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Submitted via the Federal Register  
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**Subject: Draft Programmatic Environmental Impact Statement for Future Floating Wind Energy Development Related to 2023 Leased Areas Offshore California**

Dear Lisa Gilbane:

The California State Lands Commission (CSLC), California Department of Fish and Wildlife (CDFW), California Ocean Protection Council (OPC), California Coastal Commission (CCC), and California Energy Commission (CEC) (collectively, State Agencies or Agencies) appreciate the opportunity to provide comments on the Bureau of Ocean Energy Management's (BOEM) Draft Programmatic Environmental Impact Statement (PEIS) for Future Floating Wind Energy Development related to 2023 Leased Areas Offshore California (Project). Please refer to the [Agencies' letter in response to the Notice of Intent](#) for description of each signatory agency's authority, mission, and responsibilities.<sup>1</sup>

Offshore wind's consistent generation profile can help meet peak grid demand in the summer months, supplement lower solar generation in the winter months, and provide power during the evening to meet daily peak demand. Offshore wind (OSW) presents an opportunity for California to continue advancing the state's clean energy and climate goals by diversifying the state's energy portfolio and supporting a reliable and resilient electric system, while creating economic development and workforce benefits. As such,

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<sup>1</sup> In addition to the agency description in the hyperlinked NOI letter, the California Department of Fish and Wildlife wishes to add that lessees are encouraged to begin consultation as early as possible if a California Endangered Species Act (CESA)-listed or fully protected species may be impacted. The CDFW exercises regulatory authority under the CESA by administering 2081(b) Incidental Take Permits (ITPs) for take of state-threatened or endangered species occurring from project activities. The CDFW also has jurisdiction over fully protected species pursuant to Fish and Game Code sections 3511, 505, 4700, and 5515. Additional information on CESA-listed species and fully protected species can be found at: <https://wildlife.ca.gov/Conservation/CESA> and <https://wildlife.ca.gov/Conservation/Fully-Protected>.

the state has adopted planning goals of up to 2 to 5 gigawatts (GW) of OSW energy by 2030 and up to 25 GW by 2045 (Flint et al. 2022).<sup>2</sup> California recognizes that these goals must be developed responsibly in context of the environment, our prosperous ocean and coastal Blue Economy, and reflect priorities of California Native American tribal governments and communities, and our residents. The adoption and implementation of mitigation measures (MMs) via this PEIS will serve to reduce potential environmental impacts from the federal OSW lease projects while supporting our state's investment in climate adaptation and coastal resilience strategies, providing predictability for the industry, implementing environmental monitoring, and beginning to address concerns raised by communities and tribal sovereign governments.

### **Organization of the Letter**

This letter is structured to first address overarching comments on macro-scale issues such as future joint National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) project-specific documents, state efforts to address concerns from commercial and tribal fishing communities, upwelling, and global comments about MMs. The remainder of the letter provides requests and recommendations related to the document's environmental review and follows the outline of the PEIS. Additional MMs, or edits and/or recommendations to existing MMs, are located under the resource area where the MM is first discussed. If the MM applies to multiple resource areas, we note that as well. We have also included an *errata* section as *Attachment A*, which is intended to convey needed factual or grammatical corrections.

### **Overarching Comments**

State Agencies generally support adopting the mitigation measures (Alternative C: Proposed Action), as opposed to Alternative B.

### **Joint CEQA-NEPA Project-Specific Review**

As California's lead agency under CEQA, CSLC will be responsible for ensuring OSW energy projects comply with all CEQA requirements. CSLC staff look forward to working with Federal counterparts to draft project-level environmental documents that comply with both NEPA and CEQA and avoid unnecessary duplication of efforts. It is worth noting that CEQA's requirements are not identical to NEPA, but future project-level coordination among Federal and State Agencies may offer the opportunity to improve efficiency while navigating these differences.

### **California Offshore Wind Energy Fisheries Working Group**

The California Offshore Wind Energy Fisheries Working Group (Fisheries Working Group) established per CA Senate Bill 286 (2023) has relationship to the content and purpose of the PEIS. The Fisheries Working Group is charged with developing a statewide strategy for avoiding, minimizing, and mitigating impacts on fishing and fisheries (including tribal fisheries) from OSW energy projects proposed under a

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<sup>2</sup> Flint, Scott, Rhett de Mesa, Pamela Doughman, and Elizabeth Huber. (2022). [Offshore Wind Energy Development in Federal Waters Offshore the California Coast: Maximum Feasible Capacity and Megawatt Planning Goals for 2030 and 2045](https://efiling.energy.ca.gov/GetDocument.aspx?tn=244285). CEC-800-2022-001-REV. Available at <https://efiling.energy.ca.gov/GetDocument.aspx?tn=244285>.

construction and operations plan (COP) submitted to BOEM. We encourage BOEM to consider future avoidance and minimization measures described in the forthcoming statewide strategy, when evaluating impacts of individual projects. The Fisheries Working Group is also developing a socioeconomic methodology for assessing fisheries impacts, a framework for compensatory mitigation, and a template OSW-to-fishing industry agreement. All products produced by the Fisheries Working Group are developed with input from both the fishing industry and OSW developers. We recommend these products inform future avoidance and minimization measures, monitoring and data analysis, and compensatory MMs when addressing fisheries and fishing industry impacts associated with COPs.

#### Offshore Wind Environmental Monitoring Guidance

The Offshore Wind Environmental Monitoring Guidance project is state funded and designed to develop a comprehensive environmental monitoring guidance document that is tailored specifically to floating OSW development in California to inform project design, construction, and adaptive management of OSW operations. This science-based and practical guidance is being developed through engagement with over 270 experts across 5 scientific working groups: Marine Mammals and Sea Turtles, Birds and Bats, Fish Ecology, Habitats and Ecosystems, and Data Integration and Technology, as well as gathering input from California Native American tribes, state agencies, non-governmental organizations, and the fishing industry across these topics. We encourage BOEM to consider monitoring methods and approaches described in the final guidance (anticipated release of final guidance in Spring 2026 with an interim deliverable expected in Spring 2025) when evaluating impacts of individual projects.

#### Upwelling

State Agencies suggest upwelling be removed from benthic resources and included as a stand-alone section (e.g., Oceanographic Processes) under *Physical Resources*. The section should focus on how the development of OSW may impact physical oceanographic processes at both localized, individual turbine scales, and larger, California coast scales. The analysis should recognize the inherent connection between upwelling and the productive food webs and ecosystems along the West Coast. A new section on upwelling should not replace focused discussions on upwelling-related impacts found within other sections.

The PEIS's analysis makes some unsupported conclusions related to impacts to upwelling and population-level effects to species. The PEIS states that population-level effects to fish, invertebrates, and essential fish habitat are not expected when considering the potential impacts from OSW development on oceanographic processes like upwelling. Modeling studies conducted by Raghukumar et al. 2023<sup>3</sup> focused on changes to upwelling metrics from fully developed lease areas, but those studies did not conclude how changes in upwelling metrics would impact primary productivity or

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<sup>3</sup> Raghukumar, Kaustuba., Nelson, Timothy., Jacox, Michael, Chartrand, Christopher, Fietcher, Jerome, Chang, Grace., Cheung, Lawrence, and Roberts, Jesse. (2023) Projected cross-shore changes in upwelling induced by offshore wind farm development along the California coast. *Commun Earth Environ* 4:116  
<https://doi.org/10.1038/s43247-023-00780-y>

cascading ecological effects to upper trophic levels. There is currently not enough evidence to conclude that population-level effects would not occur from OSW development, and it is recommended that BOEM recognize the need for both additional predictive modeling studies as well as the development of a regional oceanographic monitoring plan to capture baseline upwelling conditions and changes in upwelling metrics and productivity in the California Current Ecosystem.

### Mitigation Measures

State Agencies appreciate the MMs described in *Appendix E* and recognize that measures identified to mitigate program-level impacts must be high level given some limitations with project details and many unknowns around impact identification. State Agencies request BOEM to consider the following as overarching recommendations related to those MMs.

#### *Federal, State, and Tribal Government Coordination*

State Agencies recommend that pre-construction baseline characterization, regional monitoring, MMs, and adaptive management approaches be developed in coordination with state and federal agencies responsible for permitting and resource management and Native American tribes when appropriate.

#### *Robust Baseline Characterization*

As part of the CEQA and permitting processes, State Agencies will require that a robust assessment of project baseline conditions be established prior to construction activities. The extent of baseline data needed to capture inter-annual trends will depend on the species, habitat, or ecosystem processes (e.g., upwelling) being assessed. The PEIS should include an MM that requires project-specific baseline characterization be conducted using a regional environmental monitoring approach (see below) to ensure consistency of data collection.

#### *Regional Monitoring and Adaptive Management*

Floating OSW is a new and developing technology on the West Coast, and State Agencies appreciate that the PEIS includes MMs for lessees to develop monitoring plans for marine mammals and sea turtles (MM-1, MM-2, MM-5), birds and bats (MM-14), sensitive marine species (MM-20), and oceanographic conditions (MM-36). We recommend the development of a regional environmental monitoring approach to ensure consistent methods and using data standards that align with BOEM and the Bureau of Safety and Environmental Enforcement regulations and BOEM / developer lease terms and conditions, rather than requiring each lessee to develop their own monitoring plans. A regional monitoring approach should establish baseline conditions, standardized methods for data collection and analysis, a data management plan, and include a data sharing agreement.

Successful development and implementation of monitoring is one precursor to effective adaptive management, an increasingly recognized approach to balancing resource

protection and regulatory uncertainty (Johnson and Jansujwicz 2015)<sup>4</sup>. To the extent possible, MMs should include means of correcting acute unforeseen problems that may arise. For certain species, habitats, or ecosystem processes (e.g., upwelling), quantitative thresholds or indicators will be needed for an adaptive operations plan that establishes objective standards that would trigger curtailment of OSW operations if thresholds are reached. State Agencies encourage BOEM and lessees to reference the state-funded Environmental Monitoring Guidance that is being developed and is anticipated to be available in 2026 (see page 3 for a description of this project).

## **Chapter 2: Proposed Action and Alternatives**

### **2.1.3**

#### *Alternative C (Proposed Action): Adoption of Mitigation Measures*

State Agencies recommend that the language describing MMs included in tables for Alternative C throughout *Chapter 3* of the PEIS matches the language found in *Appendix E*. In many cases, the summarized MMs do not capture the intent of the MM and cause confusion when reviewing Alternative C.

### **2.3**

#### *Impact Producing Factor (IPF): Accidental Releases*

In *Section 2.3* (p. 2-15), BOEM identifies primary IPFs used in the analysis, and Table 2-5 provides general descriptions of these IPFs. We request that under "Accidental Releases" that BOEM include "inadvertent release of drilling fluids or muds which are related to horizontal directional drilling (HDD) activities." HDD fluids are currently only included under the "Discharges" IPF (p. 2-16), which considers permitted effluent. We do not believe that drilling fluids or muds are captured in the description for "Accidental Releases," and while these inadvertent releases are referred to as "drilling fluids," their fluid behavior is more of a slurry. We request this change so that the PEIS is consistent with the description of "accidental releases" in the *Vineyard Wind 1 Final Environmental Impact Statement*.

Throughout the PEIS, BOEM states that accidental releases, particularly "larger" spills, are unlikely and therefore the impacts (e.g., *Section 3.3.4.3.3*) are assumed to be "temporary, and limited in volume, they are expected to be largely avoided or contained and abated." State Agencies request that BOEM provide statistics or other justification to support the reasoning that "larger" accidental releases are unlikely.

#### *IPF: Invasive Species*

State Agencies would like to emphasize that there is a significant risk of invasive species introductions through the wide use of vessels in the affected environments and project activities involved in the construction of OSW. Vessels used for anchor installation and submarine cable emplacement exhibit high risk behaviors (Coutts et al.,

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<sup>4</sup> Johnson, Teresa R. and Jansujwicz, Jessica S. (2015). [Understanding and Informing Permitting Decisions for Tidal Energy Development Using an Adaptive Management Framework](#). DigitalCommons@UMaine.

2010a<sup>5</sup>, Davidson et al., 2018<sup>6</sup>, Davidson et al., 2020<sup>7</sup>, and Ferreria et al., 2006<sup>8</sup>) for biofouling accumulation (e.g., being slow moving and having long idle periods), and preventative measures should be established to reduce the likelihood of heavy biofouling accumulation on these vessels.

Further, State Agencies recommend the inclusion of an MM requiring that project vessels are cleaned of biofouling (preferably in dry dock) prior to undertaking project activities. If invasive species colonize project structures (e.g., floating platforms and other substructures such as anchors, interarray cables, etc.), eradication would be essentially impossible, particularly in the open ocean where the lease areas are located and impacts to native species could be significant.

## 2.4

### *IPF: Non-Routine Activities or Events*

State Agencies request that chemical releases from HDD activities be included in the analysis for offshore activities found under non-routine activities or events (*Section 2.4*, Table 2-6 (p. 2-19)), as this activity is currently only included under onshore activities in the PEIS. An inadvertent release could occur anywhere along the bore path required for a submarine cable to transition from offshore to onshore. We also would like to emphasize that the spilling of drilling muds can have greater environmental impacts in aquatic environments than on dry land.

## **Chapter 3: Affected Environment and Environmental Consequences**

### 3.1.2

In *Section 3.1.2 Impact Terminology* (p. 3.1.1-3), BOEM states that for the PEIS's environmental review that "overall determinations consider the context, intensity (i.e., severity), directionality (adverse or beneficial), and duration of the effects." State Agencies caution, with regard to the duration of effects, that even temporary activities could result in permanent impacts. We understand that the distinction between duration of effects (temporary, long term, and permanent) will be better understood as a result of the completed project-level NEPA analysis and should be used to inform project-specific MMs.

Furthermore, while the section goes on to define directionality and duration of effects, intensity determinations are left undefined. Throughout *Section 3 Affected Environment*

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<sup>5</sup> Coutts, Ashley D. M., Piola, Richard F., Hewitt, Chad L., Connell, Sean D. and Gardner, Jonathan P. A. (2009) Effect of vessel voyage speed on survival of biofouling organisms: implications for translocation of non-indigenous marine species, *Biofouling*, 26:1,1 — 13

<sup>6</sup> Davidson, Ian C., Scianni, Christopher, Minton, Mark S., and Ruiz, Gregory M. (2018) A history of ship specialization and consequences for marine invasions, management and policy. *Journal of Applied Ecology*. 55:4.,1799-1811

<sup>7</sup> Davidson, Ian C., Smith, George, Ashton, Gail V., Ruiz, Gregory M., and Scianni, Christopher (2020) An experimental test of stationary lay-up periods and simulated transit on biofouling accumulation and transfer on ships, *Biofouling*, 36:4, 455-466, DOI: 10.1080/08927014.2020.1769612

<sup>8</sup> Ferreira, C.E.L., Gonçalves, J.E.A., and Coutinho, R. (2006) Ship Hills and Oil Platforms as Potential Vectors to Marine Species Introduction. *Journal of Coastal Research*. 39, 1341-1246

*and Environmental Consequences*, there are instances where intensity determinations appear to be used. These undefined qualitative terms may be confusing for readers and leave aspects of BOEM's analysis unclear. This issue occurs in the following sections, where terms such as negligible, minor, moderate, and major are used in the impact analysis but remain undefined.

- 3.2.2.3.2 *Water Quality* (p. 3.2.2-17) under the IPF of land disturbance
- 3.3.3.3.1 *Birds* (p. 3.3.3-10-11) under the IPFs of cable installation and maintenance, and noise
- 3.3.3.5.5 *Birds* (p. 3.3.3-25) under Cumulative Impacts of Alternative C
- 3.3.4.4.2 *Coastal Habitat, Fauna, and Wetlands* (p. 3.3.4-26) under Impacts of Five Representative Projects
- 3.4.8.4.3 *Other Uses* (p. 3.4.8-18) under Cumulative Impacts of Alternative B

## **Physical Resources**

### **3.2.1**

State agencies caution that unless BOEM is aware of specific planned or future fossil fuel energy plant decommissioning activities, which should be included in *Appendix C Planned Activities Scenario* that informs the PEIS's cumulative impacts analysis, the PEIS should not assume that there will be a net beneficial impact to air quality and GHG emissions (p. 3.2.1-12) from OSW projects becoming operational. This assumption also impacts analysis found in *Section 3.4.4* that states GHG emissions reductions will offset health impacts that result from localized emissions of toxic air pollutants such as diesel particulate matter.

State Agencies recognize the importance of MM-9 (Avoid the use of SF<sub>6</sub>) as sulfur hexafluoride (SF<sub>6</sub>) is one of the most potent greenhouse gases with a global warming potential (GWP) 23,500 times more than CO<sub>2</sub> and can stay in the atmosphere up to 3,200 years – meaning even a small amount can have profound detrimental climate effects (USEPA). State Agencies support the use of an SF<sub>6</sub> alternative if one becomes commercially available prior to construction and operations plan (COP) submission(s).

State Agencies support MM-10 (Reducing emissions from vessels, equipment, and vehicles engaged in activities on the Outer Continental Shelf or OCS) which encourages lessees to utilize zero-emission technologies and vehicles.

## **Biological Resources**

### **3.3.1**

With respect to MM-13 (Avian and bat annual reporting), we recommend the types of tags be expanded to include Motus or other telemetry tags and Passive Integrated Transponder (PIT) tags. For bats specifically, we recommend reports also be submitted to the North American Bat Monitoring Program (<https://www.nabatmonitoring.org/>).

We recommend MM-14 (Bird and bat monitoring plan) specifically list monitoring techniques (visual surveys, boat-based surveys, digital aerial surveys, Motus Wildlife Tracking System, etc.) to be used to detect displacement and avoidance. Furthermore,



lessees and managers should consider utilizing integrated Motus stations on OSW infrastructure to track birds and bats.

With respect to MM-15 (Bird and bat tracking system), in addition to Motus, we recommend the use of additional monitoring and tracking technologies such as radar, visual and thermal imaging, and acoustic sensors, which could be integrated into a more robust system for bird and bat movement. These technologies should include real-time identification and reporting, to the extent feasible. Data reported from these additional technologies could be used to inform displacement, collision, and barotrauma risk models and actions (e.g., curtailment) in the event of large aggregations of birds and/or bats.

Finally, we recommend that MM-16 (Bird-deterrent devices and plan) should also apply to bats, and it should encompass both active and passive deterrence.

### 3.3.2

For MM-34 (Electrical shielding on underwater cables), we have two recommendations. First, replace the word “standard” with the phrase “best available technology.” Second, lessees should additionally be required to establish an electromagnetic field (EMF) monitoring plan to measure levels produced by the proposed projects, the effectiveness of shielding and burial, and the distance from the cable that EMF levels return to background levels. In *Section 3.3.5*, BOEM uses the results from Love et al. 2016<sup>9</sup> as the basis for determining that the impacts from EMFs would occur at one meter or less from the cable. However, EMFs emitted from cable technologies associated with California OSW projects are unknown and may not be consistent with other studies. Lessees should coordinate with regulatory agencies on the development of the monitoring plan and should be required to provide results from EMF monitoring.

The PEIS states that lessees shall avoid intentional contact with sensitive benthic habitats but does not define sensitive benthic habitats nor require implementation of a habitat buffer to ensure habitat protection. Offshore benthic and biogenic species and habitats that warrant special protection due to their ecological importance, limited ability to recover from disturbance, and challenges associated with restoration or mitigation include (but are not limited to) deep-sea corals, sponges, sea pens, whale falls, mineral precipitate areas, rocky reefs, seamounts, pock marks, and hydrothermal vents. BOEM has implemented buffers from sensitive benthic features for bottom-disturbing activities (e.g., 500ft habitat buffer for Gulf of Mexico wind energy lease areas). Therefore, we recommend the development of a new MM regarding the establishment of habitat buffers. For sensitive benthic and biogenic species and habitats, lessees should be required to implement appropriately sized habitat buffers, based on input from state and federal agencies, during all phases of OSW development (site surveys, construction, operation, maintenance, and decommissioning activities). Development of appropriately sized habitat buffers should consider the type of equipment being installed (which will

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<sup>9</sup> Love, M.S., M.M. Nishimoto, S. Clark, and A.S. Bull. (2016). Renewable Energy in situ Power Cable Observation. U.S. Department of the Interior, Bureau of Ocean Energy Management, Pacific OCS Region, Camarillo, CA. OCS Study 2016-008. 86 pp.



be unknown until COP development), potential for equipment movement/scouring, water depth, deployment accuracy/conditions (weather and currents), known habitat types in the surrounding area, and quality of existing habitat data. As has been demonstrated in the field, it should be assumed that there will be at least 10% displacement of equipment from the targeted deployment location (Hamilton et al., 2003)<sup>10</sup>. Displacement should be expected to increase with water depth and rougher deployment conditions.

Regarding MM-20 (Sensitive Marine Species Characterization and Monitoring Plan), we suggest the addition of the phrase “and biogenic habitat” after “(e.g. hardbottom, hard grounds, reefs).” Additionally, we recommend the addition of the phrase “threatened and” before “endangered.”

Lessees should be required to avoid impacts during all phases of OSW development (site surveys, construction, operation, maintenance, and decommissioning activities) to eelgrass, canopy forming kelp, and understory algae. If impacts cannot be avoided, lessees should be required to identify impacts and develop compensatory mitigation to ensure no net loss of these habitats.

Finally, we recommend a new MM whereby lessees are required to submit a boulder relocation plan if boulders or other buried obstructions must be uncovered. The plan should detail, to the extent technically and/or economically feasible for the project, how the lessee will relocate boulders as close as practicable to areas immediately adjacent to existing similar habitat. Boulders should not be placed in areas with a history of bottom-tending fishing gear use.

### 3.3.3

State Agencies recommend including the Western Burrowing Owl, identified as a candidate species for potential listing under the California Endangered Species Act (CESA) in October 2024, in Table 3.3.3-1 and in the impact assessment. Burrowing owls migrate seasonally to the Farallon and Channel Islands (Richardson et al. 2006<sup>11</sup>; Kidd et al. 2023<sup>12</sup>) and have been found in the marine environment off the Central California Coast.

*Please also refer to the comment on MM-13 through MM-16 under 3.3.1 Bats.*

### 3.3.5

On June 19, 2024, the California Fish and Game Commission approved white sturgeon as a candidate species for listing under CESA. White sturgeon are known to occur

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<sup>10</sup> Hamilton, J.A.; Chaffey, M.; Mellinger, E.; Erickson, J., and McBride, L. (2003). Dynamic modeling and actual performance of the MOOS test mooring. *In Proc. OCEANS*, San Diego, CA, 2574-2581.

<sup>11</sup> Richardson, T. W., Pyle, P., Burnett, R., & Capitolo, P. (2006). The occurrence and seasonal distribution of migratory birds on Southeast Farallon Island, 1968-1999

<sup>12</sup> Kidd, J. W., Bloom, P. H., Barrows, C. W., & Collins, C. T. (2003). Status of burrowing owls in southwestern California. *In Proceedings of the California Burrowing Owl Symposium* p. 76-89.

within the Affected Environment. State Agencies recommend the PEIS includes white sturgeon in Table 3.3.5-1 as a CESA candidate species and in the impact assessment. Coho salmon (southern Oregon/northern California Evolutionarily Significant Unit (ESU), state-threatened; central California coast ESU, state-endangered) and steelhead trout (northern California Distinct Population Segment (DPS) summer-run, state-endangered) are also CESA-listed and should be designated as such in Table 3.3.1.

MM-3 (Marine Mammal and Sea Turtle entanglement avoidance/prevention), in addition to having equipment and being prepared to address entanglements, lessees should develop an Entanglement Prevention and Response Plan. This plan should account for primary, secondary, and tertiary entanglements.

The PEIS states that impacts from onshore lighting resulting from onshore wind energy development “cannot be conclusively determined” (p. 3.4.10-33). Given this lack of project-scale information, State Agencies recommend that the PEIS identify appropriate performance standards based on illumination strength and project location for how lighting impacts will be mitigated at different illumination levels, once lighting at a project-scale is better understood. These MMs could include preparation of night lighting minimization plans and/or specific avoidance and minimization measures, with compensatory mitigation required if impacts cannot be avoided. We furthermore recommend that MM-17 (Light impact reduction for birds) be expanded from avian to include bats and all marine life to the maximum extent possible.

For MM-37 (Monitoring on strategically placed wind turbine generators or WTGs), we recommend that receivers be placed not only on WTGs but also along export cables. We furthermore recommend that BOEM encourage lessees to utilize the Northeast Pacific Acoustic Telemetry Node, which is an official telemetry data sharing network along the Northeast Pacific and Alaska.

The Representative Project Design Envelope (RPDE, *Appendix A*) estimates each lease area will have 1 to 6 offshore substations. The State Agencies recommend the PEIS analyze the cumulative impacts associated with the substation once-through-cooling systems, including the potential for entrainment of planktonic and larval organisms from the substation intakes and impacts to water quality from the substation discharge. Lessees should be required to incorporate protective intake screen designs on the substation once-through-cooling systems to minimize entrainment/impingement of larval organisms. Additionally, lessees should incorporate measures to minimize impacts from the once-through-cooling system discharge, such as consideration of discharge depth and velocity. While specific to the intake and discharge of seawater in state waters, California’s Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling may be used as a resource to inform design, such as intake screen size, of once-through cooling systems. Nonetheless, State Agencies encourage the use of site-specific studies to inform the appropriate design and operation of offshore substations using once-through cooling technology.

*Please also see the recommended edits to MM-34 under 3.3.2 Benthic Resources.*

### 3.3.6

With respect to MM-2 (Long-term passive acoustic monitoring or PAM), we recommend the baseline be established by three years of data collection, rather than one. It is common practice to establish baseline conditions using at least two-annual cycles of surveys (BOEM 2019<sup>13</sup>). We also recommend that monitoring be conducted over the lifetime of the project, rather than 10 years.

We additionally recommend a new MM that mandates lessees to develop a Marine Debris Management Plan that outlines potential sources of marine debris associated with OSW projects, measures to prevent debris, actions to recover marine debris, and mitigation options. Sources of marine debris from OSW activities include items on wind turbines, substations, and vessels servicing the OSW facilities. Further, marine debris and derelict fishing gear that becomes trapped on OSW infrastructure could result in secondary entanglement of marine mammals and sea turtles. The Marine Debris Management Plan should include measures to avoid or minimize impacts from secondary entanglement.

*Please see the comment regarding MM-3 under Fishes, Invertebrates, and Essential Fish Habitat and MM-34 under Benthic Resources.*

### 3.3.7

*Please see the comment regarding MM-2 under 3.3.6 Marine Mammals and the comment regarding MM-3 and MM-37 under 3.3.5 Fishes, Invertebrates, and Essential Fish Habitat. Additionally, the recommended edits to MM-34 under 3.3.2 Benthic Resources.*

## **Socioeconomic Conditions and Cultural Resources**

### 3.4.1

The Affected Environment analyzed in this section is limited to waters off California and excludes the San Francisco Management Area (Point Arena to Pigeon Point). State Agencies recommend the boundaries of the Affected Environment include all state and federal marine waters from the California/Oregon border to the USA/Mexico border. Several transmission alternatives included in the Northern California and Southern Oregon Offshore Wind Transmission Study (Zoellick et al. 2024)<sup>14</sup> include a subsea export cable that runs from the Humboldt Lease Areas and is landed in the San Francisco Bay Area. Offshore export cables running through the San Francisco Management Area could have impacts on the commercial fisheries and for-hire

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<sup>13</sup> BOEM. (2019) [Guidelines for Providing Information on Marine Mammals and Sea Turtles for Renewable Energy Development on the Atlantic Outer Continental Shelf](#).

<sup>14</sup> Zoellick, J. , G. Adams , A. Mustafa , A. Cooperman , R. Anilkumar , P. Duffy , A. Sparks , S. Kramer , S. Trush , S. Bernstein , C. Butler , A. Porter , A. Herath , M. Cesario , E. Wallach , C. Ingvoldsen , D. Wakeman , C. Chamberlin , and A. Jacobson. (2024). *Northern California and Southern Oregon Offshore Wind Transmission Study, Volume 1 (Revised)*. Cal Poly Humboldt, Arcata, CA: Schatz Energy Research Center. [schatzcenter.org/publications/](https://schatzcenter.org/publications/)

recreational fisheries operating in those waters and should thus be considered in the Affected Environment. If a subsea cable route is considered in the analysis, the Affected Environment boundaries should be expanded to cover that route, and applicable resource areas in the expanded Affected Environment, including water quality and biological resources, should be reevaluated in the PEIS. Moreover, as recognized in *Section 3.4.1.1.1*, vessels from southern Oregon use fishing grounds in Northern California to fish for a variety of species. Impacts to northern California fishing grounds and fish and invertebrate stocks should be captured in this analysis.

With respect to MM-22 (Fisheries Compensatory Mitigation), we recommend that the phrase “consider” be removed so that there is the expectation that fisheries (tribal, commercial, recreational) will be compensated for lost income. We further recommend BOEM consult with the final products of the Fisheries Working Group, described above, to inform and identify required fisheries compensatory mitigation for offshore activities.

For MM-24 (Fisheries Community Involvement), we suggest including language that lessees should consult with fishing communities on issues that inform micro-siting, project design, vessel safety at sea during transit, fisheries surveys/monitoring, among other issues. With respect to micro-siting, if valuable fishing grounds within the lease areas can be identified and avoided, fishing can likely continue in those areas and decrease the economic impact to the fishing industry.

We recommend a new MM whereby lessees should be required to develop a fisheries monitoring plan to detect impacts to commercially/recreationally valuable fish species and socioeconomic impacts to the fishing industry from OSW development. This plan should be distinct from the regional environmental monitoring plan (p. 5) due to the confidential nature of fisheries data.

Lastly, *Section 3.4.1.1.1* briefly discusses aquaculture as a commercial fishing enterprise in California but does not capture how important aquaculture operations in the affected areas are to the West Coast seafood supply chain. Humboldt Bay is the largest producer of oysters in California and provides shellfish seed to other West Coast aquaculture facilities. Humboldt Bay is currently not impacted by [diseases](#) that can harm shellfish production throughout the state. To preserve the biosecurity status of Humboldt Bay with respect to increased vessel traffic and ballast water or biofouling-mediated species introductions associated with OSW development, State Agencies recommend analyzing all potential impacts to the aquaculture industry separately from the analysis with commercial and tribal fisheries and for-hire recreational fishing including potential socio-economic effects of sale for consumption and sale of seed or larvae. The PEIS should include MMs to protect aquaculture operations from impacts associated with OSW development, such as impacts to water quality and the potential introduction of invasive species or diseases.

### 3.4.2

While state and federal laws provide definitions of tribal cultural resources for the purposes of CEQA, NEPA, and the National Historic Preservation Act (NHPA), for many

California Native American tribes those definitions do not fully identify the breadth and importance of tribal cultural resources.

We further encourage BOEM to allow California Native American tribes serving as NEPA Cooperating Agencies to review and edit text regarding the environmental setting. This is a common practice among some State Agencies with respect to the Tribal Cultural Resources Environmental Setting within environmental impact reports.

Finally, with respect to MM-28 (Marine cultural resources avoidance or additional investigation), we recommend that California Native American tribes be granted the opportunity to appoint Tribal monitors to review findings of geophysical surveys prior to bottom-disturbing activities in regions where cultural artifacts may be found.

#### 3.4.4

State Agencies commend BOEM for its increased outreach efforts to members of the public including port adjacent communities and thanks BOEM for allowing State Agencies to be involved. We would appreciate more information about how information garnered from these meetings will be incorporated into the Final PEIS, given the potential incongruent timing of the two processes.

With respect to MM-25, we recommend that the phrase “early, often, and meaningfully” be inserted so BOEM’s expectations with respect to the plans are clearly communicated.

#### 3.4.5

California encourages BOEM to meaningfully consult with federally recognized tribes on a government-to-government basis and implement their trust obligations to tribes. Further, due to the unique history of California, many tribal communities are not federally recognized but have connections to the ocean and tribal cultural resources along the coast. California respectfully requests BOEM provide meaningful opportunities for non-federally recognized tribes and tribal communities to engage and help shape this PEIS.

We note that MMs listed in Table 3.4.5-4 do not directly address impacts to Native American tribes or community members. With the exception of MM-31 (Ancient submerged landform feature (ASLF) monitoring program and marine archaeological post-review discovery plan), the measures address other resource areas such as marine mammals and birds.

Some California Native American tribes are interested in engaging in environmental and cultural monitoring. MM-31 (Ancient submerged landform feature (ASLF) monitoring program and marine archaeological post-review discovery plan) may present an opportunity to engage tribal community members in these important activities.

We appreciate BOEM stating in *Section 3.4.5* that Native American tribes will be included in reviewing and assessing reports and technical analyses for future COP-

specific NEPA and NHPA reviews. We encourage BOEM to compensate Native American tribes for their time in conducting these reviews.

*Please see the suggested edits to existing MMs found in the prior sections of this letter:*

- *MM-2 under 3.3.6 Marine Mammals*
- *MM-22 and MM-24 under 3.4.1 Commercial Fisheries and For-Hire Recreational Fishing*
- *MM-28 under 3.4.2 Cultural Resources*
- *MM-34 under 3.3.2 Benthic Resources and*
- *MM-37 under 3.3.5 Fishes, Invertebrates, and Essential Fish Habitat.*

#### 3.4.9

*Please also refer to suggested edits to MM-22 and MM-24 under 3.4.1 Commercial Fisheries and For-Hire Recreational Fishing.*

#### 3.4.10

The Scenic and Visual Resources Monitoring Plan (MM-39) does not extend beyond monitoring and would not require any follow-up measures in the event monitoring confirms significant visual impacts. Given the scale and scope of impacts to visual resources along the coast, and the likelihood that these impacts cannot be avoided, the PEIS should include consideration of reasonable compensatory mitigation, such as public access improvements, enhancement of coastal recreational opportunities and amenities, or funding for such improvements – that could provide out-of-kind public benefits to offset the visual impacts of OSW development.

### **Appendices**

#### Appendix C: Planned Activities Scenario

*Section C.2.9 (Fisheries Use and Management)* describes the importance of regular, ongoing National Marine Fisheries Service (NMFS) and the California Cooperative Oceanic Fisheries investigations scientific surveys which support NMFS' statutory fisheries management obligations. In addition to these surveys, the State Agencies recommend BOEM consider other regular, ongoing state and regional level surveys such as the Marine Protected Area Monitoring Program, the regional associations under the Integrated Ocean Observing System, the California Collaborative Fisheries Research Program, the Partnership for Interdisciplinary Studies of Coastal Oceans, and tribal data, among others, in the PEIS and develop avoidance, minimization, and MMs to avoid impacts to these surveys. These surveys have greatly contributed to ocean observing, ecosystem, and fisheries management on the U.S. West Coast. Interferences with or disruptions to these data collection efforts may have negative consequences, including management decisions related to fisheries and Marine Protected Areas.

**Conclusion**

We appreciate BOEM's willingness to have our State Agencies serve as NEPA Cooperating or Participating Agencies and your responsiveness to our concerns.

Sincerely,

Staff of the following state agencies:

California Coastal Commission  
California Department of Fish and Wildlife  
California Energy Commission  
California Ocean Protection Council  
California State Lands Commission



## Attachment A: Errata Sheet

Section 2 Proposed Action and Alternatives, (p. 2-14), Based on the RPDE, the Proposed Action would have an estimated maximum generating capacity of between 3.75 GW and 11.5 GW.<sup>5</sup> Correction: No #5 footnote is given, appears to be from NREL RPDE report – include information for footnote.

Section 3.3.2.1.1 Benthic Resources (p. 3.3.2-4): These corals, sponges, and sea pens along with oysters (*Crassostrea virginica*), blue mussels (*Mytilus edulis*), and polychaete worms (*Sabellaria vulgaris*) act as ecosystem engineers that build structural complexity in otherwise flat benthic environments and affect community composition (Steimle and Zetlin 2000; Miatta and Snelgrove 2022; Haberlin et al. 2022). Suggested correction removes east coast specific species.

Section 3.3.2.1.1 Benthic Resources (p. 3.3.2-5): California's kelp forests comprise over 20 different species of **marine** algae, **which include sub-surface and canopy forming species**. CDFW conducted annual aerial surveys of **canopy-forming** giant kelp (*Macrocystis pyrifera*) and bull kelp (*Nereocystis luetkeana*) (collectively referred to as kelp). A 2016 survey of the north region that includes Humboldt Bay showed twice the measured 2015 canopy levels; however, kelp coverage is still below the normal range for the area. CDFW now monitors through satellite remote sensing imagery and this data has shown that kelp coverage has yet to fully recover in many areas along the North Coast of California as of 2022 (CDFW 2024a). Marine **canopy-forming** kelp has been found in small patches in the mouth of Humboldt Bay along the jetties, as well as just outside of the bay jetties. **Giant and bull kelp** presence was found at both the canopy and subsurface levels. **There is currently no data on the extent of sub-surface marine algae. However, the distribution of hard substrate is a commonly used proxy to identify potentially suitable habitat.**

Section 3.3.2.1.1 Benthic Resources (p.3.3.2-5): California surfgrass (*Phyllospadix* sp.), known to grow on rocky substrates in intertidal zones, **may be present in the cable landfall area** not been documented in the Affected Environment.

Section 3.3.2.1.2 Benthic Resources (p. 3.3.2-6): There are no documented artificial reefs in the benthic resources Affected Environment; ~~however, mollusk reefs are common.~~ Pacific oyster (*Crassostrea gigas*), an introduced species from Japan, is cultivated primarily in aquaculture farms in estuaries, including Arcata Bay. It is the second largest fishery, with about 70 percent of all oysters grown for consumption in-state, produced in Humboldt Bay (ICF 2021).

Section 3.3.2.1.2 Benthic Resources (p. 3.3.2-9): **Nearshore marine algae community consists of both sub-surface and canopy-forming species. Canopy-forming k** Kelp was also affected by the marine heatwaves (Magel et al. 2022).

Section 3.3.2.2 Benthic Resources, Table 3.3.2-1 (p. 3.3.2-10): Crushing, deposition, **impingement**, and entrainment. (Impact Indicator) Estimated extent of potential disturbance, injury, and mortality-level effects on infauna and epifauna from dredging, crushing, or burial by construction equipment and material placement; entrainment **and**

**impingement** by construction equipment and OSS cooling systems; and burial effects from suspended sediment deposition.

*Section 3.3.5.1.1 Fishes, Invertebrates, and EFH (p. 3.3.5-3):* The federally listed species are Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), steelhead trout (*Oncorhynchus mykiss*), Pacific smelt **Eulachon** (*Thaleichthys pacificus*), and green sturgeon (*Acipenser medirostris*) (NMFS 2023a).

*Section 3.3.5.3.1 Fishes, Invertebrates, and EFH (p. 3.3.5.-13):* Invasive species and marine disease can be accidentally introduced through the discharge of ballast water and bilge water from, **or biofouling associated with**, marine vessels.

*Section 3.3.5.4.1 Fishes, Invertebrates, and EFH (p.3.3.5-24):* Invasive species can be accidentally released, especially during ballast and bilge water discharges and within the fouling communities of ship hulls **and other underwater ship surfaces**.

*Section 3.4.1.3.1 Commercial Fisheries and For-Hire Recreational Fishing (p. 3.4.1-28):* The designation of the Chumash Heritage National Marine Sanctuary in fall 2024/early 2025 may yield some benefits for commercial and for-hire fishing operations such as protection of fishery resources and habitat. No restrictions to fishing above or beyond currently established MPAs **within the sanctuary** are expected.

*Section 3.4.1.3.1 Commercial Fisheries and For-Hire Recreational Fishing (p. 3.4.1-29):* Introduction of new invasive species or pathogens would be **reduced** limited by adherence to ballast water management plans. However, should a new invasive species **or pathogen** become established, it could reduce the abundance of target species, either through direct predation, or by outcompeting them for resources **or through introduction of disease**, which could lead to reduced catch rates, decreased profits for fishers, and potential job losses within the industry.

*Section 3.4.1.4.4 Commercial Fisheries and For-Hire Recreational Fishing (p. 3.4.1-37):* The presence of structures is also expected to **may** yield a beneficial impact, particularly on for-hire recreational fishing.

*Section 3.4.5 Tribal Values and Concerns (p. 3.4.5-7 and following page):* Language should be updated to reflect that the Chumash Heritage National Marine Sanctuary is no longer proposed for designation but has been designated.

*Section 3.4.5 Tribal Values and Concerns (p. 3.4.5-10):* “Low frequency Cetacean species **with hearing ranges in low frequencies** may face a nominally higher risk of behavioral effects...”

*Section 3.4.7.1.2 (p. 3.4.7-10):* If adopted, the proposed Chumash Heritage National Marine Sanctuary would sit... **The Chumash Heritage National Marine Sanctuary sits...**

*Section 3.4.8.1.2 National Security and Military Use (p. 3.4.8-3):* “There is a high density of offshore military activity surrounding the Morro Bay WEA and potential offshore cable

corridors to **the geographic area encompassing** the Port of Los Angeles and the Port of Long Beach.” The sentence, as originally written, may be confusing because no studies to our knowledge discuss interconnection at those ports.

*Appendix E (p. E-3):* “MM-17: Light impact reduction for birds **and bats**.” We believe that the omission of bats in the title is an error as this mitigation measure is discussed under *Section 3.3.1*. Please also note we are suggesting the mitigation measure be applied to all marine life.

*Appendix E: (p. E-3):* MM-13- The link provided is broken. Correction:  
<https://www.usgs.gov/labs/bird-banding-laboratory>