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Wires and Wildlife: Offshore Transmission Development and the Benthos



Regulatory Structure Governing Offshore Grid Buildout

This fact sheet highlights findings and recommendations from the National Wildlife Federation's (NWF) report, *Wires and Wildlife: Offshore Transmission Development and the Benthos*. Section 4 of this report examines the regulatory pathways and environmental safeguards associated with building offshore transmission infrastructure in U.S. waters, emphasizing the need to protect benthic (seafloor) habitats.

The development of offshore transmission infrastructure in the U.S. is guided by two primary regulatory pathways, both overseen by the Bureau of Ocean Energy Management (BOEM). These pathways—one tied to offshore wind energy leases and the other involving standalone transmission projects—shape how offshore grids are planned, assessed, and built. While offering some oversight of benthic (seafloor) habitats, these regulatory frameworks often lack proactive interregional planning and are limited by gaps in scientific understanding of long-term environmental impacts.

Pathways to Development

The development of offshore transmission grids is guided by two key regulatory pathways under the Bureau of Ocean Energy Management (BOEM):

- Offshore Wind Energy Leases: Transmission development is integrated with energy generation leases issued under the Outer Continental Shelf Lands Act (OCSLA). This process involves:
 - Identifying lease areas through public and expert input, as well as empirically through methods such as habitat suitability models.
 - Likely excluding sensitive habitats, such as coral reefs and hard-bottom areas, from leasing zones.
 - Imposing conditions on developers to mitigate environmental impacts, such as anchoring plans and activity buffers.
- Standalone Right-of-Way (ROW) Transmission Projects: Independent from energy generation leases, ROW projects undergo rigorous environmental reviews under laws like the National Environmental Policy Act (NEPA) and Coastal Zone Management Act (CZMA). An example is the Sea2shore project, which connects Block Island to the Rhode Island mainland. Developers must submit a General Activities Plan (GAP) detailing measures to protect marine habitats.

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Environmental Protections in the Permitting Process

Environmental safeguards are embedded throughout the leasing process. During the planning stage, BOEM uses habitat models to identify, evaluate, and potentially exclude, while public comments and expert review further refine lease boundaries. When issuing leases, BOEM imposes conditions to protect marine habitats. These stipulations may include anchoring plans to reduce damage, restrictions on bottom-disturbing activities, and mandatory buffers around live bottom features and endangered coral ecosystems. However, the application of these measures varies significantly across projects and regions, and the nature of these requirements have changed over time.

In order to receive a permit for construction and operations, developers must address potential impacts of development such as sediment disturbance, habitat loss, and electromagnetic fields (EMF) from underwater cables. Mitigation strategies include micro-siting to avoid sensitive areas, sediment control, habitat restoration, and burying cables to reduce EMF exposure. Environmental Impact Statements (EIS) prepared by BOEM evaluate these measures, but it is up to the Department of the Interior, and the National Marine Fisheries Service to ultimately require these measures as conditions of the permit to construct and operate the project.

Challenges and Gaps

Despite these safeguards, several challenges persist. Benthic protections are often inconsistent, with requirements differing across leases and regions. A lack of robust scientific data further complicates the assessment of long-term effects on benthic habitats, underscoring the need for improved research and monitoring.

Recent Trends and Innovation

In recent years, BOEM has begun to implement stricter environmental requirements in offshore wind leases. Leases issued between 2022 and 2024 have introduced advanced measures, such as mandatory habitat impact minimization plans and enhanced buffers around ecologically sensitive areas. On the West Coast and in the Gulf of Maine, leases now require detailed anchoring plans to avoid damaging fragile seafloor habitats. States are also playing a more active role in environmental protection. For example, New York and New Jersey require offshore wind developers to contribute to wildlife research and mitigation funds as part of their procurement processes. These contributions could help fill knowledge gaps about the long-term effects of transmission infrastructure on benthic ecosystems.

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