2014). Although not detected in large numbers, Townsend's big-eared bats were present at six detectors during the survey period. At the met tower location, this species was detected by the low detector but not at the high detector." (page 19, Data table, page 14 — Appendix L)

No sample stations were located on the Gen-tie and the sample locations did not even cover their full project footprint. Notice on Figure 3 (unpaginated, but page 32/75 in the pdf) that the sampling locations are not the same as for the eagles. For bats, there is only one data point on all of Bear River Ridge (instead of 4), and so on. Data is on pages 5-11. (Appendix L)

Townsend's big-eared bats were detected at sixty percent (60%) of the sampling stations on the ridge line areas. No surveying for any bats was done along the Gen-tie to or at Bridgeville. No sampling was done from the 600 foot high area of rotor sweep, the highest tower was 40 feet. It is also impossible to do species abundance with acoustics as there is no way to distinguish

between one bat many times, or many bats one time each - or any possible combination thereof up to the number of acoustic hits.

Back to Section 3.5, page 3.5-128
They did find bats "... [I]ncluding 10 species that occur at the project site," Later it's 12 of 13 species. This kind of casual error would seem meaningless on the surface but when so many errors appear in every section of a document, one has to wonder about the quality control in the data collection, and/or editing process.

page 3.5-129
"Conduct a habitat assessment to identify potential bat roost sites." Meaning they haven't yet done it but plan to start in September, at the same time as the logging which will destroy the roost habitat. Remember the goal is to get this done by December 2020, there's no time to do studies that could minimize the impacts. And there hasn't been a full two years of studies done for this project, despite the fact they have had time to do them before now.

page 3.5-131
"...tree removal under the guidance of the qualified biologist who has experience identifying bat roosts" The way this is written, they have a specific person in mind, but nowhere is this person identified. This should be a qualified outside biologist, not the same people who did the bird and bat work for this DEIR. It seems this could also be skimped in the rush to start in September 2019 with project goal completion by December 2020 for Federal subsidy. The sheer number of trees they propose removing cannot be examined carefully in the amount of time that remains for the work prior to just logging it all out.

page 3.5-132
"Avoiding the use of nighttime lighting and/or disruptive work around important night roosts." This seems to be limited only to the construction footprint and only during construction. After construction blinking red night lights and daytime strobes are FAA mandated. Fields Landing does not seem to be considered in this section, although there are bats there as well, and nighttime work is planned at the dock/storage areas.

page 3.5-134
"Most bat species are vulnerable to mortality and injury at wind farms as a result of collisions and other interactions with WTGs. Survey data suggest bat mortality from wind farms of up to 70 bats per WTG per year in North America (Arnett et al. 2008), with the highest rates documented along forested ridgelines. Collectively, researchers estimate that more than 500,000 bats are killed every year across Canada and the United States (Arnett and Baerwald 2013; Hayes 2013; Smallwood 2013 in Frick et al. 2017). Mortality monitoring has documented that hoary bats make up the highest proportion of bat fatalities (38 percent) at wind energy facilities (Arnett and Baerwald 2013). In one recent collaborative study, researchers concluded that even with no increase in wind energy generation beyond that available in 2014, the hoary bat population is expected to decline by as much as 90 percent in the next 50 years as a result of wind

energy–related fatalities, with the possibility of near or total extinction." (Frick, W. F., E. F. Baerwald, J. F. Pollock, R. M. R. Barclay, J. A. Szymanski, T. J. Weller, A. L. Russell, S. C. Loeb, R. A. Medellin, and L. P. McGuire. 2017. Fatalities at Wind Turbines May Threaten Population Viability of a Migratory Bat. Biological Conservation 209:172–177 - cited in the DEIR)

So if the hoary bat is going extinct from wind farms, it's not environmentally sensitive or responsible to site more wind turbines in its known habitat as there are other forms of green energy which do not kill hoary bats and will not contribute to pushing the creature to extinction.

Out of sheer curiosity, I did some math. At 70 bats per year, times the maximum 60 turbines, that's 4,200 bats per year for the project. Over 30 years, 126,000. There is no mitigation for take at that scale, certainly nothing proposed in this DEIR.

Reviewing "Impact 3.5-18 Operational Impacts on Bats. Operation of the proposed project could result in mortality of and injury to a large number of bats, including special-status bat species, as a result of interaction with wind turbine generators. This impact would be potentially significant." (**3.5b Biological Resources, cite: Section 3.5 page 134.**)" It would seem that "a large number of bats" is accurate, but it could be thousands or even in the hundreds of thousands, but the dEIR does not quantify it.

page 3.5-135
"As described in Section 3.5.1, "Environmental Setting," acoustic monitoring for the proposed project documented the presence of 12 of the 13 bat species potentially occurring in Humboldt County, and confirmed expected habitat use patterns. Most of the species recorded at the project site are species of conservation concern, including the Townsend's big-eared bat, western red bat, hoary bat, silver-haired bat, and four Myotis species. Overall bat activity in the project area may be relatively high…"

The DEIR is now back to 12 species (not 10) as on page 3.5-128. Credibility is in the details.

Townsend's big-eared bat (Corynorhinus townsendii) is one of the species of Special Concern found on/near the project footprint.

While all bat species have been studied somewhat, the large Townsend's big-eared bat is well known even though it is so reduced from its former range. The National Park Service page on Townsend's big-eared bat reads:

"Historically, this species has declined due to direct killing by people and because of destruction or disturbance of roost sites. These animals are sensitive to light and movement so if they are disturbed during the day, they awake and their ears begin to move as they try to identify the intruder. If the disturbance occurs for more than a few seconds, the entire group takes flight and the roost may be abandoned…Only about half of the maternity colonies known to exist in California prior to 1980 were active by 1991, resulting in an estimated 54% decline of adult

females...Consequently, for this species to exist, minimization of human disturbance is essential. In addition, it is essential that habitat be preserved.

The Townsend's big-eared bat:
*Has an average lifespan is 16 years; bats may live up to 30 years.
*Is a highly maneuverable flyer; capable of flying at slow hovering speeds.
*Prefers open roosting areas in large rooms with their fur erect to provide maximum insulation and with their ears coiled back." (https://www.nps.gov/chis/learn/nature/townsends-bats.htm)

One offspring per year and great roost loyalty keep a long-lived species in balance, but these traits are a disadvantage when unusual predators arrive. Declines are attributed to loss of roosts, habitat loss and other human disturbances. When the species was more common it was easier to study. The natural history and behaviors of the species are consistent enough across the range to refer to Pierson, E.D. and W.E. Rainey (1998. Distribution, status, and management of Townsend's big-eared bat (Corynorhinus townsendii) in California. BMCP Technical Report #96-7, submitted to State of California, The Resources Agency, Department of Fish and Game. 36 pp. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83812) both for observations and historical data. Although they did not survey Humboldt County, Pierson and Rainey's recommendations include protecting maternity sites from disturbance as well as avoiding the killing of the long-lived adults. Their literature cited is a trove of information on this and other species to the turn of the 21st century - as a pre-Internet age citation list it is invaluable. In 1998, the scientific name was Plecotus townsendii townsendii, presently assigned to the genus Corynorhinus. Literature searches should include both names as older works are often not found - and not cited in the DEIR. Perhaps a more complete literature review would fill in some of the unknowns cited in this document - as several of them were found on the internet NPS site with search.

page 3.5-130
"As an alternative to doing extensive surveys to determine habitat use patterns and/or to determine whether the roost is used by Townsend's big-eared bat, the project applicant shall assume that all potential roost habitat rated 2 (high suitability) is identified roost habitat rated 3 (identifiable roost), and shall remove it and compensate for its loss as described below."

Please have the applicant explain how this method will not result in the removal of Townsend's long-eared bat, and other SSC bat species rookeries as was stated elsewhere in the DEIR. (page 3.5-131, et alia)

This "Assume, Remove and Compensate Method" doesn't seem to fit with the ecologically sensitive goal of the project or the spirit and intent of CEQA.

page 3.5-131
One thing really sticks out about the mitigation measures proposed for the Townsend's big-eared bat. First the DEIR says that no bat nurseries for Townsend's will be taken.

To put this in context, these bats use special ventilated basal cavities in old growth called "nurseries" (https://www.nps.gov/chis/learn/nature/townsends-bats.htm) and they fluff out their fur to thermoregulate. Not much is known about life inside the cavities, as any disturbance causes them to leave.

The DEIR says that killing adults would be mitigated by artificially creating bat roosts in otherwise healthy trees or creating artificial roosts. No citations were provided to show that either method has achieved any goal in the past.

Despite that problem, there is an additional situation caused by this proposal because this would be creating a basal cavity - probably with a chainsaw - in the bottom of a healthy old redwood or other tree to attempt to mimic natural chambers, the full effects and desirability of which to the Townsend's big-eared bat is not known. Townsend's are also known to abandon roosts if disturbed - at a loss to the species of that year's young in some cases. Creating fake roosts won't bring them back. And damaging healthy trees with basal cuts doesn't help the forest. It would appear to be a unmentioned secondary impact.

page 3.5-133
The DEIR claims that because bats in bachelor and migratory roosts can fly, they can fly away from construction disturbances. Then follows an interesting statement that "hoary bats and red bats change roosts frequently and mothers can move their young; therefore they too would have capacity to fly away from disturbance." Capacity is not the same as being good for the bats. It leaves out the effects on the mom of having to tote around a baby. If the disturbance is during the day - like most construction - the bats may become confused and unable to save themselves. This is not addressed.

page 3.5-134
"Impact 3.5-18 Operations can cause dead bats, potentially significant."
Besides the Townsend's big-eared bat, other Species of Special concern detected at the site include hoary bat, western red bat, silver-haired bat, and four Myotis species

"Hoary bats have been captured in exceptionally high numbers, especially during the fall, at the Humboldt Redwoods State Park study site approximately 4 miles from the project site. This discovery of what may be fall swarming behavior of hoary bats has not yet been documented anywhere else, it could represent a vital life history component for this species (Szewczak, pers. comm., 2018), and it may demonstrate a seasonal concentration of mating hoary bats from all over western North America (Johnston, pers. comm., 2018). Locating a wind farm so close to this unique concentration of hoary bats may increase the mortality of this species if they use or are attracted to the project site following construction."

page 3.5-136
"Because little empirical demographic and population data exist for the species, it is difficult to evaluate the significance of such high fatality (Frick et al. 2017 - previously cited from DEIR)."

In other words, just kill a lot and then worry about the effects? Really? How do you get from hoary bats are declining and could be extinct (as above) to "difficult to evaluate"? If the curve is trending downward, and additional creatures are expected to be killed, then the curve will continue a downward and expected trend. Reducing species to zero is not the intent of the California Environmental Quality Act, nor desirable for the environment.

Besides those two bat species, there are still more bat species of special concern to consider: the western red bat, silver-haired bat, and four Myotis species. The DEIR tells exactly nothing about any of them other than their existence and offers no mitigation methods for their demise or harassment. It is important that all species be studied, particularly Species of Special Concern. I think the applicant needs to fully address the 3D spatial use by bats around the footprint - and study for all bats along the Gen-tie line - which so far is not considered at all.

I found the concept that a committee (TAC) would be formed to talk about dead things, figure out if bats are being pushed to the edge, and identify minimization measures "while recognizing the operational needs of the facility" to be weighted to the concerns of the applicant more than those of the species or the environment and I do not think it is a valid mitigation measure to sit around and talk. This is not even mitigation sometime next year, this is "we ran out of time to finish writing our species reports and turned it in anyway because we're on a deadline" and "we're going to do whatever we want anyway" in plain English.

"The primary method that has been shown to reduce bat fatalities at WTGs is the use of operational minimization protocols during high-risk periods."

So less power to save the bats, just like less power to save the birds, and less power when there's high wind, and less power when there's no wind, and so on. Obviously there is not a serious intent to meet the 155 MW goal, which could easily be met by installing sufficient solar panels.

"For example, ultraviolet visual and ultrasonic acoustic bat deterrent systems offer promising potential to reduce bat collisions with WTGs (Szewczak and Arnett 2008; Arnett et al. 2013; Hein 2018; NRG 2018). Over the life of the project, such approaches in development may be found appropriate for use with the proposed project."

"Promising potential" means it's not a real thing yet.

These lights are not mentioned in the lighting section creating yet another unaddressed impact.

Notice that on the table, nine of 13 bat species expected are of conservation concern. The siting of this wind farm seems to not fulfill the qualification for "environmentally sensitive siting" put forward by the County and which is one of the goals of the entire process.

I feel that the bat studies are incomplete due to:

- Limited number of detectors
- Different sampling sites than for eagles and other species.
- Partial year data (one day in March, detectors from April to October and no data for rest of year),
- No Gen-tie, Highway 101 and Fields Landing project location data for bats.

It's known that birds, raptors, owls, bats, all will be killed by this project over the 30 year operational life. Mitigation measures offered include post mortem meetings and much report writing along with maybe putting a few conservation easements on land which may be decided upon later and a lot of statements of "if operationally feasible" which puts all the power in the hands of the applicant (and subcontractors) to decide on a case by case basis what is feasible or not at some later date up to 30 years from now.

This creates piece-mealing and puts off to the future impacts which aren't even considered in this document. This is neither the way to tread lightly on the environment, nor to fulfill the spirit and intent of the CEQA process.

The DEIR bat mitigation measures are:

- Unproven with documented peer-reviewed literature.
- Able to create secondary impacts (nesting cavities).
- Generally inadequate for expected mortality.
- No thresholds at which mitigation is required to initiate.
- No guarantee of access for California Dept. of Fish & Wildlife for SSC species.
- Full of paperwork and meetings after expected mortality expectedly occurs.
- Particularly inadequate for the ones for which no mitigation measures were proposed, which include several Species of Special Concern.
- Primarily focused on mid-air strike.
- Changeable. "If feasible" should be removed wherever used.
- Incomplete. No Bat Roosting Habitat Map
- Incomplete. Barotrauma was not mentioned.
- Incomplete. Habitat loss was not offset.

No one will dispute that wind farms kill flying creatures - insects, birds and bats. Therefore the impact is obviously potentially significant (the sad pun in that statement is unintended).

Mammals page 3.5-139 & 140
While the Humboldt Redwood Company has documented Ringtails ten miles north of the site with camera traps, badgers are documented only with a personal communication.

No Ringtails were observed - although they are easy to spot at night. This is possibly due to sampling bias created by biologists being there in daylight and ringtails being out at night. (Also see Owls, 3.5-93 above for same potential sampling bias.)

Amphibians page 3.5-146
Red-legged frogs at Humboldt Bay National Wildlife Refuge are mentioned as well as on the project site in the hills. However, I disagree with their statement that habitat is "marginal" at the National Wildlife Refuge. Having given many frog programs for them over the years, I know that Red-legged frogs are extremely abundant in natural and modified wetlands within a quarter mile of the proposed gravel bypass. However the DEIR doesn't give a mitigation for what is going to do happen to them at Hookton Slough "Visitor Access Road" culvert with geofabric and tons of gravel. Nor how they will mitigate for the loss of the linear water features parallel to the Highway and the Wildlife Refuge, nor at the wetland at Field's Landing entry ramp to Highway 101, or at Strong's Creek in Fortuna, and other locations along their transportation section where bypasses are being created. I would think fish would be impacted also by this bypass but it's not mentioned.

page 3.5-147
The DEIR mentions a major concern about drilling under the Eel River and one which I have personally observed on a Schlumberger project. In horizontal drilling, the drill bit is lubricated with bentonite "mud" made from volcanic ash and water. Sometimes the bentonite will leak out (some say "frac-out") during the process and smother vegetation, animals, spawn and eggs in the water and on land. River flow would distribute this fine, sharp and acidic material all the way to the ocean. pages 3.5-158 and 159 describe the reactions to frac-out should it occur.

The way to reduce this potential impact to zero is not to do it at all. There is no other way to guarantee this environmental disaster will not occur.

page 3.5-151+
Pre-construction Survey Plan for Amphibians and Reptiles is proposed as a mitigation measure. This should be done before the DEIR was issued.

No mitigation measure other than survey is proposed for Western Pond Turtle although there is habitat for the species in the footprint.

page 3.5-152
The Yellow-legged frog for some reason has purchase of mitigation land after one year of power generated. This doesn't seem to be listed for any other species. Is there some particular

reason this species is special like this? Saving land won't do the species any good if the streams are all silted up from winter logging.

page 3.5-157
"Pinning the barge against wooden piles connected to the shore by a mooring line" does not seem to be the same as described elsewhere in the EIR where they mentioned a type of pin dock.

page 3.5-159
A Special Status Plant Survey in Spring & Summer 2019 needed because they only did a "reconnaissance level" plant survey in 2018. So all this section is based on not much data again. Read carefully, they are relying on California Native Plant Society data and personal communications. But then page 160 they quite firmly have a number of acres of disturbance for plants they didn't apparently see.

page 3.5-167
Specific mitigation for only checkerbloom is proposed.

page 3.5-168
The revegetation plan is described as "Locally sourced seed mix", but above the DEIR talks about seed mixes to deter small mammals. One or the other is correct - quality control needs to decide which it is.

page 3.5-171
Discusses Eelgrass. But says no survey was done, because data was available from other sources and the Eelgrass beds mapped in 2016 by CDFW "do not overlap with the project boundaries." However "Eelgrass occurs in the immediate vicinity of the proposed unloading location," and its visible on "recent aerial photos" beyond the old mapped boundaries. Even so, no Eelgrass survey.

Fully loaded barges will draft about 7 feet, low tide can be 2.5 feet. The potential for bottoming out on the Eelgrass exists. But the impact is given as less than significant if nothing goes wrong. And we all know Murphy's law and that time and tide wait for no man. One problem with their process and a 7 foot draft barge will be 5.5 feet deep in low tide Humboldt Bay mud (and Eelgrass).

There is no mitigation proposal for Eelgrass damage, as well as no current map.

Over a decade ago, a decorated bike race called the Arcata to Ferndale Kinetic Sculpture Race was required to do an Eelgrass Survey for three hours use of one day of the year on a slough. I think if that requires a survey, that the developer of a major project impacting the bay for over a month with tugboats, barges and piers has to do one too. There cannot be two laws - either an Eelgrass survey is required for everyone - or it would be required for no one.

page 3.5-173
Table 3.5-15 "Sensitive Natural Communities Other than Riparian Habitats" doesn't use standard nomenclature and puts different species assemblages together than have been considered in peer-reviewed literature. Please provide citations for this division of Natural Communities. Refer to page 3.5-171 for the statement about "Of the 83 vegetation communities mapped on the project site, 43 are listed by CDFW as sensitive natural communities. Since the named ones on the table are not the same as CDFW published lists, its not possible to compare head-to-head. A full list should be provided.

page 3.5-176
The DEIR plans to replace trees at a 3:1 ratio (three planted for one removed) will just set up the situation described in the marbled murrelets section of replanted forests needing thinning in a few years. There is no indication of sex, species ratio or composition - it's as if all trees are the same.

page 3.5-177
If communities are being compensated at a 1:1 or 3:1 ratio, where is the land coming from to replace the area cut? I don't see any land purchases offered. They cannot plant 3:1 in the Gen-tie corridor, that has to remain open for the full 30 years or more. And there doesn't seem to be any offer to compensate for the cutting of the trees in the Gen-tie line, nor is there a Timber Harvest Plan for those trees. It is not mentioned if the wood is to be sold - isn't there a restriction on selling timber that wasn't taken from a TPZ or wasn't subject to a TPZ when harvested?

page 3.5-182
Back to 10 species of bats, again. As before this shows rushed writing and careless editing.

page 3.5-183
Coastal Development "For the purposes of this DEIR, it is assumed that the project applicant would acquire a coastal development permit from the County through the Local Coastal Program, and from the CCC if required. The project applicant would apply to both entities and comply with any conditions of issued permits. As a result, no impact would occur. This issue is not considered further in this DEIR."

This section reminds me of the "if feasible" part of the mitigation measures. The applicant is making rules for itself - and perhaps not realizing that if this is appealed to CCC it could be months before it was heard. Perhaps because the applicant has only done inland California wind farms - they don't have enough experience with coastal to realize the full temporal potential of that process.

page 3.5-184

"Extent feasible" arrives again, this time to reduce the impact of construction in streamside management areas. Seriously, this is not the intent of CEQA to constantly put off to later, to some subcontractor or laborer to create secondary impacts of unknown type and number just because it makes it easier for the applicant.

Conflict with an Adopted HCP
This section is troublesome. The stakeholders, the county and the community worked on the HCP and now the first person to come along can just decide to honor or not honor it - as it suits them? That is just not how things are done in environmentally sensitive areas. It's not the spirit or intent of CEQA to absolve the applicant of complying with laws and agreements that already exist on the landscape.

page 3.5-187
"18 months... first phase... staging area at Jordan Creek and the access road onto Monument ridge... construction... during the wet season... inconsistent with the provisions of 6.3.3.3 of HRC HCP's ... objectives..."

The Humboldt Redwood Company HCP says no road building or landing construction in wet season (October 15 to June 1) to prevent erosion. **This is another statement by the developer of their intent to not follow the conditions of the Humboldt Redwood HCP.**

Notice that they don't say a word about the measures they will take during the first phase, logging and vegetation removal. Their list of activities starts with "construction," elsewhere in document separated from logging and vegetation removal.

page 3.5-188
A stop work authority to the County will do absolutely nothing after the predictable landslides occur. Remember Stafford.

Section 3.6 CULTURAL

Impact 3.6-1 Change to the Significance of an Archaeological Resource. Multiple documented or assumed eligible cultural resources in the project area have the potential to be damaged or destroyed by project implementation. This impact would be potentially significant.

Table 3.6-2 says that Bear River Ridge and valley is historic assumed eligible, inside and outside the project site and doesn't have any mitigation for it at all. Same with Scotia Historic District.

The cultural significance of Bear River Ridge was not addressed on the chart

A letter dated July 13, 2018, Ted Hernandez, Cultural Director with the Wiyot Tribe reprinted in the project documents reads: "that the Wiyot Tribe has concerns about the project and locations of project sites."..."The Wiyot Tribe followed up with a letter dated March 29, 2019. This letter outlined three issues of importance to the Wiyot Tribe that the Tribe believes would result in significant unavoidable impacts on the natural and physical environment:

- Bear River Ridge, known as Tsakiyuwit, is a defining feature of the large Wiyot cultural landscape, the southern boundary of Wiyot ancestral territory, and a coastal prairie that supports numerous ethnobotanical resources critical to the survival and cultural of the Wiyot people.
-
- In a separate document (Wiyot List of Plant Species of Environmental and Cultural Concern), the Wiyot Tribe provided a list identifying ethnobotanical plant species, including 27 species that can be found in a coastal prairie environment, and the area that the Tribe has identified as an ethnobotanical area. Evidence of ethnographic use of the ridge is further supported by the presence of the prehistoric sites P-12- 0314, and HUM TG-02, and isolated milling tools. Old-growth Douglas Fir trees provide further evidence of the prehistoric use of fire in the management of the biological environment, including Siskiyou checkerbloom, tarplant (hushurawu'n), and tanoak.
-
- Tribal elders indicated that Bear River Ridge was most likely used as a high prayer spot. In summary, the Wiyot believe that Bear River Ridge qualifies as a tribal cultural resource and that impacts associated with the placement of "sixty 500 foot-tall wind turbines would alter the spiritual and sacred view shed of the Wiyot cultural landscape." Government-to-government tribal consultation was held between the County and the Bear River Band of the Rohnerville Rancheria Tribal Council on March 26, 2019. The AB 52 consultation process has concluded with both tribes."

Notice at the time this consultation was concluded the turbines were only 500 feet high. I think that may violate the spirit and intent of consulting in advance if it just goes and gets changed afterwards.

I agree with the Wiyot people that this ridge should not be changed by installation of wind turbines, whether 500 or 600 or nearly 700 feet, it doesn't matter. The people who lived here sustainably for thousands of years and who owned it before the rules of ownership were overturned by invasion and massacre do not feel this project belongs there. I am guided by their wisdom as they have persisted on and cherished this landscape by an order of magnitude longer than the new settlers.

Impact 3.6-3 Change to the Significance of a Historical Resource. Historic districts and historic landscapes could be affected by the project. This impact on the Scotia Historic District

would be less than significant, while this impact on the Bear River Ridge and Valley Historic Landscape and Bear River Ridge Ethnobotanical/Cultural Landscape would be significant

page 3.6-38
"... however, as designed, construction of the WTGs and access roads would result in a significant impact on the immediate surroundings and setting of the historic landscape."

"Project construction would result in direct impacts on the Bear River Ridge Ethnobotanical/Cultural Landscape. The removal of these vegetation patterns would result in a loss of important vegetation patterns of prehistory. Therefore, this impact would be significant." ... "Implementing the above mitigation measures would reduce the impact of the project on historical resources, but not to less than significant. This impact would be significant and unavoidable."

This is not acceptable.

page 3.6-41
"Bear River Ridge The Wiyot Tribe identified Bear River Ridge (Tsakiyuwit) as a TCR. Bear River Ridge is the southern boundary of the Wiyot Ancestral Territory. The entire Wiyot ancestral territory can be viewed from Bear River Ridge. Likewise, Bear River Ridge is visible from anywhere within Wiyot territory, including from Table Bluff and Humboldt Bay where Tuluwat2 is located. In the past it would have been used as a high prayer spot. Bear River Ridge is currently held as private property, restricting access to the tribe, but the tribe does see the ridge as a sacred high place that remains visible throughout Wiyot territory. Constructing WTGs on Bear River Ridge would be a significant visual impact on this sacred high place. No feasible mitigation is available to reduce this significant impact; therefore, this impact would be significant and unavoidable."

The DEIR mentions Yurok reintroduction efforts...", the condor is a spiritual symbol for the tribes of Humboldt County. Therefore, because the potential exists for condors to collide with WTGs, this impact would be significant."

This project will affect the reintroduction zone for the California Condor by the Yurok tribe. (https://www.yuroktribe.org/departments/selfgovern/wildlife_program/condor/ condorproject.htm)

Implementing Mitigation Measure 3.6-4 is claimed to reduce the impact of the project on California condor, a TCR, but not to less than significant. This impact would be significant and unavoidable.

The California Condor is a Fully Protected species by law of the state of California. The wind farm is not eligible for a license or permit for their take - collection is not for necessary scientific research or protection of livestock.
(https://www.dfg.ca.gov/wildlife/nongame/t_e_spp/fully_pro.html)

If it is illegal for an individual to take a member of a Fully Protected Species then by current U.S. law, it is equally illegal for a corporation. I request the California Department of Fish and Game to enforce their laws equally on corporations and individuals. (https://www.npr.org/2014/07/28/335288388/when-did-companies-become-people-excavating-the-legal- evolution)

Also see **Executive Summary Section ES 77 & ES 78** (where they plan to wait 6 month after condor release for any protective action or consultations.

Even if the condor is considered by government to be "experimental" millions of taxpayer dollars have been spent on its salvation and now reintroduction. I do not agree that this project should be built in the ancient range of - and new introduction range - of the California Condor.

I disagree that the blades could be always successfully be stopped from 200 miles per hour to zero were a condor to fly nearby even though currently adult condors have GPS units their flight speed exceeds the ability of the wind operators to stop the blades. If breeding is successful the babies won't have GPS and the wind company would not know where they were located. Plus if the only response is to stop producing energy, then the project goal of producing 155MW of clean energy will not be met.

Section 3.7 GEOLOGY
page 3.7-16
The EIR quotes the California Building Standards Code: "The CBC requires that any structure designed for a project site undergo a seismic-design evaluation that assigns the structure to one of six categories, A–F; Category F structures require the most earthquake-resistant design."

No rating was given for this project because the exact wind turbines to be used are not specified.

page 3.7-16
The EIR quotes the California Building Standards Code: The CBC philosophy focuses on "collapse prevention," meaning that structures are to be designed to prevent collapse during the maximum level of ground shaking that reasonably can be expected to occur at a site."

No exact sites are provided in this project, so this part of the CBC cannot be fulfilled by this EIR.

page 3.7-16
The EIR quotes the California Building Code: "The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics, consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study."

No sites have been selected, thus the EIR provides no site-specific study as required.

This lack of faceplate and location data prevents accurate assessment by the county of potential risks and hazards during a local earthquake.

I feel that their Impact statement 3.7-1 is flawed as they are only considering ground rupture, not any other form of earthquake impact.

page 3.7-20
" Impact 3.7-1 Surface Rupture Along a Known Earthquake Fault.
The project would not be constructed over the surface traces of any active faults. This impact would be less than significant." ... The wind turbines and associated infrastructure (e.g., transmission lines) would not be within or adjacent to a designated Alquist-Priolo Earthquake Fault Zone... (page 3.7-21) although the Cascadia subduction zone is considered capable of producing a large- magnitude earthquake, it is not zoned under the Alquist-Priolo Act. Furthermore, the impacts of surface fault rupture are generally limited to a linear zone a few yards wide, and the proposed wind turbines would not be structures intended for human habitation."

What is being stated here is that they have no active fault scarps and do not expect one to open up under a specific turbine. But the fixation on surface fault rupture is the least of their earthquake worries. It's like worrying what color the check will be when you win the lottery, because the damage comes from ground motion; surface fault rupture is extremely rare.

The maps in the EIR do not agree with The Bedrock and Faults Map of Humboldt County.
(https://humboldtgov.org/DocumentCenter/View/477/Geology---Bedrock-and-Faults-PDF?bidId=)

Mapping all the lines accurately in a Supplemental EIR would permit a more accurate assessment of hazards and risks.

page 3.7-21
"As described in detail in Section 3.7.1, "Environmental Setting," the proposed generation components would be located in a seismically active area. The Cascadia subduction zone and the San Andreas Fault, associated with the Mendocino Triple Junction along with other known active faults listed in Table 3.7-2, have the potential to produce large-magnitude earthquakes that could result in strong seismic ground shaking at the site of the proposed generation components."

"The Safety Element of the General Plan contains policies that would lessen the potential effects from the rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, and tsunami. Policy S-P6, Structural Hazards, would apply, and compliance with state-adopted building codes and Alquist-Priolo Earthquake Fault Zone requirements for new construction would be enforced, to protect life and property."

page 3.7-22
"Because the CBC already provides for adequate protection to reduce the exposure of people and structures to the adverse effects of surface fault rupture, this impact would be less than significant."

Again the EIR mistakes "surface rupture fault" for what is actually mentioned in the Safety Element which is "rupture of a known earthquake fault." Surface does not equal known, nor vice versa.

Despite citing the Safety Element, the EIR does not state the effects of "strong seismic ground shaking", or "seismic-related ground failure" - although they did rule out tsunami effects.

I do not think that they have adequately addressed the effects on their project other than that their components (unspecified) may fit a building code. The turbines are 50 stories tall on mere 10 foot foundations on - by their own statements - unstable slopes in poorly consolidated materials.

The Bedrock and Faults map of Humboldt County provided by the County website, clearly shows the fault lines underlaying the project site, and they do not appear to be adequately mapped in the EIR. A cursory examination reveals more faults on the county map than on the EIR map. (https://humboldtgov.org/DocumentCenter/View/477/Geology---Bedrock-and-Faults-PDF?bidId=)

The redlines are labeled "certain faults" - and overlaying the project map on this county map results in a serious concern about the project.

This is such a serious concern about the project and related faults, that I think the county should require being named in the 100% replacement cost insurance policy that should be maintained on the facility in case of earthquakes.

Maybe the preparers of the report were not aware, but this area of the country is more seismically active than others, and perhaps historic seismicity was not considered. I saw no discussion in the text of

* The "1906 San Francisco earthquake" which propagated along a fault which is part of the Cape Mendocino system and mapped on the County Map labeled San Andreas. This fault is a short distance from the project footprint. In Humboldt County the event was at least M6.2. The courthouse dome collapsed, "not a chimney was left standing in the Eel River Valley." While it is usually recorded as only affecting San Francisco, major earthquake damages stretched from Eureka to Salinas. Dr. Fusakichi Omori, the inventor of the seismograph, visited Eureka and Ferndale shortly afterward as part of his scientific study of the effects. He visited Ferndale to record the incredible damage and the giant landslide. Locally it is remembered as "the slide that closed the beach road to Petrolia," but examining a map even to this day shows that a very

large area slid a considerable distance, and it is quite fortunate that no one was hurt and there were no houses to damage. Omori wrote:

"At Dungan's Ferry, on the north bank of the Eel River, the ground was full of fissures. Every bar on the river had been opened by fissures, and the gravel toppled over leaving big ditches, some 6 feet deep and over 500 feet long. Coming up on the mainland the road had dropt about 2 feet in one place and was full of small fissures. A 40-acre field was entirely ruined. It was heavily fissured, having dropt down in strips from 2 to 6 feet wide, from 4 to 6 feet deep, and from 5 to 500 feet long, the fissures pointing between south and southwest. All the fields were full of quicksand volcanoes, some 1 to 3 cubic yards in size. They were perfect miniature volcanoes, every one having a crater. It is said they extended 30 miles up the river..."

"Near the False Cape it threw the old hill, on which the Oil Creek coast road ran, out into the ocean for 0.5 mile. It is estimated that 200 acres were thrown into the ocean. Quite a number of cattle went with the hill. The slide is said to have obscured the view of Cape Mendocino light from Trinidad heads.
In Petrolia the shock threw every house off its foundation; in the mountains it opened great fissures, ruining many acres of good grazing land. It is said that the McKee ranch, near Shelter Cove, is entirely ruined by fissures. About 6 miles below the mouth of the Mattole River, at what is called Sea Lion Gulch, the mountains pitched together, entirely obliterating this dangerous place.

Closer to the Jordan Creek staging area, Omori describes the situation,
"Pepperwood, Humboldt County (J. F. Helms). — In the stores and saloons 10 per cent of the property was destroyed by breakage, but on the farms of the neighborhood the damage was mostly confined to the throw of chimneys." The distances given for chimney throw in the Ferndale, Pepperwood and Petrolia areas goes up to fifteen feet. (Omori in The California earthquake of April 18, 1906 : report of the State Earthquake Investigation Commission, in two volumes and atlas.
http://content.cdlib.org/view?docId=hb1h4n989f;NAAN=13030&doc.view=frames&chunk.id=div00006&toc.depth=1&toc.id=div00006&brand=calisphere&query=omori)

Descriptions of surface ruptures, houses thrown from foundations, buildings moved and other effects - some very close to the project site are available in the Humboldt County Chapter of The California earthquake of April 18, 1906 : report of the State Earthquake Investigation Commission, in two volumes and atlas. QE 535 .C3 1969, Bancroft Library, California. (http://content.cdlib.org/view?docId=hb1h4n989f&doc.view=frames&chunk.id=div00056&toc.id=div00007)

* The "1992 Cape Mendocino earthquakes" produced a M7.2 thrust mainshock that struck near Petrolia midday on April 25 and two primary strike-slip aftershocks measuring 6.5 and 6.6 that followed early the next morning. Over 2,000 recorded aftershocks followed. Widespread landslides from the coast to east of Scotia and from the northern extent of the Eel River basin

near Thompson Hill to south of Petrolia resulted. Very few surface ruptures occurred, but damages to Scotia included the loss of their downtown to fire, and many structures were damaged throughout the region.

* Other recent events include the "1980 Eureka earthquake" at M7.3 - effects were felt from Myers Flat to Brookings, Oregon - and the "2010 Eureka earthquake" at M6.5 with a 5.9 aftershock a month later. The seismic risk in the area is so great that the Humboldt Bay nuclear power plant was curtailed and later replaced due to seismic risk.

This section does not provide enough information about seismic risk to WTGs and associated structures because there is

- no faceplate information about how the specific components for this project are intended to perform in earthquakes,
- no analysis of earthquake shaking a 50 story weight centered structure on a 10 foot concrete pad,
- no citations of how recent WTGs and their associated structures perform in extreme seismic events, "strong seismic ground shaking" or "seismic-related ground failure".
- no description of local earthquake magnitudes and effects as related to small skinny objects like windmills, chimneys and towers. Long slender things on shallow foundations are affected by large earthquakes.

Besides ground forces alone, wind and ground forces can cause tower failure.

According to "Collapse analysis of wind turbine tower under the coupled effects of wind and near-field earthquake" Fan, Jian, Qian Li and Yanping Zhang, Research Article, Wiley, 17 October 2018 (https://docs.wind-watch.org/collapse-earthquake.pdf)

Dr. Fan and associates analyze a 60 meter hub height turbine. They wrote "In recent years, with the rapid growth of wind power, wind turbines are being constructed near faults and earthquake zones and wind turbine towers are vulnerable to near-field ground motion. The most notable feature of near-field ground motion is the directivity effect and the fling step effect induced by the pulsed ground motion. The most common form is a velocity pulse-like ground motion. Velocity pulse-like ground motion has a pulse-like waveform, a long pulse period, and rich medium/long period components. The ratio of the peak ground velocity (PGV) versus the peak ground acceleration (PGA) is large. Normally PGV/PGA $\geq$ 0.2. As the wind turbine tower structure typically has a long period, near-field ground motion triggers an intense earthquake response or even leads to complete collapse."

Specific analysis should be provided for specific faceplate equipment for accurate assessment of true seismic risk.

One source of damage - as pointed out in the Safety Element of the General Plan (Humboldt County) is from ground motion - coupled with wind being applied simultaneously on the blades. This EIR only mentions surface fault rupture, a case as rare as being hit by lightening.

That turbines fall over just from wind has been happening for years, most recently on May 23, 2019 in Oklahoma where a turbine went over in 40 mile per hour winds. (https://kfor.com/2019/05/23/turbine-buckles-collapses-on-oklahoma-wind-farm/)

Other cases of wind load alone being enough to collapse turbines have occurred

- 2018 Thailand - Vestas nacelle collapses at new wind farm (https://renews.biz/48809/thai-turbine-collapse-sparks-vestas-probe/ & https://www.youtube.com/watch?v=CwqRq_CZnes)
- 2017 Wichita Falls, TX (https://www.reporternews.com/story/news/local/texas/2017/06/23/wind-turbine-collapse-under-investigation/425362001/)
- 2014 Fayette County, PA (https://www.wtae.com/article/huge-wind-turbine-falls-in-fayette-county-1/7464674)
- 2010 Arlington, WY, bent and collapsed (http://www.windaction.org/posts/29882-collapsed-turbine-in-wyoming#.XOrFXVNKgjM)
- 2010 JeJu, Korea, 34.6 m/s tower collapse
- 2009 Madison County, NY, collapse (https://www.syracuse.com/news/2009/12/officials_hope_to_learn_why_wi.html)
- 2008 Taiwan, collapsed in Typhoon Jangmi (http://www.engineering.nottingham.ac.uk/icccbe/proceedings/pdf/pf135.pdf)
- 2008 Hornslet Denmark, oscillating tower collapse (https://en.wikipedia.org/wiki/Hornslet_wind-turbine_collapse, https://www.youtube.com/watch?v=CqEccgR0q-o) Same location as cover photo this document.
- 2008 Searsburg VT, blade hit tower which failed (https://www.buildinggreen.com/blog/big-wind-turbine-failures)

This list was found by reading the cited papers, fact-checking, and was supplemented by routine web search which also found other accidents including fires caused by, blades thrown from, and other topics not directly applicable to seismic.

Atul Sudhakapar Patil, Response of a Wind Turbine Structure to Strong Ground Motions and High Velocity Winds, Florida State University Ph.D. thesis, College of Engineering, 2015, pages 1 - 273. (https://diginole.lib.fsu.edu/islandora/object/fsu:253125/datastream/PDF/view)
"Although recorded failures of wind turbines due to the earthquakes are rare due to the scarcity of the event, the wind turbine towers subjected to earthquake loads are expected to fail... commercially produced wind turbines are not catered for each specific type of extreme loads like earthquake load or high wind loads." A study of a specific model of turbine was performed, and different methods of analysis proposed depending on hub heights. Soil structure was found to have an influence, as did wind on the blades at the time the events were modeled. "The authors

stated that the higher modes may play a greater role in overall seismic response. The seismic excitation records with high frequency content may set the structure in the higher vibration modes... For the new taller turbines, the higher modes could be significant." As earthquake intensity increases on all models the fragility index also increases." The seismic loading analysis was studied for National Renewable Energy Laboratory (NREL) 5MW baseline wind turbine considering idling, operating and emergency shutdown scenarios. The authors found that tower moment demand is an important parameter while designing the wind turbine tower in seismic zones... Modern day wind turbine structures are tall and possibly more slender due to the increased height and more susceptible to the strong loading pulses that are caused by near fault directivity." Since there is more data available about wind collapses than earthquake collapses, "Rose et al. (2012) studied the NREL 5MW base line turbine for buckling analysis during the high wind events. The fragility analysis conducted by the authors has shown that the category 2 hurricanes (wind velocity 45 m/s or higher) would buckle 6% of the turbine towers in Galveston Offshore Wind project location. Hurricane Ike in 2008 reported the sustained wind speed of 49 m/s at the reference height of 10 m in the Galveston Offshore Wind project location. The category 3 hurricane (wind velocity of 50 m/s or higher) would buckle 46% turbine towers in Gulf of Mexico coast and 9 of the 14 states of Atlantic Coast... The reasons for failure were established as violent wind, high turbulence and sudden wind change in wind direction." Dr. Patil provides analysis methods for towers bending, breaking, falling over and completely overturning off their foundations as being potential outcomes for earthquake damage to wind turbines, but his work shows there is a big difference between the different types of towers and manufacturer's designs.

Another study A.T. Myers, A. Gupta, C.M. Ramirez, and E. Chioccarelli. 2012. "Evaluation of the Seismic Vulnerability of Tubular Wind Turbine Towers" 15 The World Conferences on Earthquake Engineering (WCEE), Lisbon 2012. (https://www.iitk.ac.in/nicee/wcee/article/WCEE2012_4483.pdf) points out that turbine towers are designed for European installations where seismic is not a risk, and states, they are "particularly sensitive to catastrophic losses because:

* Modern wind turbines, unlike buildings and most other common structures, exhibit no redundancy in the structural system. Thus, if any section of the structural system becomes sufficiently damaged, then the entire turbine is susceptible to collapse.
* Wind farms are typically comprised of many turbines with similar characteristics, for instance all manufactured by the same manufacturer, similar heights, similar foundation designs, etc. Thus, a single seismic event with unfavorable ground motion characteristics could potentially damage most of the turbines at a particular wind farm. This is in contrast to buildings in a city, which have diverse structural systems, dynamic characteristics, and redundancies that limit the potential of any single seismic event to unfavorably affect all buildings." They describe no damage to wind farms in "1994 Northridge Earthquake (M6.7) and "1986 North Palm Springs Earthquake" (M6.1) and state that both had low to moderate ground shaking at the two farms (0.06g and 0.33g), thus they perform model and statistical analysis. "... [T]he characteristics of ground motions can vary substantially from one site to another and some ground motions, such as those that can occur near a fault—which can cause 'pulse-like' ground motions — or at sites

There is just not enough data. Accurate modeling is needed here, not just some statements of great and noble purpose. I agree global warming is a problem. I do not agree this project will solve any of it with the methods outlined in this document.

page 3.8-20 "Implementation Measure E-IM5: Wind Energy Development. Develop wind-permitting guidelines for residential and small commercial-scale wind energy systems. Adopt and modify, as appropriate, the guidelines established in California State Law AB 1207. Educate the public about the benefits of small- scale wind energy systems."

I disagree that this project is consistent with this goal as it is not a residential or small commercial-scale system.

This section assumes that any wind turbine farm is the equivalent of any other; such as the off-shore facility in early planning stages which this EIR does not mention. Offshore wind has much higher wind speeds and the turbines are larger. Offshore wind would develop more power, and fulfill the goals of the county for "environmentally responsible" generation of power, rather than a project that will use an incorrectly calculated number of gallons of diesel, cut thousands of trees, cause wear and tear on the roadways (deterioration of concrete releases CO2, as does its manufacture) and yet claim to be "green."

Remember the project maximum goal of 155 MW is an increase of one-half of one percent. Not enough to justify the cost and hassle of the permit process nor to be offset by some measly taxes.

page 3.8-21 "The proposed project would not necessarily immediately replace electricity generated by fossil-fuel plants at the same quantity, and the project would generate a small amount of GHG emissions."

Wind power can lead to an increase in emissions as the conventional gas powered electrical plant attempts to keep up with the variable power in the system due to wind. Nowhere is there an analysis of the effect of this project on the King Salmon electrical generation station. Due to the variable nature of wind, the electrical plant will have to turn on and off in response to the variability. Their plants were not built with this as intent, and I think it may cause more pollution to run on/off than steady state.

There are assumptions in the foregoing which lead the EIR to say that the project is a less than cumulatively considerable contribution to the significant cumulative impact of global climate change. The only reason that is true, is that the project is very small. However for Humboldt County, it is a large project and the transport and construction use of diesel, loss of CO2 sequestration in the essentially stable landscape now, and all relevant factors must be considered to effectively discuss greenhouse gas emissions.

I consider all their impact analysis in this section flawed and all impacts to be potentially significant since they have not been properly examined.

3.9 Hazard

Impact 3.9-4 Potential Hazards Associated with Operation of Wind Turbine Generators. Implementation of the proposed project could cause reasonably foreseeable upset and accident conditions during operation of the wind turbine generators. This impact would be less than significant. ... Because the project applicant must prepare an operation and maintenance program that would substantially reduce opportunities for facility failure that could be a danger to people, and because access to the wind energy generation facilities would be restricted, this direct impact would be less than significant. No indirect impacts would occur."

Unfortunately they have not given an operation or maintenance program, so we have no idea if this is correct or not. Also they are taking county roads and shutting them off to residents if they plan to restrict access at Bear River Ridge and Monument Roads. This was never discussed elsewhere in the DEIR.

The DEIR doesn't discuss accidents, but see Geology comments above for a short list of recent accidents. Many writers in peer-reviewed literature and the public press point out that the wind industry does not report many of their accidents.

Section 3.10 Hydrology & water quality
page 3.10-2
"The project area is characterized by mountainous landscape and steep and highly erodible soils. Several named drainages traverse the site: Stitz Creek, Hoagland Creek, Fish Creek, Greenlow Creek, and Little Larabee Creek. A number of unnamed perennial and intermittent drainages traverse the proposed electrical interconnection areas, project access routes, staging areas, and related facilities of the proposed project. A portion of the existing drainages have been modified by placement of a culvert and covered with fill to permit crossing for logging equipment (Stantec 2018). High seasonal rainfall combined with a rapid runoff rate on unstable soils deliver large amounts of sediments from these and other drainages that may discharge into the Eel River."

Rio Dell and others draw drinking water downstream of this potential sedimentation.

3.10.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES THRESHOLDS OF SIGNIFICANCE

page 3.10-15 "substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;"

I think not accounting for the 300 temporary workers who might be drawing up to 60 gallons a day from the Pepperwood aquifer would cause difficulty with the recharge to that aquifer and to management of the basin. The permanent workers will draw about an acre-foot a year; there are five times as many temporary workers.

Then there's the question of where the concrete water will come from, and the dust water, since they cannot take it from the Log Pond in Scotia.

page 3.10-21
"If the Humboldt Redwood Company HCP measures cannot be implemented, or if the project applicant seeks to conduct work during the wet season (October 15–June 1), the project applicant shall implement the following measures while conducting tree harvest, road or landing construction, reconstruction, and road upgrades:"

Once again the applicant will decide what cannot be implemented, and if they want to work in the winter, they plan to do it. The measures they suggest might work in the desert or central valley; it's unlikely they would survive a season of local rainfall.

page 3.10-23
"Impact 3.10-3 Potential Water Quality Impacts from Project Operations. Project implementation would alter the permeability of surfaces that could increase runoff from the project area, thereby increasing the potential for transport of pollutants from the project area to local surface waters. This impact would be less than significant."

I think that if anything went wrong up there, or en route, it would be significant, no matter how many reports are written in advance, or earthen berms provided. Notice if you spill fuel it will soak into the earth, so the idea of an earth berm providing much help in a diesel or oil spill doesn't seem like it is 100% guaranteed to work, especially with higher than normal rainfall in the area.

page 3.10-24
"Impact 3.10-4 Potential to Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge Such that the Project May Impede Sustainable Groundwater Management. Compaction and widening of roads, installation of turbines and foundations, and operation of the project facilities could require the use of surface or groundwater. This impact would be less than significant. The project's demand for water during operation can be considered a de minimis use and sufficient supply is available to meet existing and future demands with the project on the Pepperwood Area Groundwater Basin, including municipal and industrial uses. This impact would be less than significant."

They forgot their temporary workers demand on the water system and they don't have any construction water. This is not de minimus or less than significant.

Section 3.11 NOISE
page 3.11-16
"Generation of a Substantial Temporary Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies. Construction of project components would require temporary, short-term construction activities and haul truck trips to haul wind turbine generator parts and needed construction materials and equipment to the project area. Project-related construction activities and haul truck trips could expose existing sensitive receptors to temporary noise levels that would exceed the applicable noise standards and/or result in a substantial increase in ambient noise levels. This impact would be less than significant... Construction activities would require 12–18 months."

Depends on your definition of "temporary." One and a half years does not seem particularly temporary to people trying to get along with all this stuff that doesn't need to happen ("no project" alternative). There is a secondary impact to the local community in that after the project is finished from a developer standpoint, they will give the county money for county roads to be repaired, and then at some point later, those roads will be fixed. However, they won't be repaying CalTrans for the Highway 101 lane and shoulder damage to surface from overweight vehicles, and residents/visitors/truckers will bear the hassle of waiting through the construction delays while Highway 101 is returned to pre-project condition - at state tax payers expense. There will be a second noise impact created due to the repair work which is not addressed in this EIR.

page 3.11-17
"In addition, the project includes the temporary operation of a concrete batch plant on Monument Ridge at the proposed project substation. Concrete batch plant activities would result in noise levels of 78 dBA Leq at 100 feet."

What is the proposed impact of this noise on the wildlife in the area? Bats sleep during the day when the batch plant would be running.

page 3.11-18
"Although the temporary off-ramp construction would exceed the County's short-term noise standard of 65 dBA Lmax at exterior areas at R-7, the standard is not applicable to contruction [sic] noise."

page 3.11-19
"However, as noted previously, the County's standard is not applicable to construction noise. Therefore, this impact would be less than significant."

Later the EIR points out that actually using this ramp would exceed the County noise limits **(page 3.1-22).**

page 3.11-19

"Construction activities would generate truck haul trips on area roads for delivery of WTG parts, construction equipment, and materials... each proposed WTG would require up to four nighttime heavy haul trips, which may require using detour routes. This analysis assumed a total of 45 nighttime trips in 1 hour for night-time heavy haul trips—30 support vehicles and 15 heavy trucks—for FHWA model inputs. Based on the number of trips, noise levels attributable to anticipated heavy haul truck traffic could be approximately 55 dBA Leq at a distance of 50 feet from the roadway centerline. Heavy haul trucks would have the potential to travel up to 50 feet from residences along the Singley Road detour route... predicted nighttime traffic noise levels from heavy haul trucks along the detour route could result in a noticeable increase (+3 to +5 dBA CNEL) at residential land uses along the designated route."

"Noise levels generated by temporary off-ramp construction... at Hookton Road, transmission line construction near the Bridgeville Substation, and heavy haul truck trips along detour roadways would result in a substantial increase (i.e., +5 dB) in ambient noise levels. Temporary off-ramp construction at Hookton Road and transmission line construction near the Bridgeville Substation also would exceed the County's land use compatibility exterior noise standard of 60 dBA CNEL."

However all of this is considered in the end to be "less than significant." I fail to see how they went from "over standards" in several places to "less than significant" and I think more information needs to be provided. The potential of noise affecting nearby residents is not limited to Singley Road, the entire community of Field's Landing has been left out, yet should be studied due to transport and delivery noise from barge, crane, transporter and other operations planned to go from 7 a.m. to 10 p.m.

page 3.11-20

The EIR says exceeding noise limits is less than significant, but agrees to mitigation measures which are again minimizations, not actual mitigation for the noise.

I am sure somewhere that adding all these regulations together might add up to this output, but from a "does it make sense in the real world" consideration, citizens are going to literally lose sleep during transport, may be kept awake by the turbines themselves and no turbines as big as the largest size they are proposing have ever been installed in the U.S., so there is no way to see a real world example.

page 3.11-22

Impact 3.11-3 Long-Term Increases in Project-Generated Noise. Project operation would introduce new long-term noise sources in the project area. Noise generated by substations and overhead transmission lines would not be anticipated to expose existing sensitive receptors to a permanent increase in noise levels that would exceed the applicable noise standards or result in a substantial increase in ambient noise levels. However, noise generated by wind turbine generators could expose existing sensitive receptors to a substantial permanent increase in

ambient noise levels. With respect to noise generated by substations and overhead transmission lines, and to long-term, low-frequency and infrasonic noise from operation of the wind turbine generators, this impact would be less than significant. With respect to long-term exterior noise generated by operation of the wind turbine generators, this impact would be potentially significant.

Wind turbines are noisy. This is not news. There is no real reason to wreck the redwoods with a low frequency hum or annoy the residents of Eel River Valley (Fortuna, Ferndale) or the Mattole (Petrolia) with noise that isn't there now.

page 3.11-23
"Low-Frequency and Infrasonic Noise As described above, a 'typical' spectral shape was assumed, based on data of other similar WTGs. Table 3.11-13 shows the differences between the A-weighted and C-weighted Leq noise levels, as calculated at each receptor location, assuming simultaneous operation of all 60 WTGs."

There are three uses of "spectral" in this section, all occur after this paragraph. I am unable to find the "as described above" for a shape assumption. The word "shape" searched in the document, yields pages 23 and 24, both at or after this paragraph.

There is not enough information to assess the process without a description or discussion of how this was calculated or why a spectral shape was assumed. It feels like the writer was interrupted at this point, and more information is needed to understand the intent.

With no particular WTG specified, it's impossible to know what shape would be typical anyway.

page 3.11-24
"Therefore, low-frequency noise from the WTGs is expected to be below any of the typical regulations or guidelines if the A-weighted sound level limits are achieved."

* There's a big "if" in there, since there is no faceplate information provided for any particular turbine and the turbines vary widely in noise production according the the American Wind Energy Association. Additional citations in of my comments on Section 3.7 Geology.

page 3.11-24
"Operation of wind turbine generators creates aerodynamic and mechanical noise. Aerodynamic noise is generated by the moving blades passing through the air, which may produce a buzzing, whooshing, pulsing, or sizzling sound, depending on the type of WTG and operating speed."

Again, no faceplate data, so no way to know which "type of WTG" is being considered, so what they do is analyze the worst one that existed when the report was created, which while it may be correct, we have no guarantee that it would be the one used, and the company spokesperson has said several times they want to use the biggest ones ever installed in the United States to

date. If they're the newest and the biggest, there's been no time to do the studies to know if they will be seismically safe, or their noise profile.

page 3.11-24
"The project would construct and operate up to 60 WTGs. This analysis was conducted using a WTG with a maximum sound power level of 110 dBA, which is the loudest, or worst-case, turbine that is expected to be used at the project site... Other WTG options range in sound power levels of 105–107 dBA. One-third octave band levels were unavailable for this WTG. Therefore, a "typical" spectral shape was assumed."

Note how the ambiguity of type only makes a 5dBA difference, but also that the one that they tested had incomplete data for certain sounds. As a scientist, I cringe reading assumptions based on data which includes a zero in any column. Because even if you have a very large number to begin with, multiplying by zero always makes zero. (e.g. 99 x 0 = 0) Thus utter lack of data in any part of an equation, renders the output of that equation null.

page 3.11-25
"... if all 60 WTGs were operating 24 hours a day, this could result in increases above ambient noise levels."

The intent is to generate electricity. There is no disadvantage to the developer to run less than 24/7, thus noise must be assumed to be a given.

page 3.11-26
"The long-term exterior noise impact associated with WTG operation would be potentially significant."

As someone who cares about preserving nature and not wrecking places that aren't wrecked already, the statement above is heartbreaking. From quiet paradise with the sounds of birds and wind rustling in the grasses and trees, to industry. And for amortized CO2 tradeoffs and Federal subsidies to the developers.

The only mitigation measure offered is to relocate farther from one of their testing points. Very practical from an engineering standpoint but the message is "wind turbines are loud, deal with it." After reading this section, the "no project alternative" choice became even stronger for me.

- Noise from transport/delivery/road transport was not analyzed at Fields Landing. This is required for analysis of potential marine mammals.

Remember that in Referencing Appendix I Biological Resources... Spotted Owls, Section 5.2, page 6 they called noise from chainsaws "low" and that from pickup trucks "moderate." With that kind of an error, all the DEIR noise analysis is questionable and should be redone.

Section 3.12 Traffic

Impact 3.12-1 Potential to Conflict with a Program, Plan, Ordinance, or Policy. The project would not substantially alter the total number of vehicle miles traveled in Humboldt County, as it is not considered to be a trip-generating land use type. The project would not conflict with a state or local transportation policy, including State CEQA Guidelines Section 15064. This impact would be less than significant.

On **page 3.12-19** the EIR stated "Construction activities would generate truck haul trips on area roads for delivery of WTG parts, construction equipment, and materials... The project would generate 29,250 trips over its 12- to 18-month duration, of which 9,673 would be heavy truck trips. The majority of these trips would occur on U.S. 101."

Yet here in **3.12-1**, it claims no impact, and no conflict with state or local transportation policy - however

- the project requires delivery vehicles which are too wide, too high, too heavy and too long for roads without special California permits
- 29,250 truck trips (assuming that's correctly calculated as delivery of components does not appear to be included in that figure as previously discussed) are significant, especially as 9,673 trips would be trucks too heavy for the roads without permit.
- I would assume keeping the roads in good condition is part of one of the policies cited, but the developers' offer to repair county roads damaged in transport/construction, while the primary road used will be Highway 101, would have significant impact. The residents/visitors/truckers in the county will be forced to live through multi-year bypass construction, transport, bypass removal, and repair road work on 101 at taxpayer expense.
- Repair of roads is partially funded by gasoline road tax, but if the gas isn't actually "pumped" in Humboldt County, the county won't get road taxes.
- Roads are already bad enough here, adding this kind of truck traffic to them is not "no impact."
- Finally I disagree that they are not a "trip-generating land use type" - as over 30,000 trips will take place concurrent with this project, that would not have happened without it.

That this is scheduled for 12 to 18 months does not render these impacts negligible.

Based on current rates of completion for example Route 36 at three years and counting, CalTrans and the County will be having turbine transport damaged roads repaired for years to come. This creates a secondary impact.

Impact 3.12-2 Creation of Hazards from Truck Traffic. A large number of trucks would transport loads over roadways that do not normally see a high volume of truck traffic. These trucks could exceed applicable standards for maximum vehicle width or exceed the width of

most travel lanes. Use of the roadway network by these oversized trucks would shorten the remaining useful life of roadway surface and could create hazardous road condition. This impact would be potentially significant. **Section 4.0 Cumulative impacts**

Electrical Grid & Generation

They did not mention that their generation of 155 MW (135 MW at Bridgeville) would "plug up the transmission grid" and not allow more generation without additions to grid. This could prevent large scale solar, and/or make the offshore wind test unable to be done without new transmission infrastructure. They do not seem to be aware of the offshore wind project currently under discussion.

Citing the Humboldt County Energy Element Background Technical Report, Prepared for: Redwood Coast Energy Authority by Schatz Energy Research Center, Humboldt State University, Principal Author: Jim Zoellick, July 2005. (http://humboldt-dspace.calstate.edu/bitstream/handle/2148/62/TECH%20REPORT%20FINAL%207_12_05.pdf?sequence=1)

"Although a new, more efficient power plant could potentially produce an excess of power for export from the Humboldt area, PG&E has specified that replacement generation be no more than 150 MW. Even though the existing Humboldt transmission system can support some export of electricity, PG&E claims it is typically undesirable to export electricity out of the Humboldt area because most of the export ends up in the Cottonwood area, and this area is resource rich and already faces congestion problems in exporting its resources." (pages 30-36) After discussing that use of wind and solar would require energy storage systems, the discussion concludes "...[L]ocal electrical generators... are critical to meeting local electricity needs." (page 72) Humboldt Bay Generating Station presently has 163 MW generating capacity. Total peak electrical demand in 2003 was 158 Megawatts (MW), about 0.3% of the state total (note that Humboldt County's population accounted for 0.4% of the state total)... Between 2005 and 2015, non-residential electrical consumption dropped from approximately 600 GWh in 2006 to roughly 430 GWh in 2015, an average annual decrease of -3.54 percent." (pages 3.171 and 2 from 3.17 Energy Consumption and Conservation (PDF).pdf & https://humboldtgov.org/DocumentCenter/View/58846/Section-317-Energy-Consumption-and-Conservation-Revised-DEIR-PDF).

Since the generators are capable of taking care of local needs, the remainder of the power is for export - and PG&E would prefer no more than 150 MW.

The point is, that if this project generates 155 MW at ridgetop and then gets 135MW at Bridgeville, there is no other available electrical line for the offshore wind to distribute the power from that less environmentally destructive project.

This onshore project would thus preclude offshore wind despite the latter being actively sought by our local Congressman, County and members of the general public. That is a pretty big cumulative impact that is not addressed in this document.

It also would seem to be in conflict with PG&E's stated desire for no increase in export to the Cottonwood area which already has a surplus of power as stated in the Humboldt County Energy Element Background Technical Report for the Humboldt County General Plan.

Changing Redwood Forest Microclimate
It is obvious that trees along Highway 101 suffer wind damage; it's not hard to extrapolate that these 600 foot tall 200 mph fans could change the fog layer over the Redwoods and have unexpected secondary impacts. Please see the cover of my comments for visualization of the down-wind effects on turbulence and airflow.

Logging
The DEIR does not mention the cumulative impact of the 500 plus acres of trees removed from the project footprint and the Gen-tie line. As these would be taken at same time as Humboldt Redwood Company continues normal logging operations - at least a couple of years would be way over the usual amount of timber removed.

Decommissioning
Insufficient information was provided about the decommissioning process to adequately assess any impacts or cumulative impacts from removing or rebuilding the turbines.

Section 5 - OTHER CEQA REQUIREMENTS

page 5-1 "Indirect growth inducement would result if, for instance, implementing a project resulted in any of the following: ... a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new temporary employment demand; or..."

page 5-2 "In the county, an estimated 1,930 people are employed in the construction trades, which is approximately 4 percent of the total employed workforce in all industries. Based on the pool of residents who are employed in the construction industry, project construction is not anticipated to induce substantial population growth. Furthermore, if workers from outside the region are employed for project construction, the temporary nature of the work would be unlikely to induce nonlocal workers to relocate permanently."

What they fail to address is the sudden introduction of 300 temporary workers into an area without empty housing, available RV parks and an existing homeless problem, as noted in the relevant section of my comments.

page 5-3 The DEIR states "Energy used during project construction would be expended in the form of electricity, gasoline, and diesel fuel, which would be used primarily by construction equipment, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site. No unusual project characteristics would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in other parts of the county. Therefore, fuel consumption during project construction is not expected to be more inefficient, wasteful, or unnecessary than fuel consumption at similar construction sites in the region." Here they acknowledge transportation fuel, which is not accounted for in the Greenhouse Gas section or the Transportation Section, but is also addressed in Noise.

My question on this is "what similar construction sites in the region?" I am unaware of any projects building 60 individual 600 foot tall structures, associated met towers and 25 miles of transmission line anywhere in the region. Please provide the sources on which this statement is based.

page 5-3 "The project would convert forestland and require the commitment of a small amount of grazing land. This conversion would represent a long-term commitment of land to another land use for the lifetime of the project (i.e., 30 years); however, it would not be irreversible because the project area could be restored to its preproject conditions and uses after decommissioning."

Since the forests to be removed along the Gen-tie have not been studied, it is impossible to know if they are mature or second growth. In either case, it will be a very long time before the mature forest capable of supporting marbled murrelets and spotted owls would return to it's "preproject conditions" for a very long time after decommissioning.

"The project would not result in irreversible damage from environmental accidents, such as an accidental spill or explosion of a hazardous material." That statement is unsupported. There are no crystal balls. One turbine nacelle can leak up to 400 gallons of oil, they catch on fire, the towers fall over. Accidents happen. There is no way that this statement can be taken at face value because it is not possible to predict for 30 years. If it were, I am certain the Titanic would not have sunk.

5.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

page 5-4 "Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures," of this DEIR presents a detailed analysis of all significant and potentially significant environmental impacts of the proposed project; identifies feasible mitigation measures, where available, that could avoid or reduce these impacts; and identifies whether these mitigation measures would reduce these impacts to less-than-significant levels."

While that is the intent of the usual Chapter 3 in a CEQA document, this DEIR's Chapter 3 doesn't do that. In addition to my specific comments about that section, there are multiple deferred plans which should have been submitted as mitigations which do not yet exist.

1) 3.2-2 Transportation Permit
2) 3.2-62 Grading and Erosion Control Plan
3) 3.5-80 Mortality Plan for Wildlife
4) 3.5-87 Preconstruction Eagle Nest Surveys
5) 3.5-101 Spotted Owl Habitat Map
6) 3.5-129 Habitat Assessment for potential bat roost sites
7) 3.5-151 Preconstruction survey for reptiles & amphibians
8) 3.5-159 Special Status Plant survey Spring & Summer 2019.
9) 3.5-1c Worker Environmental Awareness Program
10) 3.5-2c Marbled murrelet mitigation plan
11) 3.6-3b Site Protection Plan
12) 3.6-3c Reclamation Plan and Weed Control Plan
13) 3.7-2 Geology and Soils Reports and Investigations
14) 3.5-22c Eelgrass Monitoring Plan
15) 3.5-23a Preconstruction Botanical Surveys for Special-Status Plants.
16) 3.5-23e Reclamation, Revegetation and Weed Control Plan
17) 3.7-24 Wet Weather Operations Plan
18) 3.7-24 Timber Harvest Plan
19) 3.9 Hazard Materials Plan
20) 3.9-1 Soil Sampling and Testing
21) 3.9-2 Blasting Plan
22) 3.9-3 Safety Hazards
23) 3.9-4 Operations and Maintenance Plan
24) Historical American Survey Report
25) Emergency Plan for Operations
26) Construction Waste Management Plan
27) Conversion Permit
28) Vegetation Management Plan
29) Decommissioning Plan
30) 3.10-1 SWPPP
31) 3.10-1 Erosion Control Plan
32) 3.12-1 Transportation Route Plan
33) 3.12-1 Rehabilitation/Reconstruction of County Roads
34) 3.12-1 and 3.12-2 Traffic Control Plan
35) 3.12-1a Fire Services Financing Plan
36) 3.13-1b Fall Protection and Rescue Plan
37) 3.13-2a Fire Safety Management Plan

In each one of these cases, the DEIR says that the plan will be done at some point in the future. They should be in this DEIR or they are just putting off to the future what should be done for the public and the county to have sufficient information to make informed decisions.

In the case Sundstrom vs. County of Mendocino (1988 202 Cal. App. 3d 296), the courts ruled that studies cannot be deferred. "As to the condition of a future study, the appellate court held this was inappropriate: "By deferring environmental assessment to a future date, the conditions run counter to that policy of CEQA which requires environmental review at the earliest feasible stage in the planning process." (Sundstrom, supra, 202 Cal. App. 3d at p. 307.)
" Putting off thirty-seven (37) required documents seems to be a problem.

The significant and unavoidable impacts identified and acknowledged by the applicant in the DEIR are

SECTION 3.2, " AESTHETICS"
> Impact 3.2-1: Project Impacts on Scenic Vistas and Potential for Substantial Degradation of Existing Visual Character or Quality of Public Views of the Site and Surroundings
> Impact 3.2-3: New Source of Substantial Light or Glare that Would Adversely Affect Day or Nighttime Views in the Area

SECTION 3.4, " AIR QUALITY"
> Impact 3.4-1: Short-Term, Construction-Generated Emissions of ROG, NOX, and PM10

SECTION 3.5, " BIOLOGICAL RESOURCES"
> Impact 3.5-2: Operational Impacts on Marbled Murrelet
> Impact 3.5-11: Operational Impacts on Raptors

SECTION 3.6, " CULTURAL RESOURCES, INCLUDING TRIBAL CULTURAL RESOURCES"
> Impact 3.6-3: Change to the Significance of a Historical Resource
> Impact 3.6-4: Change to the Significance of a Tribal Cultural Resource

CUMULATIVE IMPACT AREAS
> Air Quality
> Biological Resources
> Cultural Resources, Including Tribal Cultural Resources

I agree with all the impacts stated above, however I disagree with their omission of certain Impacts which remain potentially significant because their mitigation methods are non-existent, minimization, procrastination, "if operationally feasible" and/or not particularly effective.

In the Biological Section, I think the following impacts remain potentially significant:

> Impact 3.5-1 Construction Impacts on Marbled Murrelet - with insufficient study so far (not two years) and a plan to log 25 to 27 miles of clearcut to Bridgeville without study, I think this impact is not reduced because the Gen-tie corridor was left out and logging and installation of electric lines certainly is construction.

> Impact 3.5-2: Operational Impacts on Marbled Murrelet (agree with DEIR)

> Impact 3.5-5: Operational Impacts on Bald and Golden Eagles: Because they are fully protected species, there is no way to get a permit to take any. Since their mathematical modeling shows that there will be take, I don't think this impact can be reduced to less than significant.

> Impact 3.5-7: Spotted Owls: There's no way to mitigate for 546.8 acres of impact in this DEIR. There may be ways to mitigate for that kind of impact, but it's not in this document. The use of "to the extent feasible" in this impact creates the same situation as it has elsewhere; making later changes to the process without public input.

> Impact 3.5-8: Operational Impacts on Northern Spotted Owls. Because less than two years of protocol level surveying was done; because of no survey in the Gen-tie corridor; and because mitigation methods for this species are at best minimization; and "as feasible", there is insufficient information to reduce this to less than significant.

> Impact 3.5-10 Removal and Modification of Special-Status Raptor Nesting and Foraging Habitat during Construction. In this impact, the full 862.1 acres of impacts are acknowledged. I do not see how this could be less than significant with nearly 900 acres of nearly simultaneous impacts - especially with their plans to work through winter when raptors flock to Humboldt.

> Impact 3.5-11: Operational Impacts on Raptors. Agree. This is significant. Fully protected species should be addressed as well.

> Impact 3.5-14: Operational Impacts on Nonraptor Birds. I do not think their mitigation measures reduce the impact to non-raptor birds, most particularly the condor. The California condor may be considered "experimental" in one sense, but it is still a Fully protected species under California law. Take permits are not available. There doesn't seem to be real mitigation for this measure, one of the four items presented is minimization; the others are paperwork and bureaucracy.

> Impact 3.5-18: Operational Impacts on Bats. Data flaws, too few sampling stations and they were too short to study the full 600 foot tall (and wide) area of rotor sweep. And because their mitigation measures are non-existent for several Species of Special Concern bats; because the mitigation for Townsend's bats creates secondary impact and is unproven; and for a multitude of other reasons stated in my comments. The phrase "while recognizing the operational needs of the facility" is used on page 3.5-136. It appears to mean that the blades

will turn regardless of the mortality. Section 3.5-129 Habitat Assessment for potential bat roost sites not done.

> **Impacts 3.5-19 and 20:** Daytime surveys missed nocturnal Ringtails, which are fully protected species. The studies were done too quickly to be sure than these impacts can be reduced, and the mitigation methods have difficulty as stated in my comments.

> **Impact 3.5-25: Wetlands:** I disagree for reasons stated in the section on Highway changes, most particularly at Hookton Slough and 12th Street proposed bypasses where bridged streams run under the bypasses which were not addressed in the DEIR.

> **Impact 3.5-27 Impacts on Nursery Sites:** I think this is still potentially significant due to the lack of Gen-tie and Highway 101 surveys result in insufficient data and lack of mitigation methods, as well as procrastinated bird and bat survey work. Taking away over 500 acres of forest which provides bat roosting is significant, and not really enough information is provided in the DEIR, nor real mitigation measures.

> **Impact 3.5-28: Inconsistency with the Humboldt Redwood Company Habitat Conservation Plan.** This is not mitigated in any way that I saw in the document. They propose to clear cut 25 to 27 miles for Gen-tie. At the same time Humboldt Redwood Company will continue logging operations. This is a cumulative impact - taking all these trees in one short time period. Winter operations leading to mass wasting on the steeper than 30% slopes mentioned in the Geology section has potential to foul the downstream waters of both Bear River and the Eel River from which Rio Dell draws its drinking water.

One only needs recall the Stafford Landslide to see why winter operations are not allowed in the HCP. "Pacific Lumber Co. has agreed to pay $3.3 million to the victims of a catastrophic mudslide on the steep slope of a clear-cut mountain that wiped out nearly half of the Humboldt County hamlet of Stafford. The mudslide, wide as a football field and 25 feet high, caught residents by surprise during a torrential rainstorm on Dec. 31, 1996, and Jan. 1, 1997. It destroyed seven houses. Pacific Lumber, Humboldt County's biggest employer, initially denied that its logging operation on the watershed above Stafford was the cause of the mudslide, but settled just as the trial was to have begun."
(https://www.sfgate.com/news/article/Pacific-Lumber-To-Pay-Millions-In-Landslide-Suit-2943883.php Eric Brazil, San Francisco Chronicle, March 9, 2001)

Additionally I think Impact 3.5-28 has potentially significant impact because they have announced their intention to violate the spirit and intent of an environmental law before starting construction. I think this shows the spirit and intent of the project is not to stay within the lines of CEQA - but to do whatever it takes to get this done in time for the subsidies and tax benefits to accrue to the investors.

I wonder about the situation and liability for Humboldt Redwoods Company leasing land to a tenant who has stated their intent to not abide by this lawful agreement.

The thirty-seven deferred or non-existent, but required, mitigation or coordination plans show a lack of applicant commitment to the inclusionary process of CEQA, as the intent to violate the HCP demonstrates lack of understanding of local geology, soils and weather conditions.

Impact 3.2-1 Project Impacts on Scenic Vistas and Potential for Substantial Degradation of Existing Visual Character or Quality of Public Views of the Site and Surroundings...This impact would be significant.

I agree this would be significant and unmitigatible. This section says that the blades contrast and create "visual distractive movement." I think this could be very dangerous if drivers became distracted and it will destroy the visual environment of a large part of the county. Especially at night with the red flashing lights where presently there is darkness.

Impact 3.2-4 Shadow Flicker.
I disagree with their conclusion of less than significant due to the outdoor nature of work and play in the county, no structures capable of blocking the view of 600 foot tall towers on top of the tallest point in the county, and many buildings with full wall of windows overlooking the project area. The DEIR only considers walls with small windows.

Impact 3.4-1 Short-Term, Construction-Generated Emissions of ROG, NOX, and PM10. Short-term, construction- generated emissions would exceed NCUAQMD's significance threshold for NOX. This impact would be significant." I think it will be more significant than they said because they failed to include fossil fuels for subcontractors, equipment transport and logging as discussed in my comments.

Impacts in section 3.8 Greenhouse Gases
As discussed earlier in the comments, the modeling assumptions are flawed, and all impacts need to be reconsidered.

Impacts in section 3.9, 3.10, 3.11 and 3.12 were discussed in the foregoing, with the most important comment that they have not secured construction water and that many of their conclusions disagree with data presented.

6.0 ALTERNATIVES

"If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives." (CCR 15126.6)
• Not always clear if there is one environmentally superior alternative; sometimes there are environmental tradeoffs

Impacts from the Biological Section

Humboldt Wind Energy Project Draft EIR Biological Resources 3.5- pages 89 to 190 Humboldt County

BIRDS

IMPACT 3.5-1	**Construction Impacts on Marbled Murrelet Nesting.** *Construction of the proposed project could affect the success of marbled murrelet nesting activity if construction activity were to cause disturbance at the nest, thereby reducing productivity. This impact would be potentially significant.*
IMPACT 3.5-2	**Operational Impacts on Marbled Murrelet.** *Operation of the proposed project could result in injury to and mortality of marbled murrelet, as a result of collisions with project components such as wind turbine generators and the gen-tie. This impact would be potentially significant.*
IMPACT 3.5-3	**Construction Impacts on Bald and Golden Eagle Nesting Activity.** *Construction of the proposed project could affect bald and golden eagle nest success if active nests were directly affected, or if construction activity were to disturb nest sites, thereby reducing adults' nest attentiveness and nest productivity. This impact would be* **potentially significant.**
IMPACT 3.5-4	**Construction Impacts on Bald and Golden Eagle Foraging and Nesting Habitat.** *Construction of the proposed project could remove or degrade the quality of* **suitable** *bald and golden eagle foraging habitat. This impact would be* **less than significant.**
IMPACT 3.5-5	**Operational Impacts on Bald and Golden Eagles.** *Operation of the WTGs would pose a risk of collision to bald and golden eagles. This impact would be potentially significant.*
IMPACT 3.5-6	**Disturbance of Roosting and Nesting Northern Spotted Owls by Construction Activities.** *Project construction noise and activities could increase stress levels in owls during daytime roosting/nesting periods, potentially leading to nest abandonment. This impact would be potentially significant.*
IMPACT 3.5-7	**Removal, Fragmentation, and Modification of Northern Spotted Owl Habitat during Construction.** *Construction of access roads, the gen-tie, and other project facilities would result in disturbance to approximately 516.8 acres of forested northern spotted owl habitat (approximately 457.1 acres of temporary impact and 99.7 acres of permanent impact). This impact would be potentially significant.*
IMPACT 3.5-8	**Operational Impacts on Northern Spotted Owls.** *Northern spotted owls that cross the roadways in the wind turbine generator zone as a matter of foraging habit, or during dispersal by young birds, have the potential to collide with WTG blades. This impact would be potentially significant.*
IMPACT 3.5-9	**Construction Impacts on Nesting Raptors.** *Project construction could directly or indirectly affect the nesting success of raptors. This impact would be potentially significant.*
IMPACT 3.5-10	**Removal and Modification of Special-Status Raptor Nesting and Foraging Habitat during Construction.** *Construction of* **access roads, the gen-tie, and other** *project facilities* **would result in up to approximately 662.1 acres of impacts (approximately 779.5 acres of temporary** *impacts* **and 132.6 acres of permanent** *impacts) on potential nesting and foraging habitat for special-status raptor species. This impact would be less than significant.**
IMPACT 3.5-11	**Operational Impacts on Raptors.** *Operation of the proposed project could result in mortality of and injury to raptors, as a result of collisions with wind turbine generators and electrical transmission lines. This impact would be potentially significant.*
IMPACT 3.5-12	**Construction Impacts on Avian Foraging and Nesting Habitat.** *Construction activities associated with installation of proposed project infrastructure, including wind turbine generators and pads, the substation, the O&M facility, and the gen-tie, resulting in removal of forest, woodland, grassland, and riparian habitat would result in loss of avian nesting, foraging, and migratory stopover habitat for special-status birds. This impact would be potentially significant.*
IMPACT 3.5-13	**Construction Impacts on Nesting Birds.** *Construction of the proposed project could affect avian nest success if active nests were to be directly affected or if construction activity were to cause disturbance at nest sites, thereby reducing adults' nest attentiveness and nest productivity. This impact would be potentially significant.*
IMPACT 3.5-14	**Operational Impacts on Nonraptor Birds.** *Operation of the proposed project could result in mortality of and injury to nonraptor birds, as birds could collide with or be electrocuted by project components such as wind turbine generators and electrical transmission lines. This impact would be potentially significant.*

BATS

IMPACT 3.5-15	**Construction Impacts on Bat Maternity Roosts or Hibernacula and Loss of Essential Roost Habitat.** *Construction of the proposed project could result in mortality of and injury to bats, including special-status species, and removal of essential bat roost habitat. This impact would be potentially significant.*
IMPACT 3.5-16	**Construction Disturbance of Bachelor Groups, Migratory Roosts, or Solitary Bats.** *Construction of the proposed project could result in mortality, displacement, and disturbance of bachelor groups, migrating bats, or solitary bats, including special-status species. This impact would be* **less than significant.**
IMPACT 3.5-18	**Operational Impacts on Bats.** *Operation of the proposed project could result in mortality of and injury to a large number of bats, including special-status bat species, as a result of interaction with wind turbine generators. This impact would be potentially significant.*

MAMMALS

IMPACT 3.5-19	**Construction Impacts on Special-Status Mammals.** *Grading and clearing activities, and equipment operations associated with installation of staging areas, construction of access roads, installation of components, and other activities associated with construction of the proposed project would result in loss of habitat for and disturbance of special-status wildlife, subjecting the potential for direct mortality and injury. This impact would be potentially significant.*
IMPACT 3.5-20	**Operational Impacts on Special-Status Mammals.** *The potential exists for special-status mammals present in the project area during project operation to be struck by vehicles. However, this impact would be* **less than significant.**

REPTILES & AMPHIBIANS

IMPACT 3.5-21	**Construction Impacts on Special-Status Amphibians and Reptiles.** *Grading, clearing, horizontal directional drilling, and other activities associated with project construction could result in direct and indirect impacts on special-status amphibian and reptile species and their habitat. This impact would be potentially significant.*

FISH

IMPACT 3.5-22	**Impacts of Project Construction on Special-Status Fish.** *Grading, clearing, horizontal directional drilling, and other activities associated with project construction could result in indirect impacts on special-status fish species and their habitat from project runoff and sedimentation. This impact would be potentially significant.*

PLANTS

IMPACT 3.5-23	**Impacts on Special-Status Plants during Project Construction and Operation.** *Grading, clearing, and other activities associated with construction and operation of the proposed project would result in loss and disturbance of special-status plant species present in the project footprint. This impact would be* **potentially significant.**

HABITAT

IMPACT 3.5-24	**Loss or Disturbance of Sensitive Natural Communities and Riparian Habitat.** *Grading, clearing, and other activities associated with construction and operation of the proposed project would result in substantial loss and disturbance of sensitive natural communities and riparian habitat. This impact would be* **potentially significant.**

WETLANDS

IMPACT 3.5-25	**Disturbance and Loss of Wetlands and Other Waters during Project Construction.** *Grading, clearing, and other activities associated with construction and operation of the proposed project would result in disturbance and loss of wetlands and other waters. This impact would be potentially significant.*

Migratory Corridors & Nursery Sites

IMPACT 3.5-26	**Impacts on Migratory Corridors during Project Construction and Operation.** *Construction of the proposed project would result in the loss of relatively small amounts of land area, such that the project site would remain largely undeveloped. Project infrastructure would not impede movement by birds, bats, and terrestrial wildlife, and project operation would consist of activities that are similar to other land uses in the area. This impact would be* **less than significant.**
IMPACT 3.5-27	**Impacts on Nursery Sites.** *Construction of the proposed project would avoid colonial bird-nesting sites (rookeries), and would avoid and minimize impacts on bat nursery roost sites. The project site would remain largely undeveloped, and project operation would not result in additional impacts on suitable nursery sites. This impact would be* **less than significant.**

Inconsistent with Humboldt Redwood HCP

IMPACT 3.5-28	**Potential Inconsistency with the Humboldt Redwood Company Habitat Conservation Plan.** *The period for the first project construction phase is inconsistent with the provisions of the Humboldt Redwood Company HCP. This impact would be* **potentially significant.**

• What if the proposed project is environmentally superior to all alternatives but the 'no project' alternative?– Include a table that shows each issue, the relative environmental impacts, and how they compare to the project."

In this case, the DEIR concludes that "no Project" is the environmentally superior alternative.

By CEQA rules they then select the next least damaging alternative from their list. However, their alternatives analysis is flawed because large parts of the project - and alternatives to parts of the project - have not been discussed.

First and foremost, they have never defined the type of turbine. There's a hand drawn diagram of a tugboat back in the appendices, but not once, do they say How Big, How Tall, Made by Whom, Base Diameter, and so on. The county is being asked to approve a project without sufficient information. The visuals in Aesthetics are not 600 feet tall; their bases are not as wide as the bases needed to hold up 600 foot tall turbines.

They have put off or deferred to later at least thirty-seven (37) plans, documents, maps and other materials mentioned in the DEIR but not finished or included with this document, but which should be to permit agency and public comment as part of the CEQA process.

Experts and agency comments from the early rounds of DEIR preparation were either overlooked or ignored including requests for two years of protocol level surveys, reviewing adjacent lands to address all relevant environmental resources, robust alternatives analysis, two years of radar surveys for the murellet, viewsheds for public parks and so on.

They did not look at other ridges in the county area. Schoolhouse Ridge has similar wind and is closer to Bridgeville but was unexamined.

They do not have to cut 25 linear miles of trees to get a Gen-tie line to Bridgeville. When Shell Oil proposed a similar project, they were going to tie into Rio Dell substation - much closer to the project site. Despite citing project materials from the Shell documents, this alternative was not addressed.

They have no alternative source of construction water since Scotia cannot legally provide it. They have no alternative source of water for their temporary workers since the aquifer they're tapping for the permanent workers cannot provide that amount of water - let alone add the concrete and dust water.

All alternatives will impact or take California State Fully Protected Species including: Brown Pelican (Pelecanus occidentalis californicus), Golden Eagle (Aquila chrysaetos), Bald eagle (Haliaeetus leucocephalus), White-tailed kite (Elanus leucurus), American peregrine falcon (Falco peregrinus anatum), Ring-tailed cat (Bassariscus astutus), and the California condor (Gymnogyps californianus). "Fully Protected species may not be taken or possessed at any

time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock." (https://www.dfg.ca.gov/wildlife/nongame/t_e_spp/fully_pro.html) The project affects the reintroduction zone for the California Condor by the Yurok tribe. (https://www.yuroktribe.org/departments/selfgovern/wildlife_program/condor/condorproject.htm) (page 3.6-41)

CONCLUSION REVIEW

While I realize the foregoing is long, I would like to review some of the salient points.

LEFT OUT OF DEIR

* No exact faceplate information for turbines - no ability to assess risk or noise. Different turbines behave and fail differently.

* No exact locations/footprints for turbines. No way to judge actual localized effects. (page 3.7-16)

* No statement of the amount of fuel to be used to deliver turbine components. (3.1.6 Energy, page 3-13) Construction fuel is shown on a table and discussed, but transport fuel is omitted (3.1.6 Energy, page 3-13) and cannot be part of the total as the types of vehicles which use it are not shown on the tables.

* No Eelgrass survey. Old data from an agency on the only map they provide. (Figure 3.5-4 and page 3.5-171)

* No modeling of view or air quality from Humboldt Redwoods State Park. (page 3.2-1) State parks, and special natural zones within the park, should be added to EIR Figure 1, at present the name of the park is half cut off by the lower boundary of the map.

* No mention of 50-year old trees and landscaping (rhododendrons and azaleas) along 101 at Loleta Drive and other ramps - just "trees and vegetation to be cleared." Obviously they won't grow back over the 30-year project life span.

* No protocol level surveys for Spotted Owls. (Section 3.5b)

* No Timber Harvest Plan for the 100 foot-wide by up to 25-mile Gen-Tie corridor 300 plus acre clear cut.

* No accounting for delivery of the lift or erection cranes - by land or water, these also take 25 truckloads in specialized vehicles and trips to deliver. (North American Windpower, October

2013,
https://edgarcountywatchdogs.com/wp-content/uploads/2014/07/evaluation-of-Apex-decommissioning-All.pdf)

* No delivery or arrival method for cranes and other construction equipment: sea or land? How much fossil fuel?

* No mention or studies of delivery effects on marine mammals or bald eagles, night herons, bats or other wildlife in the harbor and port.

* Lack of or insufficient studies of night lighting and noise during construction at Fields Landing, Jordan Creek staging area or on ridgetop footprint. Lights for night operations could impact birds, bats, marine mammals, and local residents but are not mentioned in the EIR. They plan to work to 10 p.m. and sunset can be as early as 3 p.m. in winter.

* No discussion of transport effects on residents in Fields Landing, Shively, Fernbridge, Fortuna, Rio Dell and Scotia, as well as unnamed communities along the delivery route; instead all were dismissed as the occasional house on a large lot, and not addressed as an impact.

* No listing of all bridges, overpasses, underpasses and grade crossings on Highway 101 which would be affected by transport and construction. Only some bypasses are given statements of need, some bridges to be gone over are of the same weight restrictions as bridge/s to bypass. The absence of a complete list does not give confidence that all obstacles to progress were adequately considered.

* No clue how long it will take to repair Highway 101 after the active transport phase. Bypasses go in and out, but then 101 itself will need repairs to right lane and shoulder from Fields Landing to Jordan Creek. This secondary impact is unaddressed in the EIR.

* No discussion of replacement supplies or components delivery methods or route changes.

* No decommissioning data. Just worry about that in 30 years, ktxbai.

* No description of unloaded truck route compatibility from Jordan Creek to Fields Landing. This might have been overlooked, but the heights of some of the bridges and overpasses are not the same going north as south. Since they were not discussed, it's impossible to tell if they are immaterial, were forgotten, or overlooked. The confusion of road names and exits in the document does not give great confidence for quality control.

* No discussion of the effect on potential down-wind sites other than in technical discussion of the effect of drafting on other wind turbines in the array. (Standard E-S3, Item B, Humboldt County Plan, page 3.2-29) At risk is Humboldt Redwoods State Park and the timber holdings of Humboldt Redwood Company. See the cover of this report for the effect of turbines on airflow.

TEMPORARY WORKERS

* The number of temporary and permanent workers changes throughout the document. Assume 15 permanent and 300 or more temporary.

* The document assumes in one section that the county can absorb 300 specialized imported workers with housing and food, but that their arrival and departure will have no impact on the area. (3.1.2 Population and Housing) A few sections later, it claims all 300 workers will be local and there will be therefore no impact. (3.1.5 Public Services) It can't be both ways.

* Potable water for temporary workers is not mentioned. They would have a 20-fold-increase on the water demands than the 15 permanent workers at the water consumption rates given. (3.1.3 Utilities, Water Supply)

* Temporary worker wastes are never mentioned. (3.1.3 Utilities, Wastewater)

MAINTENANCE

* No discussion of blade replacement other than by TerraGen spokesperson. Blades last 25 years, the project decommissions in 30. At least one blade replacement set per turbine (60x3 = 180) will be required over the life of the project and others may be required if blades fail. https://www.enr.com/articles/42352-are-four-wind-turbine-failures-in-five-weeks-too-many-for-nextera-energy That they all need to be replaced by 25 years, and that is not mentioned in the EIR creates secondary impacts from the project and more deferred mitigation.

* Road suitability for removal of components. Overlooked and unmentioned industry standard blade and component replacement over the 30 year life of the project. The effects of decommissioning are put off to 30 years in the future.

* Regular annual oil changes for each turbine were not really discussed in more than passing in this EIR. I learned that by reading about turbines from industry sites and videos https://www.youtube.com/watch?v=frYuXLTrM6w This process is automated and can cause no problems until the first time it does, at risk is 400 gallons of oil per turbine times 60 turbines each year, 24,000 gallons a year of maintenance oil.

* Gen-tie line maintenance would include herbicide use as would perimeter maintenance around other temporary and permanent facilities.

* Operational 4,000 pounds a week (0.28 ton/day) solid waste. That's factory level debris, not clean energy. (3.1.3 Utilities, Dry Waste)

PERMANENT physical effects

* Concrete turbine pads and surrounding compaction zone (350x350 foot times 60) are permanent.

* Ten acre staging area scar from batch plant.

* Scars from 40 foot to 200 foot wide access roads, later regraded to 25 feet.

* Logged off bypasses on Highway 101. Mature trees and habitat from Fields Landing to Jordan Creek will be cleared or trimmed wherever it gets in the way. No surveys for animals or plants on the route to be cleared.

* Visible from Humboldt Redwoods State Park on the Thornton Multi-Use Trail, the Peavine Multi-Use Trail, The Peavine Ridge Spur at Prairie Road, parts of the Grasshopper Trail and Grasshopper Peak, all within the park areas of special natural significance.

* Towers and blinking red lights in line-of-sight will affect views from Fields Landing to Scotia. (figure 3.2-10 and figure 3.2-4) The EIR calls this potentially significant. (Impact 3.2-1, page 3.2-33)

* Light pollution (pages 3.2-26, 3.2-27, 3.2-63 & 3.2-64) Shadow flicker is dismissed because there's more walls than windows (page 3.2-65) like no one works outside and tourists stay in houses.

* Seventeen miles of new 24-foot access roads closed to all but as needed workers for 30 years. If you're going to build 24-foot wide, perfectly paved roads, seriously, build them where they do some good for more than 15 permanent workers and a bunch of lizards. Seventeen miles would fix half the Wildcat-Mattole Road, leading to less greenhouse gas emissions while everyone creeps around the monster potholes at 10 mph.

* Conflicts with Humboldt County General Plan sections:
CO-G1 (page 3.2-28+), Standard SR-G1 (page 3.2-28+), Policy SR-P1 (page 3.2-28+), Standard SR-S2 (page 3.2-28+), Standard SR-S4 (page 3.2-28+), Standard E-S3, Item B (page 3.2-28+), Policy AG-P6 (page 3.3-8), Policy FR-P8 (page 3.3-9), Policy AQ-P9 (page 3.8-19), Policy AQ-P11 (page 3.8-19), Policy AQ-P17 (pages 3.8-19 & 20), Standard AQ-S6 (pages 3.8-19 & 20), Implementation Measure E-IM5 (page 3.8-20). There may be other conflicts with the Humboldt County Plan elements in the EIR besides these which were obvious.

SLUMPS, SLIDES, FIRES, FAILURES and COLLAPSES

*The EIR identifies steep slopes and unstable soils throughout the construction footprint. Cutting all the trees on the access roads in fall 2019 may result in landslides in rainy season.

* Out of area workers and oversized vehicles may cause grass or forest fires. One flicked cigarette, dragged chain or sparking electrical wire and this could be Paradise repeated.

* Wind turbines catch fire. Others have fallen down. Some have done both. Blades break and fall off. The risks of these events in a rural fire-prone area are greater than the EIR implies.

* According to the wind energy industry advocacy group, wind turbine fires represent 10 to 30 percent of reported wind turbine accidents. No agency in Humboldt is equipped or able to fight a fire on a 50-story structure.

* 10 foot deep circular foundations, up to and over 50 stories high in a seismically active (to 7.2 known magnitude) and fire-prone region in unstable soils on slopes to 10 percent. Major earthquakes on less than 20 year average separation. What could possibly go wrong?

WEATHER

* It is unlikely they can stay on schedule with a winter construction season. Even Humboldt Redwood slows or stops in season and these are the same lands and same tasks. The EIR states they would continue to log and work in winter, which is not permitted under the Humboldt Redwoods HCP. (page 3.5-187)

* Winter also influences the ability to ship over the bar into Humboldt Bay but no mention of adverse weather slowing or impeding the goal to finish by December 2020 (one full and one half winter seasons) is not mentioned.

PUBLIC SAFETY

* Local first responders have no experience in high-angle rescue or fire-fighting at 500 plus feet.

* Damages to the right lane and shoulder of Highway 101 would put CHP and motorists at daily risk from uneven surfaces and rock throw until the Highway was repaired - at least 18 months later plus the time to actually fix it (Hwy 36 is 3 years so far). This is an unaddressed secondary impact.

DATA MODELING

* The proposal suggests the tallest wind turbines in the US, so new that study data is not available for seismic risk and noise, plus no one knows how they'll perform once installed because there aren't any in North America yet. No data means modeling is not applicable.
* Modeling on animal species was damaged by incomplete data and unsupported assumptions.

CONFUSING ALTERNATIVES

* Many alternatives are presented, however EIR does not provide breakouts of differences in Greenhouse Gas emissions or fossil fuels required to build the different foot-prints. In only one example: Riparian studies were not done at the Eel because they claim drilling underneath it would have no effect, however they have to have a staging area for bentonite containment materials and access somewhere. I don't see that they accounted for riparian habitat issues should they have to go over the Eel. Other examples abound. It is not possible to make a "better" choice based on the lack of input data for the alternatives.

WILDLIFE IMPACTS

Incorporate into this summary all foregoing statements about wildlife, with the following specific comments

- Project is in known Marbled Murrelet flyway. The Marbled Murrelet was the catalyst for the Headwaters Deal and important to the Humboldt Redwoods Habitat Conservation Plan. Clearcut Gen-tie will open 25 miles of forest to raven predation. Mitigation suggested to reduce corvids has been implemented in other locations, but hasn't stabilized or increased murrelet populations. (page 3.5-78) A failed mitigation method is not mitigation. USFWS murrelet recovery guidelines were not followed or cited in the EIR. (page 3.5-78) Marbled murrelet impact stated to be "significant and unavoidable." (page 3.5-85)

- There are 33,213 acres of spotted owl habitat within 0.7 miles of this project. (page 3.5-93) No data on how spotted owls do with turbines, this would be a first in habitat.
- Turbine noise in the State Park and project footprint area with unknown effect on Townsend's long-eared bats, Spotted Owls and other wildlife.

- Models predict 300 dead birds a year, up to 114 raptors, up to 5% special status raptors (Cooper's hawk, sharp-shinned hawk, burrowing owl, ferruginous hawk, and northern harrier). (pages 3.5-109 & 110)

- Plans will impact or take California State Fully Protected Species including: Brown Pelican (Pelecanus occidentalis californicus), Golden Eagle (Aquila chrysaetos), Bald eagle (Haliaeetus leucocephalus), White-tailed kite (Elanus leucurus), American peregrine falcon (Falco peregrinus anatum), Ring-tailed cat (Bassariscus astutus), and the California condor (Gymnogyps californianus). "Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock."
(https://www.dfg.ca.gov/wildlife/nongame/t_e_spp/fully_pro.html)

- *Project affects the reintroduction zone for the California Condor by the Yurok tribe.
(https://www.yuroktribe.org/departments/selfgovern/wildlife_program/condor/condorproject.htm)
(page 3.6-41)

CARBON DIOXIDE

*The amount of fuel stated is too low, thus the CO2 emitted in the first two years will be higher than stated. It's not going to really help the atmosphere or stop global warming at all.

*The calculations are incomplete; they omit the fossil fuel used in transportation and by subcontractors. (3.1.6 Energy, page 3-13) The only diesel fuel listed is for turbine construction and does not include water/fuel delivery, logging or component transport into the harbor, fuel for log trucks, chainsaws, specialized transport vehicles, pace cars, garbage trucks and so on.

*The EIR regularly omits the effects of subcontractors and their equipment. Simply buying services from someone else does not relieve the applicant of accounting for the effects.

*The EIR brushes off the loss of trees - carbon dioxide sinks - to be removed for the GenTie and other construction as "they would have been cut anyway" under the Humboldt Redwoods HCP. Mitigation measure proposed for murrelets - thinning canopies - would also remove carbon sinks. (page 3.5-84) The loss of the forest Carbon capacity and the amount of carbon released by disturbing 3 million cubic feet of dirt should be added to the equation.

* The calculations are amortized over 25 years. The reality is most of the CO2 will be released in the first 1.5 years by TerraGen and over an unknown amount of time by the state to repair 101 afterwards.

* By the time the equality of their 25-year-amortization equation kicks in, the 12-years-to-crisis point will be a six months in the past.

SPEED is not always ACCURACY

* The EIR was prepared in a hurry (Natalynne DeLapp, public comm. 2019). The natural areas studies are incomplete. The applicant wants subsidies for building these by December 2020. If anything is in the way, the plan calls for "clearcut, flatten and pave" with a rather "full speed ahead" gusto that suggests a fairly hefty payout awaits successful conclusion and that the laws and agreements here do not matter if they get in the way of the almighty dollar. One only has to see the hasty errors in section after section of the EIR to know the speed at which the work will be performed.

* "Finch Creek" exit as stated is actually Fernbridge exit. The number of workers changes. Some things are included in tables, and mentioned in the text, then forgotten in the mitigation. The name of the state park is cut off on Figure 1. The same figures are presented twice in Aesthetics. First it's ten species of bats, then 12, then back to 10 and finally they forgot to mention two of three species of special concern. The report looks and reads as if it were prepared at full speed and it lacks a full two years of species data.

* "Google Earth" was used to model old growth and mature trees. (page 3.5-79) LOL.

* There simply isn't time to prepare final engineering drawings, and all the other documents that go with them - and study the environment prior to doing final engineering - simultaneously. But that is what is going to happen starting in September 2019 according to this EIR.

* The various project alternatives proposed for consideration are not separately modeled or described in the text. It is impossible to determine the best alternatives other than "no project" without being able to know the impacts, mitigation and results which would change based on the various alternatives.

MITIGATION is not intended to be MINIMIZATION

* Wind farms kill flying things. No one disputes this. Thirty years of wind farms have wiped out so many birds and bats that it's obviously an impact. And no, cats don't kill condors, bald eagles, golden eagles, or many of the other species at risk. But wind farms do. What is not stated is any proactive effort to do things to benefit species. Three of the four bat species of special concern are mentioned once, and never mentioned again. (pages 3.5 - 128 +, page 3.5-134-136) No discussion about effects and no effort to mitigate for them.

* Wind farms are known to harm whole species. The EIR states that with no new generation capacity, existing wind farms will drive the Hoary Bat to extinction by 2050. (page 3.5-134) We are a hotspot for Hoary Bats - perhaps one of the most significant parts of its range and will kill bats as stated in the EIR. I do not know how any "mitigation" is possible after realizing that new wind farms will hasten this species to extinction in an area which is known by their own survey work to host this species. Money won't bring back the dead. Tourists don't come here to see dead things.

* Wind farms kill large, expensive flying things. Millions if not billions of tax payer dollars have been spent to save Bald Eagles, Golden Eagles, Condors, marbled murrelets, horned larks, and other interesting and special species which the EIR says will be killed and then offers some feeble minimization strategies, including trash can lids for Van Duzen County Park and discussions with the county of how to kill less, maybe.

* The mitigation sections are very weak. There is no habitat being purchased upfront, only an offer of purchases or conservation easements - if - problems occur - and even that discussion won't start for a year or two after electricity is being produced.

* Spotted owls use old growth and mature trees. The EIR states that some loss from project is "temporary" and will be revegetated for the owls. It will take more than our lifetimes for those trees to mature - there is no possible way that the 546.8 acres will only be temporarily affected. (Impact 3.5-7, page 3.5-100)

* Data and mitigation omissions are frequent and curious. Species - even those of special concern - are shown on tables, or introduced, but then never mentioned in mitigation. Subsequently a conclusion is offered that the proposed mitigation measures will benefit everything and that replacement birds can be "created" by post-mortem meetings and trash can lids in a state park. Such is obviously not possible. Specific examples of this are listed in my comments on Section 3.5b.

They have not yet demonstrated good neighborly behavior by running heavy trucks up Monument Road after assuring the City of Rio Dell that they would not; and by assuming they could take Scotia's log pond water with heavy trucks, all day every day for a year and a half. Stating their intention to violate the Humboldt Redwoods HCP also shows a lack of neighborly intent.

Last and certainly not least,

* There is no way to get a take permit for California Fully Protected Species - including the California Condor - except for research or livestock protection. This project is neither, and this is not discussed in the EIR. If it is illegal for an individual to take a member of a Fully Protected Species then by current U.S. law, it is equally illegal for a corporation. I request the California Department of Fish and Game to enforce their laws equally on corporations and individuals (https://www.npr.org/2014/07/28/335288388/when-did-companies-become-people-excavating-the-legal-evolution).

GOOD NEIGHBORS

They have not yet demonstrated good neighborly behavior by running heavy trucks up Monument Road after assuring the City of Rio Dell that they would not; and by assuming they could take Scotia's log pond water with heavy trucks, all day every day for a year and a half. Stating their intention to violate the Humboldt Redwoods HCP also shows a lack of neighborly intent.

CONCLUSION

"As described in the EIR many of these impacts can be fully mitigated but some cannot, and they would remain significant and unavoidable." Many of the impacts are initially tagged "potentially significant." Mitigations offered range from discussions to conservation easements - which do not make up for the lost of around two square miles of habitat, with linear effects over a minimum of 25 miles. Despite the EIR lessening impacts to "less than significant," in many cases - as noted - I disagree with their conclusions.

Most significantly, I disagree with how the CO2 and other greenhouse gas emissions are calculated and applied as "offsets."
The CO2 calculations are amortized over 25 years. The world has 12 years to change. This project is entirely built with fossil fuels which will be emitted into the atmosphere in the first two years. Amortization doesn't change the basic concept that this will be worse for the planet not better because it will take 12.5 years to offset half the carbon emissions that went up in the first two years. By that time, our 12 years is up.

Therefore, this project fails the project goal for reducing greenhouse gas emissions, because it does not account for them entering the atmosphere until years after they were emitted. It is not a "reduction" at all since additional fossil fuels would be burned here which would not be burned if this project did not occur.

There are at least two places where the applicant discusses plans to knowingly violate existing laws and agreements. (1) Plans to ignore the Humboldt Redwoods HCP regarding winter work, and (2) Plans to take California Fully Protected species for which no permits or licenses are available.

Many places in the document provide incomplete or conflicting information. This is merely a list of a few of the points noted in my comments:

- The biological data in the appendixes is good, but they studied less than the required two years for protocol level studies.
- Fields Landing aquatic and terrestrial biomes are unstudied.
- No Eelgrass survey, map data old and inaccurate by their own text.
- Except for one brief mention, fully protected species are not discussed; for these no permits can be issued for take.
- The number of workers and whether they are local or temporary from elsewhere is stated both ways - neither is supposed to be significant.
- Noise, air quality and/or greenhouse gas sections mention transportation vehicles and trips that are unmentioned in 2.0 Scope and which appear to have been left out of the CO2 calculations. These omitted vehicles could double the fossil fuel cost.

There are too many omissions and changing facts in this document to fully understand the scope, impacts and effects of the project.

"CEQA also requires that each public agency avoid or mitigate to less-than-significant levels, wherever feasible, the significant environmental effects of projects it approves or implements. If a project would result in significant and unavoidable environmental impacts that cannot be feasibly mitigated to less-than-significant levels, the project can still be approved, but the lead agency's decision makers must issue a statement of overriding considerations explaining in writing the specific economic, social, or other considerations that they believe make those significant effects acceptable."

I do not believe they have mitigated to less-than-significant levels of impact and I do not believe there are grounds for a statement of overriding considerations to be issued.

I do not think this project is the only way to replace Carbon Dioxide, especially with the method of spreading out the CO2 over 25 years to "offset" its carbon. With the known and predictable losses to wildlife and habitat, I do not think this project provides "environmentally safe power" or that it is a good fit for the county. For these and all the reasons stated in the body of my comments, I firmly support the "no project" alternative.