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Comments for June 1,2022 to Assess and quantify maximum feasible capacity and establish megawatt planning goals

Additional submitted attachment is included below.

Comments for the June 1,2022 Requirement to:
Assess and quantify maximum feasible capacity and establish megawatt planning goals

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The goals of the development of wind energy as described in the Presentation on March 3rd, 2022 represent only ~10% or so of the technical potential. These goals (slides 34 & 44) should be reassessed[iii].

The goals seem to be based on an expected "allocation" in the State's Scoping Plan. However, there is ample evidence that much more wind energy is available. Other allocations to achieve the GHG targets may not be achieved for technical and administrative reasons. For example:

- The challenge in electrifying all vehicles and switching to zero-carbon electric power in our state must be understood with the challenge of global electrification, which will require a 40-fold increase in Lithium mining production.

- The CPUC recently decided to review its regulation for rooftop solar incentives. The recommendations that are currently under discussion would cause deep reduction in the adoption of rooftop solar.

- PG&E has declined to re-license the Diablo Canyon Nuclear Plant. Thus, the state will lose the 1.1 GW supply of carbon-free energy.

As the Presentation stated, the recent NREL report established a technical potential for 201 GW of wind power[iii]. The increase in potential power includes the use of the most recent wind modeling and the extension of the potential wind turbine locations out to a 1,300m depth limit instead of the previously applied 1,000m. Using the scaling of power output to annual energy production adopted in the Humboldt EIR[iv], the 201 GW corresponds to 720 terra-watt hours annually.

While it is unlikely that all 720 terra-watt hours could be extracted from OSW, the goals for extraction should be commensurate with the enormous challenge the State faces. In 2020 our State consumed 280 terra-watt hours.[v] That value will almost certainly increase by 2045 as natural gas use is replaced by electric appliances. The State is already suffering the effects of climate change: record-breaking wildfires, historic drought (January-February 2022 had the lowest rainfall on record), low snowpack, and other events.

Achievement of substantially more OSW energy will benefit from further innovation in the field. The analysis should identify such advances. Such advances may include:

- Increasing the depth at which wind turbines operate
- Effectiveness of BW Ideol's "Dampening Pool"[vi]
- Improvement in methods to transmit electric power on the seabed

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The potential for developing a new robust, technology-driven industry in California is not discussed in the Presentation. Offshore wind turbines, particularly floating systems, require highly specialized manufacturing and transportation. Because the components are very large and difficult to transport by roadway or railway, there is the opportunity to manufacture them near or at a California port and then transport them by sea. Conceivably, the California-manufactured turbines could be installed along the west coast of the United States and Canada.

The recent 2021 report from the USC Schwarzenegger Institute for State and Global Policy concludes[vii]:

All candidate ports in California are also expected to require upgrades to enable offshore wind, and concerns have also arisen from the military, fishing industry, and conservationists worried about effects on the ocean environment. Despite these hurdles, offshore wind has the potential to play a pivotal role in meeting the goals set by SB 100, as well as turning California into a global hub for offshore wind development.

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[i] deMesa, Rhetta, Slides: *Assembly Bill 525 strategic Plan for Wind Energy Offshore California and Establishing Offshore Wind Megawatt Planning Goals,* March 3,2022

[ii] Author acknowledges inputs from collogues doctors: Phil Russel, Stan Farkas, Anthony Strawa, and Steve Zornetzer

[iii] Optis, M.,etal, *2020 Offshore Wind Resource Assessment for the California Pacific Outer Continental Shelf*, NREL/TP-5000-77642, OCS Study BOEM 2020-20043, October 2020, Table B on page ix

[iv] Humboldt DEIR: *Draft Environmental Assessment-Commercial Wind Lease and Grant Issuance and Site Assessment Activities on the Pacific Outer Continental Shelf, Humboldt Wind Energy Area*, California, January 2022

[v] Calculation from California Energy Commission download (http://www.ecdms.energy.ca.gov/elecbycounty.aspx) by summing all types and all Counties in 2020.

[vi] BW ideol Floatgen (March 2022-https://live.floatgen.eu/en)

[vii] Rose, A.,Wei, D.,and Einbinder, A, *California's Offshore Wind Electricity Opportunity*, USC Schwarzenegger Institute for State and Global Policy, August 2021