

Environmental Technical Working Group (E-TWG) Empire Wind Mitigation Plan Meeting Summary

Wednesday, November 20, 2019 from 2:00pm to 5:00pm
NYC Seminar and Conference Center, 71 E 23rd St, New York City

Under the New York State Public Service Commission's procurement process, contracts for offshore wind development necessarily entail Mitigation Plans to address the interests of ocean users such as commercial and recreational fishing and environmental stakeholders. On November 20, 2019, Mitigation Plans for Empire Wind (Equinor) developments were presented to non-developer members of NYSERDA's E-TWG. Mitigation plans were made available to E-TWG members digitally prior to the meeting. This document outlines the key discussion points during the Empire Wind session as well as input provided to NYSERDA via email following the meeting. Comments are summarized without attribution to specific individuals. Meeting attendees are referred to interchangeably in the summary as "stakeholders" and "E-TWG members." The session's discussion goals included:

- Initiate an ongoing conversation with E-TWG members and the developer about its project;
- Learn about and gain a detailed understanding of the project's mitigation approaches;
- Share initial advice, comments, and considerations with the project team; and
- Identify issues for further discussion or to bring back to the full E-TWG.

This summary is organized to align with the structure of the meeting agenda (Appendix A). Finally, note that this summary is focused on the meeting's discussion topics and takeaways. Full developer presentations are not summarized here. Mitigation plans and presentations from Empire Wind are available [here](#).

Environmental Mitigation Plan Meeting of November 20, 2019

Attendance: In addition to three presenting developer representatives, there were seven E-TWG members in attendance in the room, as well as four NYSERDA staff. Seven E-TWG members also participated remotely via web/conference call. One staff member each from the Biodiversity Research Institute (BRI), the Consensus Building Institute (CBI), and The Cadmus Group were also present to provide technical, facilitation, and logistics support.

Welcome & Introductions

NYSERDA shared that it is seeking input from stakeholders to inform its process and next steps regarding both Sunrise and Empire Wind site-specific topics as well as spatially agnostic topics that connect to future projects as well as other parallel efforts. Slides with further detail on NYSERDA's introductory comments are available on the E-TWG website.

As part of NYSERDA's contractual requirements, offshore wind developers must consult with relevant state agencies around fishing, wildlife, and the environment and participate in the Technical Working Groups. The developers will evolve their mitigation plans over the course of their projects, make publicly

available environmental data collected during site assessments, and implement lighting controls to minimize nighttime visibility.

This meeting was not intended to generate consensus, but instead to gather comments and questions on the mitigation plans. Developer mitigation plans will likely be updated two to three times a year based on milestones, state and federal guidance, and TWG input.

Slides with further detail on NYSERDA's introductory comments are available on the E-TWG website.

The Agenda for the meeting and "Rules of the Road" for the discussion were outlined by the facilitator are available in the Appendix.

General Comments on Environmental Mitigation Plans

This section summarizes feedback from stakeholders that applies to both mitigation plans and/or in several places throughout the mitigation plans.

Transparency and Communication

- **Decision-making Processes:** Stakeholders expressed interest in learning more and getting more transparency about what led developers to make different decisions in their project development process so that process can be seen by stakeholders and commented on.
 - **Risk Management Frameworks and Tools:** Stakeholders would like to see future discussions on risk management framework/tools and how these decisions are made.
- **Communication:** Recommended the development of a communications document or summary that frames what the project is doing in addition to the baseline requirements for a mitigation plan. The document would break down project information into a digestible format (1) requirements, (2) industry best management practices (BMPs), and (3) what they doing above and beyond what is required. This was noted as being helpful for broader audiences. A couple of specific suggested included:
 - **Webinars:** Webinars were discussed as valuable for sharing information with a broader audience beyond the E-TWG since stakeholders are pressed for time and are asked to digest a lot of information.
 - **Post-Construction Monitoring Workshop:** In the longer-term, the E-TWG will consider a post-construction monitoring workshop, potentially from a regional approach.

Detail and Specificity

- **Construction Monitoring:** Stakeholders would like to see more detail on monitoring during construction in the plan.
- **Developer's Assumptions:** It was recommended that a third column be added to tables in Section 4 to capture developer's baseline assumptions. Without this, the table otherwise seems to blend mitigation measure with developer assumptions.
- **Intentionality:** Stakeholder would like developers to speak to the intentionality of its commitment to provide greater specificity where more detail in the mitigation plan is not yet possible.
- **Similar Projects:** The plan should bring in more lessons from other projects and places.

Stakeholder comments received after the meeting

- NY should consider making the NRDC/Vineyard Wind right whale agreement standard. Or, NYSEDA should strongly suggest developers look at and consider that agreement.
- NYSEDA should require making PSO sightings for every phase of development, including decommissioning, available to the state (if not publicly) as soon as possible. The activity should be described, and the sightings listed. For example, we receive a spread sheet of sightings within a month or two after a maintenance cruise is done.

Next Steps

- **Meeting Summaries** and presentations from both mitigation plan meetings will be available on the E-TWG website.
- **Mitigation Plan Updates:** Developers will be asked to red-line changes they make to the plan to show how they respond to stakeholder feedback. The E-TWG will also discuss how the mitigation plan review and update process can continue moving forward (e.g. update two-three times a year based on major milestones).
- **Future Mitigation Plans:** NYSEDA will also undertake a broader assessment of mitigation plans to understand how they can be standardized, including across states.

Empire Wind Mitigation Plan

The sections that follow provide key takeaways associated with discussion of each section of the mitigation plan for Empire Wind.

Environmental Mitigation Plan Summary

Introduction

Equinor staff provided a brief introductory presentation covering some of its history as an offshore wind developer, including past and current projects. They then provided an introduction the Empire Wind project plans. Their team noted that they develop, construct, and operate wind farms. The Empire Project will (to the extent possible) make use of Gravity Base Structures (GBS) for foundations, which are hollow concrete chambers fastened in place with a combination of sea water and sand. This structure avoids pile driving and explosives during construction and will make decommissioning easier in the future.

The project calls for burying cables wherever possible, guided by a risk assessment process, and the company's operation and maintenance base will be in Gowanus, Brooklyn. The project will have an offshore and onshore substation and use a service operation system during operations. Construction is anticipated for 2022 and operation in 2023. The project has not yet determined a turbine size yet since technology in this space is changing rapidly. The project is currently working on its construction and operations plan (COP). A full slide deck of Equinor's E-TWG stakeholder presentation is available on the E-TWG website.

Section 1 – Philosophy and Principles

- **Priorities:** Equinor staff emphasized their priority on early engagement, desire for stakeholder feedback, and dedication to a “no surprises approach.” The team stated they will adopt best management practices (BMPs) for offshore wind development wherever appropriate. Stakeholder commentary covered:

Section 2 – Communications and Collaboration

- **E-NGO Steering Committee:** Equinor is interested in hosting an E-NGO steering committee or another stakeholder engagement forum to gather feedback on all Equinor projects. Equinor staff would like to avoid redundancy with the E-TWG and establish regular, transparent, and balanced communication.
 - In response, E-TWG stakeholders were open to different levels of communication. Some felt it is important to have many discussions as early possible before the COP, while others felt having the COP information will be helpful to provide a broader picture of the project.
 - BOEM staff present at the meeting encouraged as many conversations as possible before the COP, which triggers a regulatory process that makes changes more difficult.
 - Stakeholders also liked the idea of broadening the table since E-TWG members do not have the full range of expertise on all taxonomies and offshore wind issues.
- **Communications:** Equinor staff noted they have a website and email listserv thus far and can update their communications methods with stakeholders as appropriate and as feedback is received on what would be effective/useful.

Section 3: Supporting Other Research

- **Gravity Base Foundation Monitoring and Research:** Equinor was asked if they have any studies planned on the before- and after-impacts of using gravity base foundations. Several stakeholders noted they are hopeful that this project can show how these foundations work in the U.S. and that more information on their efficacy would be very helpful. Equinor has an interest in discussing this topic further at the next BMP committee discussion.
 - Some stakeholders also asked if there could be outreach and communication to bring stakeholders into a study on gravity base foundation monitoring or other subjects. The E-TWG could help advise on a study and its scope.

Section 4: Proposed Mitigation of Impacts to Marine Mammals and Sea Turtles

- **Modeling feedback:** Equinor is interested in feedback on if they should collaborate and build on modeling already out there or invest in detailed modeling of several species, as well as getting feedback on how to use this information to mitigate and de-risk. Equinor also noted an interest in understanding cumulative impacts.
- **Model Validation:** Model validation was noted as an important part of this work – demonstrating how a model represents “real life” and the confidence one can have in it.
 - Equinor indicated interest in continuing to discuss model validation and risk management frameworks and tools.
- **Real-time Information Transmission for Early Warnings:** There was a request for a greater commitment in the mitigation plan to the transmission of real-time information to provide early

warnings and reduce the risk of vessel collisions with marine mammals. Stakeholders noted a potential for offshore wind projects to take a leadership role on reducing collisions and vessel strikes.

- There also was interest in Equinor’s Service Operation Vessel approach and training more observers to be eyes on the ocean for vulnerable species (e.g. entangled whales).
 - Stakeholders felt this training should be part of crew training and licensing.
- **Vessel Speed Reduction:** Equinor should consider expanding the language on vessel speeds and consider mandatory (as opposed to voluntary) speed restrictions.
 - Equinor shared that active avoidance is a mitigation measure they have in place for fishing and they can apply this to marine mammals as well, particularly in seasonal management areas.
 - It was noted that this is a topic under discussion with NYSERDA’s BMP Specialist Committee.
- **Underwater Noise:** Stakeholders wanted a greater commitment in the plan to understanding more about the effects of underwater noise during construction and surveys.
 - Equinor noted that its underwater acoustics monitoring is based on BOEM and NMFS guidelines and uses the maximum design scenario (e.g. assuming pile driving in case it should become necessary in discrete locations that are unable to support gravity base foundations) and that it will identify effects and impacts.
- **Alternative Protocol Strategies:** Stakeholders would like follow-up and more clarity on the reference to prey as resource in Section 4.5.
- **Feedback from stakeholders received after the meeting**
 - 4.1.1 This looks good in general. In addition to the aerial surveys they have cited a few literature citations for looking at the impacts of noise on marine mammals and sea turtles. Looks like they have done a particularly good job finding what limited information there is for sea turtles.
 - 4.1.2 Overall, this looks good and comprehensive. However, note that the passive acoustic work is a DEC survey, with Cornell as the contractor.
 - Data collected during NYSDEC’s multi-year, monthly aerial survey (focused on large whales) from March 2017 through February 2020. Contractor: Tetra Tech.
 - Data collected during NYDEC’s multi-year passive acoustics survey for 6 species of large whales (right, fin, sei, blue, sperm and humpback) from October 2017 through September 2020. Contractor: Cornell University.
 - 4.1.3
 - Site specific surveys for marine mammals and sea turtles are needed. While the NYSERDA survey (paid for by Equinor) and other surveys will be helpful, more data is needed. Ideally, these would be monthly aerial surveys, conducted for at least two years. But, if that is not possible seasonal surveys for least two years would be an option. Passive acoustic monitoring in these specific sites is suggested to augment the observations of marine mammals by aerial surveys (again for a minimum of two years).
 - In addition, we would support the idea of installing “additional passive acoustic receivers in addition to those deployed as part of the WCS/WHOI collaboration on the existing Metocean Facilities or standalone moorings should additional spatial and temporal marine mammal data be required to support pile driving assessments.”
 - 4.3 Potential impacts

- This provides a good amount of detail and looks very good for the impacts of noise and increased vessel traffic. For the potential impacts of EMF, would like to see information on burial depth. Also, plans for checking that it has not become uncovered for at least two years after installation and after major storm events.
- 4.3 Monitor for impacts
 - This generally looks good. However, do need to do some site-specific monitoring for marine mammals and sea turtles by visual survey after installation is completed. (in addition to passive acoustics for marine mammals that is already mentioned). This may be challenging after the turbines are installed, but is necessary to examine impacts to these species.
- NYSERDA's Master Plan Marine Mammals and Sea Turtles Study doesn't fully cover the Empire Wind lease area. If this is what they are relying on, how are they accounting for the area not covered? How often do they plan on updating the document? What's the expected time frame for incorporating the ongoing studies/new data to their mitigation protocol if necessary?
- How they word the first bullet under "Data being collected" is confusing. Schlesinger and Bonacci 2014 is a document discussing methodology, not an ongoing data collection. The second bullet is the DEC aerial survey data collection and the 5th bullet is also NYSDEC (not Cornell). They should reword that first bullet entirely and clarify the other efforts.
- "Other efforts" should be described. They should look at opportunistic sightings data from Gotham Whale on the NYS Gateway. They don't list the actual data sets.
- Vessel traffic section needs to include sea turtles.
- Pre/Post Monitoring section needs a lot more information. "The potential for" is not the same as saying something will be done. Before-During-After data collection/studies are important.
- Should cite "Summary Report: Best Management Practices Workshop for Atlantic Offshore Wind Facilities and Marine Protected Species" by BOEM 2018.

Section 5: Proposed Mitigation of Impacts to Birds and Bats

- **Displacement in the Pre- and Post-Monitoring Section:** Stakeholders shared they would like to see displacement discussed in the pre-construction, operation, and post-monitoring section of the plan (Section 5.4.1) and a broader buffer area to establish a good baseline.
 - Equinor noted they are open to using nanotechnology on turbines in a similar approach to the Block Island Wind Farm.
 - NYSERDA, USFWS, and BRI will advise on this via their existing work through their project developing monitoring protocols for nanotag studies at offshore wind farms.
- **Nocturnal Migrants and Shore and Songbirds:** Stakeholders requested to include more information collection on nocturnal migrants and shore and songbirds in the plan.
- **Flight Heights and Lighting:** Stakeholders also noted that it is important to understand flight heights and how lighting would impact birds.
 - For example, gannets don't fly high and should be flagged for pre- and post-study. They also are also an important nocturnal at-risk species to flag as priority.
- **Terns:** Roseate terns and common terns were other important species flagged by the group for monitoring.

- **Bird Species Distinctions:** Equinor should add greater distinction on bird species in the mitigation plan (e.g. breeding vs. juvenile).
 - **Time Tracking:** Stakeholders noted that many birds are seen in March in terms of behavioral observation, active feeding, and active light. Timing is important for when monitoring is completed.
- **BOEM Webinar:** BOEM staff shared that they held a webinar on the same day as this meeting about lighting guidelines. The webinar will be posted to their website.
- The **Regional Science Entity** will play a role in this work and can help explore questions across multiple projects and assist planning to protect species. It can also help with understanding cumulative impacts and the broader regional picture.
- **Feedback from stakeholders received after the meeting**
 - 5.1.1 A few of the studies cited do not address the Empire lease area. While there are not many bats studies to reference, they are missing a few key studies. Such as (and included in the Orsted plan): Grady and Olson 2006; Cryan and Brown 2007; Johnson et al. 2011; Hatch et al. 2013; Pelletier et al. 2013; Sjollemas et al. 2014; Dowling et al. 2017
 - 5.2 No specific mention of Roseate Terns here is odd- need to highlight Roseate Terns. Also, Common Terns are state threatened, so should be mentioned here. Northern Long-eared Bat should be mentioned due to its status.
 - 5.3
 - Collision risks to marine birds: missing other options, including lighting, monitoring methods, operations changes. Would like to see more detail.
 - Habitat impacts: This rafting bird "consideration" is nice to see. Missing in other project descriptions of cables coming onshore in the Hamptons.
 - 5.4.1 Behavioral responses: Behavioral responses. What does this mean? This seems different than what they are actually doing. Also, getting enough statistical power might just require more/more extensive surveys. If they are referring to displacement effects, it seems like the surveys they are doing now likely don't have the statistical power to detect behavioral responses either. Fully supports the mentioned GPS tagging studies
 - 5.4.2 These are very vague answers. More specifics needed. e.g. Roseates.
 - 5.5 This is necessary information. Fine that it's not settled but need to propose ideas. Particularly need to state how will know when mitigation strategies are insufficient.

Section 6: Proposed Mitigation of Impacts to Fish, Invertebrates, and their Habitats

- **Tabular Format:** A recommendation was made for Equinor to share results from their data available in a tabular format so it is easier to review.
 - Equinor noted that they have a considerable investment in data and are trying to figure out the best ways to share it via a model for the COP assessment. One stakeholder suggested the possibility of a journal article as another option.
- **Aerial Survey Webinars:** The potential for Equinor to hold a webinar on aerial surveys they have conducted was noted as helpful and could be combined with NYSERDA and NYSDEC's data as well (or offered consecutively).
 - This point came up at a recent NYSDEC Monitoring Workshop as well; the group there wanted to understand what monitoring looks like.
- **Underwater Operational Noise:** Stakeholders would like more information on underwater operational noise and its impact on benthic habitat and species, including benthic mammals and sharks, as well as noise barriers Equinor is considering (e.g. wet materials).

- **Cable Burial:** There is a preference in the fishing community for underwater cable burial as part of offshore wind development.
- **Gravity Base Foundations:** Several stakeholders expressed appreciation for Equinor’s intention to use these foundations since they are a potential BMP the subcommittee is exploring for mitigating pile-driving noise – will be helpful to learn from this experience, including pros and cons.
 - Empire will use GBS, where possible.
- **Feedback from stakeholders received after the meeting**
 - 6.1.1 This is a bit lacking in terms of literature or data sets for fisheries and fish habitat. While the NYSERDA Master Plan: Fish and Fisheries studies does provide valuable information it generally only covers out to 15 nm. NMFS groundfish and other surveys are not mentioned, SoMAS work done by Dunton, Frisk and others on Atlantic sturgeon is not mentioned (just the current work by Frisk in the WEA is mentioned), NEAMAP and other surveys are not mentioned. DEC is certain there is better info on invertebrates other the sources they mention here. Overall, they need to dig deeper.
 - 6.1.2 Again, this is lacking. Some of the surveys mentioned above are ongoing-ex. NMFS groundfish survey
 - 6.1.3 While their Geophysical surveys and benthic surveys appear adequate for characterizing bottom types, substrate etc. and determining what invertebrates are in the area, they don’t have much of plan for fish.
 - 6.2 The list of fish and invertebrate species likely to be found is very short. Missing in this consideration are fish that are species of concern for the state and/or that are the targets of fisheries of high economic value to the state.
 - 6.3 Time of year restrictions are not mentioned as a possible mitigation method for Atlantic sturgeon, and possibly other species.
 - 6.4.1 Not really anything here. We understand this is difficult, but they leave it at that they will explore options.

Sections 7 and 8: Project Decommissioning and Additional Considerations

- **Component Lifespan:** Equinor was asked about the disparity between the life of different components of a wind farm (e.g. base, tower, turbines, etc.). Equinor noted that they are considering a 30+ year lifespan for most components, but added that electric cables can last for 50-60 years. Turbines are currently the most limiting factor, but are lasting longer than anticipated in many cases.
- **Aerial Surveys:** Further information on the below will be provided to E-TWG members separately via email.
 - Equinor will share aerial survey data as part of the COP.
 - NYSDEC will share when the Turtle Monitoring Report is ready, links to their serial surveys, and the NYS Ocean Action Plan.
 - There is interest in topic specific webinars, including aerial surveys and assessments.

Appendix A: Meeting Agenda

- 2:00** **Welcome and Introductions**
- 2:10** **Overview of the Day, Goals and Ground Rules, *Facilitator***
- 2:20** **Brief Overview of Procurement Process, Authorities and Jurisdictions, and Process from here, *NYSERDA***
- 2:30** **Overview of the Project, Empire Project Team**
- 2:45** **Present each major section**
- Project Team presents key points of each section (5 to 8 minutes)
 - E-TWG ask questions, provides advice and considerations (10 to 15 minutes)
 - Facilitator summarizes key points at end of each
- 3:30** ***Brief Break***
- 3:40** **Continue Review and Discussion of Sections**
- 4:45** **Summary and Next Steps**
- Facilitator summarizes discussions
 - NYSERDA reviews next steps
- 5:00** **Adjourn**

Appendix B: Rules of the Road for the Dialogue

This is the first, but by no means the last, dialogue between the E-TWG and specific project teams. Unlike the typical E-TWG meeting, where discussions focus on key issues across projects, these discussions are meant to be project specific. Thus, to set expectations and parameters about project specific dialogue, the following rules of the road are suggested.

- Only non-developer E-TWG members will attend (but for each project team)
- A meeting summary without attribution will be developed from the dialogue and made available to all E-TWG members and posted on the E-TWG website
- This is a common forum to learn together about project details and to provide individual advice and comment to projects. The E-TWG is not expected to develop collective advice to the projects.
- The project teams are not required to agree with nor act on the advice or comment of E-TWG members, but are expected to take it seriously, consider the merits, act when possible, and explain why key advice was not taken
- The project teams should understand that while these meetings are not public there is no guarantee of confidentiality and the meeting summary will be made public. Thus, project teams should be mindful when / if they choose to share proprietary data.

- The dialogue with individual project developers is expected to be on-going and no one single meeting is intended to serve as the sole forum or time for dialogue
- Through individual project discussions, the E-TWG may identify common themes and issues that need to be discussed across projects and these may be brought to future E-TWG meetings where all members, including developers, are present

