Clean Energy is Conservation

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Clean Energy projects generate conservation benefits that far exceed localized environmental impacts by avoiding the pollution and climate change effects of emissions from fossil fuel power plants. Using advanced climate impact assessment models (IAMs), it is now possible to project future climate impacts per ton of carbon emitted. In evaluating a clean energy project, the avoidance of such future impacts are benefits that are required by law to be weighed against potential negative local effects of the project.

Such a projection can be done for the two major clean energy projects proposed in SLO County: the **Morro Bay Wind Energy Area (MBWEA)** project; and the **Vistra Morro Bay Energy Storage System (MBBESS).** Both of these projects are critical for meeting California's clean energy transition goals, and understanding their benefits is a critical part of the evaluation process. Carbon emissions avoided over the expected lives of these two projects are projected to generate the benefits below:

SLO County Project	Humans Saved from Heat-Related Mortality	Humans Saved from Exposure to Unprecedented Heat*
MBWEA	18,000	435,000
MBBESS	735	16,501

**This prevents unprecedented levels of heat-related morbidity, food insecurity, & migration.*

More immediate benefits also accrue because **these projects will replace energy that would have been provided by fossil fuel plants**. For example, the MBWEA will produce as much energy as 82 gas plants or 173 coal plants, and its addition to the grid precludes the need for these polluting plants, which are often located in disadvantaged communities. The MBBESS will release as much electricity as is produced by 2 gas plants or by 5.8 coal plants. This will avoid the health issues caused by pollution resulting from current gas plant emissions including lung, heart, nervous system, and other chronic and fatal conditions. Gas plants dramatically increase the hardships felt by frontline communities. The Sierra Club and the California Environmental Justice Alliance (CEJA) have a joint initiative that is advocating for an urgent transition away from gas that prioritizes vulnerable working families in these areas. For more information, go to the Regenerate California webpage.

Another way to grasp the benefits of clean energy projects is to use EPA methods to calculate the annual emission reduction equivalencies. For example, each year of MBWEA operation will prevent the carbon dioxide emissions equivalent to 2.5 million cars, 1.4 million homes, and the combustion of 64,000 railroad cars of coal or 27 million barrels of oil. Each year of MBBESS operation would prevent the carbon dioxide emissions equivalent to 97,518 cars, 55,215 homes, and the combustion of 2,415 railroad cars of coal or 1,018,265 million barrels of oil.

MBWEA would have the same annual decarbonization benefit as 13.8 million acres of forest, and MBBESS would provide the same decarbonization benefit as 521,255 acres of forest. However, while trees can filter and absorb some air pollutants, they are too dispersed to fully shield us from the immediate health risks of urban air pollution. By contrast, clean energy completely replaces emission sources thereby eliminating health risks of power generation.

Global climate disruption is accelerating due to the rapid buildup of greenhouse warming gasses in the atmosphere. This is causing ever greater damage to our biosphere and shrinking the human sustainability niche. Multiple organizations (including NOAA) confirm 2023 was the warmest year on record with temperature increases around 1.45°C to 1.54°C compared to pre-industrial levels. This important global warming threshold arrived **17 years ahead of schedule** according to NOAA estimates in 2020, which predicted this milestone would be reached in 2040**.** Alarmingly, this significantly moves up the timelines for major tipping points such as ice sheet collapse, coral reef and other marine wildlife die-offs, permafrost thaw, rainforest diebacks, desertification of farmlands, and disruption of ocean and atmospheric currents that play crucial roles in regulating global climate and marine ecosystems.

Fortunately, the clean energy transition is gaining momentum. According to Yale Climate Connection, the consensus estimate is that the amount of solar and wind generation in the U.S. will nearly double between now and 2025 — and then nearly double again by 2030. Public support for clean energy is at an all-time high, with polls consistently showing that a majority of people believe climate change is a serious problem and support renewable energy development. **Eighty percent of people in California support offshore wind.**

Nevertheless, there is a looming threat to a successful transition: denials of the necessary permits for clean energy projects caused by opposition from local NIMBY and climate-change denying groups across the country. The groups go looking for arguments to support their opposition and find a right-wing disinformation network eagerly waiting to supply them. The preposterous disinformation disseminated by this network includes false climate and clean energy claims and scare tactics concerning improbable environmental, economic, and quality of life catastrophes due to clean energy projects. The irony is that **clean energy projects are the most critical conservation method available to ward off climate catastrophes** for wildlife and the entire biosphere.

The benefits of clean energy for our oceans are several orders of magnitude greater than potential negative impacts. A good example is the loss of over 7,000 humpback whales in the north Pacific due to an unprecedented marine heatwave event between 2012-2021 that decimated their food chain. Compare that to the deceitful sensationalism trumped up by the anti-OSW disinformation network surrounding whale deaths in the "Unusual Mortality Event" that occurred off the Atlantic coast. NOAA has confirmed less than 80 whale deaths and autopsies show the cause of death has typically been fishing gear entanglement and/or collisions with ships. NOAA has stated:

> *At this point, there is no scientific evidence that noise resulting from offshore wind site characterization surveys could potentially cause whale deaths. There are no known links between large whale deaths and ongoing offshore wind activities. Not a single death has been attributed to OSW.* See NOAA Fisheries.

Virtually all of the major environmental organizations support responsibly developed clean energy projects and OSW, including Sierra Club, Surfrider Foundation, Oceana, Audubon, National Wildlife Federation, Greenpeace, League of Conservation Voters, The Nature Conservancy, NRDC, Ocean Conservancy, and others representing a total of over 30 million members. This is an indication of the growing recognition that clean energy is an urgently needed form of conservation due the code red climate change emergency caused by the fossil fuel industry.

References

Global Warming

Year 2020 global warming increase estimates are from the NOAA Climate.gov article "What's in a number? The meaning of the 1.5-C climate threshold,"

Smithsonian Magazine: Death of 7,000 whales due to marine heatwave

Legal Requirements of Clean Energy Benefits

Federal. The National Environmental Policy Act (NEPA) focuses on identifying and disclosing the environmental impacts of a project, both positive and negative. The Council on Environmental Quality (CEQ) oversees federal agency implementation of NEPA's environmental impact assessment process. CEQ issued final guidance for federal agencies on considering the effects of climate change including both Greenhouse Gas (GHG) emissions and **reductions** from the proposed action. See *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change* - Federal Register.

State. Environmental benefits must be considered in a CEQA-mandated Environmental Impact Report including: effects of the project on local and regional energy supplies and on requirements for additional capacity; effects of the project on peak and base period demands for electricity and other forms of energy; and effects of the project on energy resources. See Public Resources Code section 21100(b)(3), and Appendix F of the California Code of Regulations Title 14.

Disinformation Network

For information on the right-wing climate change and clean energy disinformation network, see "Climate Science Deniers, Right-Wing Think Tanks, and Fossil Fuel Shills Are Plotting Against the Clean Energy Transition - Inside the conspiracy to take down wind and solar power" by Rebecca Burns, March 12, 2024, published in partnership between American Prospect and Sierra Magazine.

For the disinformation network aimed specifically at offshore wind energy, see "Against the Wind: A Map of the Anti-Offshore Wind Network in the Eastern United States," by Brown University's Climate and Development Lab.

Benefit Calculations

Benefit calculations are based on the Dynamic Integrated Climate-Economy Model, by William Nordhaus (used by the IPCC) and The Mortality Cost of Carbon supplement (by R. Daniel Bressler) which calculates mortality resulting from carbon's effects on the environment and "Death by Carbon," Santa Lucian, official newsletter of the Santa Lucia Chapter of the Sierra Club, Volume 60 No. 6, page 5.

We use the emission reduction factors generated by the EPA program AVERT to calculate the carbon emission offset of renewable energy projects. Below we compare the estimated annual power output of several California renewable energy projects against the average annual output of typical California coal, oil, and methane power plants as well as the average acre of California utility photovoltaics. For example, the MBWEA is shown to produce the amount of power equivalent to the output of 82 Californian natural gas plants. Thus, the MBWEA would eliminate the need for 82 gas plants.

Comparison of Clean Energy Projects to Typical California Coal, Oil, and Natural Gas Power Plants

California Clean Energy Project	Annual Power Generation (kWh/year)	Percent of California's Annual Electricity Consumption	Average Coal Plants	Average Oil Plants	Average Natural Gas Plants	Averag_e Acres of Solar
Morro Bay WEA	26,278,423,200	8.0%	172.9	92.2	82	65,696.1
Humboldt WEA	7,732,890,000	2.4%	50.9	27.1	17.8	19,332.2
Morro Bay BESS	876,017,520	0.3%	5.8	3.1	2.0	2,190.0

Emission Reduction Equivalencies using the EPA Equivalency Calculator

The equivalencies below were generated by the Greenhouse Gas Equivalencies Calculator.

California RE/EE Project	Combusted Gallons of Gas	Gas Powered Cars Per Year	Railcars of Coal Burned	Barrels of Oil Burned	Homes Per Year (12 MW/yr Average)	Forestry Acres Annual Emission Sequestering
Morro Bay WEA	1,307,281,707.6	2,587,486.1	64,080.6	27,018,168.7	1,465,045.7	13,830,729.2
Humboldt WEA	384,690,723.9	761,413.5	18,856.8	7,950,573.2	431,115.6	4,069,936.3
Morro Bay BESS	49,269,047.7	97,517.6	2,415.1	1,018,265.2	55,214.9	521,254.8