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From: wring123@gmail.com
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Attachments: DEIR Comment Nordic.doc

Please see attached comment. Thanks.

Wendy Ring

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I think this project has some merits but

ENERGY

The Nordic AquaFarms project will increase the county's electricity load by 24%. In a county whose actual electricity is generated by natural gas and biomass power plants, this would significantly increase greenhouse gas emissions. The DEIR bases its claim of no significant impact on RCEA's RePower Plan which was developed to meet a projected electricity demand which did not include the fish farm, CalPoly, or new data centers attracted by the trans-Pacific fiberoptic cable. There are more reasons why leaning on RCEA's plan is unacceptable.

When evaluating the emission impact of increased electricity demand, the appropriate metric to use is the marginal emission factor, the additional carbon emitted to meet that electricity demand **where and when it occurs** (Mandel, 2016, Watt Time, 2021). The carbon intensity of Humboldt's PGE natural gas plant is 1129 lb CO₂e/MWh, more than double the California average, and the carbon intensity of the biomass plant (based on emissions reported to NCUAGMD) is 6018 lb CO₂e/Mwh or 12 times the California average. While biomass is currently considered renewable, on a timescale meaningful to addressing the climate crisis it emits more carbon than coal. Combustion of either fuel will increase local greenhouse gas emissions.

It is very likely that without substantial mitigation, more fuel combustion would be necessary. RCEA's plans to reach 100% local renewable energy in 2025 and become an energy exporter by 2030 are aspirational goals on which there has been little progress to date. Offshore wind, while promising, is not a fait accompli, and will not likely be installed, much less expand to commercial scale by 2025. A Schatz Energy Lab/BOEM analysis found that offshore wind in Humboldt cannot provide the continuous power which Nordic AF says it needs, and will produce no power at all for 19% of each year. The analysis also found that only a very large wind farm (1,836 MW) will be economically viable. Since only a small pilot installation is currently contemplated, it will probably take many years to reach this level of output.

RCEA's renewable energy portfolio is currently almost entirely comprised of power purchase agreements outside the region. When measuring how much power purchase agreements in other places can compensate for local increased carbon emissions, we must compare emissions here with emissions displaced by purchased energy **where and when it is added to the grid** (Chalendar, 2019; Oates, 2021; Xia, 2019). RCEA buys solar power from the Central Valley and large hydro from Washington where the carbon intensity of electricity is much lower, so the marginal emissions reduction (dirty emissions displaced there) is much smaller than the marginal emissions increase (dirty emissions added here).

Time of day is also important. Mid day solar generation, unless it is stored, doesn't displace emissions from power used at night, and, to the extent that solar production exceeds demand, it is curtailed and not used at all. To quote Sally Benson, Director of Stanford's Precourt Institute for Energy, "Just

purchasing more solar energy in a grid that already has lots of solar generation will not result in zero emissions.” (Xia, 2019). Nordic reports its electricity demand will be level 24/7, so it will be using much of its power when solar energy is not generated.

The current project proposal includes rooftop solar that would supply only 3% of the company's electricity use. In order to prevent an increase in greenhouse gas emissions, Nordic should be required to invest in local clean energy and storage sufficient to meet 100% of its electricity needs. Such an investment would benefit the company by producing large savings in demand charges and providing emergency backup.

UTILITIES

The DEIR states that the project would not generate solid waste “in excess of the capacity of local infrastructure” and states impact would be Less Than Significant. It then describes how the substantial amount of operational waste it would create would be “outshipped”. If the local capacity existed, there would not be a need to ship waste elsewhere. The DEIR alludes to “secondary use opportunities” that could remove this material from the waste stream, but there is no guarantee these would occur.

The project would create 730,000 tons of sludge per year which it plans to ship 280 miles to a composting facility in Ormond. This is around fourteen times more organic waste than HWMA handles for the entire county. It is not clear whether the long distance trucking emissions are accounted for in the report's transportation section, which appears to be limited to local truck traffic and employee commutes, but that is not even the major issue.

Humboldt County needs an industrial scale composting facility, not only to comply with SB 1383, but also to fulfill its potential for carbon sequestration on agricultural land. Compost application is low cost, low tech carbon removal. With 67,000 acres of crop land and pasture and 605,000 acres of grazing land, Humboldt has a very large unrealized potential as a soil carbon sink. With compost application Humboldt's ag lands have the capacity to sequester 4 metric tons of CO₂e per acre. Applying compost to even a fraction of this land would require large amounts of compost, and farmers and ranchers can't afford to pay the trucking fees for “outshipped” organic waste to be “backshipped” after it is composted. The large amount of nitrogen rich waste Nordic would produce would complement our abundant supply of carbon rich mill waste to make a complete recipe for compost on a scale that matches the need. Construction and operation of a large local composting facility would be a major community benefit.

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