

**STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES**

**IN THE MATTER OF OFFSHORE WIND
TRANSMISSION**

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BPU DOCKET NO. QO20100630

Response of Mid-Atlantic Offshore Development, LLC

To

BPU Staff Clarifying Questions Set 1

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Ratepayer Cost Impacts

1. Please discuss any options you have considered to make some, or part, of the project eligible for the current federal investment tax credit that is accessible to qualified offshore wind generation projects. Have you considered options for accessing beneficial tax treatment through a sale/lease back or other financial structuring options? If so, please provide specific details on your analysis, how you intend to pursue the tax credits, and any other matters that Board Staff should consider.

Response:

MAOD is evaluating the availability of the federal ITC for the project under existing law and is aware that favorable changes/clarifications to the applicable rules may be forthcoming, either through a legislative technical correction, a new transmission property ITC or regulatory or sub-regulatory guidance from Treasury and the IRS.

[REDACTED]

2. Do you commit to “pass through” to New Jersey ratepayers the economic benefit you receive from any current and/or future federal tax credits or incentives that may be (or may become) available to your project? If so, please provide specific details on how. If you are electing to keep the economic benefit of any tax attributes, please so specify and address any impact on your bid.

Response:

The project will share with New Jersey ratepayers federal investment tax credit benefits in accordance with section 46(f)(1) of the Internal Revenue Code and accelerated depreciation benefits in accordance with section 168(i)(9) of the Internal Revenue Code.

[REDACTED]

[REDACTED]

[Redacted]

[Redacted]

[Redacted]

3. Do you intend to review and discuss your proposed rate and FPA Section 205 filings with the NJ BPU prior to submitting those proposals with either PJM or FERC? In connection with the foregoing, are you willing to provide the NJ BPU an opportunity to give feedback prior to your making any FERC filing on this matter?

Response:

MAOD will be transparent and proactive in engaging with both PJM and the NJ BPU at all stages of the finalization and implementation of project development if it is selected in the SAA process.

[Redacted]

[REDACTED]

[REDACTED]

MAOD would be required to publicly file a FERC Form 1 each year and would make Electric Quarterly Reports as required by FERC's regulations.

MAOD is confident that, based on the above, the NJ BPU will have sufficient insight into MAOD's operations.

4. Do you intend to provide the NJ BPU the opportunity to monitor compliance with the selected cost containment and schedule guarantees that would be incorporated in a Designated Entity Agreement ("DEA") with PJM? With respect to the DEA, do you intend to provide the NJ BPU an opportunity to present concerns or ask clarifying questions related to your proposed Schedule E terms before they are presented to PJM?

Response:

Yes, consistent with processes outlined in response to Question 3, MAOD would provide the NJ BPU the opportunity to monitor compliance with cost-containment and schedule guarantees.

[REDACTED]

5. Please indicate whether you have had, or anticipate having, any discussions with the Department of Energy Loan Programs Office (LPO) regarding obtaining support from the LPO for your proposed project(s). If so, please provide an overview of the discussions you have had with the LPO, whether you have filed an initial application with the DOE, or whether you intend to do so.

Response:

[REDACTED]

[REDACTED]

[REDACTED]

6. Please discuss any efforts to access non-tax federal support for your project, including, but not limited to, funding from the Department of Energy’s Transmission Facilitation Program, other Infrastructure Investment and Jobs Act funding, or other sources of potential support. Would you anticipate filing such a request or would you expect New Jersey to seek any available support?

Response:

MAOD is committed to working in partnership with the State of New Jersey to develop the most cost-effective solution for its transmission proposal. The Federal Government, through the Infrastructure Investment and Jobs Act, has a few opportunities the State should consider applying for including the Program Upgrading Our Electric Grid and Ensuring Reliability and Resiliency program.

Though still in development, the DOE competitive grant program titled Program Upgrading Our Electric Grid and Ensuring Reliability and Resiliency will include \$5 billion in competitive financial assistance to states, local governments, and American Indian tribes that demonstrate innovative approaches to transmission, storage, and distribution infrastructure to harden and enhance resilience and reliability; and to demonstrate new approaches to enhance regional grid resilience.

[REDACTED]

See further Transmission Facilitation Program (TFP) discussion in response to Question 8.

7. Do you commit to “flow through” to New Jersey ratepayers any economic benefits that may be received from DOE or other federal funding sources? If so, please provide specific details on the manner in which this would be accomplished. If you are electing to keep the economic benefit of any federal support, please so specify and address any impact on your bid.

Response:

As described in response to question 2 and in MAOD’s response to BPU questions submitted

May 20, 2022, MAOD intends to both ensure that it pursues and passes through benefits of funding or other economic benefits received from DOE or other federal funding sources. [REDACTED]

MAOD hopes to work in coordination with the BPU and PJM to optimally structure its projects to capture as much value from such programs as possible for New Jersey ratepayers as structurally passed-through benefits. [REDACTED]

8. Please discuss any potential impacts on your project and bid if federal support were made available through DOE's Transmission Facilitation Program in the form of a purchase of transmission capacity, which would then be made available for resale by DOE at a future time. Could the project be structured as a sale of transmission capacity, where such capacity sales would be backed by a ratepayer-backed purchase of all available capacity? What would be the pros and cons of such an approach?

Response:

The value of a program like the Department of Energy's (DOE) TFP would depend on the scope of the final TFP program and how it may or may not apply to the type of project (or projects) that the NJ BPU selects in its bidding program. DOE issued a Notice of Inquiry and Request for Information for the TFP on May 10, 2022. Comments are on the NOI and RFI are currently due on June 13, 2022. We expect final rules and guidance from DOE later in 2022.

The Infrastructure Investment and Jobs Act (IIA or the Act) directs DOE to establish the TFP under which the Secretary shall facilitate the construction of electric power transmission lines and related facilities to facilitate decarbonization of the US economy and to strengthen the reliability and resiliency of the US bulk power system. The TFP focuses on larger transmission initiatives that are necessary to deliver large amounts of power to large load centers. Under the TFP, per NOI and RFI, an "Eligible electric power transmission line" for the TFP is an electric power transmission line that is capable of transmitting not less than (a) 1,000 megawatts (MW); or (b) in the case of a project that consists of upgrading an existing transmission line or constructing a new transmission line in an existing transmission, transportation, or telecommunications infrastructure corridor, 500 MW.¹ DOE

¹See May 26, 2022 Notice of Intent and Request for Information regarding establishment of a Transmission

is contemplating facilitating these types of projects through a combination of a form of anchor tenancy (for example, through forms of anchor tenant arrangements), DOE loan programs or public-private partnerships. As of now, DOE is also focusing on projects that will reach commercial operation by the end of 2027. The final scope of this program will not be known until DOE issues its final regulations and guidance documents.

[REDACTED]

[REDACTED]

MAOD is willing to further evaluate TFP opportunities with the NJ BPU once DOE finalizes the programs and issues guidance.

Facilitation Program, available at <https://www.federalregister.gov/documents/2022/05/12/2022-10137/notice-of-intent-and-request-for-information-regarding-establishment-of-a-transmission-facilitation>.

Project Design

9. Has your offshore platform been designed with sufficient space and equipment for future interconnection with other offshore platforms as a part of an offshore transmission network?

Response:

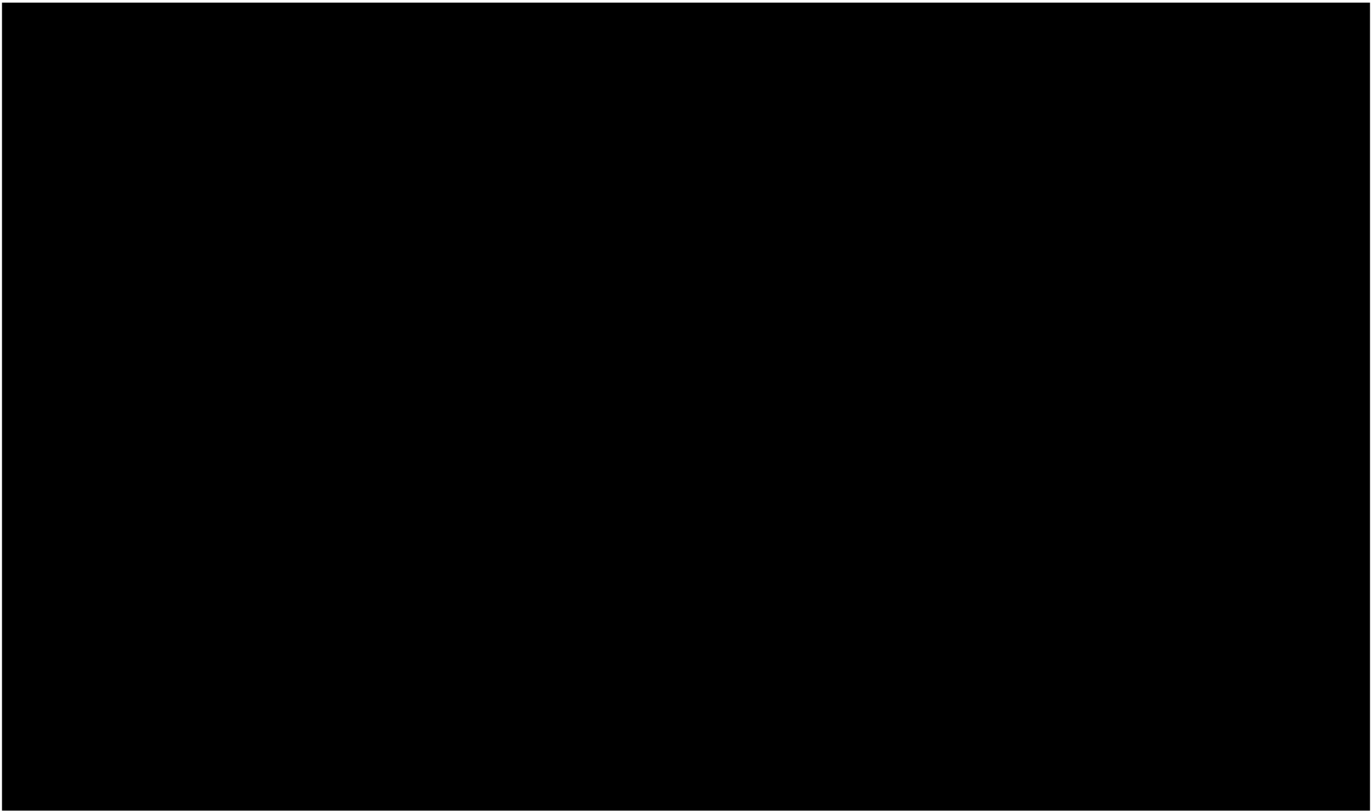
[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]



[Redacted text line]

[Redacted text block consisting of five lines]

[Redacted text block consisting of ten lines]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

10. In the MAOD/JCPL combined solution, JCPL's 1B solution includes several upgrades to its existing system to accommodate offshore wind injections at the proposed Mid-Atlantic Offshore Development (MAOD) substation (including DC converters and an AC switchyard). Can MAOD provide a cost estimate for building only the AC switchyard portion of the MAOD substation and not the HVDC converter stations? In the case that Proposal 453 is selected without the Proposal 321 DC converter stations, would JCPL or MAOD build the AC switchyard portion of Proposal 321?

Response:

[REDACTED]

[REDACTED]

[REDACTED]

PJM ID	MAOD Proposal	Capacity (MW)	[REDACTED]
431	1	2,400	[REDACTED]

551	2	3,600	[REDACTED]
321	3	4,800	[REDACTED]

[REDACTED]

11. Would MAOD be willing to allow Ocean Wind 2 to interconnect its export cable and DC converter station (if it will utilize HVDC technology) to the AC switchyard at the Larrabee Converter Station? If so, how do the projected costs of your proposal change?

Response:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[Redacted]

[Redacted]

12. MAOD notes that its Larrabee Converter Station [Redacted]

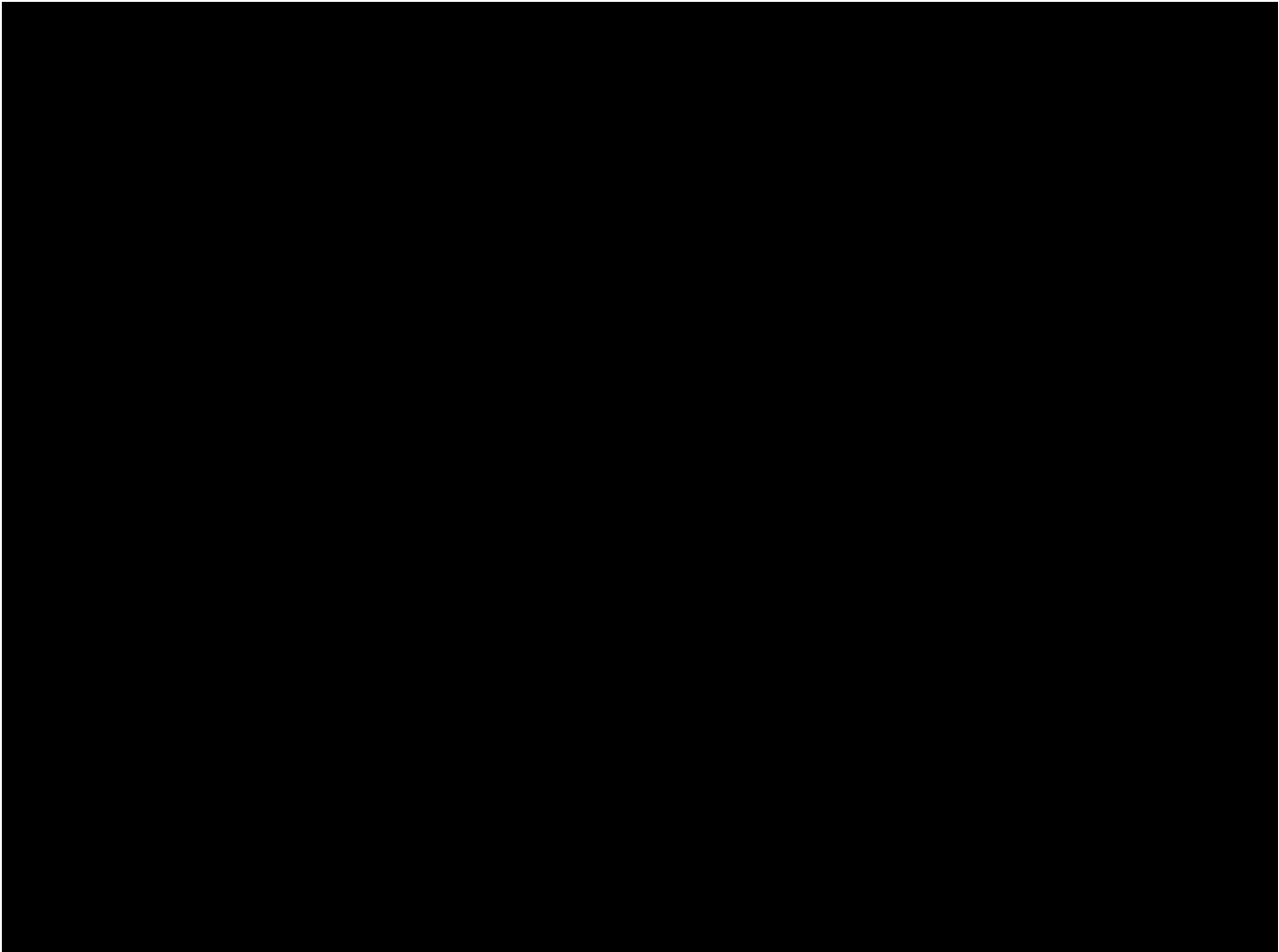
[Redacted]

Response:

[Redacted]

[Redacted]

[Redacted]



13. Please elaborate on how your proposal “effectively establishes the foundation for a broader offshore wind transmission network and could be used as an element of a future HVDC backbone that can be utilized to address future offshore wind needs and enhance reliability of offshore wind delivery.”

Response:

MAOD’s solution, with a mature and efficient access method to the grid, provides a strong base for a functional future offshore transmission network.

MAOD’s proposal’s main objective is to provide a cost-effective solution connecting offshore wind to the New Jersey electrical grid on schedule, within budget and with maximum reliability.

[Redacted]

[Redacted]

[Redacted]

14. Your proposal provides a region between the Hudson South and Atlantic Shores lease areas for locating your offshore converter stations [Redacted] [Redacted] Would you be able to build your offshore converter stations in other locations beyond the region specified to allow lease holders in all available lease areas to participate in future offshore wind solicitations? If so, what would be the impacts on your proposal?

Response:

[Redacted]

[Redacted text block]

[Redacted text block]

[Redacted text block]



15. Given your proposal to locate offshore converter stations based on the location of the offshore wind generation facilities selected by the BPU, please explain your proposed approach to identifying the location of the offshore platforms with OSW generation developers that would result in lowest cost to New Jersey ratepayers and reduce project-on-project risk for delivering

the offshore wind generation.

Response:

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

16. MAOD identifies cost savings from avoiding the need for an additional offshore platform for the offshore wind generation facilities. Please provide a summary of any discussions MAOD has had with OSW developers about the feasibility and operability of offshore wind generators locating their equipment on the MAOD offshore substation platform.

Response:

[REDACTED]

[REDACTED]

[REDACTED]

17. Please provide additional details on the design of the proposed HVDC interlinks, including experience with similar designs in other projects.

Response:

Hitachi Energy pioneered commercial HVDC technology more than 65 years ago. HVDC Light[®], invented by Hitachi Energy based on Voltage Sourced Converter (VSC) technology, is a highly dynamic and efficient alternative to alternating current for transmitting large amounts of electricity with higher efficiency, over longer distances, and with lower electrical losses.

Hitachi Energy has delivered more than half of the world's HVDC projects. These include North Sea offshore wind grid connection projects such as DolWin 1 and DolWin 2, and the world's first offshore wind farm, BorWin1. In addition, Hitachi Energy is connecting the SSE-owned Shetland link to its Caithness-Moray HVDC system for integration to the UK mainland transmission network.

The Shetland Link HVDC connection project for the Scottish and Southern Electricity Networks Transmission (SSEN) completes the first multi-terminal high-voltage direct current (HVDC) system in Europe using voltage-sourced converter technology, invented by Hitachi Energy, and the second in the world. By using Hitachi Energy's HVDC Light[®] technology, having high controllability and flexibility, SSEN can efficiently combine wind and hydropower to meet user needs while also increasing reliability and capacity of the power grids in Scotland and on Shetland. The technical solution has a minimal environmental footprint due to optimized design and low losses.

Another well-advanced, notable reference project is Dogger Bank (Equinor, UK). The project has completed much of its construction phase and is now in Norway for an at-shore integration phase prior to sailing to the offshore platform location and being lifted onto its jacket by a HLV. The latest

HVDC Light system used for these connections provides the most compact design and the lowest energy losses in the power industry. According to an independent life cycle assessment, the implementation of this pioneering technology will reduce the lifetime CO2 impact by almost two-thirds compared to previously commissioned installations- supporting the green energy transition and strong global focus on carbon-neutral energy systems.

Please also see a Hitachi Energy HVDC Light reference list for details of other projects both completed and ongoing here².

²<https://library.e.abb.com/public/47db9790622a420eabda00fdb008c848/HVDC%20Light%20Reference%20list%20POW0027%20Rev35.pdf?x-sign=SF2sl/GZ1+IUHjS5ULFPx1jRnrtmKrXavTNDbM6U3QrKffFuwXozudHtLACTPeVk>
HVDC Light® Reference List, “The original VSC technology,” Hitachi Energy.

18. Please provide additional details on the configuration of the underground onshore cables, specifically related to whether they will be in a common trench and your approach for installing additional cables for later solicitations.

Response:

[Redacted]

[Redacted]

19. Please describe any progress made in securing exclusive rights to purchase the parcel necessary for MAOD's onshore substation. (reference 321 supplemental form at p. 34)

Response:

[Redacted]

[Redacted]

[Redacted]

[Redacted]

Siting / Permitting

20. Identify progress made in securing necessary land, easements, ROW grants, etc. for your project(s) since submittal.

Response:

MAOD's current progress on securing necessary land, easements and ROW grants for its projects is summarized in the following bullet points:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

21. Please describe how your proposed solutions will minimize environmental impacts and permitting requirements through the use of common corridors that can accommodate more than one transmission cable, including an estimate of the miles in which facilities/infrastructure will be co-located within a common corridor and miles in which facilities/infrastructure will be located in separate corridors.

Response:

Minimization of environmental impacts and permitting requirements is achieved by locating the maximum lengths of circuits for the proposed projects in the fewest number of offshore and onshore transmission cable corridors, as practicable. MAOD's projects interconnect at the JCP&L transmission system via one single onshore power corridor and one single onshore substation,

where MAOD will be able to connect to four circuits and ultimately three different POIs (Larrabee, Atlantic, and Smithburg substations).

[REDACTED]

[REDACTED]

As previously provided by MAOD in its submissions to the BPU, the projects maximize the use of one landfall location that can accommodate the proposed circuits thereby minimizing coastal land requirements and potential impacts associated with cable landing.

22. In the case where facilities/infrastructure are using common corridors, please explain the methods for reducing environmental impacts, including what equipment will be used in common corridors, when each facility will be installed, and how they will be installed, and how the common corridors will mitigate, minimize, or avoid future construction efforts.

Response:

Please see MAOD's Environmental Protection Plan (Section VII.1 and Appendix 3 of the Application) for more detailed information regarding the reduction of environmental impacts during construction. In summary, MAOD will achieve the reduction of environmental impacts in the following ways:

- [REDACTED]

[Redacted text block]

- [Redacted text block]

- [Redacted text block]

- [Redacted text block]

23. Please identify all discussions that you have had with BOEM regarding the siting and permitting of your proposed project, including but not limited to (a) whether a right-of-way (ROW) grant or right of use authorization (RUA) will be required, (b) whether BOEM will conduct or be required to conduct a competitive solicitation prior to the issuance of a ROW grant or RUA, (c) BOEM’s information needs and expected timeline for the issuance of any competitive solicitation, ROW grant, and/or RUA (including information needed and the expected timeline for conducting any required review under NEPA), and (d) the expected timeline for you to submit, and BOEM to review and approve, a general activities plan (GAP) for your proposal.

Response:

[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

24. Please identify all discussions you have had with current and recently awarded lease holders with respect to your proposal, any concerns that you have identified as a result of those discussions, and any concerns that have been raised by those lease holders.

Response:

[Redacted response text]

Project Schedule

25. Offshore wind developers have identified schedule risk as the primary concern for selecting offshore transmission facilities via the SAA. Please explain how your proposed schedule will ensure offshore wind generation facilities will be able to meet their construction schedule and projected in-service date for each solicitation, and the need for electricity back-feed 12 to 15 months prior to its in-service date.

Response:

MAOD understands schedule and commercial operation timing coordination between transmission and generation to be a key risk to the BPU, New Jersey ratepayers, PJM, and any awarded developer's strategic objectives. MAOD's set of technical proposals aims to provide the BPU with flexible but realistic solutions capable of effectively managing such risk.

MAOD's schedule ensures offshore wind generation facilities meet their construction schedule by leveraging the following:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[Redacted]

[Redacted]

[Redacted]

26. In the absence of a firm schedule commitment, please describe steps taken to ensure schedule coordination with BPU and developer to ensure timely project delivery, OSW generation & energization.

Response:

[Redacted]

[Redacted]

[Redacted]

[Redacted]

27. If the Board were to increase the capacity procured during future offshore wind solicitations, how can your proposal accommodate that change? In your response, please describe the earliest in-service date possible for each phase of your proposed project(s), the limitations to achieving an earlier in-service, and the costs for accelerating the cost schedule.

Response:

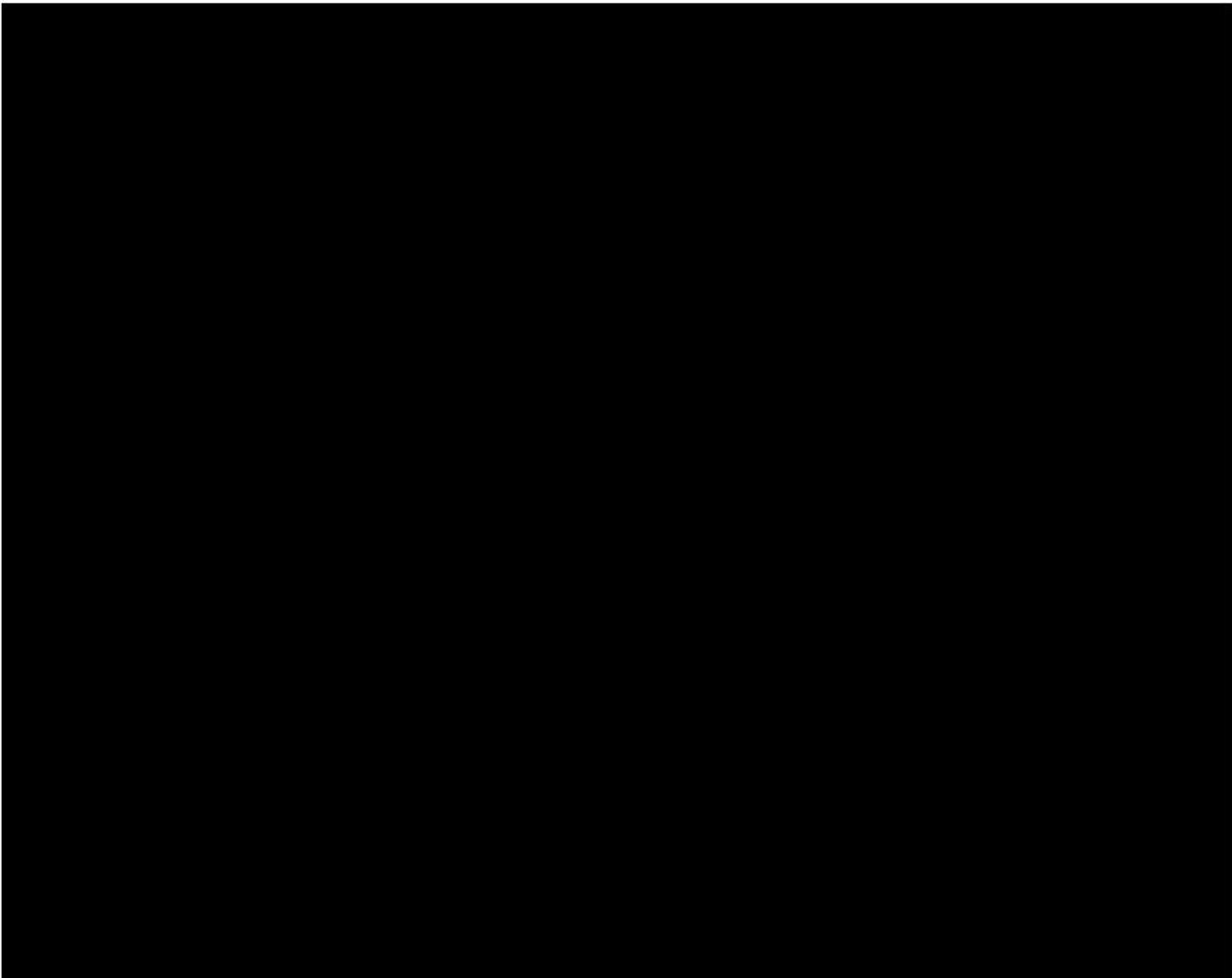
[Redacted]

[Redacted]

[Redacted]

	Proposal 1 (2400 MW)	Proposal 2 (3600 MW)	Proposal 3 (4800 MW)
In-Service Date Phase 1	[Redacted]		
In-Service Date Phase 2	[Redacted]		
In-Service Date Phase 3	[Redacted]		
In-Service Date Phase 4	[Redacted]		

[Redacted]



[Redacted text block]

[Redacted text block]

28. Can you please clarify the expected in-service date (month and year) for each phase of each of your proposed projects?

Response:

[Redacted response text]

[Redacted]

[Redacted]

	Proposal 1 (2400 MW)	Proposal 2 (3600 MW)	Proposal 3 (4800 MW)
In-Service Date Phase 1	[Redacted]	[Redacted]	[Redacted]
In-Service Date Phase 2	[Redacted]	[Redacted]	[Redacted]
In-Service Date Phase 3	[Redacted]	[Redacted]	[Redacted]
In-Service Date Phase 4	[Redacted]	[Redacted]	[Redacted]

29. If the location of offshore converter stations is determined following the OSW solicitation, please explain the amount of time that would be necessary to develop your facilities between the completion of the BPU solicitation process and the in-service date for the offshore wind generation facilities.

Response:

[Redacted]

[Redacted]

[Redacted]



Project Benefits

30. Please describe the base case used in comparison of market efficiency benefits, including the method used to consider injections in the radial benchmark case (reference 551 supplemental form at 20).

Response:

[Redacted response text]

Cost Containment

31. Please identify MAOD's proposed debt/equity structure, and whether the return on equity it seeks from FERC will be subject to a maximum cap.

Response:

[REDACTED]

[REDACTED]

32. Please identify when MAOD expects to issue a notice to proceed to its construction contractor as it relates to cost indexing.

Response:

[REDACTED]

	Proposal 1 (2400 MW)	Proposal 2 (3600 MW)	Proposal 3 (4800 MW)
NTP Phase-1	[REDACTED]		
NTP Phase-2	[REDACTED]		
NTP Phase-3	[REDACTED]		
NTP Phase-4	[REDACTED]		

33. Is the proposed definition of "Uncontrollable Force" intended to replace the definition of "Force Majeure" in the DEA? Would MAOD be open to adopting the force majeure provisions of the existing PJM documents?

Response:

[REDACTED]

[REDACTED]

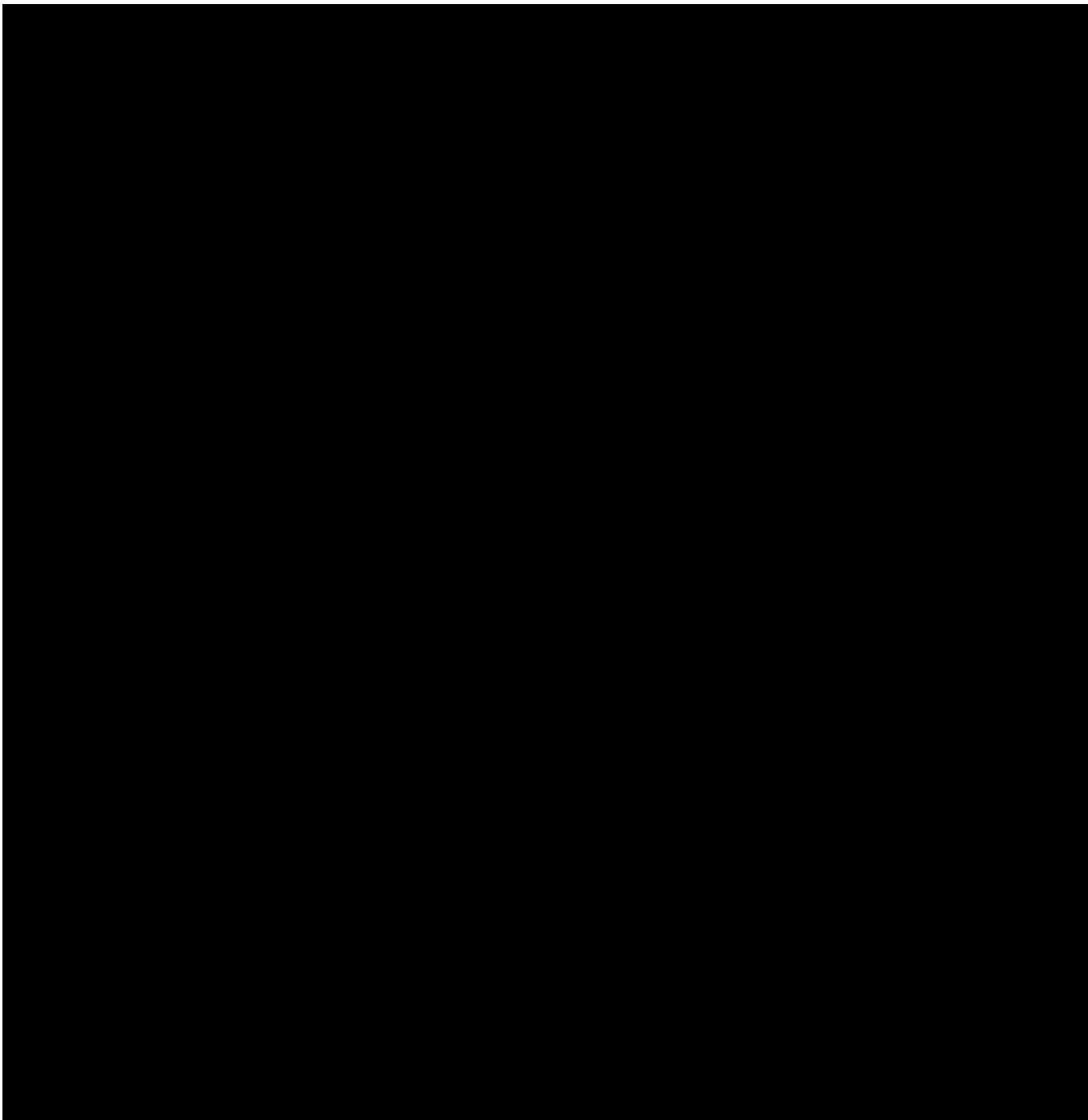
[Redacted]

34. Please identify and provide details on the specific alternate mechanisms for cost containment (as referenced in footnote 6 to Appendix 1 in Attachment 5-3) that MAOD would like NJBPU to consider in connection with its proposal.

Response:

[Redacted]

[Redacted]



[Redacted text block consisting of eight horizontal lines of varying lengths, all obscured by black bars.]

Environmental (Proposal 321)

35. Green Acres: Have you conducted title work or reviewed the right of way/easement language specific to each parcel impacted, in an effort to verify that the proposed project is permissible under the existing right of way/easements? If yes, please describe. This would apply to new/additional/upgraded service lines, poles and towers or the clearing of trees in an expanded right of way.

Response:

[REDACTED]

[REDACTED]

36. State-owned lands (Parks, Forests, Wildlife Management Areas): Have you consulted with the Office of Transactions and Public Land Administration on the use of State-owned lands? Does this project include any alternatives that would avoid state lands? If yes, please describe and explain how you will address potential additional impacts on ratepayers should the alternative site make the project costlier. If an alternative is pursued, what (if any) impacts might that decision have on the project schedule?

Response:

[REDACTED]

37. Federal Agencies: Have you consulted with any federal agencies regarding permits and approvals for the portions of the project located in federal waters? If yes, please describe.

Response:

[REDACTED]

[Redacted text block]

[Redacted text block]

38. National Guard Training Center: Have you consulted with the Department of Military and Veteran Affairs for the use of the Army National Guard Training Center in Sea Girt, NJ? If yes, please describe.

Response:

[Redacted text block]