
Via Electronic Mail

To Whom it May Concern:

Anbaric Development Partners, LLC (“Anbaric”) submits these comments to ISO New England Inc. (“ISO-NE”) to correct various factual, technical and legal errors made in ISO-NE’s June 8, 2020 on-line posting “Boston 2028 RFP – Review of Phase One Proposals” (“ISO-NE Presentation”),¹ which resulted in ISO-NE excluding Anbaric’s proposals from further consideration. The purpose of these comments is to share the review conducted by Anbaric and its consultants – including EN Engineering, Power Engineers, and Daymark Energy Advisors – of the ISO-NE Presentation. This review demonstrates that ISO-NE’s decisions in this matter are incorrect and should be revised.

In the ISO-NE Presentation, Anbaric’s two transmission proposals were summarily rejected for failure to meet the requirements of that RFP (along with 24 of 36 other proposals). As a result, ISO-NE did not give Anbaric’s proposals any further consideration. This rejection is arbitrary and flawed because it is based on technical, factual, and legal errors. The rejection is also contrary to the Federal Energy Regulatory Commission (“FERC” or the “Commission”) requirements for competitive transmission solicitations held under FERC Order No. 1000.²

After rejecting 24 of 36 proposals on allegedly technical grounds, the ISO-NE Presentation goes on to eliminate all but one of the remaining 11 projects from further consideration based on cost. As discussed below, these cost determinations are inconsistent with Order No. 1000’s directive to identify the “more efficient or cost-effective project.” Projects that appear to be more expensive may in-fact be more economical to ratepayers when a range of factors other than up-front capital costs, and of the types identified by Order No. 1000 are considered. For example, the Anbaric Projects eliminate the need for significant near-term system upgrades identified by ISO-NE as needed to incorporate offshore wind being procured by ISO-NE.

¹ The presentation has been updated, and Anbaric is referring to the Boston 2028 – Review of Phase One Proposals, June 9, 2020 version.

the New England states at a cost of $620 million. When that avoided cost is considered, the projects put forward by Anbaric are more cost effective than the $49 million incumbent project that ISO-NE has preliminarily selected. Further, the project preliminarily selected by ISO-NE will not even solve the transmission security reliability needs in the area if the Northeast Clean Energy Connect (“NECEC”) project, now the subject of a voter referendum in November 2020, is delayed or does not move forward. This will require the Mystic generating units to remain online to meet system reliability criteria, supported through an extended cost of service agreement or gap RFP. Multiple additional years of out-of-market cost support payments to the Mystic generators while additional system reliability needs are addressed also make the Anbaric projects more efficient or cost effective than the incumbent backstop solution preliminarily selected by ISO-NE.

Finally, the RFP process to-date has not been transparent contrary to both Order No. 1000 and the ISO-NE Information Policy. Despite requests from Anbaric and others to post public versions of the bids submitted so that meaningful and timely input could be provided to ISO-NE, those non-confidential bids have been withheld. While stakeholders – including policy makers – cannot get back the lost months of review, ISO-NE should mitigate any further delay in the process by posting the complete public versions of the bids so that meaningful feedback can be given on what projects should move forward to Phase II as is required by Order No. 1000 and the ISO-NE tariff.

I. Project Overview

The Boston 2028 RFP was issued to solicit transmission solutions to address reliability issues created by the retirement of the 2000 MW Mystic power plant in Everett, MA.

Anbaric made two submissions into the Mystic transmission reliability RFP process: an AC project that would move 900 MWs of electricity on two tri-core cables between the former Pilgrim station area in Plymouth, MA to the Mystic substation in Everett, MA, (“Anbaric AC Project”); and a 1200 MW HVDC proposal, that would move 1200 MWs over one HVDC cable bundle between the same two points (“Anbaric HVDC Project”). The projects are both referred to as the Mystic Reliability Wind Link. Each avoids the need for near-term 345kV upgrades to the system that would cost approximately $620 million. Each includes extra duct banks that are not included in the project costs that would allow more $0-bid offshore wind to reach Boston, lowering consumer costs. Each utilizes a cost cap as well as a 7.9% ROE with a lengthy

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3 The $49 million dollar cost is achieved through “a DDT scheme on the 394 line to eliminate the contingency that causes the K-163 115 kV line overload.” See ISO-NE Presentation at slide 53. This configuration is a Special Protection System under the NPCC Glossary of Terms. This is significant departure from ISO-NE planning practice which has sought to remove remedial action schemes from the system rather than add them. Use of remedial action schemes could have avoided some of the many transmission projects built over the last several years, but have not been considered good planning practice.

4 As described in the Anbaric AC and HVDC Project bids, the technical studies and design were supported by not only Anbaric’s in-house engineers, but also EN Engineering and Power Engineers, two highly accomplished electrical engineering firms.

5 The project URL is: http://mystic.anbaric.com
depreciation to provide reliability and other benefits to New England customers. The ratepayer impact of the Anbaric AC Project is less than 30 cents a month on the average New England retail electric bill, and that’s before accounting for additional savings from the low-cost renewable power it helps integrate. And both of these projects make the electric system additions that will have to occur in the near future. These additions are necessary to meet the electric supply characteristics mandated by the states in which ISO-NE does business.

II. Identification of Errors

ISO-NE makes several material factual, legal and technical errors in rejecting the Anbaric AC and HVDC Projects from further consideration. When these are corrected, both of the Anbaric Projects must move forward for further consideration. In addition to the specific errors called-out below, it is prime facia evidence of either wide spread errors by ISO-NE or capricious implementation of the RFP that 24 of 36 proposals from some of the most competent, sophisticated and successful transmission developers in the world have been found to fail the basic submission requirements for the RFP.

A. Contrary to the Facts ISO-NE States that Equipment is Missing from Bid. The Missing Equipment is Identified Clearly in the Bid and Included in Bid Costs

Slide 74 of the ISO-NE Presentation asserts that “Anbaric AC response is missing a required listing of a step-up transformer. This is incorrect. The step-up transformer is clearly identified on the project one-line in Section 4.36 on page 32 (see Figure 1 below) with the transformer symbol item marked “T” within the STATCOM box referring to the step-up transformer:

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6 The ISO-NE RFP instructions for Section 4.3 state: “One-line diagram(s) shall be provided to show new or modified equipment in addition to existing or already planned system changes. The detailed one-line diagram(s) of the proposed facilities shall show the connectivity between all new proposed equipment (i.e., circuit breakers, transformers, shunt-connected capacitor banks, shunt-connected reactors, dynamic reactive devices, transmission lines, etc.) and the proposed bus configuration at the Point(s) of Interconnection. Each new station, line, and equipment shall be marked with an identifier that will be consistently used in other responses in the RFP. The response requires at least one file at a minimum to be uploaded into RFP360 and only PDF files shall be accepted.”
The step-up transformer is also identified in the switchyard layout in Section 4.2 and is circled here in the layout image that is included with the bid:

Anbaric’s response to item 4.1 identifies the STATCOM as a 345kV element. The transformer is included in that element and is part of its cost. A STATCOM includes a transformer as part of the kit supplied by a vendor. The transformer is clearly shown on the one-line and the diagram above and any experienced planner would know that STATCOMs with step-up transformers are typically purchased as turn-key kits from vendors. These turn-key kits include all necessary components, including transformers. Therefore, ISO-NE’s rejection of Anbaric’s AC response is factually incorrect.

In fact, the ISO’s own suggested model answers to the RFP provide sample text for Section 4.18: “Written response examples – ‘Install a new 345 kV, 200 MVAR STATCOM ID# 60 at K station at an installed cost of SX. The controls for the STATCOM will hold the voltage of the ZZZ bus to AAA p.u.’” The ISO sample text for the STATCOM, like Anbaric’s description, does not separately call out the step-up transformer that would be part of that turn-key kit.
The cost quoted by the vendor and included in the bid does include the transformer as is common practice for a turnkey STATCOM system.

The ISO-NE is therefore incorrect in asserting that the step-up transformer was not specifically identified and included in Anbaric’s AC Project bid. It is clearly included in the project one-line and in the switching station layout diagram, and Anbaric followed ISO-NE’s own sample RFP text in describing the STATCOM.

ISO-NE then compounds its erroneous and arbitrary reading of the text of the response by determining that the absence of the step-up transformer in the modeling information is a fatal flaw. This conclusion is not only technically incorrect, but it is also contrary to the RFP’s own instructions about how the RFP is to be evaluated. Attachment K, Section 4.3(e), which states that for the purposes of the RFPs Phase I review, the ISO performs “preliminary feasibility review.” In such a review, which is typically conducted before equipment drawings and specifications are developed by the equipment vendor, any details of the step-up transformer are at best approximate.

In this RFP process, ISO-NE already had identified the dynamic reactive device ratings required and the model included that device along with other equipment — like the 170 MVar shunt reactors — that interact with the STATCOM to affect overall performance. Section 7.5 of the Anbaric AC Project bid shows the proposed project exceeded these minimal needs identified by the ISO in the Needs Assessment, and improves system performance beyond what was required as an additional benefit of the project design. For example, the project provides additional margin against high voltage during minimum load conditions. The project reduces voltage at all 21 of the buses identified as driving time-sensitive needs in the Needs Assessment, with voltage reductions up to 0.8 to 1.4 percent at 15 of these buses and up to 0.5 percent at the remaining 6 buses.

Finally, the ISO-NE disqualification of the Anbaric AC Project on the erroneous claim it did not specify the step-up transformer runs counter to industry best practices: a review of Eastern Interconnection Reliability Assessment Group (ERAG) Multiregional Modeling Working Group (MMWG) power flow cases demonstrate that the majority of transmission-

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7 The information the ISO provided in the modeling files was intended to provide a feasibility review of whether the proposed solution satisfies the needs described in the Needs Assessment. The Anbaric AC Project addresses not only all these needs, but also mitigates needs that were identified as short-term fixes (which otherwise would be automatically awarded to the incumbents), (Anbaric AC Project bid at Section 9) and also addresses needs from the earlier version of the Needs Assessment that were later removed once the NECEC transmission project was assumed to be in service in 2024. See Anbaric AC Bid at Section 7. At this point, the ISO-NE cannot know the outcome of the Maine referendum on NECEC, and therefore should have retained the Anbaric AC Project in Phase II of the RFP process. By rejecting Anbaric’s AC Project on unjust and unreasonable technical grounds, ISO-NE also eliminates for the region an effective solution to the Mystic Reliability issues should the NECEC project fail the referendum, or be delayed by subsequent litigation. Modeling confirms that if NECEC is removed from the dispatches used for the 2028 Boston Needs Assessment, the reliability needs in the Southern Boston 345kV Overloads category and the fourth Northern Boston 345kV N-1-1 overload would resurface and would require a solution. As a result, the Anbaric AC Project was tested against those needs and EN Engineering confirmed that Anbaric AC Project will address those additional reliability needs.

8 Anbaric AC Project bid at Section 9.
connected STATCOMs in the Eastern Interconnection are modeled directly on the transmission bus without modeling the transformer. This includes the 204 MVAr STATCOM at the Marcy 345 kV bus in New York, seven 125 MVAr STATCOMS connected at bus voltages ranging from 138 kV to 500 kV in the Dominion Virginia Power service territory, and two 250 MVAr STATCOMs connected at 138 kV buses in the Ameren Illinois service territory.

Therefore, ISO-NE’s rejection of the Anbaric AC Project on this basis is inconsistent with the feasibility review nature of Phase I of the RFP, common industry practice, and is unjust and unreasonable.

B. ISO-NE Incorrectly States that the Anbaric AC Project is Unable to Provide the Reactive Power Required to Address the Identified Needs. The Project as Described in the Bid Provides the Reactive Power to Address All Identified Needs

ISO-NE incorrectly concludes that the Anbaric AC Project is unable to provide the reactive power necessary to address the identified needs. Slide 74 of the ISO-NE Presentation explaining the rejections of Anbaric’s AC Project asserts:

“Inadequate Dynamic Capability: The STATCOM is unable to provide:
- a reactive injection of -150MVAR at Mystic 345 kV for a 0.95 p.u. and 1.05 p.u. voltage at Mystic 345 kV”

In reaching this conclusion, ISO-NE ignored the language in the bid response. It appears that ISO-NE it did not look at the whole package of project elements, which are designed to work together so that the 150 MVAr STATCOM provided the necessary system voltage performance.

Based on its description in the Needs Assessment, ISO-NE appears to make errors regarding the requirements for the STATCOM. ISO-NE stated that the 40 MVAr limit on the interconnection facility charging is based on the amount of additional charging that the system can withstand during the restoration process. Furthermore, ISO-NE stated that for system restoration, the total dynamic reactive range is the critical feature of the device, rather than the specific leading or lagging capability. If the system can withstand the charging from the Anbaric AC Project interconnection cables, and the project is providing the needed 300 MVAr of dynamic reactive capability range, then the Anbaric AC Project solution clearly addresses the need identified by ISO-NE in its Needs Assessment as required by the RFP.

More specifically, EN Engineering has determined that 300 MVAr of dynamic reactive capability at the site-controlled location near Mystic is able to provide as much support as at the other locations specified by ISO-NE.

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9 Presentation to the Planning Advisory Committee, “Boston 2028 Needs Assessment Addendum – System Restoration Needs,” Pradip Vijayan, September 26, 2019, at slide 15, stating “[t]he 40 MVAR value is based on the amount of additional charging that the system can withstand during the restoration process.”
The Anbaric AC Project also provides operational flexibility in that the STATCOM could be operated on a single cable (reducing the charging from 37.2 MVAr to 18.6 MVAr) or the system operator could connect one of the 170 MVAr shunt reactors included in the Anbaric AC Project to lower the voltage, if needed. The net effect would be to bias the STATCOM in the lagging direction so that Anbaric AC Project provides 150 MVAr lagging at the point of interconnection. ISO-NE appears to have only looked at the STATCOM rating and not continued its analysis of the cable configuration and added capability of the 170 MVAr shut reactors to lower voltage, which shows this net effect of 150 MVAr lagging at the point of interconnection.

In addition to being obvious as a matter of electrical system design, the role of the shunt reactors is described in Section 5.3 of the Anbaric AC Project bid:

The STATCOM at Everett has been modeled at or near 0 MVAr to maintain the full dynamic reactive capability for response to system contingencies. The reactive power is adjusted by modifying the PSS®E FACTS model parameter “VSET” in the power flow model to achieve reactive power at or near 0 MVAr. The STATCOM has been modeled as responding following contingencies. *During system restoration, shunt reactors at Everett would be available to the system operator in addition to the STATCOM.* (emphasis added)

ISO-NE’s assertion of the bid’s failure to address the reactive power needs set out in the Needs Assessment is demonstrably incorrect and the ISO’s must correct this error.

C. The ISO’s Assertions Regarding In-Service Date Feasibility as a Fatal Flaw for the AC and DC Projects are Contrary to Evidence. The Mystic Cost of Service Agreement Does Not Prohibit Construction Outages and Such Outages are Common

ISO-NE asserts that the Mystic AC and HVDC projects are disqualified for an inability to meet the required in-service date.\(^\text{10}\) However, there is nothing in the Mystic cost of service agreement that prohibits or limits ISO-NE usual ability to direct construction outages, the time period in question is one where such construction outages or planned outages for plant maintenance occur without negatively impacting reliability, and these outages are common practice.

The ISO incorrectly asserts on slide 75 for the Anbaric AC Project, and slide 79 for the Anbaric HVDC Project that:

“The Phase One Proposal reuses the Mystic 8 terminal for interconnecting new facilities, and because Mystic 8 has an obligation through May 31, 2024, the ability to meet the in-service date of June 1, 2024 is not considered feasible.”

\(^{10}\) See ISO-NE Presentation at slides 75 and 79.
ISO makes a technical and legal error in this assertion. First, construction outages of
generators for transmission projects are routine. In fact, Attachment K anticipates such generator
outages to facilitate transmission work in the RFP process. Attachment K, Section 4.3(h)(iii)
requires for Phase II a:

“description of construction sequencing, a conceptual plan for the anticipated
transmission and generation outages necessary to construct the Phase II Solution and
their respective duration, and possible constraints.” (emphasis added)

This is further explained in the attached Affidavit of Dwarakesh Nallen, EE, Attachment A to these comments. Mr. Nallen is a former ISO-NE system planner familiar with technical
issues surrounding construction outages for reliability projects.

ISO-NE’s reference to the obligation through May 31, 2024\(^\text{11}\) is to the cost of service
agreement for the Mystic 8 and 9 generator agreed to by ISO-NE. The cost of service agreement
provides a subsidy to Exelon to keep the Mystic 8 and 9 plants funded and in-service, along with
the associated LNG facility that provides the fuel for the generators. Even a cursory review of
the agreement and timing here reveal that the cost of service agreement is not a bar to routine
maintenance outages, construction outages or transmission outages directed by ISO-NE.

Section 7.1 of the Mystic Cost of Service Agreement states, for example:

“7.1.1. Planned Outages. Lead Market Participant shall be entitled to take one or both of
the Resources out of operation or reduce the net capability of one or both of the
Resources during Planned Outages, in accordance with the schedule for Planned Outages
as established and implemented pursuant to the ISO New England System Rules, the
Transmission, Markets and Services Tariff and the MPSA.”\(^\text{12}\)

The Cost of Service agreement sets out a subsidy payment and obligations. It did not
remove the system operator’s routine prerogative to direct plant outages for construction or other
reasons.

Under the terms of the cost of service agreement, Exelon would be paid through the end
of the term whether there was an outage or not, just as it is paid during any other construction-
related or transmission outage.

\(^\text{11}\) While June 1, 2024 is the “need by” date for the project, it is worth noting that the vast majority of reliability
projects approved by ISO New England are brought in-service many years after the stated need by date. This is
obviously not a fatal project flaw in all other cases. See e.g. Response of ISO New England Inc. to Order Instituting
Section 206 Proceedings, in Docket No. EL19-90-000 (December 27, 2019) at Attachment A. we need to point to
what attachment A says to drive the factual point home. Here, as explained, the need-by date can reliably be met
using routine outage tools.

\(^\text{12}\) See Mystic Rate Schedule FERC No. 1, filed in Docket No. ER18-1639-000 under the caption Constellation
Mystic Power, LLC on May 16, 2018. The agreement contains no provisions that modify or limit ISO-NE’s ability
to plan, coordinate, and direct outages for construction.
Importantly, the reliability needs associated with Mystic 8 and 9 are peak system issues where transfer capability into the greater Boston area is not sufficient to handle the influx of power. Cut over prior to June 1, 2024 would occur in the light load shoulder months where the system has many thousands of megawatts of extra supply capability even during maintenance season. Further, the transmission lines into Boston are more than able to handle power transfers into Boston during those shoulder months, including May. This is why a maintenance outage for the Mystic station, when ISO-NE allows the units to come offline for several days at a time, is not a critical system reliability issue during the shoulder months.

While ISO-NE rejected Anbaric’s request for substation drawings, preventing a detailed assessment of the interconnection scope of work, Anbaric’s engineering consultants – including personnel who have worked previously for many years with incumbent transmission owners in the area and elsewhere – indicate that the cut overs such as this can be achieved with short duration outages, particularly when the majority of the proposed project elements can be pre-constructed prior to an outage, as is the case with the proposed Anbaric AC Project.

Should ISO-NE have system reliability concerns, a two-stage cut over could occur. In this scenario, the circuits of either the AC project or the HVDC project is connected to either the former Mystic 8 or 9 breaker while the other unit remains on-line, capable of providing over 700MWs of power13 and several hundred MVAr of reactive support. As noted above, the ISO-NE tariff specifies that detailed cutover plans would be developed in Phase II.

The in-service date is clearly achievable in a routine, and reliable manner that uses common generator outage windows and is not prohibited by the Cost of Service agreement between ISO-NE and Exelon. This stated reason for rejection of the Anbaric AC and HVDC Projects is demonstrably incorrect, unjust and unreasonable and the ISO’s analysis must be updated to reflect correction of the error.

D. ISO-NE Incorrectly Asserts that New Equipment Connected to Existing Substations is a Fatal Flaw; this Assertion is in Violation of Section 210 of the Federal Power Act, Section 2.05 of the Transmission Operating Agreement, and Attachment K Section 4.3(a)

ISO-NE asserts at slide 75 of the ISO-NE Presentation for the Anbaric AC Project and slide 79 for the Anbaric HVDC project that the two projects are disqualified for:

“Relying on the Incumbent and/or the Incumbent’s land: In this Phase One Proposal the QTPS Respondent requires the incumbent (not the QTPS Respondent) to install a series reactor at the West Amesbury 115 kV substation on the K-163 line. The QTPS Respondent may not rely on the incumbent for the installation of this upgrade because this upgrade is not an:

13 See ISO New England 2020 CELT Report available at https://www.iso-ne.com/static-assets/documents/2020/04/2020_celt_report.xlsx In Section 2.1 of the Microsoft Excel spreadsheet report, Mystic Unit 8 is listed with a summer claimed capability of 703.324 MW, while Mystic Unit 9 is listed as 713.900 MW.
– Upgrade(s) to existing facilities owned by an incumbent, or
– Upgrade(s) built by an incumbent to interconnect facilities developed by the QTPS Respondent submitting the Phase One Proposal”

The ISO’s interpretation is legally incorrect and unlawful under the Federal Power Act statute and FERC-approved documents. The interpretation crafted by ISO-NE would create barriers that would make competitive transmission largely impossible and protect the existing electric system as a closed, proprietary system in violation of Section 210 of the Federal Power Act, and the FERC-approved Transmission Operating Agreement.¹⁴ The ISO’s interpretation is contrary even to some of the very Attachment K language that it relies on to erect this barrier to competition and open access. The ISO notes that 22 projects were disqualified for this reason.¹⁵ It is unlikely that most projects from highly competent and successful developers misunderstand the basics of what system upgrades are permissible.

1. The System Additions

The system additions at issue are described in Section 4.1 of the Anbaric AC Project bid as:

- Install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line at the W. Amesbury substation.

The location of the series reactor is not important electrically, which means that it can be installed either at the substation itself or anywhere along the W. Amesbury to King Street 115kV line. The Anbaric AC Project AC bid describes this in Section 7.1, Addressing Identified Needs:

_The second component consists of a series reactor installed in the W. Amesbury – King Street 115kV line._ The series reactor, in conjunction with injection of up to 900MW of power at Mystic, reduces the loading on the 115kV line below the LTE rating, eliminating the need for an operating procedure to address thermal overloads for the n-1 conditions identified in the Needs Assessment. (emphasis added)

2. ISO New England’s Interpretation

According to ISO-NE at slide 26 of the ISO-NE Presentation “Phase One Proposals were excluded if the Phase One Proposals either:

- Violates the land ownership provisions and involves the installation of new equipment in an incumbent’s right of way (ROW) or substation

¹⁴ The Transmission Operating Agreement can be found at the following URL: https://www.iso-ne.com/static-assets/documents/regulatory/toa/v1_er07_1289_000_toa_composite.pdf

¹⁵ ISO-NE Presentation at slide 28.
- Requires the incumbent to build new facilities that are not related to the interconnection of the QTPS facility”

For authority for this interpretation and exclusion of competitive projects, ISO-NE then cites to Attachment K, Section 4.3(a):

“A Qualified Transmission Project Sponsor may propose a comprehensive solution to address the identified needs that includes an upgrade(s) located on or connected to a PTO’s existing transmission system where the Qualified Transmission Project Sponsor is not the PTO for the existing system element(s). ... The Qualified Transmission Project Sponsor is not required to procure agreements with the PTO for implementation of such upgrades as the PTO is required to implement the upgrade(s) in accordance with Schedule 3.09(a) of the Transmission Operating Agreement if the proposed solution is selected through the competitive process.” (emphasis added)

ISO-NE continued on slide 27, stating:

Attachment K, Section 4.3.(b), Use and Control of Right of Way states:
— “Neither the submission of a project by a Qualified Transmission Project Sponsor nor the selection by the ISO of a project submitted by a Qualified Transmission Project Sponsor for inclusion in the RSP Project List shall alter a PTO’s use and control of an existing right of way, the retention, modification, or transfer of which remain subject to the relevant law or regulation, including property or contractual rights, that granted the right-of-way. Nothing in the processes described in this Attachment K requires a PTO to relinquish any of its rights-of-way in order to permit a Qualified Transmission Project Sponsor to develop, construct or own a project.”

The ISO goes on to cite Part 2 of the RFP instructions, which note what information is required for upgrades to existing (emphasis added by ISO-NE) elements, e.g. based on publicly available information and costs.

- “For proposed modifications to existing element(s) where the QTPS Respondent is not the PTO for the existing system element(s) it is the responsibility of the QTPS Respondent to provide responses, which may be based on publicly available information for the proposed upgrade.”

- “For proposed modifications to existing element(s) where the QTPS Respondent is not the PTO for the existing system element(s) the QTPS Respondent is not required to include the costs of these upgrades in establishing the life-cycle cost.”

These last two cites, even if they could modify federal law, are not even on point. They simply provide guidance on information and cost information.

ISO-NE then cobbles together this collection to arrive at the conclusion:
In summary, the only permissible upgrades that are not the responsibility of the QTPS Respondent submitting the Phase One Proposal are:
– Upgrade(s) to existing facilities owned by an incumbent
– Upgrade(s) built by an incumbent to interconnect facilities developed by the QTPS respondent submitting the Phase One Proposal

3. Identification of Errors in ISO-NE’s Proposed Interpretation

The ISO’s interpretations are incorrect, try to do too much to create restrictions that do not exist, and violate federal law.

First is the ISO’s selective use of the term “upgrade”. The section of the tariff cited by the ISO on slide 26, Section 4.3(a) states:

“A Qualified Transmission Project Sponsor may propose a comprehensive solution to address the identified needs that includes an upgrade(s) located on or connected to a PTO’s existing transmission system where the Qualified Transmission Project Sponsor is not the PTO for the existing system element(s).” ... (emphasis added)

Understanding the term “upgrade” to be a system addition is consistent with how the term is used elsewhere in the tariff, i.e., a system “upgrade” may be (and usually is) a wholly new component being added to the existing grid. Examples of this are Regional Benefit Upgrades and Reliability Transmission Upgrades (“RTU”). The “upgrade” is that the capability of the system is being expanded beyond what it can do today, providing the needed additional reliability capabilities. In the case of the Anbaric AC Project, the system upgrade is the addition of a series reactor “installed in the W. Amesbury – King Street 115kV line,” with the proposed location for this electrically at the W. Amesbury substation.

With regard to Section 4.3(b), ISO-NE reads this as a prohibition on incumbent substation or right of way use. This is incorrect. Section 4.3(b) simply states that nothing in the Order No. 1000 process, including project selection, “...shall alter a PTO’s use and control of an existing right of way, the retention, modification, or transfer of which remain subject to the relevant law or regulation, including property or contractual rights...” The question, then, is what are the laws that govern? Having misread the provision as preemptive legal bar to FERC-approved agreements and federal law, the ISO does not address that issue.

Section 2.05 of the Transmission Operating Agreement is on point:

2.05 Connection with Non-Parties.

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16 ISO-NE Presentation at slide 26.

17 The ISO-NE RFP itself is includes “RTU” in the title.

18 Anbaric AC Project bid at Section 7.1
On or after the Operations Date, each PTO shall connect its Transmission Facilities with the facilities of any entity that is not a Party, including the facilities of a current or proposed Transmission Customer, and shall install (or cause to be installed) and construct (or cause to be constructed) any transmission facilities required to connect the facilities of a non-Party to a PTO’s Transmission Facilities to the extent such connection or construction is required by applicable law, including the Federal Power Act and any applicable regulations issued by FERC and provided that the construction of any such transmission facilities shall be subject to the conditions associated with the PTOs’ obligation to build set forth in Schedule 3.09(a). Any such connection shall be subject further to: (1) the receipt of any necessary regulatory approvals, (2) compliance with the procedures set forth in the ISO OATT for review of the reliability and operational impacts of a proposed interconnection (including the procedures for interconnection of a Generating Unit or Elective Transmission Upgrade under the Interconnection Standard or as otherwise provided under the ISO OATT); and (3) execution of an Interconnection Agreement with such entity containing provisions for the safe and reliable operation of each interconnection with respect to such entity’s facilities in accordance with Good Utility Practice, applicable NERC/NPCC Requirements, and applicable Law (including the Federal Power Act); provided that

(i) Except as provided in 2.05(ii) below, each PTO shall engage in good faith negotiations as to the terms and conditions of such Interconnection Agreement with any such non-Party, but, except as may be required pursuant to regulations issued by FERC, a PTO shall not be required to enter into any Interconnection Agreement containing terms and conditions unacceptable to such PTO and shall reserve the right to resolve any disputes, and/or make any filings with FERC, with respect thereto.”  

Section 2.05 makes clear that a Participating Transmission Owner must interconnect transmission equipment and engage in good faith negotiations to do so. 

In turn Section 2.05 of the TOA is governed by the supremacy of federal law. This is called out in the TOA provision itself: “the Federal Power Act and any applicable regulations issued by FERC.” 

Section 210 of the Federal Power Act states:

(1) Upon application of any electric utility, Federal power marketing agency, geothermal power producer (including a producer which is not an electric utility), qualifying cogenerator, or qualifying small power producer, the Commission may issue an order requiring—

(A) the physical connection of any cogeneration facility, any small power production facility, or the transmission facilities of any electric utility, with the facilities of such applicant,

(B)
such action as may be necessary to make effective any physical connection described in subparagraph (A), which physical connection is ineffective for any reason, such as inadequate size, poor maintenance, or physical unreliability,

(C) such sale or exchange of electric energy or other coordination, as may be necessary to carry out the purposes of any order under subparagraph (A) or (B), or

(D) such increase in transmission capacity as may be necessary to carry out the purposes of any order under subparagraph (A) or (B). (emphasis added)

In this case, the Federal Power Act grants authority to ensure interconnection of transmission equipment on the existing grid. While that equipment may be installed at the W. Amesbury substation pursuant to TOA Section 2.05 after good faith negotiation and funding of equipment and work by Anbaric as an initial implementation approach as required by the RFP, it could also take the form of being electrically connected at that location anywhere along the W. Amesbury – King Street 115kV line as noted in Section 7.1 of the Anbaric AC Proposal.

The system additions here are Reliability Transmission Upgrades to the existing grid and accommodation and interconnection of these is contemplated and directed by the transmission operating agreement as backstopped by FERC-authority to direct interconnection of transmission equipment under Section 210 of the Federal Power Act. These system additions are not, and cannot be, barred by the terms of the RFP or ISO-NE’s interpretation. Such a bar would be illegal under federal law and FERC-approved documents, such as the Transmission Operating Agreement and Attachment K, issued pursuant to those statutes and regulations.

As described above, the ISO’s erroneous reading of the provisions cited -- which do nothing more than note that an Order No. 1000 solicitation conducted pursuant to Attachment K cannot modify other laws -- is being used to impermissibly modify other laws. ISO-NE must correct that error, which was used to disqualify Anbaric’s AC and HVDC projects along with 20 other projects.

E. ISO-NE Incorrectly Asserts that Projects are Not Competitive for Reasons of Cost. The Order No. 1000 Standard is “More Efficient or Cost-Effective” and Not Least Capital Cost; Least Capital Cost May Be Significantly More Expensive to Consumers.

Having eliminated Anbaric’s AC and HVDC projects based on the erroneous exclusions set out above, ISO-NE never reached an evaluation of the two Anbaric Projects based on the evaluation criteria set out to implement the “more efficient or cost-effective” standard of FERC’s Order No. 1000.

However, once the errors described above are addressed, project costs and benefits become an issue. While two-thirds of the submitted proposals were eliminated based on non-cost matters, ISO-NE notes that those that remained were then eliminated based on cost. The
ISO asserts on slide 43 of the ISO-NE Presentation that the next most expensive installed cost was $45M more than the incumbent backstop.²¹

Cost aside, ISO-NE sets out a series of related reasons on slide 44, including:

- QTPS costs associated with all Phase Two Solutions are eligible for cost recovery
- Additional costs would be incurred with the ISO’s review of the Phase Two Solutions, which will include the cost of multiple consultants
- Continuing on with the Phase Two Solutions process would add at a minimum of 4 months to the process

However, these appear to be issues with FERC’s Order No. 1000, and not reasons that allow ISO-NE to circumvent the requirements of Order No. 1000. While refusing to evaluate 35 of 36 competitive proposals may be convenient for ISO-NE, it is looking at “costs” in ways that disregard FERC’s intentions in promulgating Order No. 1000 to enhance regional planning.

1. **Order No. 1000 Does Not Require the Selection of the Cheapest Project, but the “More Efficient or Cost Effective” Project**

In Order No. 1000, the Federal Energy Regulatory Commission was addressing issues that still may remain in RTOs and other areas where incumbent utilities had the right to build transmission facilities to the exclusion of competition.

The rule, among other things required:

- Each public utility transmission provider must participate in a regional transmission planning process that satisfies the transmission planning principles of Order No. 890 and produces a regional transmission plan.
- Local and regional transmission planning processes must consider transmission needs driven by public policy requirements established by state or federal laws or regulations. Each public utility transmission provider must establish procedures to identify transmission needs driven by public policy requirements and evaluate proposed solutions to those transmission needs.²²

²¹ But see fn. 3. The $49 million project cost is achieved using a usually disallowed remedial action scheme, as defined by NPCC in its Glossary of terms: “Special Protection System (SPS) – A protection system designed to detect abnormal system conditions and take corrective action other than the isolation of faulted elements. Such action may include changes in load, generation, or system configuration to maintain system stability, acceptable voltages or power flows. However, the following are not considered SPS’s:
   - Automatic underfrequency load shedding;
   - Automatic under voltage load shedding, and
   - Manual or automatic locally controlled shunt devices.”

It is not clear why such an option is being considered as an acceptable reliability solution, vs. construction of new transmission lines to address the K-163 overload, given ISO-NE’s planning practices to date.

²² See FERC’s summary of Order No. 1000 at the following URL: https://www.ferc.gov/industries/electric/indus-act/trans-plan.asp
The purpose of Order No. 1000 was in part to ensure regional planning. FERC has directed regional planning because simply focusing on small area issues is often inefficient. Sound regional planning may lead to selection of projects that do more to address a variety of issues at a lower cost than resolving specific issues individually. To this end, transmission owners are required to participate in a transparent, regional planning process so that transmission planning would meet the “region’s needs.”

This big picture planning was clearly and expressly intended by FERC “to evaluate, in consultation with stakeholders, alternative transmission solutions that might meet the needs of the transmission planning region more efficiently or cost-effectively than solutions identified by individual public utility transmission providers in their local transmission planning process. This could include transmission facilities needed to meet reliability requirements, address economic considerations, and/or meet transmission needs driven by Public Policy Requirements…”

Throughout Order No. 1000, it is clear is that “more efficient or cost-effective” may not be the least costly capital installation to address a narrow issue. In fact, again and again, FERC indicates that a narrow solution may be an inefficient way to address system needs.

In the case of the reliability issues created by the closure of the 2,000 MW Mystic power plant, it may be more efficient or cost-effective to select projects that eliminate clearly visible future upgrades, lower consumer electric costs, incorporate renewable energy requirements that are not speculative but that are set out in the laws of states in which ISO-NE does business.

Both the Anbaric AC and HVDC Projects enable the integration of more offshore wind energy. In its presentations to the Planning Advisory Committee, ISO-NE has already identified over-land transmission upgrades that will be needed to integrate offshore wind energy.

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23 See Order No. 1000 at P 146 “The Final Rule requires that each public utility transmission provider participate in a regional transmission planning process that produces a regional transmission plan and that complies with the transmission planning principles of Order No. 890 identified below. We determine that such transmission planning will expand opportunities for more efficient and cost-effective transmission solutions for public utility transmission providers and stakeholders. This will, in turn, help ensure that the rates, terms and conditions of Commission-jurisdictional services are just and reasonable and not unduly discriminatory or preferential.” (emphasis added)

24 See id. at P 11 “At its core, the set of reforms adopted in this Final Rule require the public utility transmission providers in a transmission planning region, in consultation with their stakeholders, to create a regional transmission plan. This plan will identify transmission facilities that more efficiently or cost-effectively meet the region’s reliability, economic and Public Policy Requirements.” (emphasis added)

25 See id. at P. 148.

26 See id. at P 890. “These reforms work together to ensure that public utility transmission providers in every transmission planning region, in consultation with stakeholders, evaluate proposed alternative solutions at the regional level that may resolve the region’s needs more efficiently or cost-effectively than solutions identified in the local transmission plans of individual public utility transmission providers.”

27 This estimate was developed by Anbaric engineering firm consultants.
that has already been selected and will connect into southeastern Massachusetts.²⁸ Among these upgrades is a new 345kV circuit between the SEMA and NEMA zones which is likely to cost $620 million²⁹ and take years to design, permit and complete.

New England states already have climate laws setting out ambitious offshore wind energy procurements. For example, in early June, David Ismay, Massachusetts Undersecretary for Climate Change, presented the initial results of the Decarbonization Roadmap, showing 25 GW of wind in 2050, as laid out and circled on the following slide from the draft report.³⁰

Gas in a 2050-Compliant Electricity System

Other third-party work has shown even larger renewable integration needs. In September 2019, The Brattle Group released a study looking at electrification and energy goals in the region. That study noted that New England would need to add 1,500 MW of offshore wind per

²⁸ See ISO New England 2019 Economic Studies, Detailed Assumptions August 8, 2019.  https://www.iso-ne.com/static-assets/documents/2019/08/a8_2019_economic_studies_detailed_assumptions.pptx at slide 6. In particular see, 345 kV reinforcement line #2.  These results have been reiterated in subsequent presentations.  See e.g., https://www.iso-ne.com/static-assets/documents/2020/05/osw-econstudy-transmission-interconnection-analysis-may-2020-noneii.pdf at slide 18 “Significant new transmission would be needed to resolve all of the issues” and noting a new 345 kV circuit from Cape Cod to K Street in Boston. This is electrically the same connection made by both the Anbaric AC and HVDC Projects.

²⁹ This cost estimate was developed Anbaric engineering firm consultants.

³⁰ http://www.raabassociates.org/Articles/Ismay%20Presentation%206.12.20%20for%20posting.pdf
year from 2020 to 2050, in addition to other renewables, to meet the then-current targets.\textsuperscript{31} Since that time, less than a year ago, clean energy targets in the region have become more aggressive. Rhode Island is now targeting 100% clean energy by 2030,\textsuperscript{32} Connecticut by 2040,\textsuperscript{33} and Massachusetts by 2050.\textsuperscript{34} These targets the law of the states in which ISO-NE does business and these laws will control the resource mix. A failure to address these requirements through regional system planning is not only an abdication of the role of system planner and inconsistent with Order No. 1000, but would also likely be imprudent given the information known today.\textsuperscript{35}

As described in the bids, Anbaric’s AC and HVDC Projects not only comprehensively solve the Mystic retirements reliability problems, but also enable New England consumers to avoid the need for near-term, extremely expensive onshore upgrades to incorporate more offshore wind, and lower consumer costs by integrating up to 2,400MW\textsuperscript{36} of low cost renewable energy. Indeed, given that fuel is the largest part of most power bills in New England, a project that is less than thirty cents on an average bill per month, as is the in the Anbaric AC Project, could actually cost consumers less in overall rate impacts than a $49 million band-aid project ISO-NE summarily selected, and provide far greater system reliability.

\textsuperscript{31} https://brattlefiles.blob.core.windows.net/files/17233_achieving_80_percent_ghg_reduction_in_new_england_by_20150_september_2019.pdf

\textsuperscript{32} https://governor.ri.gov/documents/orders/Executive-Order-20-01.pdf

\textsuperscript{33} https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-3.pdf


\textsuperscript{35} See New England Power Co., 31 FERC ¶ 61,047, at 61,084 (1985) where the Commission set out the now well-established prudence standard: “[M]anagers of a utility have broad discretion in conducting their business affairs and in incurring costs necessary to provide services to their customers. In performing our duty to determine the prudence of specific costs, the appropriate test to be used is whether they are costs which a reasonable utility management [] would have made, in good faith, under the same circumstances, at the relevant point in time.” The necessary evidence to establish a serious doubt of prudence requires more than bare allegations, see e.g. Iroquois Gas Transmission Sys., L.P., 87 FERC ¶ 61,295, at 62,168 (1999), and Mid-America Pipeline Co., LLC, 124 FERC ¶ 63,016, at P 976 (2008) (Mid-America), aff’d 130 FERC ¶ 61,123 (2010). Establishing a serious doubt regarding prudence requires “reliable, probative, and substantial evidence.” Wis. Elec. Power Co., 73 FERC ¶ 63,019, at 65,225 (1995), aff’d in relevant part, 98 FERC ¶ 61,233 (2002) (citing Section 7(c), Administrative Procedure Act, 5 U.S.C. § 556(d) (2012)). The facts as they have been known over the past several months provide reliable, probative and substantial evidence that the Boston 2028 RFP is be truncated in an imprudent manner.

\textsuperscript{36} Both the Anbaric AC and HVDC projects incorporate a separate set of empty ducts avoiding the need for more permitting and significant road construction (and the associated costs of both) to bring another 1,200 MW of offshore wind into the Boston area. As noted in both the AC and HVDC bids, the costs of those spare ducts are not added to the project and the RNS rate.
This impact is even more significant when other retirements identified in ISO-NE’s evaluation criteria document are factored in, such as the Kendall unit in Boston and Canal Units 1 and 2. The Anbaric AC and HVDC Projects both allow for significant injections of power into the Boston area, and both allow system operators to control flow direction – the AC Project via phase angle regulators, and the HVDC Project via the voltage source converters. This allows system power to be pushed to SEMA when needed. The Anbaric AC Project provides the required reactive power via a combination of the STATCOM and shunt reactors, while the HVDC provides ~400+/− MVAr of reactive power on BOTH ends of the circuit, which would replace significant fossil generation capability, a characteristic that will be needed.  

However, without inclusion of Anbaric’s proposals in the Phase II process, their benefits and avoided costs are not even considered. By summarily disqualifying Anbaric’s projects, ISO-NE is not able to review the Anbaric projects that may be efficient and cost-effective for regional planning, as required by Order No. 1000.

2. The ISO is Imprudently Ignoring Known System Risks that May Make the Selected Incumbent Backstop Project Obsolete to Address the Mystic Retirement Needs Before it is Even Constructed

Before ISO-NE updated its current Boston 2028 Needs Assessment, it had produced a prior version in 2019 that noted additional upgrades would be required to meet transmission security needs when the Mystic 8 and 9 units retire if the NECEC project were not in-service. That needs assessment showed needs associated with the Stoughton – K Street 345 kV cables, which were overloaded in the cases with lower North-South transfers and moderate SEMA/RI export levels (~1,050 MW).

Once the New England Clean Energy Connect project or “NECEC” sponsors executed an RFP contract with utilities, ISO-NE added the project to its base case. However, since that time, opposition has grown to the project in Maine and there have been legal challenges in both Maine and Massachusetts. The most significant issue is referendum in Maine in November 2020. Opponents of the project gathered enough signatures to place the measure on the ballot, and a

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37 The ability for projects to enable the retirement of other legacy generation, both in the Boston area and on Cape Cod, was identified along with several other factors ISO-NE’s “Request for Proposal Reliability Transmission Upgrade, Part 1 – Appendix A Evaluation Factors” available at the following URL: [https://www.iso-ne.com/static-assets/documents/2019/12/boston_2028_rfp_documents.zip](https://www.iso-ne.com/static-assets/documents/2019/12/boston_2028_rfp_documents.zip)

38 See e.g. Order No. 1000 at P 148.


40 [https://www.pressherald.com/2020/02/03/cmp-corridor-opponents-submit-signatures-for-referendum-vote/](https://www.pressherald.com/2020/02/03/cmp-corridor-opponents-submit-signatures-for-referendum-vote/)
judge has certified that the ballot question may go forward, 41 which has been affirmed by the Maine Supreme Court. 42

Anbaric has pointed out that both the Anbaric AC Project and the HVDC Project address all system needs with or without NECEC. If NECEC is cancelled, or even delayed, 43 the backstop incumbent project that has been summarily selected by ISO-NE will not enable Mystic units 8 and 9 to retire. As a result, ISO-NE will have to conduct another RFP, or simply award more system upgrade work to the incumbents. Even if incumbents are awarded yet more upgrades, those upgrades may be built through towns that have delayed the Greater Boston Reliability Project for several years through court and regulatory challenges. Siting in the for parts of the project began five years ago and was only approved in December 2019. The project, already due to be in service to address system “year of need” issues before 2015, is still not constructed. 44 With all of this information, ISO-NE should have at least sought to maintain projects in Phase II of the current RFP that can address this range of known issues. It could then retain or dismiss those Phase II projects that are no longer useful based on what occurs with the referendum a few months from now. ISO-NE’s failure to do so risks selecting a project that may be worthless for even the narrowest version of ISO-NE’s stated needs: allowing the Mystic 8 and 9 plant to retire. This would either lead to an extended RMR, so-called gap RFP under the ISO-NE tariff which likely only the Mystic units could satisfy the terms of, or exposure to system issues giving rise to this RFP that can be managed through load shedding.

While selection of the least capital cost project may equate to wasting $49 million dollars of ratepayer money on a band-aid project that does not address even near-term grid needs efficiently, or avoids more expensive system upgrades that were not addressed through more efficient and cost effective projects, it may also result in additional multi-hundred million dollar supply subsidy costs to the region while other reliability needs are addressed.

3. The Public Policy Planning Rules Are Not a Shield to Considering Public Policies When Doing System Reliability Planning; Order No. 1000 Directs that Such Considerations are Part of More Efficient and Cost-Effective System Planning

ISO-NE errs in a fundamental misunderstanding of factors that are to be considered as part of system planning even for reliability projects under Order No. 1000. Order No. 1000 directs that planning must provide for more “efficient and cost-effective transmission solutions

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42 https://www.mainepublic.org/post/maine-supreme-court-rules-anti-cmp-corridor-referendum-signatures-were-valid  
43 Central Maine Power is challenging the ballot measure and more litigation can be expected. See e.g., https://www.wbur.org/news/2020/05/16/mass-hydro-stymied-in-maine  
44 https://www.versource.com/content/nh/about/projects-infrastructure/projects/massachusetts-transmission-projects/sudbury-to-hudson-project
for public utility transmission providers and stakeholders.” ISO-NE is required to ensure that public policies are accounted for in regional transmission planning.

However, this requirement to consider public policies in regional transmission planning has been misinterpreted to only apply in specific planning studies looking only at public policy needs. This misapplication of Order No. 1000 is stated in the June 12, 2020 letter from Gordon van Welie to United States Senators Edward Markey and Elizabeth Warren. Senators Markey and Warren had written to ISO on June 5, 2020 to provide input on what would make a more efficient and cost-effective project. In that letter, the Senators asked that ISO focus on environmental attributes of projects as well as public health impacts. The response from ISO-NE parried the concerns raised, instead redirecting that there is another process for policy considerations to be looked at in grid planning, pointing to the Public Policy Planning Process. However, this balkanization of policy considerations is inefficient and unnecessary under Order No. 1000.

The position of ISO-NE appears to be that the energy policies, public health impacts and costs, and environmental impacts of the states in which ISO-NE operates will not be acknowledged or incorporated unless the states make the request through the public policy planning mechanism. However, the public policy planning tool was designed to be used where reliability planning was not otherwise meeting public policy goals. That is, public policy planning provides a non-reliability trigger to start project planning. This does not mean that reliability planning can ignore public policy requirements. This balkanization virtually guarantees that the projects ISO-NE selects in the reliability planning process will neither be more efficient nor cost-effective. The policy planning to enable energy system mandates will still have to happen anyway – it is not optional – but it will be on top of the dollars already spent, missing the opportunities for two-for-one, three-for-one projects. This will not be a “cost effective solution for the consumers who will ultimately bear the cost of the project.”

F. The Process Has Not Been Transparent as Required by Order No. 1000

Contrary to the requirements of Order No. 1000, to be open and transparent, the RFP process has been opaque from inception. The decision to withhold non-confidential information has had a negative practical effect for rate payers. The choices made by ISO-NE have resulted in several months of lost time for ISO-NE to ask questions and receive feedback which may have avoided some of the errors discussed above. ISO-NE has lost time in being able to hear from the stakeholders that Order No. 1000 talks about, who were not able to see the proposals and provide ISO-NE with the required meaningful input on what may be more efficient or cost-effective.

45 See Order No. 1000 at P 146.

46 See id. at PP 146-148.

47 This June 12, 2020 letter from Gordon van Welie to Senators Market and Warren is attached as Attachment C. ("June 12 Letter to U.S. Senators")

48 This June 5 letter from Senators Markey and Warren to Gordon van Welie is attached as Attachment B.

49 June 12 Letter to U.S. Senators at page 1.
solutions based on a range of issues. This lack of transparency has now led to a compounding of lost time. Not only have the afore mentioned opportunities afforded by an open and transparent planning process been lost, but the process has been seriously damaged and delayed by the erroneous results arrived at by that process: the summary elimination of 35 of 36 proposed projects submitted into the RFP.

Order No. 1000 states:

“Because of the increased importance of regional transmission planning that is designed to produce a regional transmission plan, stakeholders must be provided with an opportunity to participate in that process in a timely and meaningful manner. Therefore, we apply the Order No. 890 transmission planning principles to the regional transmission planning process, as reformed by this Final Rule. This will ensure that stakeholders have an opportunity to express their needs, have access to information and an opportunity to provide information, and thus participate in the identification and evaluation of regional solutions… Greater access to information and transparency also will help stakeholders to recognize and understand the benefits that they will receive from a transmission facility in a regional transmission plan.”50

And

“Our intent is to enhance transmission planning processes prospectively to provide greater openness and transparency in the development of regional transmission plans.”51

The ISO-NE competitive solicitation process was designed to be open, allowing for everything but very limited commercially sensitive data, *e.g.*, a component specific negotiated price with a vendor or potential vendor, to be posted publicly.

In Part 2 of the RFP Instructions, ISO-NE recognizes this and states:

“Phase One Proposal answers provide a high-level description of the QTPS Respondent’s proposal and cost estimates. The ISO has marked the questions that it anticipates may contain confidential information as part of the response. If the QTPS Respondent submits confidential information in response to a question, that information will be treated as confidential under the ISO New England Information Policy. Any responses or attachments in response to questions containing confidential information must be marked “Confidential Information” as the first two words of the answer or at the top of the attachment. The specific confidential information in the answer or on the attachment must be highlighted in yellow. Confidential information submitted in response to questions shall not include the following:

1. The high-level design of the solution;

50 Order No. 1000 at P 150.

51 Order No. 1000 at P 162
2. The total estimated installed costs for the solution;
3. The estimated Annual Transmission Revenue Requirement;
4. Information relating to any cost-containment measures, cost-caps and rate incentives;
5. Information regarding the proposed in-service date for the solution; and
6. Any information that QTPS Respondent makes publicly [sic] available”

ISO-NE is clear – consistent with the ISO-NE Information Policy\(^{52}\) – information marked as confidential will be treated as such, describing how such information is to be marked for redaction (i.e., a yellow highlight and attachment label). Non-highlighted information submitted in response to the RFP not confidential under the Information Policy.\(^{53}\) ISO-NE further provides a list of information that may not be marked for confidential treatment in RFP bids, enumerating six information types.

After submission of the bids on March 4, 2020, Anbaric and other bidders sought an update from ISO-NE regarding when the public version of the bids would be posted. At the March 2020 Planning Advisory Committee meeting, Anbaric and others repeated this request. ISO-NE noted that multiple inquiries had been made about posting in the RFP360 software. PAC was then informed that bids would not be posted publicly, and that ISO-NE would post a memorandum explaining the reasons for this that decision.

The ISO posted that memorandum on March 19, 2020.\(^{54}\) Among the reasons stated, none have a basis in the Attachment K, the RFP documents, FERC orders, or the ISO-NE Information Policy, under which all submissions – unless otherwise marked – are not confidential documents. Among the reasons given are:

- Rather than describing the project, some responses are written as an advertisement for the project
- Some responses include language that criticizes other possible proposals
- Some responses refer to specific technologies that would essentially identify the QTPS. Masking this information would remove a significant portion of the response

The ISO concludes: “Due to the concerns with the proposals and the responses to Question 2, the ISO does not believe that it is appropriate to provide the list of Phase One Proposals without including the ISO’s draft findings.” (emphasis added)

ISO-NE thus provides a list that reads as expressing a preference but identifies no reason to not release the information. For example, there is no ISO-NE tariff, RFP or Order No. 1000 reason, and certainly no requirement, as to why QTPS sponsors should be treated as confidential information. While the ISO conducts its business as a private corporation, it has some of the aura of a quasi-governmental entity, being given the public trust to carry out certain functions

\(^{52}\) The ISO New England Information Policy is the FERC-approved document that governs how ISO-NE handles information it possesses. ISO-NE may not alter the Information Policy without a FPA Section 205 filing to FERC and a subsequent order issued by the Commission approving the change.

\(^{53}\) The ISO-NE Information Policy is Attachment D to the ISO-NE tariff.

under regulatory oversight. It therefore has no FOIA statute. However, in the place of FOIA, the Information Policy provides the limited and prescribed circumstances regarding when information in the possession of ISO-NE is confidential. In this case, none of those reasons apply or are asserted. The ISO thus has chosen to withhold submitted bids not because they are confidential under the Information Policy, but because “it does not believe it is appropriate” to release the non-confidential information.

As noted, the effect of these decisions to withhold information has cost the region months of time. While lost time cannot be made up, there is no reason to exacerbate the error and continue down this course.

ISO-NE should post the redacted public versions of all bids as submitted into the regional planning process. Both of Anbaric’s public version bids as prepared for posting by ISO-NE back in early March, are attached to these comments at Attachment C and Attachment D.

III. Conclusion

For the reasons reviewed above, ISO-NE must correct the identified errors, restore Anbaric’s and similarly affected projects to consideration through a robust competitive transmission process that aligns with the Commission’s directives in Order No. 1000. Considering the avoided multi-hundred-million-dollar system upgrades between NEMA and SEMA on the near-term horizon to integrate state-procured offshore wind resources, both Anbaric’s AC and HVDC projects may be more efficient and cost-effective than the current proposed solution. Further, given the pending referendum on the November ballot in Maine, the current preferred $49M backstop solution could soon be rendered ineffective to address system reliability needs created by the Mystic 8 and 9 retirement. Should the NECEC not move forward or be delayed in litigation, the backstop solution simply will not address the transmission security needs on the Stoughton to K Street 345kV lines.

/s/ Clarke Bruno
Clarke Bruno, CEO
Anbaric Development Partners, LLC
401 Edgewater Place, Suite 680
Wakefield, MA 01880

CC: Gordon van Welie, President and CEO, ISO New England Inc.
Board of Directors, ISO New England Inc.

Attachment A: Affidavit of Dwarakesh Nallen, MS, EE Regarding In-Service Date
Attachment B: Letter from United States Senators Markey and Warren
Attachment C: Letter from Gordon van Welie to Senators Markey and Warren
Attachment D: Public Version of Anbaric AC Project – Mystic Reliability Wind Link
Attachment E: Public Version of Anbaric HVDC Project – Mystic Reliability Wind Link
Attachment F: State Representative Letters of Support
I. Qualifications and Purpose

1. My name is Dwarakesh Nallan. My business address is 370 Main St Suite 325, Worcester MA 01608. I am a Senior Consultant and Manager of Market Analytics at Daymark Energy Advisors (Daymark). I am submitting this affidavit on behalf of Anbaric in support of its comments to ISO New England (ISO-NE) concerning the recently published Boston 2028 RFP – Review of Phase One Proposals¹ under the Boston 2028 Request for Proposal (Boston 2028 RFP). Specifically, I am providing support for Anbaric’s argument that ISO-NE has incorrectly asserted that the two Anbaric Projects (AC Project and HVDC Project) would be unable to meet the June 1, 2024 in-service date required for Phase One proposals.

2. As a Senior Consultant at Daymark, I provide clients with technical and market advisory services based on my transmission planning and wholesale markets expertise. I work with clients on matters including transmission and distribution planning, integrated resource planning, generator interconnection and deliverability, smart-grid initiatives and grid-modernization, energy and capacity markets, as well as stakeholder support. As the Manager of Market Analytics, I oversee the consistency and quality of Daymark’s analysis and the development of Daymark’s analytical team.

3. Before joining Daymark in November 2016, I worked for over five years at ISO-NE on the system planning team as a senior engineer, concentrating on projects related to generator

and transmission interconnections, and wholesale electric markets. Prior to joining ISO New England, I was a transmission planning engineer for National Grid.

4. I hold a Master of Science degree in Electrical Engineering from Clemson University and a Bachelor of Engineering degree in Electrical and Electronics Engineering from Anna University in Chennai, India.

II. Transmission Outage Schedule

5. ISO-NE assertion of the inability of the Anbaric AC Project and the Anbaric HVDC Project to meet the in-service date of June 1, 2024 due to the anticipated outages of the Mystic 8 or the Mystic 9 unit is incorrect.

6. New England is a summer-peaking system. Demand levels during the summer months and even in the winter months tend to be significantly higher than demand levels during the fall and spring "shoulder" seasons, when demand for space conditioning (heating or cooling) is low. Given much lower demand in the spring season, a significant amount generation maintenance and transmission outage and construction is scheduled during this time of the year. As quoted by ISO-NE from the 2016 New England Power Grid Summer Outlook,\(^2\) during “March, April, and May, when consumer demand is typically lower, New England’s power plant and transmission owners schedule equipment outages to ‘tune up’ their equipment before the peak summer season.”

7. As common in most New England transmission upgrade schedules, the planned generation and transmission outages associated with either of the two Anbaric Projects (Anbaric AC Project and Anbaric HVDC Project) for the cutover at the Mystic substation would be

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scheduled in the spring months of 2024, prior to the desired June 1, 2024 in service date. This outage scheduling remains consistent with typical practice implemented by ISO-NE in coordination with transmission owners and independent power producers under current system operations in accordance with ISO-NE Operating Procedure OP-3 -Transmission Outage Scheduling and ISO-NE Operating Procedure OP 5 - Resource Maintenance and Outage Scheduling. Given nearly 4 years of advanced notice on this schedule, ISO New England has sufficient time to properly coordinate this effort with the impacted transmission and generation owners.

III. Reliability Impacts

8. Additionally, Anbaric has proposed a two-stage cutover for the integration of either of the two Projects (AC Project or HVDC Project) to further address reliability impacts associated with the concurrent unavailability of both Mystic 8 and 9 generating units to the Northeastern Massachusetts-Boston transmission system. The two-stage process would remove only one of the Mystic generating units (Mystic 8 or 9) from the transmission system at a time, while keeping the other Mystic generating unit online and fully available to ISO-NE system operations. As identified in the ISO-NE Boston 2028 Needs Assessment studies, the availability of at least one of the two Mystic generating units under peak load conditions would not trigger adverse impact to the transmission system. Given spring load conditions considerably below summer peak conditions, the two-stage cutover process for the Anbaric Projects would protect, not adversely affect, transmission system reliability in the greater Boston area.
Signature appears on the next page
I declare under penalty of perjury that the foregoing is true and correct.

Dwarakesh Nallan
Gordon van Welie  
President and Chief Executive Officer  
ISO New England  
One Sullivan Road  
Holyoke, MA 01040

Dear Mr. van Welie,

We write concerning ISO New England (ISO-NE)’s Boston 2028 Request for Proposals (RFP) for transmission projects to help maintain grid reliability in the greater Boston area following the scheduled retirement of the Mystic Generating Station in Everett, Massachusetts.¹ We are encouraged by this effort to use competitive bidding to provide new transmission solutions and reduce consumer costs. As part of ISO-NE’s evaluation of proposals, we urge you to prioritize the effects that projects may have on state climate, energy, and health goals. Currently, “environmental impact” is listed in the lowest priority category for the Boston 2028 RFP evaluation, and public health impacts are not called out at all.² As Massachusetts and other New England states work to reach decarbonization targets and respond to the ongoing COVID-19 pandemic, it is more important than ever that regional transmission organizations consider these impacts as part of electric-grid planning.

The Mystic Generating Station is an oil- and natural gas-fired power plant that is scheduled for full retirement by 2024. Initially, in March 2018, Exelon, the plant’s owner, decided to shutter the plant, citing a lack of profitability and economic concerns, but in December 2018, the Federal Energy Regulatory Commission (FERC) approved a petition for short-term cost recovery. That plan allows ISO-NE to direct additional ratepayer payments to flow to the plant over the next several years in order to keep it open. A near-term transmission replacement for this uneconomic plant will benefit ratepayers, improve grid reliability, and protect nearby communities from air pollution.

In particular, the eventual retirement of this power plant, which is the largest fossil fuel plant in New England, presents an opportunity to continue cleaning up the New England power grid and safeguarding public health. The six New England states have all committed to achieving at least a 75-percent reduction in their greenhouse gas emissions by 2050.³ The Carbon Free Boston

initiative aims to reach a target of carbon neutrality for the city by 2050.\textsuperscript{4} As part of the Boston 2028 RFP, ISO-NE should consider and prioritize these targets.

Additionally, as Massachusetts and other New England states continue efforts to limit and stop the spread of COVID-19, it is important to consider the public health effects of various kinds of electricity generation. Research continues to show a link between air pollution and higher COVID-19 death rates, placing a premium on regional transmission organizations’ factoring air quality into their grid-planning decisions — particularly for communities that are disproportionately affected by COVID-19 and the historic burden of air pollution.\textsuperscript{5,6}

Clean energy and clean air are both important policy objectives for Massachusetts and the broader New England region, and those priorities should be reflected appropriately among the evaluation criteria for the Boston 2028 RFP. Fossil fuel plants are increasingly uneconomic, particularly as the cost for new renewable electricity generation declines, and after factoring in the costs to public health from air pollution. In pursuing transmission solutions to meet electricity demand and address reliability needs, ISO-NE can also strive to better integrate low- or no-carbon generation projects, with the added benefit of saving ratepayers money and avoiding the need to bail out uneconomic plants. As ISO-NE continues to the next phase of this important process to meet demand and enhance reliability, we urge you to consider and prioritize climate and public health goals.

Sincerely,

Edward J. Markey
United States Senator

Elizabeth Warren
United States Senator


\textsuperscript{6} Edoardo Conticini, Bruno Frediani, Dario Caro, \textit{Can atmospheric pollution be considered a co-factor in extremely high level of SARS-CoV-2 lethality in Northern Italy?}, Environmental Pollution, (June 2020), https://www.sciencedirect.com/science/article/pii/S0269749120320601?via%3Dihub.
June 12, 2020

The Honorable Edward Markey
255 Dirksen Senate Office Building
Washington, DC 20510

The Honorable Elizabeth Warren
309 Hart Senate Office Building
Washington, DC 20510

Dear Senators Markey and Warren:

Thank you for your June 5 letter regarding the development of competitive transmission solutions to address reliability needs in the Boston area. ISO New England, in its role as the Regional Transmission Organization, is required to facilitate a process for ensuring the development of transmission infrastructure solutions that are essential for maintaining power system reliability.

On December 20, 2019, ISO New England issued the region’s first Request for Proposal (RFP) for competitively developed transmission solutions to address reliability needs pursuant to the Federal Energy Regulatory Commission’s Order 1000. The RFP was issued in accordance with rules outlined in Attachment K of the ISO New England Open Access Transmission Tariff. ISO New England identified these reliability needs in its Boston 2028 Needs Assessment Update and Addendum following the announced retirement of Mystic Generating Station.

The deadline for “Phase One” proposal submissions relative to the RFP was March 4, 2020. In response, the ISO received 36 Phase One proposals from eight Qualified Transmission Project Sponsors. The installed cost estimates provided in the proposals range from approximately $49M to $745M, with in-service dates ranging from March 2023 to December 2026 and incorporating a number of different technologies.

Stakeholder Discussion Scheduled for June Planning Advisory Committee Meeting

Throughout this process, the ISO has outlined for stakeholders and project sponsors the requirements for the Boston 2028 RFP solicitation. The project ultimately chosen through the RFP must provide a comprehensive solution to the reliability needs identified in the needs assessment, and it must be a cost-effective solution for the consumers who will ultimately bear the cost of the project. These attributes include meeting the region’s reliability needs by completing construction and being operational by June 1, 2024 when the Mystic Generating Station retires. As you note in your letter, the Mystic facility is a natural gas-fired power plant (one of the largest generators in New England and fed by liquefied natural gas imports), and upon successful integration of the project developed through the Boston 2028 RFP, Mystic will retire without compromising regional reliability.
The ISO recently posted the results of the Phase One analysis, with the intent of discussing those results with New England stakeholders at the next Planning Advisory Committee (PAC) on June 17. PAC meetings are open to all interested stakeholders, subject to restrictions on materials designated as Critical Energy Infrastructure Information. Most of the Phase One proposals were excluded following a preliminary review because the proposals did not address the identified needs or failed to meet requirements in our regional tariff and/or the RFP. Ultimately, five proposals addressed the reliability needs identified in the RFP – ranging in cost from $49 million to $121 million.

The ISO is recommending that we move forward with the least-expensive project that fulfills the needs identified in the original solicitation. (The next least-expensive proposal is $94 million, nearly double the cost of the least-expensive project.) We believe it is unlikely that further review of the other four proposals would lead to their selection; therefore, we are recommending that they not advance to the next phase and incur additional costs for New England’s consumers. However, we will listen to feedback from stakeholders at the June 17 PAC meeting before making a final decision.

Transmission Investment to Meet Public Policy Goals

I appreciate your thoughts on the importance of investing in transmission to meet public policy goals for both renewable energy and economy-wide carbon reduction. A separate section of Order 1000 establishes a regional process to identify public policy requirements that may drive a need for transmission solutions. In accordance with the timetable articulated in Order 1000, last month the New England States Committee on Electricity (NESCOE) relayed to the ISO that it does not believe that a public policy transmission study is warranted at this time. The NESCOE submittal to the ISO includes responses from all six New England states agreeing that there is no current need to commence the study process.

In my February 27, 2020 letter to Senator Markey, I noted that a separate initiative, a discussion on New England’s Transition to the Future Grid, would soon commence with regional stakeholders. The initiative is a joint effort by NESCOE, the New England Power Pool, and the ISO to further assess and explore potential market and reliability issues in light of evolving state energy and environmental policies. Stakeholder meetings began in April and the next meeting is planned for July 1. Further meetings are planned throughout 2020.

Thank you again for your recent letter and your continued interest in the reliable operations of New England’s bulk power system and considerations for other policy objectives for the New England region.

Sincerely,

Gordon van Welie
President & Chief Executive Officer
Mystic Reliability AC Wind Link
Submitted in Response to
ISO-NE Boston 2028 RFP

March 2, 2020
Section 1  Phase One Proposal – Administrative

1.1 Primary Contact (The ISO anticipates this response may contain confidential information)

**Question 1-1 - Provide primary contact information.**

Designate a representative for the Phase One Proposal to be the primary contact person with the ISO and provide the following requested information in a narrative form and not in an uploaded file:

a. Name,
b. Title,
c. Email Address,
d. Telephone, and
e. Mailing Address

The primary contact is the person the ISO will first contact if questions or additional requests for information are needed from the QTPS Respondent that cannot be addressed through RFP360. The primary contact shall have the authority to provide responses on behalf of the QTPS Respondent’s organization.

- Anbaric’s primary contact for its Phase One proposal, Mystic Reliability AC Wind Link, will be Theodore Paradise,
- Mr. Paradise is Anbaric’s Senior Vice President, Transmission Strategy and Counsel.
- Mr. Paradise’s email is tparadise@anbaric.com
- Mr. Paradise’s telephone number is (413) 222 0826
- Mr. Paradise’s mailing address is 401 Edgewater Place Suite 680, Wakefield, MA 01880
Section 1 Phase One Proposal – Administrative

1.2 Secondary Contact (The ISO anticipates this response may contain confidential information)

Question 1-2 - Provide secondary contact information.

Designate a representative for the Phase One Proposal to be the secondary contact person with the ISO and provide the following requested information in a narrative form and not in an uploaded file:

a. Name,
b. Title,
c. Email Address,
d. Telephone, and
e. Mailing Address

The secondary contact is the person the ISO will contact if questions or additional requests for information are needed from the QTPS Respondent that cannot be addressed through RFP360 and the primary contact is unable to be contacted. Like the primary contact, the secondary contact shall have the authority to provide responses on behalf of the QTPS Respondent’s organization.

a. Anbaric’s secondary contact for its Phase One proposal, Mystic Reliability AC Wind Link, will be John-Paul Kwasie
b. Mr. Kwasie is Anbaric’s Operations Manager
c. Mr. Kwasie’s email is jkwasie@anbaric.com
d. Mr. Kwasie’s telephone number is (781) 708 0441
e. Mr. Kwasie’s mailing address is 401 Edgewater Place Suite 680, Wakefield, MA 01880
Section 1 Phase One Proposal – Administrative

1.3 Backstop Transmission Solution

Question 1-3a - Has the QTPS Respondent been identified as the Backstop Transmission Solution provider? If the response is no, then respond to Questions 1-3b through 1-3e with an “NA”.

Question 1-3b - Is the Backstop Transmission Solution provider submitting a joint Phase One Proposal? If the response is no, then respond to Questions 1-3d and 1-3e with an “NA”.

Question 1-3c - Is this submittal the Backstop Transmission Solution? If the response is no, then respond to Questions 1-3d and 1-3e with an “NA”.

Question 1-3d - Identify the legal names of each Backstop Developer involved in the joint Phase One Proposal.

Question 1-3e - Identify the Backstop Developer that will serve as the lead for the Phase One Proposal.

All responses shall be submitted in a narrative form and not in an uploaded file.

As described in Section 4.3(a) of Attachment K, a QTPS Respondent shall be considered a Backstop Transmission Solution provider and is required to submit a Backstop Transmission Solution for any need that would be solved by a project located within or connected to its/their existing electric system, and which it/they would therefore have an obligation to build under Section 3.09(a) of the Transmission Operating Agreement (“TOA”). All other QTPS Respondents cannot be considered as a Backstop Transmission Solution provider and cannot submit a Phase One Proposal as a Backstop Transmission Solution.

The ISO will identify the QTPS(s) which will be the Backstop Transmission Solution provider(s) at the time of the issuance of the RFP. The Backstop Transmission Solution provider(s) shall be subject to the same requirements as any other QTPS submitting a Phase One Proposal. Only the Backstop Transmission Solution may be submitted as a joint Phase One Proposal where the ISO has identified more than one Backstop Transmission Solution provider. A Phase One Proposal that is not a Backstop Transmission Solution cannot be submitted as a joint Phase One Proposal with another QTPS Respondent or Backstop Transmission Solution provider.

If multiple Backstop Transmission Solution providers are submitting a joint Phase One Proposal, only the lead Backstop Transmission Solution provider shall submit the joint Backstop Phase One Proposal. The following information is required in the joint Backstop Transmission Solution provider’s Phase One Proposal. The lead Backstop Transmission Solution provider shall:

a. clearly identify the legal name of each Backstop Transmission Solution provider involved in the joint Phase One Proposal and

NA
b. identify the lead Backstop Transmission Solution provider.

NA

Question 1-3b - Is the Backstop Transmission Solution provider submitting a joint Phase One Proposal? If the response is no, then respond to Questions 1-3d and 1-3e with an “NA”.

No

Question 1-3c - Is this submittal the Backstop Transmission Solution? If the response is no, then respond to Questions 1-3d and 1-3e with an “NA”.

No

Question 1-3d - Identify the legal names of each Backstop Developer involved in the joint Phase One Proposal.

NA

Question 1-3e - Identify the Backstop Developer that will serve as the lead for the Phase One Proposal.

NA
Request for Proposal
Index of Attachments

Boston 2028 RFP
December 20, 2019

© ISO New England Inc.
Complete the table below itemizing any attachments included as part of the QTPS Respondent’s Phase One Proposal. Indicate the RFP360 question number and the file name according to the naming convention described in Section 3.6 of Part 1. Add additional rows if needed. Responses to questions shall be submitted in RFP360. Attached files are not to be used unless the question specifies that an attached file is required by ISO-NE. The ISO-NE required files are shown below. The brackets {} are used to indicate that the QTPS Respondent’s name shall be used in the file naming convention. Multiple files may be needed to respond to a question. In those cases, the QTPS Respondent will add an underscore to the end of the file name and add an incremental number for each file, e.g. ABC Power_Q30_geographic map_1 and ABC Power_Q30_geographic map_2.

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Attestation and Affidavit

Boston 2028 RFP
December 20, 2019

© ISO New England Inc.
Attestation and Affidavit of Anbaric Development Partners, LLC

I, Edward N. Krapels, being duly sworn according to law, affirm

1. That I am the Chief Executive Officer of Anbaric Development Partners, LLC a limited liability company duly organized under the laws of the State of Delaware, and with its principal place of business located at 401 Edgewater Pl, Ste 680, Wakefield, MA 01880 (“the QTPS Respondent”), and that I am authorized to execute this affidavit on behalf of, and bind, the QTPS Respondent;

2. That the QTPS Respondent has submitted the attached Phase One Proposal in good faith for consideration by ISO New England, Inc. (“ISO-NE”) to satisfy the need(s) identified in the Boston 2028 Request for Proposal (“the RFP”);

3. That the QTPS Respondent understands that ISO-NE’s evaluation of the attached Phase One Proposal and any Phase Two Solution subsequently submitted by the QTPS Respondent is governed by the ISO-NE Transmission, Markets and Services Tariff (“Tariff”), any manuals adopted under the Tariff, and the RFP;

4. That the QTPS Respondent agrees to be bound at all times by the Tariff and the RFP;

5. That the information included in the Phase One Proposal and any Phase Two Solution submitted by the QTPS Respondent is true and accurate to the best of the QTPS Respondent’s information, knowledge, and belief;

6. That the QTPS Respondent has complied with all applicable laws, regulations, and Good Utility Practices in preparing the Phase One Proposal and any Phase Two Solution submitted by the QTPS Respondent;

7. That the QTPS Respondent confirms that it has submitted concurrently with the Phase One Proposal an initial Study Deposit in the amount of $100,000 and agrees to pay any additional Study Deposits as needed by ISO-NE within the timeframe specified by ISO-NE, to process the QTPS Respondent’s Phase One Proposal or any Phase Two Solution submitted by the QTPS Respondent as directed by ISO-NE; and

8. That, if at any time, the QTPS Respondent fails to comply with any of the requirements set forth in the Tariff or the RFP, ISO-NE, in its sole discretion, can disqualify from further consideration the Phase One Proposal or any Phase Two Solution submitted by the QTPS Respondent.
State of (Massachusetts)  
County of (Essex)  

Subscribed before me, a Notary Public in and for said county and state, this 28 day of 

May 22, 2026  
Commission Expiration Date  

Signature:  
Printed Name: Cynthia Theresa Fortier  
Corporate Title: CEO  

Cynthia Theresa Fortier  
Signature  
Printed Name  

CYNTHIA THERESA FORTIER  
NOTARY PUBLIC  
Commonwealth of Massachusetts  
My Commission Expires on  
May 21, 2026  

ISO-NE Public
Executive Summary

1. The Mystic Reliability AC Wind Link is a 900MW HVAC subsea transmission project between Plymouth, MA and Everett, MA that:
   - Addresses all of the needs identified in the Final Boston 2028 Needs Assessment Update (“Needs Assessment”).
   - Is highly feasible and constructible with extensive terrestrial and marine routing assessments completed (including a sea-floor survey in January 2020 of the route).
   - Utilizes a terrestrial route via multi-lane state roads on the north end and an interconnect near the decommissioned Pilgrim Nuclear Plant on the south end, thereby avoiding residential areas and minimizing risk of delay and opposition.
   - Is being presented to numerous community and government agencies with positive feedback and ongoing dialogue.
   - Provides capability that addresses not only the Needs Assessment but also the additional system needs identified in the May 2019 version should the New England Clean Energy Connect (“NECEC”) project – now the subject of a Maine voter referendum in November 2020 – be delayed or cancelled.
   - Is highly expandable, incorporating in its design a spare set of duct banks for a later cable to connect 1200MW of additional renewable power from federal offshore wind areas to the Mystic Substation in Everett. The cost of this spare set of duct banks is being carried by Anbaric and is not being added to the cost of this project. Further, the project includes a ring bus yard at the Plymouth end and a 4-breaker, six position switchyard in Everett that allows expansion to a breaker-and-a-half if needed.
   - Provides a new 345kV HVAC electric path between the SEMA and NEMA zones. This new path allows large amounts of offshore wind energy to be injected into SEMA to serve the high-demand Boston load area. This avoids the need for an additional 345 kV circuit to be added at a later time to move more renewable energy from SEMA to NEMA, as identified in the August 8, 2019 ISO-NE Economic Study presentation to the Planning Advisory Committee at slide 6.
   - The 900MW project provides an additional 1,100MW of energy import capability into Boston that provides a margin for additional generation retirement such as the Kendall units.
   - Provides line flow controllability via phase angle regulating transformers (“PARs”) that will allow system operators to flow power from north-to-south if needed to address certain system conditions should Canal 1 and/or 2 retire.
   - Provides for an independently switched, two-cable design that is highly resilient.
   - Does not create material adverse impacts on the system.

Anbaric has worked with EN Engineering and Power Engineers to ensure that the project addresses all identified needs in the most feasible and cost-effective way, and in a way that provides the system operators with an advantageous design.

2. Costs and cost containment provisions
- Anbaric will use a capped ROE of 7.9%, saving ratepayers over $60 million compared to customary ROEs for similar-sized projects.
- The base cost of the project is $418,402,486, excluding AFUDC, and the installed cost including AFUDC is $448,816,519, as defined in the Installed Cost Workbook.
- The base cost of the project is capped at $562,453,921, as described in Section 8.
- The project’s life cycle cost is $514,281,593.
- The project is highly developed and designed to be in service by June 1, 2024. This is critical not only to deal with the system reliability exposure from the retirement of Mystic 8 and 9 that triggered this RFP, but also to ensure that the region does not incur costs of $200 to $300 million annually to secure generation through a gap RFP to maintain the Mystic Generating Station and its fuel supply.

3. Schedule
- Anbaric initiated development of the Mystic Reliability AC Wind Link project in 2019 to meet the June 1, 2024 timeline for the project.
- With this advanced preparation, equipment can be immediately ordered once the project is awarded.
- Outreach to state and municipal authorities and community groups is already well underway, and any advanced permitting work will be prepared during the Phase 2 window, and those permits that require a project award will be filed immediately after award.
- Anbaric anticipates that major post-award permitting work will occur from Q3 2021 to Q3 2023, equipment procurement will be conducted from Q3 2021 to Q4 2023, construction will occur in different areas of the route beginning Q2 2023, ending Q2 2024, and commission and energization will occur from Q1 2024 to Q2 2024. The schedule is set out in Section 7.5, along with greater details regarding the feasibility of meeting those schedule dates in Section 7.2.
- Advanced Route Feasibility Work and Key Partnerships to Meet the Required In-Service Date
  - In 2019, Anbaric worked with the environmental permitting firm ESS on extensive routing options, including the marine route. A preliminary sea survey of the entire route was conducted in January 2020. This proved out the desktop route, and where difficult soil conditions were identified, the survey vessel was able to locate a better route. A more detailed sea survey will be conducted in Phase 2. Anbaric has already begun working with local fishing groups to ensure that concerns related to the sea cable installation process and location can be addressed.
  - On the northern end, Anbaric and ESS evaluated several approaches to the Mystic Substation, including through Boston Harbor and other landing locations. The current route, which comes ashore under Revere Beach and then follows primarily the multi-lane State Route 16, was selected based on a foot-by-foot review with Power Engineers and Bond Brothers Construction ("Bond") of the feasibility of in-ground installation of the 345 kV cables.
Anbaric is continuing to work with Bond on the routing analysis and civil engineering of the project. Bond has extensive experience installing in-ground transmission and substation construction for many of the incumbent utilities in the region and elsewhere. This exclusive working arrangement assisted Anbaric in evaluating a schedule on which an in-service date of June 1, 2024 can be met.

Anbaric is working with Massachusetts-based GE to supply the non-cable AC electric components. Anbaric has worked with GE and the other vendors on design and pricing issues to ensure that equipment will be available when needed and at competitive costs.

4. Design and Route Overview

- Anbaric has designed Mystic Reliability AC Wind Link to meet all elements of the Needs Assessment at minimum cost and with high feasibility.
- The project consists of two independently switched tri-core 345kV AC cables from a tap of the 342-3 and 355 345kV lines near Pilgrim into a new 345kV switchyard then up to the Mystic substation in Everett, MA, creating a new, direct 345kV path between the SEMA and NEMA zones.
- The project is designed to carry 900MW of energy directly into Boston. As shown in section 4.2, the two 345kV cables leave a new Anbaric 345kV switchyard located near the retired Pilgrim nuclear generating station. The cables enter the Atlantic Ocean and stay towards the outer area of the three-mile state boundary waters, thereby avoiding the need for federal Bureau of Ocean Energy Management ("BOEM") approval.
- The two cables land under Revere Beach, using horizontal directional drilling to come ashore underground. The buried cable route continues under State Route 16, a road through a commercial area with multiple lanes on each side, enabling installation without the need to shut down traffic. Passing underground 4.9 miles through Revere and Chelsea into Everett, the Project then connects to a 345kV switch yard on property that has already been secured by Anbaric. From here, underground connecting AC cables link the switchyard 1.35 miles to 345kV positions at the Mystic substation.
- **These ducts and vaults through the streets will include an additional open position that will be installed at Anbaric’s cost and will not be added to the RNS rate as part of this project.** This will allow for a later cable pull for circuits in a subsequent project, including the offshore wind energy now procured for installation in SEMA, to be directly connected to Mystic without needing additional siting or significant in-road infrastructure. This reduces the cost to consumers for later connections from SEMA, or directly from the south coast wind lease areas, into Boston.
- Each independently switched cable will be capable of transmitting 450MW under normal conditions and power flow will be regulated by phase angle regulators. Cable charging will be compensated by four 180MVar shunt reactors for each cable, with two switched shunt reactors at each cable terminal.
The project will have a +/- 150MVAR STATCOM connected to Anbaric’s Mystic switching station to address the system restoration need and help system operators regulate voltage in day-to-day operations.

- The project will install a series reactor at the West Amesbury substation.
- The project does not impact the BPS classification of existing substations.

5. The timing to procure real estate and feasible rights-of-way
- The project will require switchyards in Plymouth and Everett, MA, as well as rights-of-way to get to the ocean from the Plymouth switchyard, from Plymouth to Revere in a subsea route from Plymouth to Revere, a right-of-way from Revere Beach through Revere and Chelsea to Anbaric’s switchyard in Everett, and from Anbaric’s Everett Switchyard to the Mystic Substation.
- For the switchyards, Anbaric has secured site control in Everett, and is in advanced negotiations with a landowner in Plymouth. Final Plymouth site control will be secured in Q2 2020.
- Anbaric is fully aware that portions of the Greater Boston Reliability Project (“GBRP”) – approved in 2015 – are years late, and therefore Anbaric avoided proposing a project that would seek installation in similar areas, since these are now seeing projected 2021 in-service dates. Anbaric is proposing a highly feasible project design that does not rely on going through areas already enmeshed in GBRP siting challenges.

6. The Mystic Reliability AC Wind Link addresses the identified needs
- The project meets all the specifics of the Needs Assessment with a highly feasible schedule and the minimum achievable cost based on the extensive analysis of alternatives by Anbaric and its engineering consultants.
- At a high level, as described in more detail in Section 7.1 and demonstrated in modeling information provided in Section 5, the project lowers all unacceptable contingency impacts identified in the Needs Assessment to acceptable levels. It reduces thermal loading below 90 percent of LTE rating for the three 345kV cables identified in the Needs Assessment for the most critical N-1-1 contingency pairs and for the 115kV line identified in the Needs Assessment for the most critical N-1 contingency. The project also provides additional margin against high voltage during minimum load conditions. The project reduces voltage at all 21 of the buses identified as driving time-sensitive needs in the Needs Assessment. The project also maintains all circuit breakers within their interrupting capability.
- Anbaric understands that schedule feasibility – getting it built on time – is absolutely critical given that stop-gap energy contract payments could add up to $200 to $300 million per year to Boston area consumers’ cost if the chosen solution is delayed. Anbaric’s participation in previous on-schedule buried cable projects with both subsea and underground components provides useful experience and a road map on how to construct the Mystic Reliability AC Wind Link on schedule. The project avoids areas where delay is most likely and utilizes routing where transmission can be installed with a minimal amount of disruption and without impacting residential
areas, while also avoiding environmental impediments that could create permitting delays.
Labor Resources

Anbaric will rely on the experience, knowledge, and skill of its internal project staff to plan the Mystic Reliability AC Wind Link. It has also assembled an exceptional team of highly qualified consultants and vendors to support the design the project, support siting and permitting, construct, operate, and maintain the project’s components and transmission facilities.

Anbaric Team

The following staff members comprise Anbaric’s internal project team. Extensive biographies are included in Anbaric’s QTPS materials and are available at anbaric.com

Edward Krapels

Edward Krapels, Founder and CEO of Anbaric, has been a founding partner in developing several iconic electric transmission projects, including the Neptune Regional Transmission System, the Hudson Project, and several major new projects designed to bring renewable power into urban markets.

Clarke Bruno

Clarke Bruno is Lead Partner and President of Anbaric’s Transmission team. He has twenty-five years of private and public sector experience in energy development and law, including as energy and environmental counsel to New Jersey Governor Jon Corzine, where he helped draft the energy master plan. He joined the company in 2010 as its general counsel and became President of Transmission in 2017.

Timothy Vaill

Timothy Vaill is a Senior Partner and the Chief Financial Officer responsible for overseeing Anbaric’s capital structure, financial planning, and financial management. Mr. Vaill is the former Chairman and CEO of Boston Private Financial Holdings, Inc., a publicly owned investment management and banking company. Prior to this role, Mr. Vaill was an Executive Officer for The Boston Company, and a senior financial consultant for Fidelity Investments.

Theodore Paradise

Theodore Paradise, Senior Vice President of Transmission Strategy and Counsel, brings over twenty years of experience responding to regulatory and practical issues surrounding power system planning and operations. Mr. Paradise spent fifteen years at ISO New England Inc., where he served as Assistant General Counsel, Operations & Planning and oversaw legal issues related to power system operations, regional and interregional transmission planning – including competitive transmission, transmission siting, cost allocation, and generator interconnection.

Lawrence Mott
Lawrence Mott is an Owner’s Engineer at Anbaric focused on technical and development tasks for the company. Mr. Mott has been in the renewable energy industry for more than thirty years. Previously, he held a number of leadership positions including Director at independent engineering firm Sgurr Energy Inc., Senior Projects Manager at wind farm developer First Wind, and Technical Director at Northern Power Systems. Mr. Mott has served as a board member to the American Wind Energy Association, and chairman of the Renewable Energy Vermont Board.

William Wall

William Wall is a consultant to Anbaric. Mr. Wall is a member of several Boards of Directors, including of Haynes International, Inc., a specialty alloys manufacturing firm. From 2006 until 2015, Mr. Wall served as general counsel of Abrams Capital Management, LLC, a value-oriented investment firm headquartered in Boston. Prior to joining Abrams Capital, Mr. Wall was employed with Fidelity Investments for seven years, concluding as a Managing Director in its private investment group.

Steve Conant

Stephen Conant is a Partner and Project Manager for Anbaric and leads the company’s Southern New England OceanGrid initiative. Previously, Mr. Conant was a Senior Consultant for Stone & Webster Management Consultants, conducting environmental due diligence for major power asset transfers including coal, natural gas, hydroelectric power plants and natural gas pipelines.

Soam Goel

Soam Goel is a Partner at Anbaric dealing with special situations. He was previously Chief Commercial Officer of Power Network New Mexico, a $400M wholly owned subsidiary of Goldman Sachs Global Infrastructure Fund (GSIP), and spent 10 years with PA Consulting and predecessor firms where he co-headed the energy M&A practice.

Peter Shattuck

Peter Shattuck is President of Connecticut OceanGrid at Anbaric. Previously, Mr. Shattuck spent nine years as Massachusetts Director and Director of the Clean Energy Initiative at Acadia Center, a research and advocacy organization focused on energy and climate policy. In these roles, he engaged collaboratively with large energy users, utilities and other stakeholders to develop and implement state and regional programs supporting energy efficiency, offshore wind, clean energy transmission, energy storage and market-based climate policy.

Bryan Sanderson

Bryan Sanderson is a Partner and Project Manager with Anbaric where he brings over two decades of experience in energy markets and a strong background in both the natural gas and
power sectors. Prior to Anbaric, he held roles in project development and energy marketing with Invenergy.

John-Paul Kwasie

John-Paul Kwasie is Anbaric’s Operations Manager. He has nine years of experience providing administrative and technical support to the company’s project teams.

External Project Team

Technical Design

Anbaric contracted with K2 Management, EN Engineering, Power Engineers, and Intertek to serve as engineering consultants for the Mystic Reliability AC Wind Link. The engineering team reports to Mr. Mott.

K2 Management

K2 Management provided electrical engineering support during development of the project. K2’s work for Anbaric includes project management support and coordination; costing advisory for key project components; and specification development for the project.

EN Engineering

EN Engineering has extensive experience in New England grid planning matters. Lead consulting engineer Phil Tatro has had a long career planning installed reliability projects in the New England region. EN has provided extensive analysis of ISO-NE needs assessments, and modeling work to assess the performance of different alternatives.

Power Engineers

Power Engineers has a highly experienced team, including members who have worked on multiple reliability projects in the New England region. Power Engineers has supported the design of the project substations and components of the project’s underground transmission system.

Intertek

Anbaric engaged Intertek, a Bristol, UK specialist consulting entity, to review HDD methods, concept installation planning, and splice vault locations for the Revere Beach landing area. Intertek has a dedicated team focused on cable applications, onshore and offshore, with a focus on offshore wind array, complex shore landings.

Siting and Permitting

ESS Group, Inc.
ESS Group, Inc. (ESS) provides consultation for siting the project’s land and submarine routes to interconnection points, onshore converter stations, offshore collector platforms.

Additionally, ESS conducted a High Resolution Geophysical (HRG) shipboard survey to assist in the preliminary siting and routing of the planned subsea cable systems associated with the project. Working with an HRG survey vendor, Ocean Surveys, Inc. (OSI), ESS conducted a 38 nautical mile shipboard marine survey of potential submarine cable corridors to support initial siting for the project. This survey included the project’s preferred route from Plymouth to Revere, MA; a route segment from Broad Sound to Deer Island in Boston; a route segment in the Belle Isle Marsh area east of Logan Airport, and a route segment in the Mystic River from East Boston to Everett, MA.

The survey collected of shipboard acoustical remote sensing data, surface, and shallow subsurface data that will be used to assess routing and jet plow/hard bottom area determinations, geological hazards or marine cultural artifacts. The survey utilized multi-beam hydrography, side-scan sonar, shallow seabed sub-bottom profiling, and magnetometer readings to study bottom features and identify areas requiring further remote sensing investigation or consideration of re-routing due to observed seabed conditions. ESS continues to support the project as it moves forward and will provide key data for permitting.

**PSC North America**

Anbaric engaged PSC North America, a nationally known engineering and power systems consultant specializing in utility work, substation work, power flow modelling, operations and ISO work, to detail and review the project’s O&M.

**Durand & Anastas Environmental Strategies**

Durand & Anastas provides expertise regarding environmental matters and the coastal zone, and offshore waters. The team is led by Bob Durand who is a former Massachusetts Environmental Affairs Secretary and state legislator, serving in both the House and Senate, where he was Majority Whip. He is currently on the Board of Trustees for both The Nature Conservancy/Massachusetts Chapter and the Massachusetts Environmental Trust.

**Legal Counsel**

**Partridge Snow & Hahn LLP**

A highly experienced firm in regulatory and real property matters in the region, Partridge Snow & Hahn provides counsel on real estate matters related to the project, as well as advice regarding siting and permitting in the areas affected by the project.

**Latham and Watkins, LLP**
Anbaric works with Latham and Watkins on matters regarding federal regulation, including those involving the Federal Energy Regulatory Commission and other federal agencies.

**Construction**

Bond Brothers, a building, civil, utility and energy construction firm, will support Anbaric with construction of the switchyard civil works and the terrestrial portion of the underground transmission portion running from Revere Beach to Mystic. Bond will conduct design and engineering constructability reviews, perform conceptual estimating and budgeting, schedule and logistic development, provide support with transmission route selection, and attend meetings, public hearings, and/or events as requested. Additional information is provided in Section 3.3.

**Operation and Maintenance**

Anbaric will form an operating company to oversee operation and maintenance of the Mystic Reliability AC Wind Link. This operating company is similar to those utilized on projects in which Anbaric previously has been involved. The operation of the Mystic Reliability AC Wind Link will be supported by skilled, competitively selected third parties with the requisite technical and engineering capabilities. Anbaric will adhere to industry accepted best practices and standards, hiring of personnel, tools, and contractors, and engage in preventative, predictive, and emergency maintenance and 24/7 outage response.

Anbaric plans to use qualified O&M contractors to achieve its forced outage response implementation tasks for this project. Vendor-contracted support for forced outage restoration is common in the utility industry and even large transmission owning entities have several standing contracts with independent crews to wholly address or assist with storm outages and other issues. Anbaric will have a 24/7 staffed contact point for unanticipated system issues and emergency response.

For day-to-day operations, the Mystic Reliability AC Wind Link will be operated by an approved 24/7 remote operations center and linked directly to the ISO control room per regulated practice. Routine maintenance will be carried out through vendor contracts and manufacturer support. Anbaric will contract for maintenance and management of spare parts, spare structures, and/or spare equipment inventories as recommended by OEMs and its electrical consultants with input from its insurance advisor for its electric transmission lines and switchyards. As is common in the utility industry, Anbaric will have arrangements in place with vendors as needed to observe good utility practice, NERC, NPCC, state and ISO-NE criteria.
Section 3 Phase One Proposal - QTPS Respondent Project Specification Qualification

3.2 Financial Resources

Anbaric Development Partners is a platform company of Ontario Teachers’ Pension Plan (“OTPP”), whose investment objective is to create sustainable long-term value in its portfolio companies and enrich the communities they serve. OTPP invested in Anbaric in 2017 to further Anbaric’s development of a variety of electrical transmission projects, and OTPP plans to supply the equity capital and financial backstop required for the Mystic Reliability AC Wind Link project.

OTPP is the largest single-profession pension plan in Canada. An independent organization since 1990, OTPP invests and administers the pensions of more than 327,000 active and retired teachers in the Province of Ontario. As of June 30, 2019, OTPP had net assets of C$204 billion, invested across a mix of equities (public and private), bonds, commodities, real assets (real estate and infrastructure), absolute return strategies and natural resources. OTPP is well capitalized and can fund the prospective capital expenditures and more. It does not need to go to the capital market, or seek other investors, to raise the cash for development, construction, or permanent equity.

OTPP has a dedicated and highly specialized infrastructure investment department that has been investing and managing OTPP’s infrastructure portfolio since 2001. OTPP’s infrastructure portfolio was valued at C$17.8 billion as of December 31, 2018 and is actively seeking to increase this exposure, with a particular emphasis on new construction, greenfield projects. To accomplish this objective the Greenfield and Renewables team was created with a focus on executing projects in the development and construction stage. In 2017 the Greenfield team invested in, became a 40% equity owner of, and exclusive equity provider to Anbaric Development Partners to further Anbaric’s development of electrical transmission projects with the ultimate goal of securing the opportunity to invest permanent equity.

OTPP has large ownership positions (some of 100%) in infrastructure assets and routinely contributes additional capital to expansion projects, acquisitions and maintenance. Examples include 100% ownership of water and wastewater utilities in Chile where piping and machinery is continuously updated and replaced, and Global Container Terminals, which operates container terminals in New York and New Jersey and Vancouver, where over $500 million in major construction projects have been undertaken. The Mystic Reliability AC Wind Link is precisely the type of project that this partnership was structured to develop and OTPP would be prepared to fund the entire equity requirement. OTPP’s credit rating is Aa1 from Moody’s and AA+ from Standard & Poor’s.
As a primarily direct investor in infrastructure projects, OTPP also has extensive experience supporting portfolio companies around the world execute project financing. OTPP and Anbaric will manage construction risk sharing with their Mystic contractors, and insure for unforeseen events.

Anbaric will capitalize and manage its Mystic Reliability AC Wind Link project in accordance with customary and prudential industry norms in a manner that provides a substantial margin of safety in the event of unforeseen liabilities or losses. Anbaric will further procure insurance policies from leading insurers that are adequate in amount and scope for a project of this nature to protect against the range of risks present in the project. In addition, Anbaric will retain on the balance sheet of the Mystic Reliability AC Wind Link affiliate capital reserves and/or secure letter of credit commitments that would enable it to finance unexpected losses while awaiting insurance recoveries and to reduce the risk of any interruption of service caused by unanticipated failure of any part of its facilities.
Section 3 Phase One Proposal - QTPS Respondent Project Specification Qualification

Confidential Information

Capability
As set out in the response to Section 3.1, Anbaric has internal project management teams covering engineering, financing, procurement, construction, operations, legal (federal, state, local), public relations, labor relations, and government relations. Once the project is awarded, management area leads will work with the internal Anbaric team, and the supporting professionals and contractors, to meet the project schedule set out in Section 7.5. As the project moves forward to Phase 2 and award, Anbaric will:

- Complete any final engineering for each project section
- Expedi-tiously file for any permits required for each section. Informal discussions with permitting authorities are underway to familiarize entities with forthcoming requests and help ensure a more efficient permitting process.
- Significant project development has already been undertaken, and the survey, engineering work, and other supporting work papers will be ready to support the submission of permit requests immediately after award.
- Order equipment based on the discussions that Anbaric has already had with its vendors regarding manufacturing queue, manufacturing times, testing and delivery times. These procurement timeframes are already well understood and are set out in more detail in the project schedule information included at Section 7.5 of the RFP response.
- Continue community outreach including mayors, selectmen, town councils, organized labor, and community groups. Anbaric is working with community liaisons in the towns affected by our project and has already met elected leaders and community groups to familiarize them with the project.
- Continue state and federal outreach regarding the project. Anbaric is in communication with elected state legislative and executive officials, as well as federal house and senate members and agencies to familiarize them with the project and ensure that permit requests are understood and expected.

Overall project management has begun in the development stage by selecting and working with Anbaric’s selected civil engineering and construction firms to identify the most feasible routing options. For example, Bond has worked with Anbaric to identify the optimal route through Revere, Chelsea and Everett taking into account road design, lay down areas, directional drilling access points, required cable bend radiuses, soil issues, and the times of day when work is likely to be permitted given traffic volume and direction. This has allowed Anbaric to understand the number of crews needed to complete the work within a given timeframe, which can be accelerated from the Schedule set out in Section 7.5 as needed by adding additional crews.

As noted above, the equipment and installation time frames set out in detail in Section 7.5 of this RFP response have already been developed in conjunction with equipment vendors and installation contractors to ensure that that orders for manufacturing and installation crew availability will align with a June 1, 2024 in-service date.

Prior Project Management Experience
Anbaric’s predecessor companies were involved in the design, construction and installation of two sub-sea cable projects the 660MW Neptune HVDC project from Sayreville NJ, via a crossing in a sea route buried in Atlantic Ocean waters, under Jones Beach in Long Island, along the Wantagh expressway, to the converter station in North Hempstead, Long Island; and the back-to-back HVDC Hudson project from Ridgefield, NJ down the Hudson River to West 49th St in New York City. These projects were completed on time and on budget.

**Neptune Transmission Project:**
- 660MW independent HVDC transmission system linking New Jersey and Long Island
- Project is underwater (50 mi) and underground (15 mi)
- Developed in collaboration with Atlantic Energy Partners
- Competitively selected by the Long Island Power Authority
- Completed July 2007, on time and on budget.
- Operated by Powerbridge.

**Hudson Transmission Project:**
- 660MW from New Jersey to West 49th St in Manhattan.
- Project is underwater (4 mi) and underground (3 mi).
- Developed in collaboration with Hudson Transmission Partners
- Competitively selected by the New York Power Authority.
- Completed in June 2013, on time and on budget.
- Operated by Powerbridge.

**Contractors**

For civil construction for the Mystic Reliability AC Wind Link, Anbaric is working with Bond Brothers (Bond). Bond has completed numerous underground transmission and substation projects in the New England region, including around the Boston-area and Mystic substation, as well as in other regions. A partial list of relevant projects includes:
- The 69-mile Middletown to Norwalk Project, which involved 19 miles of 345kV underground electric duct bank for XLPE, 116 precast splice vaults and 54” of pipe jacking under the Metro North railroad
- 18 miles of welded steel pipe and 34 precast splice vaults for a 345kV project from Stoughton to Boston, along with a new substation in Stoughton and upgrades to two Boston-area substations
- Live rebuilding of the Ludlow substation as part of the Greater Springfield Reliability Project

Bond’s expertise, labor relations, project management group and familiarity with the areas involved in the Mystic Reliability AC Wind Link will help ensure that the schedule set out in greater detail in Section 7.5 can be met.
Permitting and Scheduling

In order to meet the schedule laid out in the ISO-NE’s Needs Assessment, the Mystic Reliability AC Wind Link will have to be constructed in the period between ISO-NE’s selection of the project – September 2021 – and the scheduled closing of the Mystic power station on June 1, 2024. Anbaric’s ability to meet that schedule depends (a) on its ability to obtain a series of state and local permits, and (b) the ability of Anbaric’s chosen vendors and constructors to get the job done within the timeline needed on the one hand, and the ability and willingness of state and local authorities to grant the necessary permits.

In an industry where projects are rarely completed on schedule, a bit under three-and-a-half years including the time required to obtain permits is extremely challenging. In order to meet the construction timeline, Anbaric’s preliminary permitting activity has already begun, and Anbaric will be prepared to begin formal permitting and siting immediately upon award. As discussed further in the answer to question 7.5, assuming selection of the Mystic Reliability AC Wind Link on or around September 1, 2021, Anbaric has allocated 18 months to 24 months for the two major permitting processes (on land and subsea), so that construction can begin on or around the end of the second quarter of 2023. Where permitting is completed more expeditiously, construction of some elements can be advanced.
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.1 Short Summary

Question 4-1 - Provide a short summary of the Phase One Proposal.

Instructions

The response shall state all of the components which comprise the Phase One Proposal in a bulleted format. The type of equipment (e.g. transformers, shunt devices) shall be totaled and any work on lines (new line, rebuild, or reconductoring) shall be grouped by voltage level and the total mileage of the work shall be stated.

When completing the response, list the components of the Phase One Proposal in the order as asked in the following sections (Sections 4.6 to Section 4.21). The response shall be submitted in a narrative form and not in an uploaded file.

To solve the stated reliability needs, the Anbaric Mystic Reliability AC Wind Link the Phase One Proposal includes:

- The existing overhead transmission lines (342-3 and 355) that currently serve the existing Eversource 345kV Pilgrim Substation will be tapped adjacent to the proposed STA2 switchyard. (approx. 500’). Two (2) new 345kV overhead lines (AN33 and AN34) will be installed from STA2 to the Eversource 345kV Pilgrim Substation and terminated to the transmission line dead ends which formally terminated lines 342-3 and 355 (approx. 1500’).
- A new two circuit 345kV AC transmission line (AN31 and AN32) from a new Anbaric Plymouth Switchyard (STA2) in Plymouth, MA to a new Anbaric Everett Switchyard (STA1) in Everett, MA. This line includes 45 miles of submarine cable from Plymouth to Everett, MA, followed by 4.9 miles of underground 345kV cable from the submarine cable landing in Revere to the new Anbaric substation in Everett.
- A new 345kV AC underground transmission line with separately switched two cables per phase (AN35 and AN36) from the proposed Anbaric switchyard STA1 in Everett, MA to the existing Eversource Mystic Substation. The length of this transmission line is 1.35 miles.
- A new AIS 345kV breaker-and-a-half switchyard (STA2) in Plymouth, MA
- A new indoor GIS 345kV six (6) breaker ring bus switchyard (STA1), with four (4) breakers installed and two open positions, in Everett, MA
- At the Eversource 345kV Mystic Substation, the existing indoor GIS equipment, which formally served as the connection points for generators 8 & 9 to the Mystic station, will be utilized for this project. Two (2) of these existing GIS breakers will be used to terminate the incoming lines AN35 and AN36, leaving the Mystic station 7 breaker position open for future use.
- Install eight (8) new 345kV 180MVAR Shunt reactors: four (4) (R11, 12, 13, 14) at STA1 and four (4) (R21, 22, 23, 24) at STA2.
- Install a new 345kV (-/+150MVAR STATCOM (STATCOM) at the proposed Anbaric STA1 Substation in Everett, MA.
- Install two (2) new 345kV 500MVA (-/+ 40° Phase Angle Regulators (T1-PAR and T2-PAR) at the proposed Anbaric STA2 Substation in Plymouth, MA.
- Install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line at the W. Amesbury substation.
## Section 4 Phase One Proposal - Facility Description and Cost Estimates

### 4.2 Geographic Map

**Question 4-2 - Provide a geographic map of the Phase One Proposal.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The geographical map shall show the Phase One Proposal full view of the route of new line(s), the route of line(s) that are being rebuilt or reconducted, the location on new station(s) and the location of station(s) where major work is being performed. Each new line and station shall be marked with an identifier that will be consistently used in other responses in the RFP. Only a PDF file shall be accepted.</td>
<td>A geographic map has been attached.</td>
</tr>
</tbody>
</table>
### Section 4 Phase One Proposal - Facility Description and Cost Estimates

#### 4.3 One Line Diagram(s)

**Question 4-3 - Provide one line diagram(s) of the Phase One Proposal.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-line diagram(s) shall be provided to show new or modified equipment in addition to existing or already planned system changes. The detailed one-line diagram(s) of the proposed facilities shall show the connectivity between all new proposed equipment (i.e., circuit breakers, transformers, shunt-connected capacitor banks, shunt-connected reactors, dynamic reactive devices, transmission lines, etc.) and the proposed bus configuration at the Point(s) of Interconnection. Each new station, line, and equipment shall be marked with an identifier that will be consistently used in other responses in the RFP. The response requires at least one file at a minimum to be uploaded into RFP360 and only PDF files shall be accepted.</td>
<td>A one-line diagram has been attached.</td>
</tr>
</tbody>
</table>
**Section 4 Phase One Proposal - Facility Description and Cost Estimates**

4.4 One Line Block Diagram

*Question 4-4 – Provide a one line block diagram of the Phase One Proposal.*

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP Response</th>
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</thead>
<tbody>
<tr>
<td>A one line block diagram shall be provided to show new, modified, or removed line(s) and station(s). In addition, notes can be added to show work on a line such as separating a multiple circuit tower or reconductoring a line. The purpose of a one line block diagram is to show the connectivity between all new, modified, and removed lines and stations. Each new station and line shall be marked with an identifier that will be consistently used in other responses in the RFP. Only a PDF file shall be accepted.</td>
<td>A one-line block diagram has been attached.</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.5 Proposal Installed Cost Estimate

*Question 4-5 - Provide the installed cost estimate for the Phase One Proposal.*

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP Response</th>
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</thead>
<tbody>
<tr>
<td>The response shall state the total installed cost estimate for all of work which comprises the Phase One Proposal. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td><strong>Confidential Information.</strong> The total installed cost of the Mystic Reliability AC Wind Link is $448,816,519, including AFUDC, as described in the Installed Cost Workbook. The project’s installed cost primarily consists of a submarine transmission cable, two segments of underground cables (one in Plymouth, the other in Revere-Chelsea-Everett), and two switchyards.</td>
</tr>
<tr>
<td>345kV Transmission Line Cut-in to Anbaric Plymouth</td>
<td></td>
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<tr>
<td>345kV Transmission Line: Anbaric Plymouth to Revere (Submarine)</td>
<td></td>
</tr>
<tr>
<td>345kV Transmission Line: Revere Beach to Anbaric Everett (Underground)</td>
<td></td>
</tr>
<tr>
<td>345kV Transmission Line: Anbaric Everett to Eversource Mystic</td>
<td></td>
</tr>
<tr>
<td>New 345kV Switchyard: Anbaric Plymouth</td>
<td></td>
</tr>
<tr>
<td>New 345kV Switchyard: Anbaric Everett</td>
<td></td>
</tr>
<tr>
<td>Existing Mystic Substation</td>
<td></td>
</tr>
<tr>
<td>Series Reactor at Existing W. Amesbury Substation</td>
<td></td>
</tr>
<tr>
<td>Shunt Reactors (Anbaric Plymouth)</td>
<td></td>
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<tr>
<td>Shunt Reactors (Anbaric Everett)</td>
<td></td>
</tr>
<tr>
<td>STATCOM - Anbaric Everett</td>
<td></td>
</tr>
<tr>
<td>PARs - Anbaric Everett</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>448,816,519</strong></td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.6 Proposal Life-Cycle Cost Estimate

Question 4-6: Provide the life-cycle cost estimate for the Phase One Proposal.

Confidential Information. The total life cycle cost of the Mystic Reliability AC Wind Link is $514,281,593. The life cycle costs of the primary components are shown below. The bulk of the annual and corporate operations and maintenance costs are amalgamated in “project wide costs.”

<table>
<thead>
<tr>
<th>Component</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>345kV Transmission Line Cut-in to Anbaric Plymouth</td>
<td></td>
</tr>
<tr>
<td>345kV Transmission Line: Anbaric Plymouth to Revere (Submarine)</td>
<td></td>
</tr>
<tr>
<td>345kV Transmission Line: Revere Beach to Anbaric Everett (Underground)</td>
<td></td>
</tr>
<tr>
<td>345kV Transmission Line: Anbaric Everett to Eversource Mystic</td>
<td></td>
</tr>
<tr>
<td>New 345kV Switchyard: Anbaric Plymouth</td>
<td></td>
</tr>
<tr>
<td>New 345kV Switchyard: Anbaric Everett</td>
<td></td>
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<tr>
<td>Shunt Reactors (Anbaric Plymouth)</td>
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<tr>
<td>Shunt Reactors (Anbaric Everett)</td>
<td></td>
</tr>
<tr>
<td>STATCOM - Anbaric Everett</td>
<td></td>
</tr>
<tr>
<td>PARs - Anbaric Everett</td>
<td></td>
</tr>
<tr>
<td>Statcom Control System Replacement in Year 15</td>
<td></td>
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<tr>
<td>Statcom Control System Partial Replacement in Year 30</td>
<td></td>
</tr>
<tr>
<td>Statcom Repowering and Control System Partial Replacement in Yr 40</td>
<td></td>
</tr>
<tr>
<td>Project-Wide Costs</td>
<td></td>
</tr>
</tbody>
</table>

6 [https://www.iso-ne.com/system-planning/transmission-planning/competitive-transmission-projects](https://www.iso-ne.com/system-planning/transmission-planning/competitive-transmission-projects)

7 Life-cycle cost is a single value and shall be calculated as the summation of the present value of annual costs over the full life span of the Phase One Proposal. (To calculate the present value of the annual costs, the discount rate is 8.3%, the inflation rate is 1.5% and the cost valuation year is 2023.) The annual costs shall include the design, engineering, construction, operation, maintenance, repair, taxes, depreciation, interest, equity, and administration costs.

8 [https://www.iso-ne.com/system-planning/transmission-planning/competitive-transmission-projects](https://www.iso-ne.com/system-planning/transmission-planning/competitive-transmission-projects)
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.7 345 kV Line Work

Question 4-7- Describe all 345 kV line work in the Phase One Proposal and the installed cost estimate for each component of 345 kV line work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
<th>Confidential Information</th>
</tr>
</thead>
</table>
| The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level, whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals for the line, the total mileage of the work, the summer normal, Long Time Emergency (“LTE”) and Short Time Emergency (“STE”) ratings\(^1\) of the proposed line, and the installed cost estimate for the work. If there is more than one 345 kV line component, then an entry at the end of the response shall be added to reflect the total installed cost for all of the 345 kV line work. Each new line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit tower work associated with this line. That information is to be provided in response to questions 4-11 and 4-12. | | • Modify the existing overhead transmission lines (342-3 and 355) that currently terminate at the Eversource 345 kV Pilgrim Substation so that they are tapped into the proposed Anbaric Plymouth Switchyard (STA2). Two (2) new 345 kV overhead lines (AN33 and AN34) will be installed from STA2 to the Eversource 345 kV Pilgrim Substation and terminated to the transmission line dead ends which formerly terminated lines 342-3 and 355. Ratings for the new segments of these lines will match the existing LTE and STE ratings of Lines 342-3 and 355, which are 1410 MVA and 1996 MVA, respectively, for line 342-3 and 1405 MVA and 1628 MVA, respectively, for line 355. The installed cost estimate for these line modifications is...

• A new 345 kV AC two circuit transmission line (AN31 and AN32) from a new Anbaric Plymouth Switchyard (STA2) in Plymouth, MA to a new Anbaric Everett Switchyard (STA1) in Everett, MA. These lines each include 45 miles of submarine cable from Plymouth to Everett, MA, followed by 4.9 miles of underground 345kV cable from the submarine cable landing in Revere to the new Anbaric switchyard in Everett. The submarine cables are modeled in two sections (from Plymouth to the midpoint and from the midpoint to landfall at Revere Beach) to account for ampacity differences at each terminal associated with the single-point bonding of the cable. The LTE and STE rating of the Plymouth to midpoint section for each cable are 860 MVA and 950 MVA, respectively. The LTE and STE rating of the...
midpoint to Revere landfall section for each cable are 680 MVA and 750 MVA, respectively. The LTE and STE rating of the underground cable from Revere landfall to Everett for each cable are 700 MVA and 770 MVA, respectively. The total installed cost for these lines is

- A new 345kV AC underground transmission line comprised of two individual cables (AN35 and AN36), switched as a single circuit, from the proposed Anbaric switchyard STA1 in Everett, MA to the existing Eversource Mystic Substation. The LTE and STE rating for each cable are 700 MVA and 770 MVA, respectively. This provides a combined LTE rating of 1400 MVA and STE rating of 1540 MVA. The length of this transmission line is 1.35 miles. The installed cost of the line is

- The total cost for all 345kV line work is
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.8 230 kV Line Work

Question 4-8- Describe all 230 kV line work in the Phase One Proposal and the installed cost estimate for each component of 230 kV line work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level, whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals for the line, the total mileage of the work, the summer normal, Long Time Emergency (“LTE”) and Short Time Emergency (“STE”) ratings of the proposed line, and the installed cost estimate for the work. If there is more than one 230 kV line component, then an entry at the end of the response shall be added to reflect the total installed cost for all of the 230 kV line work. Each new line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit tower work associated with this line. That information is to be provided in response to questions 4-11 and 4-12.</td>
<td>NA. The Mystic Reliability AC Wind Link alternative does not involve any 230kV line work.</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.9 115 kV Line Work

Question 4-9- Describe all 115 kV line work in the Phase One Proposal and the installed cost estimate for each component of 115 kV line work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level, whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals for the line, the total mileage of the work, the summer normal, Long Time Emergency (“LTE”) and Short Time Emergency (“STE”) ratings of the proposed line, and the installed cost estimate for the work. If there is more than one 115 kV line component, then an entry at the end of the response shall be added to reflect the total installed cost for all of the 115 kV line work. Each new line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit tower work associated with this line. That information is to be provided in response to questions 4-11 and 4-12.</td>
<td><strong>Confidential Information.</strong> As shown in the answers to 4.14 and 4.20, the Mystic Reliability AC Wind Link project will install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line at the W. Amesbury substation. The cost of that SR -- <strong>redacted</strong> -- is shown in responses 4.14 and 4.20.</td>
</tr>
</tbody>
</table>
**Section 4 Phase One Proposal - Facility Description and Cost Estimates**

4.10 69 kV Line Work

**Question 4-10- Describe all 69 kV line work in the Phase One Proposal and the installed cost estimate for each component of 69 kV line work.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level, whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals for the line, the total mileage of the work, the summer normal, Long Time Emergency (“LTE”) and Short Time Emergency (“STE”) ratings of the proposed line, and the installed cost estimate for the work. If there is more than one 69 kV line component, then an entry at the end of the response shall be added to reflect the total installed cost for all of the 69 kV line work. Each new line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit tower work associated with this line. That information is to be provided in response to questions 4-11 and 4-12.</td>
<td>NA. The Mystic Reliability AC Wind Link alternative does not involve any 69kV line work.</td>
</tr>
</tbody>
</table>
## 4.11 Multiple Circuit Tower (MCT) Additions

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state any new or modified MCT configurations resulting from new lines that will share new towers, or the installation of new or existing lines onto existing towers. Each entry shall state the lines that will comprise the new or modified MCT configuration and the total length of the MCT configuration shared by all the lines. In addition, each entry shall identify if all MCT configurations for the common lines to the MCTs are used only for station entrance and exit purposes, do not exceed five towers at each station and the total length of the MCT configurations is less than one mile. No cost or rating information shall be provided in this section, unless the new or modified MCT only involves existing lines, and there is no reconductoring or rebuild work associated with those lines. Information on ratings and costs associated with each new line or the reconductoring or rebuilding of existing lines shall be listed with each line’s corresponding entry in the appropriate section above (see Sections 4.6 to 4.9).</td>
<td></td>
</tr>
<tr>
<td>NA. The Mystic Reliability AC Wind Link alternative does not create any new multiple circuit tower configurations.</td>
<td></td>
</tr>
</tbody>
</table>

The response shall be submitted in a narrative form and not in an uploaded file.
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.12 Multiple Circuit Tower (MCT) Separations

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the lines that are being separated and their corresponding voltage levels, the location where the separation occurs and the installed cost estimate for the work related to the separation of the lines. No cost or rating information shall be provided in this section unless the MCT separation is the only work being done to the lines and there is no reconductoring or rebuild work associated with those lines. Information on ratings and costs associated with the reconductoring or rebuilding of existing lines shall be listed with each line’s corresponding entry in the appropriate section above (see Sections 4.6 to 4.9).</td>
<td></td>
</tr>
</tbody>
</table>

Confidential Information. One existing double circuit tower supporting the existing 345kV lines 355 and 342-3 will be removed near the existing Pilgrim Substation. This separation is being performed as part of the work to tap these lines into the proposed Anbaric Plymouth Switchyard (STA2). As stated in Section 4.7, the LTE and STE ratings will match the existing 342-3 and 355 lines and the associated costs is included in the new line (AN33 and AN34) total of **[Value]**.
4.13 New Stations Including Breakers and Switches

**Question 4-13 - Describe all new station(s) installations including breakers and switches in the Phase One Proposal and the installed cost estimate for the new station(s).**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the voltage level, whether it is an air insulated substation or gas insulated substation (AIS or GIS), the breaker arrangement (e.g. breaker and a half), new name (if known), substation ID, the interrupting capability of any new breakers, other major work that is related to the new station and the installed cost estimate for the work. If there is more than one new station, then an entry at the end of the response shall be added to reflect the total installed cost for all of the new station work. Each new station shall be marked with an identifier (substation name and voltage level) that will be consistently used in other responses in the RFP. Note – Large equipment such as transformers and capacitors shall be discussed in other questions. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>Confidential Information</td>
</tr>
<tr>
<td><strong>Confidential Information</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Anbaric – 345kV Everett Switchyard (STA1)</strong></td>
<td></td>
</tr>
<tr>
<td>New construction of a 345kV, 50kA indoor GIS six (6) breaker ring bus arrangement with four (4) 362kV, 5,000A, 50kA rated GIS circuit breakers and two (2) future bus positions. Additionally, four (4) 362kV, 5,000A, 50kA rated GIS circuit breakers are provided to service the reactors.</td>
<td></td>
</tr>
<tr>
<td><strong>Installed Cost for Switchyard STA1:</strong></td>
<td></td>
</tr>
<tr>
<td>**</td>
<td><strong>Anbaric – 345kV Plymouth Switchyard (STA2)</strong></td>
</tr>
<tr>
<td>New construction of a 345kV AIS breaker-and-a-half arrangement with 362kV, 3,000A, 40kA rated dead-tank circuit breakers. Additionally, four (4) 362kV, 3,000A, 40kA rated dead-tank circuit breakers are provided to service the reactors.</td>
<td></td>
</tr>
<tr>
<td><strong>Installed Cost for Switchyard STA2:</strong></td>
<td></td>
</tr>
<tr>
<td>**</td>
<td><strong>Total Install Cost for Switchyards STA1 and STA2:</strong></td>
</tr>
</tbody>
</table>
4.14 Existing Stations Including Breakers and Switches

Question 4-14 - Describe all work in existing station(s) including breakers and switches in the Phase One Proposal and the installed cost estimate for the work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the voltage level, the name of the existing station, the major work in the existing station, the interrupting capability of any newly installed circuit breaker, and the installed cost estimate for the work. If there is more than one existing station requiring major work, then an entry at the end of the response shall be added to reflect the total installed cost for all of the existing station work. Note – Large equipment such as transformers and capacitors shall be discussed in other questions. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>Confidential Information.</td>
</tr>
</tbody>
</table>

**Eversource – 345kV Mystic Substation**
No major work required at the tie in point of this existing 345kV GIS station bus.

**Installed Cost for Substation Upgrade Work:**

- [Redacted]

**National Grid W. Amesbury Substation**
As reflected in responses 4.9 and 4.20 - Install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115 kV line. **Installed Cost for Substation Upgrade Work:**

- [Redacted]

**Total Install Cost for Upgrade Work at Existing Substations:**

- [Redacted]
4.15 Transformers

*Question 4-15*- Describe all transformer work in the Phase One Proposal and the installed cost estimate for the work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (add, replace, or remove), the voltage level, the summer normal, LTE and STE rating in MVA, the tap changing capability and controls for the transformer if any, the station where the transformer work is taking place, and the installed cost estimate for the work. If the work includes more than one transformer, then an entry at the end of the response shall be added to reflect the total installed cost for all of the transformer work. Each new transformer shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
## Section 4 Phase One Proposal - Facility Description and Cost Estimates

### 4.16 Shunt Capacitors

**Question 4-16 - Describe all shunt capacitor work in the Phase One Proposal and the installed cost estimate for the work.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the size in MVAR at nominal voltage, the switching capability and controls for the shunt capacitors, the station where the shunt capacitor work is taking place, and the installed cost estimate for the work for each shunt capacitor installation. If the work includes more than one capacitor, then an entry at the end of the response shall be added to reflect the total installed cost for all of the capacitor work. Each new capacitor shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.17 Shunt Reactors

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the size in MVAR at nominal voltage, shunt reactor type (fixed or variable), the switching capability and controls for the shunt reactors, the station where the shunt reactor work is taking place, and the installed cost estimate for the work for each shunt reactor installation. If the work includes more than one shunt reactor, then an entry at the end of the response shall be added to reflect the total installed cost for all of the shunt reactor work. Each new shunt reactor shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>Confidential Information</td>
</tr>
<tr>
<td><strong>Anbaric – 345kV Everett Switchyard (STA1)</strong></td>
<td></td>
</tr>
<tr>
<td>Four (4) new 180 MVAR 345kV fixed shunt reactors (R1, 2, 3 and 4) will be installed on transmission lines AN31 and AN32. Reactors R1 and R2 will be connected to Line AN31. Reactors R3 and R4 will be connected to Line AN32. All reactors will be independently protected, controlled, and switched onto the respective transmission lines.</td>
<td>Installed Cost for Each Shunt Reactor:</td>
</tr>
<tr>
<td>Installed Cost for Shunt Reactors R1, R2, R3, &amp; R4:</td>
<td></td>
</tr>
<tr>
<td><strong>Anbaric – 345 kV Plymouth Switchyard (STA2)</strong></td>
<td></td>
</tr>
<tr>
<td>Four (4) new 180MVAR, 345kV fixed shunt reactors (R5, 6, 7 and 8) will be installed on transmission lines AN31 and AN32. Reactors R5 and R6 will be connected to Line AN31. Reactors R7 and R8 will be connected to Line AN32. All reactors will be independently protected, controlled, and switched onto the respective transmission lines.</td>
<td>Installed Cost for Each Shunt Reactor:</td>
</tr>
<tr>
<td>Installed Cost for Shunt Reactors R5, R6, R7, &amp; R8:</td>
<td></td>
</tr>
<tr>
<td>Total Installed Cost for Shunt Reactors:</td>
<td></td>
</tr>
</tbody>
</table>
### Section 4 Phase One Proposal - Facility Description and Cost Estimates

#### 4.18 Dynamic Reactive Devices

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the size in MVAR at nominal voltage, device (e.g. STATCOM, SVC, DVAR, synchronous condenser, etc.), the station where the dynamic reactive device work is taking place, the controls and the installed cost estimate for the work. If the work includes more than one dynamic reactive device, then an entry at the end of the response shall be added to reflect the total installed cost for all of the dynamic reactive device work. Each new dynamic reactive device shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>Confidential Information.</td>
</tr>
<tr>
<td><strong>Anbaric – Everett Substation (STA1)</strong></td>
<td>Install one (1) new -/+150 MVAR, 345kV STATCOM System (STATCOM).</td>
</tr>
<tr>
<td><strong>Total Installed Cost for STATCOM System:</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Confidential Information.**
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.19 Phase Angle Regulators (PARs)

Question 4-19 - Describe all phase angle regulator (PAR) work in the Phase One Proposal and the installed cost estimate for the work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the range measured in degrees, the control scheme of the PAR, the station where the PAR work is taking place, and the installed cost estimate for the work. If the work includes more than one PAR, then an entry at the end of the response shall be added to reflect the total installed cost for all of the PAR work. Each new PAR shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>Confidential Information</td>
</tr>
</tbody>
</table>

**Anbaric - Plymouth Substation (STA2)**
Install two (2) new 500 MVA, 345kV PAR (T1-PAR and T2-PAR) units with (-/+ 40° tap range. The power flow schedule for the PAR will be determined by ISO-NE based on system conditions and generation dispatch and the transformer taps will be controlled by the transmission operator to achieve the schedule. Unit T1-PAR will be installed in line AN31 and Unit T2-PAR will be installed in AN32.

**Installed Cost for Each PAR Unit:**

**Total Installed Cost for T1-PAR & T2-PAR Units:**
(2) 500 MVA 345 KV PAR units
### 4.20 Series Reactors

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the impedance of the series reactor in % (on a 100 MVA base), the station where the series reactor work is taking place, any automatic control schemes, and on what transmission element the series reactor is being installed, and the installed cost estimate for the work. If the work includes more than one series reactor, then an entry at the end of the response shall be added to reflect the total installed cost for all of the series reactor work. Each new series reactor shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td><strong>Confidential Information</strong>&lt;br&gt;As described in responses 4.9 and 4.14, install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line at the W. Amesbury substation at an installed cost of [redacted]</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.21 Series Capacitors

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the impedance of the series capacitor in % (on a 100 MVA base), the station where the series capacitor work is taking place, any automatic control schemes, and on what transmission element the series capacitor is being installed, and the installed cost estimate for the work. If the work includes more than one series capacitor, then an entry at the end of the response shall be added to reflect the total installed cost for all of the series capacitor work. Each new series capacitor shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.22 HVDC

*Question 4-22 - Describe all HVDC work in the Phase One Proposal and the installed cost estimate for the work.*

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the capacity of the HVDC line in MW, the voltage level of the HVDC line, the HVDC converter terminal stations, and the installed cost estimate for the work, and the HVDC technology (e.g. VSC or conventional). If the work includes more than one HVDC line, then an entry at the end of the response shall be added to reflect the total installed cost for all of the HVDC work. Each new HVDC line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
### Section 4 Phase One Proposal - Facility Description and Cost Estimates

#### 4.23 All Other Work

*Question 4-23- Describe all other work in the Phase One Proposal that has not been discussed in the previous questions and the installed cost estimate for the work.*

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall describe the other work that has not been discussed in the previous questions and shall include voltage level, size of equipment, the location of the work if applicable, any control schemes, and the installed cost estimate for the work. If the other work includes more than one line item, then an entry at the end of the response shall be added to reflect the total installed cost for all of the other work. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 5 Modeling Data

Power flow and short circuit models are provided using the preferred Option 1. The following files have been submitted in accordance with these instructions.

- **5.1_Add_Anbaric_Mystic Reliability Wind Link AC_Alt[idv]:** This single file in Siemens PTI PSS®E “IDEV” format adds all power flow model data associated with this Phase One proposal.

- **5.1_Add_Anbaric_Mystic Reliability Wind Link AC Alternative.con:** This file contains all new and modified power flow contingencies that result from introducing this Phase One Proposal into the New England steady state power flow model. There are no contingencies to be deleted.

- **5.1_Add_Anbaric_Mystic Reliability Wind Link AC Alternative.chf:** This single file in ASPEN One-Line “Change File” format adds all short circuit model data associated with this Phase One proposal.

Note that the Carver 862 breaker failure contingency has been modified based on its definition in the PSS®E contingency (.con) file provided by ISO-NE, although we note the ISO-NE 345 kV Breaker Diagram indicates a series breaker (862P and 862S) that would eliminate the need to model this contingency.

[12] https://www.iso-ne.com/system-planning/transmission-planning/competitive-transmission-projects
Section 5 - Stability Analysis Contingencies Eliminated Due to the Anbaric Mystic Reliability Wind Link Phase One Proposal

P4 Events

SLG_LN_342_at_PILGRIM345_BF_PILGM_104

- This contingency is deleted because Line 342 no longer terminates at Pilgrim. It is replaced by a new contingency, SLG_LN_AN33_at_PILGRIM345_BF_PILGM_104.

SLG_LN_355_at_PILGRIM345_BF_PILGM_105

- This contingency is deleted because Line 355 no longer terminates at Pilgrim. It is replaced by a new contingency, SLG_LN_AN34_at_PILGRIM345_BF_PILGM_105.

Category 2 Extreme Events

E2_3PH_LN_342_at_PILGRIM345_BF_PILGM_104

- This contingency is deleted because Line 342 no longer terminates at Pilgrim. It is replaced by a new contingency, E2_3PH_LN_AN33_at_PILGRIM345_BF_PILGM_104.

E2_3PH_LN_355_at_PILGRIM345_BF_PILGM_105

- This contingency is deleted because Line 355 no longer terminates at Pilgrim. It is replaced by a new contingency, E2_3PH_LN_AN34_at_PILGRIM345_BF_PILGM_105.
5.3 Additional Modeling Data Information

The Anbaric Mystic Reliability Wind Link AC Alternative power flow data models each of the two cables from Plymouth to Everett (Lines AN31 and AN32) in three sections. The submarine cables are modeled in two sections (from Plymouth to the midpoint and from the midpoint to landfall. The submarine cable is modeled in two sections to account for ampacity differences at each terminal associated with the single-point bonding of the cable. The third section modeled is the underground cable from landfall to Everett, which also has different ratings. Each cable is modeled as one section from Plymouth to Everett in the short circuit model because there is no need to account for the cable ratings.

The two cables between the Anbaric Everett Substation and the Eversource Mystic Substation (Lines AN35 and AN36) are modeled separately in the power flow and short circuit models; however, they will be switched as a single circuit. This is reflected in the power flow and transient stability contingency files.

The phase angle regulating transformers (PARs) at Plymouth are modeled controlling the active power flow at Plymouth needed to deliver 450 MW on each cable at the Eversource Mystic Substation. The PARs have been modeled as not adjusting their angle settings following contingencies. The PARs also have been modeled as not participating in the TARA security constrained dispatch for N-1-1 contingency analysis to produce more conservative results, although the PARs could be adjusted under these conditions to optimize power flow on the bulk electric system.

The STATCOM at Everett has been modeled at or near 0 MVAr to maintain the full dynamic reactive capability for response to system contingencies. The reactive power is adjusted by modifying the PSS®E FACTS model parameter “VSET” in the power flow model to achieve reactive power at or near 0 MVAr. The STATCOM has been modeled as responding following contingencies. During system restoration, shunt reactors at Everett would be available to the system operator in addition to the STATCOM.

The series reactor at W. Amesbury has been modeled in service in the power flow case. A bypass breaker will be provided and is modeled as a zero-impedance branch in parallel with the reactor. The system operator will be able to bypass the series reactor by closing the circuit breaker at times it is advantageous to bypass the series reactor. The series reactor is modeled bypassed in the short circuit case to provide the maximum fault current.
Section 5 Modeling Data

The responses for this section are required to be submitted in the form of attached files. Details concerning the attached files are discussed below. The calculation of percent impedance values provided in the modeling data shall be based on a 100 MVA base.

The calculations of applicable ratings shall be consistent with the ISO Planning Procedure No. 7: Procedures for Determining and Implementing Transmission Facility Ratings in New England. ISO Planning Procedure No. 7 applies to: overhead conductors, cables, power transformers, series and shunt capacitors/reactors, circuit breakers, switches, current transformers, wave traps, current transformers circuit components, VAR compensators and HVDC systems.

5.4 Handling of Conflicts

The following order shall be used to determine the controlling response if there is conflict between any provided modeling information:

1. The data submitted in PSSE files for steady state power flow modeling,
2. The data submitted in ASPEN files for short circuit modeling,
3. The data contained in any submitted stability modeling related files,
4. The data contained in the Modeling Data Workbook and contingency definitions provided in a Text file, and
5. Any other responses provided in this RFP
Section 6 Installed Cost Estimate Workbook (The ISO anticipates the responses in this section may contain confidential information)

6.1 Phase One Proposal Scope Summary

Question 4-1 summary

To solve the stated reliability needs, the Anbaric Mystic Reliability AC Wind Link the Phase One Proposal includes:

- The existing overhead transmission lines (342-3 and 355) that currently serve the existing Eversource 345kV Pilgrim Substation will be tapped adjacent to the proposed STA2 switchyard. (approx. 500'). Two (2) new 345kV overhead lines (AN33 and AN34) will be installed from STA2 to the Eversource 345kV Pilgrim Substation and terminated to the transmission line dead ends which formally terminated lines 342-3 and 355 (approx. 1500').
- A new two circuit 345kV AC transmission line (AN31 and AN32) from a new Anbaric Plymouth Switchyard (STA2) in Plymouth, MA to a new Anbaric Everett Switchyard (STA1) in Everett, MA. This line includes 45 miles of submarine cable from Plymouth to Everett, MA, followed by 4.9 miles of underground 345kV cable from the submarine cable landing in Revere to the new Anbaric substation in Everett.
- A new 345kV AC underground transmission line with separately switched two cables per phase (AN35 and AN36) from the proposed Anbaric switchyard STA1 in Everett, MA to the existing Eversource Mystic Substation. The length of this transmission line is 1.35 miles.
- A new AIS 345kV breaker-and-a-half switchyard (STA2) in Plymouth, MA
- A new indoor GIS 345kV six (6) breaker ring bus switchyard (STA1), with four (4) breakers installed and two open positions, in Everett, MA
- At the Eversource 345kV Mystic Substation, the existing indoor GIS equipment, which formally served as the connection points for generators 8 & 9 to the Mystic station, will be utilized for this project. Two (2) of these existing GIS breakers will be used to terminate the incoming lines AN35 and AN36, leaving the Mystic station 7 breaker position open for future use.
- Install eight (8) new 345kV 180MVAR Shunt reactors: four (4) (R11, 12, 13, 14) at STA1 and four (4) (R21, 22, 23, 24) at STA2
- Install a new 345kV (-/+150MVAR STATCOM (STATCOM) at the proposed Anbaric STA1 Substation in Everett, MA.
- Install two (2) new 345kV 500MVA (-/+ 40° Phase Angle Regulators (T1-PAR and T2-PAR) at the proposed Anbaric STA2 Substation in Plymouth, MA.
- Install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line at the W. Amesbury substation.
Section 6 Installed Cost Estimate Workbook (The ISO anticipates the responses in this section may contain confidential information)

**Question 6 – Upload a completed Installed Cost Estimate Workbook.**

Anbaric has submitted cost estimates using the specified values in the uploaded, completed Installed Cost Estimate Workbook, *Anbaric Development Partners LLC_Q6_Cost Estimate Workbook.xls*
Section 7
Phase One Proposal – Performance, Feasibility, and Schedule

7.1 Addressing Identified Needs

The system reliability needs as identified in Sections 2 and 5 of Part 1 of the RFP and detailed by ISO-NE in the October 2019 Final Boston 2028 Needs Assessment Update (“Needs Assessment”), are all addressed by the Mystic Reliability AC Wind Link. Further, Anbaric has tested the performance of the Mystic Reliability AC Wind Link against system issues that were observed in the prior version of the Needs Assessment that did not include the New England Clean Energy Connect (“NECEC”) project. Load flow analysis has demonstrated that the Mystic Reliability AC Wind Link will address those system issues as well, should the NECEC be delayed or cancelled.

The needs identified by ISO in the Needs Assessment can be grouped into three categories:

- Northern Boston 345kV Overloads – three 345kV thermal overloads that occur for N-1-1 contingency conditions.
- North Shore 115kV Overload – one 115kV thermal overload for an N-1 contingency condition.
- System Restoration – the need for ±150MVAr of dynamic reactive support to replace the support provided by the Mystic generators during system restoration.

The Mystic Reliability AC Wind Link provides an integrated solution comprised of three components designed to address these needs.

The first component includes the two 345kV submarine cables from Pilgrim to Mystic, the phase angle regulating transformers that control flow of active power on the cables, and the shunt reactors at each cable terminal that compensate for reactive power from the cable charging. These facilities address the Northern Boston 345kV overloads by providing a controllable transmission resource capable of delivering up to 900MW to replace power formerly supplied by the Mystic generating units. Injecting power within the Boston Import interface relieves loading on the limiting 345kV facilities for the N-1-1 conditions identified in the Needs Assessment.

The second component consists of a series reactor installed in the W. Amesbury – King Street 115kV line. The series reactor, in conjunction with injection of up to 900MW of power at Mystic, reduces the loading on the 115kV line below the LTE rating, eliminating the need for an operating procedure to address thermal overloads for the n-1 conditions identified in the Needs Assessment.
The third component consists of the ±150MVAr STATCOM at the Anbaric Everett Switchyard. The STATCOM meets the System Restoration need by providing dynamic reactive support as specified by ISO-NE in the Needs Assessment. The STATCOM will be connected to the Anbaric Everett Switchyard, which connects to the Mystic 345kV Substation by two underground cables, 1.34 miles in length. The charging associated with these cables is 37.2MVAr, which is below the 40MVAr threshold established by ISO-NE in the Needs Assessment. Together, the project components increase power transfer capability into the Boston-area by 1,100MW.

ISO-NE also identified overloads on the two Stoughton – K Street cables that would fall into a fourth category; Southern Boston 345kV Overloads, in its initial needs assessment, as well as a fourth Northern Boston 345kV N-1-1 overload. Subsequent to presenting the initial assessment, ISO-NE modified its generation dispatch assumptions based on contracts awarded to certain projects and the results of its most recent Forward Capacity Auction. These modified assumptions eliminated the overloads in the Southern Boston 345kV Overload category and the fourth Northern Boston 115kV N-1-1 overload. Most notable among the modified assumptions is inclusion of the NECEC project to import power from Québec into Maine. Given uncertainty as to whether this project will receive all permits and approvals needed to proceed to construction, and potential timing issues even if it does proceed, EN Engineering has performed power flow analysis to assess the impact of a delay or cancellation of the NECEC project. Our analysis confirms that if NECEC is removed from the dispatches used for the 2028 Boston Needs Assessment, the reliability needs in the Southern Boston 345kV Overloads category and the fourth Northern Boston 345kV N-1-1 overload would resurface and would require a solution. As a result, the Mystic Reliability AC Wind Link was tested against those needs and EN confirmed that this project will address those additional reliability needs.
Section 7
Phase One Proposal – Performance, Feasibility, and Schedule

7.2 Feasibility

Question 7-2 - Provide a summary of the feasibility of the Phase One Proposal to include the ability to site, permit, build, maintain, and operate the Phase One Proposal.

Confidential Information

In order for the accepted solution to the reliability needs created by the retirement of the Mystic Power Plant to be in service by June 1, 2024 – a little over four years away from this bid submission date, and less than three years from the outside window for final project selection – a highly feasible project design is essential. Recent lessons learned directly from the Greater Boston metro area upgrades, however, indicate that such upgrades in the Boston metro area take from six to nine years.

Failure to place a transmission solution for this RFP in place by June 1, 2024, would result in a gap RFP or other contracted-for supply solutions at a cost likely to exceed $200 million per year based on known stop-gap costs in the needed location.

Route Feasibility

In the development of the Mystic Reliability AC Wind Link, Anbaric has been aware that the key to the project’s feasibility is avoiding areas where delay would be likely, and focusing on where transmission could be installed with a minimal amount of traffic disruption and impact on residential areas, while also avoiding environmental impediments that could create permitting delays. Anbaric began community outreach in 2019 to ensure that town elected officials and community members in areas where the project will be located understand the project and its impacts. This work has also extended to early discussion with fishing interests, state and federal elected officials, and organized labor.

At the southern end of the project, Anbaric engaged in discussions during 2019 with the owner of property in Plymouth. Negotiations for a property option for the acreage needed for the 345kV switch yard, along with rights to and from the Atlantic Ocean and to the 345kV line tap, are at an advanced stage. No other property is needed on the southern end of the project.

Leaving the Anbaric Switchyard, the two tri-core AC cables enter the water through a horizontal direct drill (“HDD”) installation that then transitions to a jet-plow-buried sea route. Anbaric has worked with its consultant ESS over the course of 2019 to develop the subsea cable route. The route stays in state waters and thus no permits are required from the Bureau of Ocean Energy Management.
To evaluate the constructability of the sea route, Anbaric and ESS commissioned a preliminary reconnaissance sea survey in January 2020. The survey confirmed the majority of the planned route is feasible for cable installation. Where difficult soil conditions were identified, the survey vessel was able to locate an alternative path.

Anbaric is working with ESS and Durand and Anastas, as well as local counsel Partridge Snow & Hahn, to prepare the required Coastal Zone Management permitting work. Based on over two years of route planning investigations, facilities design, and pre-permitting key stakeholder outreach, we are confident the project can receive its required environmental approvals within a 12-16-month period of filing the initial applications. We have already commenced preparation of the Project’s state MEPA Environmental Notification Form (ENF) and its collaborative review with the Massachusetts Energy Facilities Siting Board Certification Application (EFSB). We will also be requesting more expedited Project review procedures allowed under MEPA and EFSB procedural reviews.

Anbaric is also working with local fishing groups to ensure that any concerns related to the sea cable burying process and location are addressed and mitigated from the outset.

On the northern end, Anbaric looked at several approaches to the Mystic Substation, including through Boston Harbor, which presents a large set of environmental challenges. In the end, the current route, under Revere Beach and then largely in the multi-lane State Route 16, was selected based on a foot-by-foot review of the feasibility of in-ground installation of the 345kV cable duct banks.

The sea cables will land at the southern end of Revere Beach, using a coffer dam and HDD to pull the cables ashore underground and then transition to the land cables at a buried vault. The cables proceed through duct banks through State Route 16, a multi-lane road that was selected because of its constructability attributes, including the ability to continue the installation without closing the entire traffic flow on the worksite, and the commercial characteristics that allow for night work.

In addition to ESS, Anbaric is working with Bond Brothers construction ("Bond") for the routing analysis and civil engineering of the project. Bond has extensive experience installing in-ground transmission and substation construction for many of the incumbent utilities in the region and elsewhere. This exclusive working arrangement assisted Anbaric with the information needed to enable Anbaric to bid the Mystic Reliability AC Wind Link as the solution that can be in-service on June 1, 2024.

Anbaric intends to install a spare set of duct banks while it has the roads open for the duct banks and vaults of the Mystic Reliability AC Wind Link project. This spare set provides flexibility for subsequent projects, such as a potential 1200MW HVDC project to BOEM lease areas. **This additional duct work is being done at Anbaric’s cost and is not being added to the cost of the project.** This built-in transmission expandability will allow for cable to be pulled at a later time without needing to completely re-trench the roads to the Mystic substation or
engage in a new siting proceeding. This built-in expandability will allow the region to quickly and affordably add significant offshore wind power directly into the Boston area without increasing the regional network service rate. The additional duct work requires minor additional room in the trench, and the work will not create permitting delays.

Leaving Route 16, Anbaric has identified several possible approaches to its property in Everett. The two preferred routes are shown on the maps submitted in response to Question 4.2 of this RFP. These routes again avoid residential areas.

The over five acres for Anbaric’s 345kV switchyard have already been secured. The property owner for the Anbaric Switchyard site owns substantial other property around Everett, including around the switchyard location, and has guaranteed access to and from the property through these other parcels.

Leaving the Anbaric Everett Switchyard, 345kV AC cables will be installed in a buried duct bank approximately 1.35 miles to the Mystic substation. The route includes crossing perpendicularly under Route 16 in the vicinity of Mystic View Road, the cable will be installed perpendicularly under State Route 99 to Washburn Street. From Washburn Street the cable will be installed in local streets to the Mystic Substation.

Anbaric has held introductory meetings to discuss the project and its routing with representatives from each of the affected state agencies – MBTA, DCR and Mass Highway – as well as elected officials in each of the directly impacted communities.

Once again, this path is through non-residential areas and commercial areas under redevelopment. This route culminates in an underground directional drill into the Mystic substation where the final interconnection to the Mystic unit 8 and 9 positions in the Mystic substation will be made.

Construction

To ensure the feasibility of equipment order queues, manufacturing timelines, and delivery, Anbaric has also already initiated procurement discussions with selected equipment vendors. For electrical equipment (excluding 345kV cables), Anbaric is in advanced discussions with Massachusetts-based GE. These discussions support the dates set out in Section 7.5 of this RFP. Working diligently with the equipment vendors has allowed Anbaric to work through design, manufacturing timelines, and pricing issues to ensure that equipment will be available when needed and at competitive costs.
As noted above, Anbaric has teamed up with Bond for the terrestrial civil construction on this project. Bond has done a detailed constructability analysis with Anbaric to arrive at the schedule shown in Section 7.5 of this RFP response.

Similarly, Anbaric has been in discussions with Nexans as the cable supplier and potentially EPC for the transmission cable portion of this project. Installation of the subsea cables will be via a jet plow. In addition to the permitting process, Anbaric has begun discussions with fishing interests along its route so that disruptions to commercial interests and project installation are minimized.

**Operation and Maintenance**

Anbaric will form an operating company to oversee operation and maintenance of the Mystic Reliability AC Wind Link. This operating company is similar to those utilized on projects in which Anbaric previously has been involved. The operation of the Mystic Reliability AC Wind Link will be entrusted to skilled, competitively selected, third parties with the requisite technical and engineering capabilities and who adherence to industry accepted best practices and standards, hiring of personnel, tools, and contractors, and engage in preventative, predictive, and emergency maintenance and 24/7 outage response.

Upon completion of construction, the projects in which development Anbaric entities was a founding partner have been operated and maintained by an operating company which executed long-term O&M contracts with Siemens and Prysmian. Anbaric plans to use a similarly qualified O&M Contractor (or contractors) to achieve its forced outage response implementation tasks for this project. Vendor-contracted support for forced outage restoration is common in the utility industry and even large transmission owning entities have several standing contracts with independent crews to wholly address or assist with storm outages and other issues. Anbaric’s operating company will have a 24/7 staffed contact point for unanticipated system issues and emergency response.

For day-to-day operations, the Mystic Reliability AC Wind Link will be operated by an approved 24/7 remote operations center and linked directly to the ISO control room per regulated practice. As with Anbaric’s prior projects, routine maintenance will be carried out through vendor contracts and manufacturer support. Anbaric will contract for maintenance and management of spare parts, spare structures, and/or spare equipment inventories as recommended by OEMs and its electrical consultants with input from its insurance advisor for its electric transmission lines and substations. As is common in the utility industry, Anbaric will have arrangements in place with vendors as needed to observe good utility practice, NERC, NPCC, state and ISO-NE criteria.

**Mitigation of Potential Obstacles**

Early development work has been undertaken to identify and avoid potential obstacles in terms of project design and routing. This work is continuing as noted above with outreach. While
project routing shows preferred paths, Anbaric has worked through alternatives that can be utilized if needed. In terms of supply chain and construction, Anbaric has worked with its team and vendors, again as detailed above, to ensure that potential issues are identified early and avoided to ensure that the project can be in service when needed.
Section 7

Phase One Proposal – Performance, Feasibility, and Schedule

7.3 Expandability

*Question 7-3 - Provide a summary of the future system expandability of the proposed solution.*

The Mystic Reliability AC Wind Link is highly expandable by design. Importantly, while designed to provide for material additions, this expandability does not come at additional costs to consumers.

**Additional Duct Banks and Vaults for a Future 1200MW HVDC Project**

Anbaric has designed the project so that the work that will go into the Mystic Reliability AC Wind Link to site, permit and install it will position the Project to play an additional role to meet the energy needs of the Boston-area and larger New England system. This design is based on the view that the number of transmission paths into the dense load area of Greater Boston is limited, and each route must be optimized for future delivery, especially of the clean, renewable energy that will become available off the south coast of Massachusetts.

Thus, the Mystic Reliability AC Project will contain a separate duct and vault system that will enable a later project for as much as 1200MW from offshore wind farms to be transmitted directly to the Mystic substation from the offshore wind lease areas. This separate pre-constructed transmission conduit **will not be added** to the cost of Mystic Reliability AC Wind Link. Obviously, it is costly to open city streets and repeat all of the permitting and sitting work that is already being done for the Mystic Reliability AC Wind Link. By building in additional capacity for a future project, and by Anbaric’s willingness to bear the costs and not put them into the regional network service rates, the Mystic Reliability AC Wind Link provides unique and extensive expandability, which provides for exceptional value for New England rate payers.

**Substation Design and Expandability**

The Mystic Reliability AC Wind Link utilizes a six breaker, breaker-and-a-half substation for its Plymouth Switchyard, and a four-breaker, six position ring bus configuration in its Anbaric Everett Switchyard. This design conforms to ISO New England’s Planning Procedure No. 9 and minimizes current costs over the installation of a breaker-and-a-half design on the northern end. However, the Everett Switchyard has been designed with two open positions that can be expanded from four to six breakers in the future should system planning needs require more capability. This allows for significant expansion capability with minimal cost.

**Connects Renewables to Load Avoiding the Need for a Later 345kV Path**

The core design of the Mystic Reliability AC Wind Link provides a completely new set of two independently switched 345kV circuits connecting southeastern Massachusetts (“SEMA”) to northeastern Massachusetts (“NEMA”). Unlike upgrades to existing circuits, this provides system capability to move the large amount of renewable energy that has been procured to interconnect into the SEMA area to the NEMA zone where the Mystic generation is retiring.
As shown on slide 6 in the August 8, 2019 presentation to the Planning Advisory Committee, above a certain level of offshore wind interconnections into SEMA, a new 345kV circuit is shown as needed from SEMA to NEMA. The Mystic Reliability AC Wind Link solves for that future system expansion issue today, effectively providing a project that solves for the present reliability needs in the most cost effective and an efficient manner to be in service by June 1, 2024, while also providing a new 345kV path from SEMA to NEMA to move future wind power directly to the region’s largest load center.

Further, Boston imports are presently limited by facilities on the north side of the interface and are sensitive to transfers from northern New England. As offshore wind resources are integrated in southern New England, the distribution of power across individual facilities comprising the Boston Import interface will change and different facilities and contingencies will become limiting. Previous studies, including the initial 2028 Boston Needs Assessment, have identified the Stoughton – K Street 345kV cables as potential reliability needs and these facilities or other adjacent facilities are likely to become limiting under conditions with high transfers from SEMA into Boston. The Mystic Reliability AC Wind Link will provide a parallel path from SEMA into Boston to prevent degradation in Boston Import capability resulting from higher transfers from SEMA, avoiding the need for other future system expansions to address that emerging need and thus allowing for power system integration of these offshore wind resources.
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Phase One Proposal – Performance, Feasibility, and Schedule

7.4 Performance

Question 7-4 - Provide a summary of the anticipated electric system performance of the proposed solution.

The Anbaric Mystic Reliability AC Wind Link solution provides substantial thermal and voltage margin for the reliability needs identified by ISO-NE. The 345kV cable loading in Boston is reduced below 90 percent of LTE ratings for the Woburn – N. Cambridge and the N. Cambridge – Mystic cables for the most limiting N-1-1 contingency pairs. The loading on the W. Amesbury – King Street 115kV line is similarly reduced below 90 percent of the LTE rating for the most limiting N-1 contingency, eliminating the need for the operating procedure in addition to providing margin below the LTE rating.

Similarly, the project provides margin for the limiting high voltage conditions in Boston. While these needs were classified as time-sensitive and are not part of the RFP, the Mystic Reliability AC Wind Link solution provides a reduction in the overvoltage conditions observed in the minimum load case. The project reduces voltage by up to 0.8 to 1.4 percent at 15 of the identified buses and up to 0.5 percent at the remaining six buses. These reductions are observed prior to application of the transmission owner solutions; thus, the project will provide added margin with the solutions in place.

The project has been studied for transient stability contingencies including single-line-to-ground faults with breaker failure and three-phase faults with breaker failure. These studies demonstrate that the project exhibits no adverse impact on generator rotor angle swings for design and extreme contingencies.

The project also does not have a significant adverse impact on short circuit levels, maintaining substantial margin on the stations closest to the project and maintaining all circuit breakers within their interrupting capability. Short circuit levels at the Mystic 345kV and 115kV buses are 31kA and 36kA respectively – below the levels with Mystic units 8 and 9 operating and well below breaker interrupting capability. The maximum fault duty at the Pilgrim bus increases to 25kA, but is still well below breaker interrupting capability.

The project has been studied using stressed cases appropriate for evaluating proposed plan applications in addition to the Needs Assessment cases provided by ISO-NE to confirm that in addition to addressing the needs identified by ISO-NE, that project will not have significant adverse impacts on other facilities.

The project has also been studied for transient stability contingencies modeling three-phase faults with delayed clearing resulting from local protection system failure and fault clearing at remote stations. Faults were modeled at several buses in Boston and SEMA and no discernible difference in system performance was observed, based on a comparison of generator rotor angle swings with and without the project. Therefore, the project is not expected to result in a change of BPS classification for 115kV substations in the area.
The project also provides substantial benefits for transfer capability. By providing a controllable transmission resource capable of delivering up to 900MW to replace power formerly supplied by the Mystic generating units, the project **relieves loading on limiting 345kV and 115kV facilities and thus increases total Boston import capability by an additional 200MW for a total of 1,100MW**. The project also provides an additional transmission path capable of transmitting 900MW from SEMA into NEMA, helping to eliminate NEMA / SEMA zonal separation in the capacity market. While the SEMA/RI Export interface is stability limited and we have not quantified the potential increase, the project will off load other facilities to provide additional capacity to transfer power from offshore wind resources interconnecting in SEMA.

The project achieves these benefits without adversely impacting New England system losses. For the Needs Assessment cases provided by ISO-NE, the project has a neutral impact, reducing losses by approximately 8MW in the low North-South cases and increasing losses by approximately 7MW in the high North-South cases. However, the maximum SEMA/RI Export level achieved in the Needs Assessment cases is 1,050MW. Testing on cases at a SEMA/RI Export level of 2,500MW (still below the existing 3,500MW limit) demonstrates the project provides loss savings of approximately 18MW, which is indicative of benefits the project can provide with integration of offshore wind resources.

The project does not create new extreme contingency issues as the new 345kV circuits are not placed into rights-of-way with other existing circuits. Neither are new extreme contingency issues created by system interconnections on the north and south ends of the project. Testing of loss of right-of-way, loss of substation, loss of generating station, and special protection system (SPS) failure extreme contingencies on one high North-South and one lower North-South Needs Assessment case demonstrates that the project does not adversely impact system performance. The number of overloads observed for extreme contingencies was generally the same with and without the project, with the project improving performance for some contingencies and exacerbating performance for others in proximity to the project.

Further, Boston imports are presently limited by facilities on the north side of the interface and are sensitive to transfers from northern New England. As offshore wind resources are integrated in southern New England, the distribution of power across individual facilities comprising the Boston Import interface will change and different facilities and contingencies will become limiting. Previous studies, including the initial 2028 Boston Needs Assessment, have identified the Stoughton – K Street 345kV cables as potential reliability needs and these facilities or other adjacent facilities are likely to become limiting under conditions with high transfers from SEMA into Boston. The Mystic Reliability AC Wind Link will provide a parallel path from SEMA into Boston to prevent degradation in Boston Import capability resulting from higher transfers from SEMA.
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7.5 Schedule

The project schedule for the Mystic Reliability AC Wind Link is set out below. Overall, the permitting, final engineering, procurement, construction and commissioning of the Mystic Reliability AC Wind Link will take 32 months, with an in-service target date of June 2024. More detail regarding feasibility of the project, including steps taken to mitigate potential obstacles, is set out in Section 7.2 of this RFP response.

In calculating this schedule, additional time has been afforded for permitting to provide for a margin. Both the on land (such as the Energy Facilities Siting Board) and subsea (such as the Coastal Zone Management) sets of permits require a substantial amount of time to process. Anbaric has already begun the process of preparing the data required for these permits, and will continue to work through the ISO-NE evaluation process of our Mystic Reliability AC Wind Link bid. That work will accelerate even more if the Mystic Reliability AC Wind Link is selected to proceed to Phase II. It is our intention to provide the permitting authorities with as much information as it is possible to obtain, given that official permits cannot be pursued until selection.

Assuming selection on or about September 2021, we have allocated 18 to 24 months to complete all on-land and subsea permits, so that construction can begin on or about the second quarter of 2023. Permitting work that can be advanced will be. For example, we have already commenced preparation of the Project’s state MEPA Environmental Notification Form (ENF) and its collaborative review with the Massachusetts Energy Facilities Siting Board Certification Application (EFSB). We will also be requesting more expedited Project review procedures allowed under MEPA and EFSB procedural reviews.

If it is possible to initiate construction (and the preparation for construction) earlier than the projected 18 to 24 month permitting schedule, of course, we will do so.

Work on this project is in six major sections. From south-to-north, these are:

1. Tapping the 342-3 and 355 lines in Plymouth
2. Construction of the Anbaric Plymouth 345kV Switchyard and associated equipment (e.g. PARs, shunt reactors)
3. Installation of the 345kV subsea cable
4. Installation of the underground terrestrial portion of the 345kV transmission line between Revere and the Anbaric property in Everett
5. Construction of the Anbaric Everett 345kV Switchyard and the associated STATCOM
6. Connection of the Anbaric Everett 345kV Switchyard to the Eversource Mystic substation.
7. Installation of a series reactor on the King St to W. Amesbury 115kV line at the W. Amesbury Substation.

Construction on these sections may proceed in parallel without interdependencies, which offers significant flexibility for completion of the project within the required timeline.

As noted in Section 7.6, and depicted on the maps in Section 4, real estate has been secured for the Anbaric Everett 345kV Switchyard. Discussions are at an advanced stated for the Anbaric Plymouth 345kV Switchyard. Overland portions of the project proceed largely through public rights of way, the use of which the Massachusetts EFSB will approve if the installation respects local construction requirements such as time-of-day restrictions. The subsea cable will remain in the Massachusetts state waters, avoiding the need for federal Bureau of Ocean Energy Management approvals.

The key to the schedule set out below is both the practicality of the route selected (it avoids residential neighborhoods, stays in multilane state roads), positive results of January 2020 ocean survey, and the work being done now with Anbaric’s civil construction and engineering firms to prove out the project design, identify issues and address those areas that may cause delay. Finally, working with our vendors early has enabled us to pin down manufacturing and delivery time frames for the AC electrical equipment and transmission cables.

Based on this scope and the planning performed to date, we anticipate the following major milestone dates for the project.

**Project Milestone Dates:**

<table>
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<tr>
<th>Event</th>
<th>Date Range</th>
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<tbody>
<tr>
<td>Preliminary Siting and Engineering</td>
<td>4Q 2019 to 3Q 2020</td>
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<tr>
<td>Survey(s) and Geotechnical Data Collection:</td>
<td>1Q 2020 to 4Q 2021</td>
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<tr>
<td>ISO-NE decision on Phase II</td>
<td>3Q 2020</td>
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<tr>
<td>Continued Anbaric permit preparations</td>
<td>3Q 2020 to 3Q 2021</td>
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<tr>
<td>Phase II Siting/Engineering</td>
<td>2Q 2021 to 4Q 2022</td>
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<tr>
<td>ISO-NE Award</td>
<td>3Q 2021</td>
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<tr>
<td>Major Permits – EFSB, CZM</td>
<td>3Q 2021 to 3Q 2023</td>
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<tr>
<td>Onland Cable Route Permitting Processes</td>
<td>3Q 2021 to 1Q 2023</td>
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<tr>
<td>Subsea Cable Route Permitting Processes</td>
<td>3Q 2021 to 3Q 2023</td>
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<td>Major Equipment Procurement</td>
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<tr>
<td>Subsea cable</td>
<td>3Q 2021 to 2Q 2023</td>
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<tr>
<td>UG Cable</td>
<td>3Q 2021 to 2Q 2022</td>
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Gas Insulated Switchyard Equip.: 4Q 2021 to 1Q 2023
Switchyard breakers: 3Q 2022 to 1Q 2023
STATCOM: 4Q 2021 to 4Q 2023
Reactors: 1Q 2022 to 1Q 2023
Miscellaneous Switchyard Equip.: 3Q 2022 to 1Q 2023

**Construction**
Subsea cable: 2Q 2023 to 2Q 2024
UG cable, Revere Beach to Everett Switchyard: 2Q 2023 to 2Q 2024
UG cable, Everett to Mystic Substation: 2Q 2023 to 2Q 2024
Anbaric Plymouth Switchyard: 2Q 2023 to 2Q 2024
Anbaric Everett Switchyard: 2Q 2023 to 2Q 2024
Anbaric Plymouth Switchyard cut-in: 1Q 2024 to 2Q 2024
W. Amesbury 115kV Series Reactor: 2Q 2023 to 1Q 2024

**Commission and Energize:** 1Q 2024 to 2Q 2024
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7.6 Real Estate

Confidential Information

South End – Plymouth

Negotiations began in 2019 with a company that controls significant land, focused on acquiring rights to approximately five acres adjacent to the Atlantic Ocean in Plymouth, MA. Discussions between Anbaric and the town of Plymouth have confirmed that this site does not interfere with redevelopment plans for the area.

Sea Route

While the sea route isn’t exactly a “real estate” issue, Anbaric offers the following information to ISO-NE as an indication of how it intends to procure the right to lay a cable on the coastal seabed. The right of way for the sea route will be secured through a permit authorized by a Chapter 91 license issued by DEP/Waterways. Anbaric will initiate this process in Phase 2. Anbaric began the work to secure this permit in 2019 with a preliminary reconnaissance sea survey in January 2020. This survey work has developed the sea floor conditions information needed to both confirm feasibility of the cable installation, and developed data that will be needed for route permitting. Given the lead times to reserve this type of survey and weather delays associated with such work, Anbaric undertook the work to confirm that the project is highly feasible so that ISO could rely on its submission as an option that in fact could be executed within the needed narrow time window before June 1, 2024. Anbaric is continuing to develop needed data with ESS for the sea permitting work including the draft environmental assessment.

Building in some time for delays, and with an early start time enabled by the advanced development work described above, Anbaric anticipates that permitting will be complete for this sea route portion of the route by the second quarter of 2023.

North End – Revere-to-Everett

The 345kV cables come ashore via a horizontal directional drill (“HDD”) under the southern end of Revere Beach in Revere, MA. Revere Beach is a state park managed by the Massachusetts Department of Conservation and Recreation (“DCR”). From a transition vault installed in a public way behind the beach at Revere Beach Parkway near the Eliot Circle Rotary, the cables will be installed in buried duct
banks for approximately one mile along State Route 145 to the point where it intersects with State Route 16, a multi-lane road fronted primarily by commercial properties. At two points along Route 145 the duct banks will be installed by means of jack-and-bore construction under MBTA controlled rail lines. Proceeding east to west from Route 145, the cable will be installed within Route 16 through the communities of Revere, Chelsea, and Everett. The total of this underground installation is 4.9 miles. Access to this public right-of-way will be via siting permits granted by the state Energy Facilities Siting Board and construction permits granted by the towns of Revere, Chelsea, and Everett, Massachusetts.

Anbaric has secured property rights to an over five-acre site in Everett, MA for the 345kV Anbaric Switchyard. While multiple in-road paths exist between Route 16 and the Anbaric-secured property, all arrive at property owned by the same owner of the Anbaric site who has agreed to let Anbaric traverse their land into and out of the Anbaric switchyard.

**Anbaric Everett Switchyard to Mystic Substation**

Leaving the Anbaric Everett Switchyard, 345kV AC cables will be installed in a buried duct bank approximately 1.3 miles to the Mystic Substation. The cable will be installed perpendicularly under State Route 99 to Washburn Street. From Washburn Street the cable will be installed in local streets to the Mystic substation.

Anbaric has held introductory meetings to discuss the project and its routing with representatives from each of the affected state agencies – MBTA, DCR and Mass Highway – as well as elected officials in each of the directly impacted communities.
Section 7
Phase One Proposal – Performance, Feasibility, and Schedule

7.7 LSP Coordination

**Question 7-7 – Identify any Local System Plans (LSP) that require coordination with the proposed solution.**

The Mystic Reliability AC Wind Link interconnects into the service territories of Eversource on the south, and in or near the Eversource and National Grid service territories on the north end. Anbaric has identified these companies as proximate PTOs to the project, and has reviewed the Local System Plans (“LSPs”) of these PTOs.

Anbaric has determined there are no projects in these plans that require coordination with the Mystic Reliability AC Wind Link. We have considered all projects in the LSPs including those classified as “Conceptual.” After reviewing the projects in NEMA, Boston, and SEMA, we conclude the projects in these LSPs are primarily in-kind asset replacements that will not impact the transmission system topology and will not have a significant impact on system impedance and power flow. These projects, by their nature, also will not require coordination of construction activities or construction outages. Examples include numerous step-down transformer replacements and additions at distribution substations, replacement of underground pipe-type cables with solid dielectric cables, relocating and reconductoring an existing underground cable in Boston, rebuild of the Bell Rock Substation, replacement of circuit breakers and protection systems, refurbishment of overhead transmission line structures, and shield wire replacement.

The remaining projects are installation of a new 115kV transmission line between Andrews Square and Dewar Street, a new 115kV transmission line from Cross Road to Fisher Road, and distribution substation additions. The Andrews Square – Dewar Street transmission line installation is in South Boston and the Cross Road – Fisher Road transmission line is in the Fall River area, both of which are distant from any facilities that comprise the Mystic Reliability AC Wind Link. Likewise, the Wing Lane (Acushnet), Assonet, N. Burlington, Reynolds Avenue (Rehoboth), and Old Boston Rd (Tewksbury) substations are distant from any facilities that comprise the Mystic Reliability AC Wind Link. The Fulkerson Substation project in Cambridge is the most significant project in terms of scope and ISO-NE performed a sensitivity in the 2028 Boston Needs Assessment that confirmed there is no interaction between the identified needs and the Fulkerson project.

There is a limited number of projects in proximity to Mystic Reliability AC Wind Link facilities. These include the “Planned” East Eagle Substation (Chelsea) and the “Proposed” Pembroke Substation and Hendersonville Substation (Everett). While these new substations are in proximity to the Mystic Reliability AC Wind Link facilities in Plymouth and Everett, these step-down distribution stations will not materially impact the operating characteristics of the transmission system are not near Anbaric’s proposed facilities in Everett and Plymouth and are not near the proposed underground cable route from landfall in Revere to Everett.
8.1 Cost Cap or Cost Containment Mechanisms

Question 8-1– Are any cost cap or cost containment mechanisms being included as part of the proposal? If yes, provide a high level summary of the mechanisms.

Cost cap and cost containment mechanisms are being included as part of the proposal.

Anbaric proposes two significant initiatives to contain the overall and capital cost of the Mystic Reliability AC Wind Link: (a) a return on equity for its investment of only 7.9%, which is 25% lower than the customary level of 10.5% (note that the usual RTO-participation adder will not be sought on top of this 7.9 ROE); and (b) a cap on installed capital costs.

Anbaric’s ROE proposal will save New England consumers more than $60 million dollars over the life of the project versus the customary ROE charged by its competitors. Anbaric views this as a fair return for the risk of the project and believes that the competitive bid process should result in lower overall costs to consumers than those traditionally imposed.

Anbaric also believes New England consumers should not bear the risk of cost over-runs historically passed on (and then granted an approximately 10.5% return plus incentives bringing the ROEs to over 11%), an incentive system misaligned with consumer needs. Anbaric has been working with its engineering consultants, Power Engineers and EN Engineering, to solicit, analyze, and evaluate proposals and indications from the vendors of the primary products and services that constitute the Mystic Reliability AC Wind Link: cables, construction and installation, switch yard equipment, and engineering services. The base cost of the project is estimated to be $418,402,486. This includes the project’s engineering, labor and construction, equipment, real estate, professional services, and commodity costs, and excludes AFUDC and certain other soft costs such as insurance during construction, DSRA fund up, and other financing costs. These excluded costs are captured in the Lifecycle Costs of the project. Adding AFUDC to the base cost brings the total installed cost, as defined in the Installed Cost Workbook to $448,816,519.

Each element of the project contains the potential for complications that could increase that cost, but Anbaric recognized that ratepayers cannot be asked to provide uncapped protection against those increases. Therefore, to protect ratepayers Anbaric is willing to agree to a cap on the base cost of $562,453,921, with exclusions to the cap on the base cost limited only to extraordinary force majeure events beyond Anbaric’s control.
The following response places the Mystic Reliability AC Wind Link project in the context of ISO New England’s three sets of evaluation criteria. This information supplements other sections of the RFP but also collects key points that can easily be matched against ISO-NE’s published evaluation criteria.

**Group 1 – Highest Priority**

**Life-cycle cost, including all costs associated with right of way acquisition, easements, and associated real estate**

The Mystic Reliability AC Wind Link project presents exceptional life cycle costs due to:

- Excellent project pricing, which is well developed due to early real estate, equipment vendor, and project team discussions, as well as extensive route survey work to ensure constructability and feasibility for an in-service day by or before June 1, 2024. These costs include a hard price cap to insulate ratepayers from risk.
- A ground-breaking, capped ROE of 7.9%
- A recovery period of 40 years, which, while lowering near-term returns to Anbaric, lowers the cost of the project to consumers
- A project design that ensures long asset life, low risk of power interruptions from weather events, and very good resilience with individual switching of the two 450MW cables.
- Costs to the region that are potentially better than other projects because the project will be in service by June 1, 2024, avoiding $200 to $300M per year for an extended reliability contract or possibly even higher costs from a GAP RFP. Given multi-year delays of other projects in the Greater Boston area, Anbaric’s ability to place the project into service within a window as short as three-and-a-half years is critical to overall costs to the region.

**Cost cap and cost containment provisions**

The base cost of the project is $418,402,486, excluding AFUDC, and including AFUDC the installed cost is $448,816,519, as defined in the Installed Cost Workbook. The base cost of the project is capped at $562,453,921, as described in Section 8. This ensures that rate payers are protected and the developer bears more risk. Work done to date enables Anbaric to bid with confidence and allows the ISO to rely on estimates in comparing the costs of solutions.

The project is coupled with a capped 7.9% ROE, saving customers more than $60 million over the rate recovery period compared to a similarly-priced project with a base ROE of 10.5% and even more for ROEs that request incentive adders. This capped ROE will make the project much less expensive than others that may at first glance appear to promise a lower cost.

**In-service date of the project or portion(s) thereof**

The costs to consumers of failing to be in service by June 1, 2024 could be $200 to $300 million, or more, to keep the Mystic station and its needed LNG terminal operating for each additional year, even though they will be needed for only a limited number of hours. These costs are currently allocated to the region, but would be allocated entirely to the NEMA (Boston) zone if it is deemed to be needed for the transmission security issues addressed by this RFP. These costs may be even higher if supply is procured through a GAP RFP for 800MWs.
Anbaric has designed the Mystic Reliability AC Wind Link in light of the well-known propensity of traditional upgrades to be above budget and behind schedule. For example, the Greater Boston Reliability Project upgrades awarded in 2015 have seen extensive opposition and delay. Large components are still not expected to be in-service until 2021, six years after siting began. Other components have a “TBD” date. Any significant upgrades in these areas that are proposed to address the issues identified in this Needs Assessment should be disqualified as infeasible. The present project award date of late summer 2021 provides only three-and-a-half years for a project to be in service to avoid the significant costs of a reliability stop-gap.

With early project route analysis already done on-land and in sea, and early work evaluating civil construction feasibility, permitting analysis, and equipment ordering, delivery and installation times, Anbaric’s Mystic Reliability AC Wind Link is designed to be ready before June 1, 2024.

Significantly, the project also addresses other system needs identified by ISO-NE if the NECEC project is delayed. This is critical as there are likely to be even more upgrades in the streets around the Boston area, at significant cost, if NECEC does not move forward. Rather than spend multiple years to identify, procure and install these additional upgrades, the Mystic Reliability AC Wind Link can address these issues without any design changes. This element of Anbaric’s project took on much more importance recently as a referendum was put on the ballot for November in Maine that could find that construction and operation of the NECEC transmission project are not in the public interest of the people of Maine, and therefore declare there is not a public need for project. It is Anbaric’s understanding that in this context, a referendum in Maine has the force of legislation, and the NECEC request for a certificate of public convenience and necessity could be denied.

Potential siting/permitting issues or delays

Siting permitting and delays appear unlikely given that the route leaving Plymouth is in coastal water, is well understood, avoids the need for BOEM permitting, and uses public rights of way in multi-lane state roads towards the Anbaric Everett switchyard.

System performance

The Mystic Reliability Wind Link provides exceptional system performance across areas highlighted by the ISO:

- Voltage margin – the project provides additional margin against high voltage during minimum load conditions. The project reduces voltage at all 21 of the buses identified as driving time-sensitive needs in the Needs Assessment, with voltage reductions up to 0.8 to 1.4 percent at 15 of these buses and up to 0.5 percent at the remaining 6 buses.
- Percentage of equipment rating – the project lowers all unacceptable contingency impacts identified in the Needs Assessment to acceptable levels. Specifically, it reduces thermal loading below 90 percent of LTE rating for the three 345kV cables identified in the Needs Assessment for the most critical N-1-1 contingency pairs and the 115kV line identified in the Needs Assessment for the most critical N-1 contingency.
- Angular swings of generators – the project exhibits no adverse impact on generator rotor angle swings for design and extreme contingencies.
- Short circuit levels – the project maintains all circuit breaks within their interrupting capability. Short circuit levels at the Mystic 345kV and 115kV buses are 31kA and 36kA respectively – below the levels with Mystic units 8 and 9 operating and well below breaker interrupting capability. The maximum fault duty at the Pilgrim bus increases to 25kA, but is still well below breaker interrupting capability.
- Potential significant adverse impacts on other facilities – design work has been iterative to ensure that issues identified in system studies modeling stressed system conditions
have been addressed through design modifications. This ensures that the project will not result in significant adverse impacts on other facilities.

- Impact on NPCC Bulk Power System (BPS) Classification – simulation of faults modeling local protection system failure and fault clearing at remote stations demonstrates the project does not adversely impact system performance, which is indicative that the project will not result in reclassification of non-BPS buses as part of the NPCC BPS.
- Addresses potential future limiting elements in the Boston area as discussed in Section 7.4.

**Group 2: Second highest priority**

**Operational impacts**

Operational options are improved by the project and do not require operator intervention to make the project work reliably. See Section 7.4 for more detail.

**Interface impacts and transfer capability across and interface**

The project improves transfer between SEMA/NEMA by 900MW over two 450MW AC cables. This new transfer level also helps eliminate NEMA/SEMA zonal separation in the capacity market. The overall import level into Boston is increased by 1,100MW as a result of the project.

**Evaluation may also consider other metrics such as the impact on production cost**

The project improves system production costs in the NEMA Boston area in the near term by replacing power from the LNG-priced Mystic generation station with lower cost power. Savings will increase significantly in the mid-2020 as significant amounts of offshore wind come on-line with planned interconnections into the SEMA, now totaling over 3600MW.

**Future expandability**

The project is highly expandable adding an extra duct bank for a future 1200MW HVDC cable pull into the Mystic substation area at no additional cost to the region for its inclusion in this project. Further, the switchyards will be designed as four-breaker ring buses with the ability to be expanded to six breaker configurations in the future. Further, by reusing two of the Mystic 8/9 GIS breakers at the Mystic substation, this allows for future use of Mystic 7 position as well as the remaining for Mystic 8/9 breakers and reduces costs for this reliability project.

**Replacement of aging infrastructure**

The project design has found that a new switchyard at the Pilgrim location is more cost effective and will perform better than trying to interconnect and utilize the existing substation. This will also avoid the need to rebuild that equipment, which is of advanced age and has shown system operational issues in the past.

**The QTPS’s ability to finance, build, operate, and maintain the specific facility(ies) described in the proposal**

As described in Section 3, Anbaric has been a founder of the companies that developed two subsea cable projects on time and on budget. As the transmission platform company for the US$150 billion OTPP, Anbaric has the resources to execute large-scale projects and has several other major projects in its pipeline. Anbaric has engaged trusted partners early to ensure feasibility and cost estimates and be ready to go on day one of the project award.
Generation and transmission facility outages required during construction

Because of the project design, transmission outages are limited to the cut-in on the north and south ends of the project.

Incremental cost for potential resource retirements

The project provides system capability to help address future resource retirements as described in Sections 7.1 and 7.3.

Group 3 – Third highest priority

Environmental impact

The project is designed to minimize environmental impact by utilizing two tri-core cables. This results in only two ocean trenches to move 900MW. Anbaric is also working with fishing stakeholders to ensure that any impacts to that industry during installation are minimized. On land, sensitive areas are avoided, and HDDs under Revere Beach will be designed to meet up with ducts located underground in public roads.

Design standards

Design of the project results in a robust package given that switchyards are above flood levels and cables are buried. Switchyards are partially GIS and limited exposed switchyard and interconnection equipment will meet or exceed common practice.

Loss savings

The project has a net neutral impact on New England system losses for all-line-in conditions in the Needs Assessment cases, increasing losses by approximately 7MW in the high North-South transfer cases and lowering losses by approximately 8MW in the lower North-South transfer cases. However, the maximum SEMA/RI Export level achieved in the Needs Assessment cases is 1,050MW. In testing stressed cases at a SEMA/RI Export level of 2,500MW (still below the 3,500MW limit), the project provides loss savings of approximately 18MW. This is indicative of the benefits the project provides for integrating offshore wind resources to meet public policy initiatives.
Mystic Reliability DC Wind Link
Submitted in Response to
ISO-NE Boston 2028 RFP

March 3, 2020
Section 1  Phase One Proposal – Administrative

1.1 Primary Contact (The ISO anticipates this response may contain confidential information)

Question 1-1 - Provide primary contact information.

Designate a representative for the Phase One Proposal to be the primary contact person with the ISO and provide the following requested information in a narrative form and not in an uploaded file:

a. Name,
b. Title,
c. Email Address,
d. Telephone, and
e. Mailing Address

The primary contact is the person the ISO will first contact if questions or additional requests for information are needed from the QTPS Respondent that cannot be addressed through RFP360. The primary contact shall have the authority to provide responses on behalf of the QTPS Respondent’s organization.

a. Anbaric’s primary contact for its Phase One Mystic Reliability DC Wind Link proposal will be Theodore Paradise
b. Mr. Paradise is Anbaric’s Senior Vice President, Transmission Strategy and Counsel.
c. Mr. Paradise’s email is tparadise@anbaric.com
d. Mr. Paradise’s telephone number is (413) 222 0826
e. Mr. Paradise’s mailing address is 401 Edgewater Place Suite 680, Wakefield, MA 01880
Section 1 Phase One Proposal – Administrative

1.2 Secondary Contact (The ISO anticipates this response may contain confidential information)

Question 1-2 - Provide secondary contact information.

Designate a representative for the Phase One Proposal to be the secondary contact person with the ISO and provide the following requested information in a narrative form and not in an uploaded file:

a. Name,
b. Title,
c. Email Address,
d. Telephone, and
e. Mailing Address

The secondary contact is the person the ISO will contact if questions or additional requests for information are needed from the QTPS Respondent that cannot be addressed through RFP360 and the primary contact is unable to be contacted. Like the primary contact, the secondary contact shall have the authority to provide responses on behalf of the QTPS Respondent’s organization.

a. Anbaric’s secondary contact for its proposal will be John-Paul Kwasie.
b. Mr. Kwasie is Anbaric’s Operations Manager
c. Mr. Kwasie’s email is jkwasie@anbaric.com
d. Mr. Kwasie’s telephone number is (781) 708 0441
e. Mr. Kwasie’s mailing address is 401 Edgewater Place Suite 680, Wakefield, MA 01880
1.3 Backstop Transmission Solution

**Question 1-3a** - Has the QTPS Respondent been identified as the Backstop Transmission Solution provider? If the response is no, then respond to Questions 1-3b through 1-3e with an “NA”.

**Question 1-3b** - Is the Backstop Transmission Solution provider submitting a joint Phase One Proposal? If the response is no, then respond to Questions 1-3d and 1-3e with an “NA”.

**Question 1-3c** - Is this submittal the Backstop Transmission Solution? If the response is no, then respond to Questions 1-3d and 1-3e with an “NA”.

**Question 1-3d** - Identify the legal names of each Backstop Developer involved in the joint Phase One Proposal.

**Question 1-3e** - Identify the Backstop Developer that will serve as the lead for the Phase One Proposal.

All responses shall be submitted in a narrative form and not in an uploaded file.

As described in Section 4.3(a) of Attachment K, a QTPS Respondent shall be considered a Backstop Transmission Solution provider and is required to submit a Backstop Transmission Solution for any need that would be solved by a project located within or connected to its/their existing electric system, and which it/they would therefore have an obligation to build under Section 3.09(a) of the Transmission Operating Agreement (“TOA”). All other QTPS Respondents cannot be considered as a Backstop Transmission Solution provider and cannot submit a Phase One Proposal as a Backstop Transmission Solution.

The ISO will identify the QTPS(s) which will be the Backstop Transmission Solution provider(s) at the time of the issuance of the RFP. The Backstop Transmission Solution provider(s) shall be subject to the same requirements as any other QTPS submitting a Phase One Proposal. Only the Backstop Transmission Solution may be submitted as a joint Phase One Proposal where the ISO has identified more than one Backstop Transmission Solution provider. A Phase One Proposal that is not a Backstop Transmission Solution cannot be submitted as a joint Phase One Proposal with another QTPS Respondent or Backstop Transmission Solution provider.

If multiple Backstop Transmission Solution providers are submitting a joint Phase One Proposal, only the lead Backstop Transmission Solution provider shall submit the joint Backstop Phase One Proposal. The following information is required in the joint Backstop Transmission Solution provider’s Phase One Proposal. The lead Backstop Transmission Solution provider shall:

a. clearly identify the legal name of each Backstop Transmission Solution provider involved in the joint Phase One Proposal and

NA
b. identify the lead Backstop Transmission Solution provider.

NA

Question 1-3b - Is the Backstop Transmission Solution provider submitting a joint Phase One Proposal? If the response is no, then respond to Questions 1-3d and 1-3e with an “NA”.

No.

Question 1-3c - Is this submittal the Backstop Transmission Solution? If the response is no, then respond to Questions 1-3d and 1-3e with an “NA”.

No.

Question 1-3d - Identify the legal names of each Backstop Developer involved in the joint Phase One Proposal.

NA

Question 1-3e - Identify the Backstop Developer that will serve as the lead for the Phase One Proposal.

NA
Request for Proposal
Index of Attachments

Boston 2028 RFP
December 20, 2019

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Complete the table below itemizing any attachments included as part of the QTPS Respondent’s Phase One Proposal. Indicate the RFP360 question number and the file name according to the naming convention described in Section 3.6 of Part 1. Add additional rows if needed. Responses to questions shall be submitted in RFP360. Attached files are not to be used unless the question specifies that an attached file is required by ISO-NE. The ISO-NE required files are shown below. The brackets \{\} are used to indicate that the QTPS Respondent’s name shall be used in the file naming convention. Multiple files may be needed to respond to a question. In those cases, the QTPS Respondent will add an underscore to the end of the file name and add an incremental number for each file, e.g. ABC Power_Q30_geographic map_1 and ABC Power_Q30_geographic map_2.

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Attestation and Affidavit

Boston 2028 RFP
December 20, 2019

© ISO New England Inc.
I, Edward N. Krapels, being duly sworn according to law, affirm

1. That I am the Chief Executive Officer of Anbaric Development Partners, LLC a limited liability company duly organized under the laws of the State of Delaware, and with its principal place of business located at 401 Edgewater Pl, Ste 680, Wakefield, MA 01880 (“the QTPS Respondent”), and that I am authorized to execute this affidavit on behalf of, and bind, the QTPS Respondent;

2. That the QTPS Respondent has submitted the attached Phase One Proposal in good faith for consideration by ISO New England, Inc. (“ISO-NE”) to satisfy the need(s) identified in the Boston 2028 Request for Proposal (“the RFP”);

3. That the QTPS Respondent understands that ISO-NE’s evaluation of the attached Phase One Proposal and any Phase Two Solution subsequently submitted by the QTPS Respondent is governed by the ISO-NE Transmission, Markets and Services Tariff (“Tariff”), any manuals adopted under the Tariff, and the RFP;

4. That the QTPS Respondent agrees to be bound at all times by the Tariff and the RFP;

5. That the information included in the Phase One Proposal and any Phase Two Solution submitted by the QTPS Respondent is true and accurate to the best of the QTPS Respondent’s information, knowledge, and belief;

6. That the QTPS Respondent has complied with all applicable laws, regulations, and Good Utility Practices in preparing the Phase One Proposal and any Phase Two Solution submitted by the QTPS Respondent;

7. That the QTPS Respondent confirms that it has submitted concurrently with the Phase One Proposal an initial Study Deposit in the amount of $100,000 and agrees to pay any additional Study Deposits as needed by ISO-NE within the timeframe specified by ISO-NE, to process the QTPS Respondent’s Phase One Proposal or any Phase Two Solution submitted by the QTPS Respondent as directed by ISO-NE; and

8. That, if at any time, the QTPS Respondent fails to comply with any of the requirements set forth in the Tariff or the RFP, ISO-NE, in its sole discretion, can disqualify from further consideration the Phase One Proposal or any Phase Two Solution submitted by the QTPS Respondent.
State of ( Massachusetts )

County of ( Essex )

Subscribed before me, a Notary Public in and for said county and state, this 28 day of February, 2020.

May 22, 2026
Commission Expiration Date
1. The Mystic Reliability DC Wind Link is a 1200MW HVDC subsea cable transmission project between Plymouth, MA and Everett, MA that:

- Addresses all of the needs identified in ISO’s Final Greater Boston Needs Assessment Update ("Needs Assessment").
- Is highly feasible and constructible with extensive terrestrial and marine routing assessments completed (including a sea-floor survey of the route in January 2020).
- Utilizes a terrestrial route via multi-lane state roads on the north end and an interconnect near the decommissioning Pilgrim Nuclear Plant, thereby avoiding residential areas and minimizing risk of delay and opposition.
- Is being presented to numerous community and government agencies with positive feedback and ongoing dialogue.
- Provides capability that addresses the additional system needs identified in the May 2019 version of the Needs Assessment in the event that the New England Clean Energy Connect ("NECEC") project – now the subject of a Maine voter referendum in November 2020 – is either delayed or cancelled.
- Is highly expandable, incorporating in its design a spare set of duct banks for a later cable pull to connect 1200MW additional energy from federal offshore wind energy areas to the Mystic Substation in Everett. The cost of this spare set of duct banks is being carried by Anbaric and is not being added to the cost of this project.
- Provides a new 1200MW HVDC electric path between the SEMA and NEMA zones. This new path allows for large amounts of offshore wind energy being injected into SEMA to move unconstrained to serve the high-demand Boston load area. This avoids the need for an additional 345kV circuit to be added at a later time to move more renewable energy from SEMA to NEMA, as identified in the August 8, 2019 ISO-NE Economic Study presentation to the Planning Advisory Committee at slide 6.
- The 1200MW project provides significant energy import capability into Boston that may permit retirement of additional generation such as the Kendall units.
- Provides line flow controllability via the HVDC converter stations that will allow system operators to flow power from north-to-south if needed to address certain system conditions should Canal 1 and/or 2 retire.
- Provides +/- 400MVAr at both Everett and Plymouth. This substantial additional of reactive power at both ends will not only address the needs identified by the ISO, but will provide replacement reactive capability for retiring generation on both ends to help system operators control voltage. This is an important benefit to both the Boston area, which has an ever-declining amount of metro-area generation, and in the south where Canal 1 and 2 may retire, and where significant amounts of offshore wind has now been contracted to be added to the power system.

Anbaric has been working with EN Engineering and Power Engineers since early drafts of the Needs Assessment were released to ensure that Anbaric addresses all identified needs in the most cost-effective way that optimizes transmission reliability and availability. As a result, the project meets not only the identified needs without creating material adverse impacts, but provides additional energy margin and resiliency. These significant benefits are not add-ons, but inherent in the design.
2. **Costs and cost containment provisions**
   - Anbaric will agree to a capped ROE of 7.9%, saving ratepayers over $100 million compared to customary ROEs for similar-sized projects and fulfilling ISO’s obligation to encourage competition.
   - The base cost of the project is $682,547,422, excluding AFUDC, and the installed cost including AFUDC is $744,840,962, as defined in the Installed Cost Workbook.
   - The base cost of the project is capped at $812,934,923, as described in Section 8.
   - The project’s life cycle cost is $815,050,491.
   - The project is highly developed and designed to be in service by June 1, 2024. This is critical not only given the system reliability exposure with the retirement of Mystic 8 and 9, triggering this RFP, but also to ensure that the region does not incur costs of $200 to $300 million annually to secure generation and associated fuel through a gap RFP to maintain the Mystic generating station and its fuel supply at the adjacent LNG terminal.

3. **Schedule**
   - Anbaric initiated development of the Mystic Reliability DC Wind Link project in 2018 in order to meet the June 1, 2024 timeline for the project.
   - With this advanced preparation, equipment can be immediately ordered once the project is awarded.
   - Outreach to state and municipal authorities and community groups is already well underway, and any advanced permitting work will be prepared during the Phase 2 window and those permits that require a project award will be filed shortly after award.
   - Anbaric anticipates that major Permitting work will occur from Q3 2021 to Q3 2023, Equipment Procurement will be conducted from Q3 2021 to Q1 2024, Construction will occur in different areas of the route beginning Q2 2023, ending Q2 2024, and Commission and Energization will occur from Q1 2024 to Q2 2024. The schedule is set out in Section 7.5, along with greater details regarding the feasibility of meeting those schedule dates in Section 7.2.

- **Advanced Route Feasibility Work and Key Partnerships to Meet the Required In-Service Date**
  - In 2018, Anbaric worked with the environmental permitting firm ESS on extensive routing options, including the marine route. A preliminary sea survey of the entire route was conducted in January 2020. This proved out the desktop route and where difficult soil conditions were identified, the survey vessel was able to locate a better route. A more detailed sea survey will be conducted in Phase 2. Anbaric has already begun working with local fishing groups to ensure that any concerns related to the sea cable installation process and location are addressed.
  - On the northern end, Anbaric and ESS evaluated several approaches to the Mystic Substation, including through Boston Harbor, which presents a large set of environmental challenges, and other landing locations. In the end, the current route, which comes ashore under Revere Beach and then follows
Anbaric is continuing to work with Bond on the routing analysis and civil engineering of the project. Bond has extensive experience installing in-ground transmission and substation construction for many of the incumbent utilities in the region and elsewhere. This exclusive working arrangement assisted Anbaric in evaluating a schedule on which an in-service date of June 1, 2024 can be met.

4. Design and Route Overview
- Anbaric has designed the Mystic Reliability DC Wind Link to meet all elements of the Needs Assessment at minimum achievable cost and with high feasibility.
- The project consists of a bundled 320kV HVDC circuit between Plymouth and Everett, MA.
- Starting from a tap of the 342-3 and 355 345kV lines near Pilgrim into a new 345kV switchyard, the submarine HVDC cable leaves a voltage source converter station, and is buried in a single ocean trench in the Atlantic Ocean.
- The cable bundle stays towards the outer area of the three-mile state boundary waters, thereby avoiding the need for federal Bureau of Ocean Energy Management (“BOEM”) approval.
- The HVDC line lands under Revere Beach, using horizontal directional drilling to come ashore underground. The buried cable route continues under state Route 16, a road through a commercial area with multiple lanes on each side. These characteristics enable installation without the need to shut down traffic. Passing underground 4.9 miles through Revere and Chelsea and into Everett, the Project then connects to a converter station. From here, underground connecting AC cables link the switchyard to 345kV positions at the Mystic substation.
- **These ducts and vaults through the streets will include an additional open position that will be installed at Anbaric’s cost and will not be added to the RNS rate as part of this project.** This will allow for a later cable pull for circuits allowing a subsequent project, including the offshore wind energy now procured for installation in SEMA, to be directly connected to Mystic without needed additional siting or significant in-road infrastructure, reducing the cost to consumers of later connections from SEMA or directly from the south coast wind lease areas into Boston.
- The project will provide +/- 400MVAr of reactive power at each end to address the system restoration need and help system operators regulate voltage in day-to-day operations.
- The project will have a series reactor at the West Amesbury substation.
- The project does not impact the BPS classification of existing substations.

5. The timing to procure real estate and feasible rights-of-way
- The project will require switch yards in Plymouth and Everett, MA, as well as rights-of-way to get to the ocean from the Plymouth converter station, from Plymouth to Revere in a subsea route from Plymouth to Revere, a right-of-way from Revere
beach through Revere and Chelsea to Anbaric’s converter station in Everett, and from Anbaric’s Everett Converter Station to the Mystic Substation.
- For the converter stations, Anbaric has secured site control in Everett and will finalize Plymouth property rights in Q2 2020.
- Portions of the Greater Boston Reliability Project (“GBRP”) – approved in 2015 – are years late, and therefore Anbaric avoided proposing a project that would seek installation in similar areas, since these are now are seeing 2021 and later in-service dates. Anbaric is proposing a highly feasible project design that does not rely on going through areas already enmeshed in GBRP siting challenges.

6. The Mystic Reliability DC Wind Link addresses the identified needs
- The Anbaric project meets all the specifics of the Needs Assessment with a highly feasible schedule and at the minimum achievable cost based on the extensive analysis of alternatives by Anbaric and its engineering consultants.
- As detailed in Section 7.1 and demonstrated in the modeling information provided in Section 5, the Mystic Reliability DC Wind Link lowers all unacceptable contingency impacts identified in the Needs Assessment to acceptable levels. The project provides additional margin against high voltage during minimum load conditions. The project reduces voltage at all 21 of the buses identified as driving time-sensitive needs in the Needs Assessment, with voltage reductions up to 0.8 to 1.4 percent at 15 of these buses and up to 0.5 percent at the remaining 6 buses. The project lowers all unacceptable contingency impacts identified in the Needs Assessment to acceptable levels. Specifically, it reduces thermal loading below 90 percent of LTE rating for the three 345kV cables identified in the Needs Assessment for the most critical N-1-1 contingency pairs and the 115kV line identified in the Needs Assessment for the most critical N-1 contingency. Further, the project maintains all circuit breaks within their interrupting capability.
- Anbaric understands that schedule feasibility – getting it built on time – is absolutely critical given that stop-gap energy contract payments could add up to $200 to $300 million per year to Boston area consumers’ cost if the chosen solution is delayed. Anbaric’s participation in previous on-schedule buried cable projects with both subsea and underground components provides useful experience and a road map on how to construct the project on schedule. The project avoids areas where delay is most likely and utilizes routing where transmission can be installed with a minimal amount of disruption and without impacting residential areas, while also avoiding environmental impediments that could create permitting delays.
Section 3 Phase One Proposal – Labor Resources

Anbaric will rely on the experience, knowledge, and skill of its internal project staff to plan the Mystic Reliability DC Wind Link. It has assembled an exceptional team of highly qualified vendors to support the design of the project, consult on siting and permitting, construct, operate, and maintain its components and transmission facilities.

Anbaric Team

The following staff members comprise Anbaric’s internal project team. Extensive biographies are included in Anbaric’s QTPS materials and are available at anbaric.com

Edward Krapels

Edward Krapels, Founder and CEO of Anbaric, has been a founding partner in developing several iconic electric transmission projects, including the Neptune Regional Transmission System, the Hudson Project, and several major new projects designed to bring renewable power into urban markets.

Clarke Bruno

Clarke Bruno is Lead Partner and President of Anbaric’s Transmission team. He has twenty-five years of private and public sector experience in energy development and law, including as energy and environmental counsel to New Jersey Governor Jon Corzine, where he helped draft the energy master plan. He joined the company in 2010 as its general counsel and became President of Transmission in 2017.

Timothy Vaill

Timothy Vaill is a Senior Partner and the Chief Financial Officer responsible for overseeing Anbaric’s capital structure, financial planning, and financial management. Mr. Vaill is the former Chairman and CEO of Boston Private Financial Holdings, Inc., a publicly owned investment management and banking company. Prior to this role, Mr. Vaill was an Executive Officer for The Boston Company, and a senior financial consultant for Fidelity Investments.

Theodore Paradise

Theodore Paradise, Senior Vice President of Transmission Strategy and Counsel, brings over twenty years of experience responding to regulatory and practical issues surrounding power system planning and operations. Mr. Paradise spent fifteen years at ISO New England Inc., where he served as Assistant General Counsel, Operations & Planning and oversaw legal issues related to power system operations, regional and interregional transmission planning –
including competitive transmission, transmission siting, cost allocation, and generator interconnection.

Lawrence Mott

Lawrence Mott is an Owner’s Engineer at Anbaric focused on technical and development tasks for the company. Mr. Mott has been in the renewable energy industry for more than thirty years. Previously, he held a number of leadership positions including Director at independent engineering firm Sgurr Energy Inc., Senior Projects Manager at wind farm developer First Wind, and Technical Director at Northern Power Systems. Mr. Mott has served as a board member to the American Wind Energy Association, and chairman of the Renewable Energy Vermont Board.

William Wall

William Wall is a consultant to Anbaric. Mr. Wall is a member of several Boards of Directors, including of Haynes International, Inc., a specialty alloys manufacturing firm. From 2006 until 2015, Mr. Wall served as general counsel of Abrams Capital Management, LLC, a value-oriented investment firm headquartered in Boston. Prior to joining Abrams Capital, Mr. Wall was employed with Fidelity Investments for seven years, concluding as a Managing Director in its private investment group.

Steve Conant

Stephen Conant is a Partner and Project Manager for Anbaric and leads the company’s Southern New England OceanGrid initiative. Previously, Mr. Conant was a Senior Consultant for Stone & Webster Management Consultants, conducting environmental due diligence for major power asset transfers including coal, natural gas, hydroelectric power plants and natural gas pipelines.

Soam Goel

Soam Goel is a Partner overseeing Anbaric’s storage and business development work. He was previously Chief Commercial Officer of Power Network New Mexico, a $400M wholly owned subsidiary of Goldman Sachs Global Infrastructure Fund (GSIP), and spent 10 years with PA Consulting and predecessor firms where he co-headed the energy M&A practice.

Peter Shattuck

Peter Shattuck is President of Connecticut OceanGrid at Anbaric. Previously, Mr. Shattuck spent nine years as Massachusetts Director and Director of the Clean Energy Initiative at Acadia Center, a research and advocacy organization focused on energy and climate policy. In these roles, he engaged collaboratively with large energy users, utilities and other stakeholders to develop and implement state and regional programs supporting energy efficiency, offshore wind, clean energy transmission, energy storage and market-based climate policy.

Bryan Sanderson
Bryan Sanderson is a Partner and Project Manager with Anbaric where he brings over two decades of experience in energy markets and a strong background in both the natural gas and power sectors. Prior to Anbaric, he held roles in project development and energy marketing with Invenergy.

John-Paul Kwasie

John-Paul Kwasie is Anbaric’s Operations Manager. He has nine years of experience providing administrative and technical support to the company’s project teams.

External Project Team

Technical Design

Anbaric contracted with K2 Management, EN Engineering, Power Engineers, and Intertek to serve as engineering consultants for the Mystic Reliability DC Wind Link. The engineering team reports to Mr. Mott.

K2 Management

K2 Management provided electrical engineering support during development of the project. K2’s work for Anbaric includes project management support and coordination; costing advisory for key project components; and specification development for the project.

EN Engineering

EN Engineering has extensive experience in New England grid planning matters. Lead consulting engineer Phil Tatro has had a long career planning installed reliability projects in the New England region. EN has provided extensive analysis of ISO-NE needs assessments, and modeling work to assess the performance of different alternatives.

Power Engineers

Power Engineers has a highly experienced team, including members who have worked on multiple reliability projects in the New England region. Power Engineers has supported the design of the project substations and components of the project’s underground transmission system.

Intertek

Anbaric engaged Intertek, a Bristol, UK specialist consulting entity, to review HDD methods, concept installation planning, and splice vault locations for the Revere Beach landing area. Intertek has a dedicated team focused on cable applications, onshore and offshore, with a focus on offshore wind array, complex shore landings.

Siting and Permitting
ESS Group, Inc.

ESS Group, Inc. (ESS) provides consultation for siting the project’s land and submarine routes to interconnection points, onshore converter stations, offshore collector platforms.

Additionally, ESS conducted a High Resolution Geophysical (HRG) shipboard survey to assist in the preliminary siting and routing of the planned subsea cable systems associated with the project. Working with an HRG survey vendor, Ocean Surveys, Inc. (OSI), ESS conducted a 38 nautical mile shipboard marine survey of potential submarine cable corridors to support initial siting for the project. This survey included the project’s preferred route from Plymouth to Revere, MA; a route segment from Broad Sound to Deer Island in Boston; a route segment in the Belle Isle Marsh area east of Logan Airport, and a route segment in the Mystic River from East Boston to Everett, MA.

The survey collected of shipboard acoustical remote sensing data, surface, and shallow subsurface data that will be used to assess routing and jet plow/hard bottom area determinations, geological hazards or marine cultural artifacts. The survey utilized multi-beam hydrography, side-scan sonar, shallow seabed sub-bottom profiling, and magnetometer readings to study bottom features and identify areas requiring further remote sensing investigation or consideration of re-routing due to observed seabed conditions. ESS continues to support the project as it moves forward and will provide key data for permitting.

PSC North America

Anbaric engaged PSC North America, a nationally known engineering and power systems consultant specializing in utility work, substation work, power flow modelling, operations and ISO work, to detail and review the project’s O&M.

Durand & Anastas Environmental Strategies

Durand & Anastas provides expertise regarding environmental matters and coastal zone offshore waters. The team is led by Bob Durand who is a former Massachusetts Environmental Affairs Secretary and state legislator, serving in both the House and Senate, where he was Majority Whip. He is currently on the Board of Trustees for both The Nature Conservancy/Massachusetts Chapter and the Massachusetts Environmental Trust.

Legal Counsel

Partridge Snow & Hahn LLP

A highly experienced firm in regulatory and real property matters in the region, Partridge Snow & Hahn provides counsel on real estate matters related to the project, as well as advice regarding siting and permitting in the areas affected by the project.

Latham and Watkins, LLP
Anbaric works with Latham and Watkins on matters regarding federal regulation, including those involving the Federal Energy Regulatory Commission and other federal agencies.

**Construction**

Bond Brothers, a building, civil, utility and energy construction firm, will support Anbaric with construction of the terrestrial portion of the underground transmission portion running from Revere Beach to Mystic. Bond will conduct design and engineering constructability reviews, perform conceptual estimating and budgeting, schedule and logistic development, provide support with transmission route selection, and attend meetings, public hearings, and/or events as requested. Additional information is provided in Section 3.3.

**Operation and Maintenance**

Anbaric will form an operating company to oversee operation and maintenance of the Mystic Reliability DC Wind Link. This operating company is similar to those utilized on projects in which Anbaric previously has been involved. The operation of the Mystic Reliability DC Wind Link will be supported by skilled, competitively selected third parties with the requisite technical and engineering capabilities. The Anbaric OPCO will adhere to industry accepted best practices and standards, hiring of personnel, tools, and contractors, and engage in preventative, predictive, and emergency maintenance and 24/7 outage response.

Anbaric plans to use qualified O&M contractors to achieve its forced outage response implementation tasks for this project. Vendor-contracted support for forced outage restoration is common in the utility industry and even large transmission owning entities have several standing contracts with independent crews to wholly address or assist with storm outages and other issues. Anbaric’s operating company will have a 24/7 staffed contact point for unanticipated system issues and emergency response.

For day-to-day operations, the Mystic Reliability DC Wind Link will be connected to the ISO control room via electronic telemetry and be controlled by the via the ISO’s main control room or Local Control Center. Routine maintenance will be carried out through vendor contracts and manufacturer support. Anbaric will contract for maintenance and management of spare parts, spare structures, and/or spare equipment inventories as recommended by OEMs and its electrical consultants with input from its insurance advisor for its electric transmission lines and switchyards. As is common in the utility industry, Anbaric will have arrangements in place with vendors as needed to observe good utility practice, NERC, NPCC, state and ISO-NE criteria.
Section 3 Phase One Proposal - QTPS Respondent Project Specification Qualification

3.2 Financial Resources

Anbaric Development Partners is a platform company of Ontario Teachers’ Pension Plan (“OTPP”), whose investment objective is to create sustainable long-term value in its portfolio companies and enrich the communities they serve. OTPP invested in Anbaric in 2017 to further Anbaric’s development of a variety of electrical transmission projects, and OTPP plans to supply the equity capital and financial backstop required for the Mystic Reliability DC Wind Link project.

OTPP is the largest single-profession pension plan in Canada. An independent organization since 1990, OTPP invests and administers the pensions of more than 327,000 active and retired teachers in the Province of Ontario. As of June 30, 2019, OTPP had net assets of C$204 billion, invested across a mix of equities (public and private), bonds, commodities, real assets (real estate and infrastructure), absolute return strategies and natural resources. OTPP is well capitalized and can fund the prospective capital expenditures and more. It does not need to go to the capital market, or seek other investors, to raise the cash for development, construction, or permanent equity.

OTPP has a dedicated and highly specialized infrastructure investment department that has been investing and managing OTPP’s infrastructure portfolio since 2001. OTPP’s infrastructure portfolio was valued at C$17.8 billion as of December 31, 2018 and is actively seeking to increase this exposure, with a particular emphasis on new construction, greenfield projects. To accomplish this objective the Greenfield and Renewables team was created with a focus on executing projects in the development and construction stage. In 2017 the Greenfield team invested in, became a 40% equity owner of, and exclusive equity provider to Anbaric Development Partners to further Anbaric’s development of electrical transmission projects with the ultimate goal of securing the opportunity to invest permanent equity.

OTPP has large ownership positions (some of 100%) in infrastructure assets and routinely contributes additional capital to expansion projects, acquisitions and maintenance. Examples include 100% ownership of water and wastewater utilities in Chile where piping and machinery is continuously updated and replaced, and Global Container Terminals, which operates container terminals in New York and New Jersey and Vancouver, where over $500 million in major construction projects have been undertaken. The Mystic Reliability DC Wind Link project is precisely the type of project that this partnership was structured to develop and OTPP would be prepared to fund the entire equity requirement. OTPP’s credit rating is Aa1 from Moody’s and AA+ from Standard & Poor’s.

As a primarily direct investor in infrastructure projects, OTPP also has extensive experience supporting portfolio companies around the world execute project financing. OTPP and Anbaric will manage construction risk sharing with their contractors, and insure for unforeseen events.

Anbaric will capitalize and manage its Mystic Reliability DC Wind Link project in accordance with customary and prudential industry norms in a manner that provides a substantial margin of safety in the event of unforeseen liabilities or losses. Anbaric will further procure insurance policies from leading insurers that are adequate in amount and scope for a project of this nature to protect against the range
of risks present in the project. In addition, Anbaric will retain on the balance sheet of the Mystic Reliability DC Wind Link affiliate capital reserves and/or secure letter of credit commitments that would enable it to finance unexpected losses while awaiting insurance recoveries and to reduce the risk of any interruption of service caused by unanticipated failure of any part of its facilities.
3.3 Project Management and Scheduling

Confidential Information

Capability

As set out in the response to Section 3.1, Anbaric has internal project management teams covering engineering, procurement, construction, operations, legal (federal, state, local), public relations, labor relations, and government relations. Once the project is awarded, management area leads will work with the internal Anbaric team, supporting professionals, and our contractors to meet the project schedule set out in Section 7.5. As the project moves forward to Phase 2 and award, Anbaric will:

- Complete any final engineering for each project section.
- Expeditiously file for any permits required for each section. Informal discussions with permitting authorities are underway to familiarize entities with forthcoming requests and help ensure a more efficient permitting process.
- Significant project development has already been undertaken, and the survey, engineering work, and other supporting work papers will be ready to support the submission of permit requests shortly after award.
- Order equipment based on the discussions that Anbaric has already had with its vendors regarding manufacturing queue, manufacturing times, testing and delivery times. These procurement timeframes are already well understood and are set out in more detail in the project schedule information included at Section 7.5 of the RFP response.
- Continue community outreach including mayors, selectmen, town councils, organized labor, and community groups. Anbaric is working with community liaisons in the towns affected by our project and has already met elected leaders and community groups to familiarize them with the project.
- Continue state and federal outreach regarding the project. Anbaric is in communication with elected state legislative and executive officials, as well as federal house and senate members and agencies to familiarize them with the project and ensure that permit requests are understood and expected.

Overall project management has begun in the development stage by selecting and working with Anbaric's selected civil engineering and construction firms to identify the most feasible routing options. For example, Bond has worked with Anbaric to identify the most optimal route through Revere to Everett taking into account road design, lay down areas, directional drilling access points, required cable bend radiiuses, soil issues, and when work is likely to be permitted given traffic volume and direction. This has allowed Anbaric to understand the number of crews needed to complete the work within a given timeframe, which can be accelerated from the Schedule set out in Section 7.5 as needed by adding additional crews.

As above, equipment and installation time frames, set out in detail in Section 7.5 of this RFP response, have already been developed in conjunction with the equipment vendors and
installation contractors to ensure that orders for manufacturing and installation crew availability will align with a June 1, 2024 in-service date.

Prior Project Management Experience

Anbaric’s predecessor companies were involved in the design, construction and installation of two sub-sea cable projects: the 660MW Neptune HVDC project from Sayreville NJ, via a crossing in a sea route buried in Atlantic Ocean waters, under Jones Beach in Long Island, along the Wantagh expressway, to the converter station in North Hempstead, Long Island; and the back-to-back HVDC Hudson project from Ridgefield, NJ down to and across the Hudson River to West 49th St in New York City. These projects were completed on time and on budget.

Neptune Transmission Project:
- 660MW independent HVDC transmission system linking New Jersey and Long Island.
- Project is underwater (50 mi) and underground (15 mi).
- Developed in collaboration with Atlantic Energy Partners.
- Competitively selected by the Long Island Power Authority.
- Completed July 2007, on time and on budget.
- Operated by Powerbridge.

Hudson Transmission Project:
- 660MW from New Jersey to West 49th St in Manhattan.
- Project is underwater (4 mi) and underground (3 mi).
- Developed in collaboration with Hudson Transmission Partners.
- Competitively selected by the New York Power Authority.
- Completed in June 2013, on time and on budget.
- Operated by Powerbridge.

For civil construction for the Mystic Reliability DC Wind Link, Anbaric is working with Bond Brothers (Bond). Bond has completed numerous underground transmission and substation projects in the New England region, including around the Boston-area and Mystic Substation, as well as in other regions. A partial list of relevant projects includes:

- The 69-mile Middletown to Norwalk Project, which involved 19 miles of 345kV underground electric duct bank for XLPE, 116 precast splice vaults and 54” of pipe jacking under the Metro North railroad.
- 18 miles of welded steel pipe and 34 precast splice vaults for a 345kV project from Stoughton to Boston, along with a new substation in Stoughton and upgrades to two Boston-area substations.
- Live rebuilding of the Ludlow substation as part of the Greater Springfield Reliability Project.

Bond’s expertise, labor relations, project management group and familiarity with the areas involved in the Mystic Reliably DC Wind Link, will help ensure that the schedule set out in greater detail in Section 7.5 can be met.
Permitting and Scheduling

In order to meet the schedule laid out in the ISO-NE’s Needs Assessment, the Mystic Reliability DC Wind Link will have to be constructed in the period between ISO-NE’s selection of the project – September 2021 – and the scheduled closing of the Mystic Power Station on June 1, 2024. Anbaric’s ability to meet that schedule depends (a) on its ability to obtain a series of state and local permits, and (b) the ability of Anbaric’s chosen vendors and constructors to get the job done within the timeline needed on the one hand, and the ability and willingness of state and local authorities to grant the necessary permits.

In an industry where projects are rarely completed on schedule, a bit under three-and-a-half years including the time required to obtain permits is extremely challenging. In order to meet the construction timeline, Anbaric will be prepared to begin formal permitting and siting immediately upon award. Indeed, preliminary permitting activity has already begun. As discussed further in the answer to question 7.5, assuming selection of the Mystic Reliability DC Wind Link on or around September 1, 2021, Anbaric has allocated 18 months to 24 months to the two major permitting processes (on land and subsea), so that construction can begin on or around the end of the second quarter of 2023. While target permitting windows may in some cases be less than 12 months, the permitting windows were selected to ensure for a sufficient amount of time pre-construction. Where siting and permitting is completed more expeditiously, construction of some elements may be advanced.
### Section 4 Phase One Proposal - Facility Description and Cost Estimates

#### 4.1 Short Summary

**Question 4-1 - Provide a short summary of the Phase One Proposal.**

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<th>Instructions</th>
<th>RFP Response</th>
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| The response shall state all of the components which comprise the Phase One Proposal in a bulleted format. The type of equipment (e.g. transformers, shunt devices) shall be totaled and any work on lines (new line, rebuild, or reconductoring) shall be grouped by voltage level and the total mileage of the work shall be stated. When completing the response, list the components of the Phase One Proposal in the order as asked in the following sections (Sections 4.6 to Section 4.21). The response shall be submitted in a narrative form and not in an uploaded file. | To solve the stated needs the Anbaric Phase One Proposal includes:  
• The existing overhead transmission lines (342-3 and 355) that currently serve the existing Eversource 345kV Pilgrim Substation will be intercepted adjacent to the proposed Anbaric Plymouth Switchyard (STA2) (approx. 500’). Two (2) new 345kV overhead lines (AN33 and AN34) will be installed from STA2 to the Eversource 345kV Pilgrim Substation and terminated to the transmission line dead ends which formally terminated lines 342-3 and 355 (approx. 1500’).  
• A new 345kV AC underground transmission line from the proposed Anbaric Everett Converter Station (STA1) in Everett, MA to the existing Eversource Mystic Substation. The length of this transmission line is 1.35 miles.  
• A new AIS 345kV breaker-and-a-half Anbaric Switchyard (STA2) in Plymouth, MA.  
• At the Eversource 345kV Mystic Substation the existing indoor GIS equipment, which formally served as the connection points for generators 8 & 9 to the Mystic station, will be utilized for this project. Two (2) of these existing GIS breakers will be used to terminate the incoming lines AN35 and AN36, leaving the Mystic station 7 breaker position open for future use.  
• A new +/- 320kV DC transmission line (AN31) from a new Anbaric Plymouth Switchyard (STA2) in Plymouth, MA to a new Anbaric Everett Switchyard (STA1) in Everett, MA. This line includes 45.6 miles of submarine |
PTF or Pool Transmission Facilities are the transmission facilities owned by PTOs, over which the ISO shall exercise Operating Authority in accordance with the terms set forth in the TOA, rated 69 kV or above required to allow energy from significant power sources to move freely on the New England Transmission System. See Section II.49 of the Open Access Transmission Tariff for more information. https://www.iso-ne.com/static-assets/documents/regulatory/tariff/sect_2/oatt/sect_ii.pdf

- Install a new +/-320kV DC 1200MW Anbaric Everett Converter station (STA1)
- Install a new +/-320kV DC 1200MW Anbaric Plymouth converter station (STA3)
- Install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line at the W. Amesbury Substation.
Section 4 Phase One Proposal - Facility Description and Cost Estimates

The intent of the questions in this section is to collect high level information on the components and cost estimates which comprise the QTPS Respondent’s Phase One Proposal. Detailed modeling and cost data will be detailed in Sections 5 and 6 of this document, respectively. For proposed modifications to existing element(s) where the QTPS Respondent is not the PTO for the existing system element(s) it is the responsibility of the QTPS Respondent to provide responses, which may be based on publicly available information for the proposed upgrade.

For each question, there is an Instructions and RFP360 column. The Instructions column describes the information the ISO requires in the QTPS Respondent’s Phase One Proposal submission. The RFP360 column displays sample responses to be used by the QTPS Respondent to answer the questions if applicable. The language in the RFP360 column is shown as a guide and will need to be modified to reflect the QTPS Respondent’s actual responses.

Section 4.4 and Sections 4.6 through 4.22 require the QTPS Respondent to submit installed cost estimates for either the entire Phase One Proposal or an individual component of the Phase One Proposal. The cost estimates shall include material, labor and equipment, right of way, engineering/permitting/indirects, escalation, AFUDC, and contingency. Only the cost estimate amount shall be submitted in these sections. The individual items which make up the cost estimate shall be submitted in the Installed Cost Estimate Workbook which is part of the RFP package posted on the ISO website at http://www.iso-ne.com > System Planning > Competitive Transmission Projects. The total installed cost estimate submitted in Section 4.4 should equal the summation of all of the cost estimates provided in Sections 4.6 through 4.22.

Section 4.6 requires the QTPS Respondent to only submit the life-cycle cost estimate for their entire Phase One Proposal. For proposed modifications to existing element(s) where the QTPS Respondent is not the PTO for the existing system element(s) the QTPS Respondent is not required to include the costs of these upgrades in establishing the life-cycle cost. No supporting calculations are required to be provided as part of their Phase One Proposal to provide evidence of their quoted life-cycle cost response. For those QTPS Respondents which successfully make it onto the listing of qualifying Phase One Proposals, the ISO will require the QTPS Respondent to complete and submit a Life-Cycle Cost Estimate Workbook. A sample copy of the Life-Cycle Cost Workbook is provided in the RFP package and found on the ISO website at www.iso-ne.com > System Planning > Competitive Transmission Projects.

The calculations of applicable ratings shall be consistent with the ISO Planning Procedure No. 7: Procedures for Determining and Implementing Transmission Facility Ratings in New England. ISO Planning Procedure No. 7 applies to: overhead conductors, cables, power transformers, series and shunt capacitors/reactors, circuit breakers, switches, current transformers, wave traps, current transformers circuit components, VAR compensators and HVDC systems.

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6 https://www.iso-ne.com/system-planning/transmission-planning/competitive-transmission-projects

7 Life-cycle cost is a single value and shall be calculated as the summation of the present value of annual costs over the full life span of the Phase One Proposal. (To calculate the present value of the annual costs, the discount rate is 8.3%, the inflation rate is 1.5% and the cost valuation year is 2023.) The annual costs shall include the design, engineering, construction, operation, maintenance, repair, taxes, depreciation, interest, equity, and administration costs.

All Phase One Proposal installed cost estimates shall use the same cost valuation year determined by the ISO. For this RFP, the cost valuation year is 2023.

It is assumed that all work described in the following sections is Pool Transmission Facility (PTF) work or will become part of the PTF as a result of the Phase One Proposal. If the work described is not PTF work, then the QTPS Respondent shall identify the work as “Other” work in their RFP responses and in the Installed Cost Estimate Workbook.

4.2 Geographic Map

**Question 4-2 - Provide a geographic map of the Phase One Proposal.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The geographical map shall show the Phase One Proposal full view of the route of new line(s), the route of line(s) that are being rebuilt or reconducted, the location on new station(s) and the location of station(s) where major work is being performed. Each new line and station shall be marked with an identifier that will be consistently used in other responses in the RFP. Only a PDF file shall be accepted.</td>
<td><em>Uploaded file example</em></td>
</tr>
</tbody>
</table>

9 PTF or Pool Transmission Facilities are the transmission facilities owned by PTOs, over which the ISO shall exercise Operating Authority in accordance with the terms set forth in the TOA, rated 69 kV or above required to allow energy from significant power sources to move freely on the New England Transmission System. See Section II.49 of the Open Access Transmission Tariff for more information. [https://www.iso-ne.com/static-assets/documents/regulatory/tariff/sect_2/oatt/sect_ii.pdf](https://www.iso-ne.com/static-assets/documents/regulatory/tariff/sect_2/oatt/sect_ii.pdf)
## Section 4 Phase One Proposal - Facility Description and Cost Estimates

### 4.3 One Line Diagram(s)

**Question 4-3 - Provide one line diagram(s) of the Phase One Proposal.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-line diagram(s) shall be provided to show new or modified equipment in addition to existing or already planned system changes. The detailed one-line diagram(s) of the proposed facilities shall show the connectivity between all new proposed equipment (i.e., circuit breakers, transformers, shunt-connected capacitor banks, shunt-connected reactors, dynamic reactive devices, transmission lines, etc.) and the proposed bus configuration at the Point(s) of Interconnection. Each new station, line, and equipment shall be marked with an identifier that will be consistently used in other responses in the RFP. The response requires at least one file at a minimum to be uploaded into RFP360 and only PDF files shall be accepted.</td>
<td>A one-line diagram has been attached.</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.4 One Line Block Diagram

Question 4-4 – Provide a one line block diagram of the Phase One Proposal.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>A one line block diagram¹⁰ shall be provided to show new, modified, or removed line(s) and station(s). In addition, notes can be added to show work on a line such as separating a multiple circuit tower or reconductoring a line. The purpose of a one line block diagram is to show the connectivity between all new, modified, and removed lines and stations. Each new station and line shall be marked with an identifier that will be consistently used in other responses in the RFP. Only a PDF file shall be accepted.</td>
<td>A one-line block diagram has been attached.</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.5 Proposal Installed Cost Estimate

**Question 4-5 - Provide the installed cost estimate for the Phase One Proposal.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the total installed cost estimate for all of work which comprises the Phase One Proposal. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td><strong>Confidential Information.</strong> The total installed cost of the Mystic Reliability DC Wind Link is $744,840,962 including AFUDC, as described in the Installed Cost Workbook. The project's installed cost primarily consists of a submarine transmission cable, two converter stations, two segments of underground cables (one in Plymouth, the other in Revere-Chelsea-Everett), and two switchyards.</td>
</tr>
<tr>
<td>345kV Transmission Line Cut-in to Anbaric Plymouth</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>345kV Transmission Line: Anbaric Everett to Eversource Mystic</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>New 345kV Switchyard: Anbaric Plymouth</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>HVDC Converter Stations</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>HVDC Transmission Line: Anbaric Plymouth to Revere Beach (Submarine)</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>HVDC Transmission Line: Revere Beach to Anbaric Everett (Underground)</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>Existing Mystic Substation</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>Series Reactors (West Amesbury)</td>
<td>[Redacted]</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$744,840,962</strong></td>
</tr>
</tbody>
</table>

---


7. Life-cycle cost is a single value and shall be calculated as the summation of the present value of annual costs over the full life span of the Phase One Proposal. (To calculate the present value of the annual costs, the discount rate is 8.3%, the inflation rate is 1.5% and the cost valuation year is 2023.) The annual costs shall include the design, engineering, construction, operation, maintenance, repair, taxes, depreciation, interest, equity, and administration costs.

## Section 4 Phase One Proposal - Facility Description and Cost Estimates

### 4.6 Proposal Life-Cycle Cost Estimate

**Question 4-6**- **Provide the life-cycle cost estimate for the Phase One Proposal.**

**Confidential Information.** The total life cycle cost of the Mystic Reliability DC Wind Link is $815,050,491. The life cycle costs of the primary components are shown below. The bulk of the annual and corporate operations and maintenance costs are amalgamated in “project wide costs.”

<table>
<thead>
<tr>
<th>Component Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>345kV Transmission Line Cut-in to Anbaric Plymouth</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>HVDC Transmission Line: Anbaric Plymouth to Revere Beach (Submarine)</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>HVDC Transmission Line: Revere Beach to Anbaric Everett (Underground)</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>345kV Transmission Line: Anbaric Everett to Eversource Mystic</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>New 345kV Switchyard: Anbaric Plymouth</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>HVDC Converter Stations</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>Replace Converter Control &amp; Protection System in Yr 15</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>Replace Cooling System Dry-Type Cooling Towers and Aux Power Switchgear &amp; MCC Lineups in yr 25</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>Partial Replacement of Converter Control &amp; Protection System, and Other Items in yr 30</td>
<td>[ blackout ]</td>
</tr>
<tr>
<td>Project-Wide Costs</td>
<td>[ blackout ]</td>
</tr>
</tbody>
</table>

---

6 https://www.iso-ne.com/system-planning/transmission-planning/competitive-transmission-projects

7 Life-cycle cost is a single value and shall be calculated as the summation of the present value of annual costs over the full life span of the Phase One Proposal. (To calculate the present value of the annual costs, the discount rate is 8.3%, the inflation rate is 1.5% and the cost valuation year is 2023.) The annual costs shall include the design, engineering, construction, operation, maintenance, repair, taxes, depreciation, interest, equity, and administration costs.

**Section 4 Phase One Proposal - Facility Description and Cost Estimates**

**4.7 345 kV Line Work**

*Question 4-7- Describe all 345 kV line work in the Phase One Proposal and the installed cost estimate for each component of 345 kV line work.*

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level, whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals for the line, the total mileage of the work, the summer normal, Long Time Emergency (“LTE”) and Short Time Emergency (“STE”) ratings(^{11}) of the proposed line, and the installed cost estimate for the work. If there is more than one 345 kV line component, then an entry at the end of the response shall be added to reflect the total installed cost for all of the 345 kV line work. Each new line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit tower work associated with this line. That information is to be provided in response to questions 4-11 and 4-12.</td>
<td>Confidential Information</td>
</tr>
<tr>
<td></td>
<td>• Modify the existing overhead transmission lines (342-3 and 355) that currently terminate at the Eversource 345kV Pilgrim substation to terminate at the proposed Anbaric Plymouth Switchyard (STA2) (approx. 500(^{\prime})). Two (2) new 345kV overhead lines (AN33 and AN34) will be installed from the proposed Anbaric Plymouth Switchyard (STA2) to the Eversource 345kV Pilgrim substation and terminated to the transmission line dead ends which formerly terminated lines 342-3 and 355 (approx. 1500(^{\prime})). Ratings for the new segments of these lines will match the existing LTE and STE ratings of Lines 342-3 and 355, which are 1410 MVA and 1996 MVA, respectively, for line 342-3 and 1405 MVA and 1628 MVA, respectively, for line 355. The installed cost estimate for these line modifications is [REDACTED].</td>
</tr>
<tr>
<td></td>
<td>• A new 345kV AC underground transmission line comprised of two individual cables (AN35 and AN36), switched as a single circuit, from the proposed Anbaric Everett converter station STA1 in Everett, MA to the existing Eversource Mystic Substation. The LTE and STE rating for each cable are 760MVA and 830MVA, respectively. This provides a combined LTE rating of 1520 MVA and STE rating of 1660 MVA. The length of this transmission line is 1.35 miles. The installed cost of the line is [REDACTED].</td>
</tr>
<tr>
<td></td>
<td>• The total cost for all 345kV line work is [REDACTED].</td>
</tr>
</tbody>
</table>
## 4.8 230 kV Line Work

**Question 4-8**: Describe all 230 kV line work in the Phase One Proposal and the installed cost estimate for each component of 230 kV line work.

### Instructions

The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level, whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals for the line, the total mileage of the work, the summer normal, Long Time Emergency (“LTE”) and Short Time Emergency (“STE”) ratings of the proposed line, and the installed cost estimate for the work. If there is more than one 230 kV line component, then an entry at the end of the response shall be added to reflect the total installed cost for all of the 230 kV line work. Each new line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit tower work associated with this line. That information is to be provided in response to questions 4-11 and 4-12.

### RFP 360

NA. The Mystic Reliability DC Wind Link does not involve any 230kV line work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level, whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals for the line, the total mileage of the work, the summer normal, Long Time Emergency (“LTE”) and Short Time Emergency (“STE”) ratings of the proposed line, and the installed cost estimate for the work. If there is more than one 230 kV line component, then an entry at the end of the response shall be added to reflect the total installed cost for all of the 230 kV line work. Each new line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit tower work associated with this line. That information is to be provided in response to questions 4-11 and 4-12.</td>
<td>NA. The Mystic Reliability DC Wind Link does not involve any 230kV line work.</td>
</tr>
</tbody>
</table>
### Section 4 Phase One Proposal - Facility Description and Cost Estimates

#### 4.9 115 kV Line Work

**Question 4-9:** Describe all 115 kV line work in the Phase One Proposal and the installed cost estimate for each component of 115 kV line work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level, whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals for the line, the total mileage of the work, the summer normal, Long Time Emergency (“LTE”) and Short Time Emergency (“STE”) ratings of the proposed line, and the installed cost estimate for the work. If there is more than one 115 kV line component, then an entry at the end of the response shall be added to reflect the total installed cost for all of the 115 kV line work. Each new line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit tower work associated with this line. That information is to be provided in response to questions 4-11 and 4-12.</td>
<td><strong>Confidential Information.</strong> As reflected in responses 4.14 and 4.20 - Install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line at the W. Amesbury substation at an installed cost of <strong>[REDACTED]</strong></td>
</tr>
</tbody>
</table>
### Section 4 Phase One Proposal - Facility Description and Cost Estimates

#### 4.10 69 kV Line Work

**Question 4-10**- Describe all 69 kV line work in the Phase One Proposal and the installed cost estimate for each component of 69 kV line work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, rebuild, or reconductor), the voltage level,</td>
<td>NA. The Mystic Reliability DC Wind Link does not involve any 69 kV line work.</td>
</tr>
<tr>
<td>whether the facility is overhead or underground (OH or UG), the circuit ID, the location of all terminals</td>
<td></td>
</tr>
<tr>
<td>for the line, the total mileage of the work, the summer normal, Long Time Emergency (&quot;LTE&quot;) and</td>
<td></td>
</tr>
<tr>
<td>Short Time Emergency (&quot;STE&quot;) ratings of the proposed line, and the installed cost estimate for the</td>
<td></td>
</tr>
<tr>
<td>work. If there is more than one 69 kV line component, then an entry at the end of the response shall</td>
<td></td>
</tr>
<tr>
<td>be added to reflect the total installed cost for all of the 69 kV line work. Each new line shall be</td>
<td></td>
</tr>
<tr>
<td>marked with an identifier that will be consistently used in other responses in the RFP. The response</td>
<td></td>
</tr>
<tr>
<td>shall be submitted in a narrative form and not in an uploaded file. Do not include any multiple circuit</td>
<td></td>
</tr>
<tr>
<td>tower work associated with this line. That information is to be provided in response to questions 4-11</td>
<td></td>
</tr>
<tr>
<td>and 4-12.</td>
<td></td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.11 Multiple Circuit Tower (MCT) Additions

**Question 4-11 - Describe all work to install:**

- new lines that will share new towers and create a new MCT configuration,
- a new or existing line installed on one or more existing circuit towers to form a new or modified MCT configuration, and
- the installed cost estimate for each multiple circuit tower addition.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state any new or modified MCT configurations resulting from new lines that will share new towers, or the installation of new or existing lines onto existing towers. Each entry shall state the lines that will comprise the new or modified MCT configuration and the total length of the MCT configuration shared by all the lines. In addition, each entry shall identify if all MCT configurations for the common lines to the MCTs are used only for station entrance and exit purposes, do not exceed five towers at each station and the total length of the MCT configurations is less than one mile. No cost or rating information shall be provided in this section, unless the new or modified MCT only involves existing lines, and there is no reconductoring or rebuild work associated with those lines. Information on ratings and costs associated with each new line or the reconductoring or rebuilding of existing lines shall be listed with each line’s corresponding entry in the appropriate section above (see Sections 4.6 to 4.9). The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA. The Mystic Reliability DC Wind Link does not create any new multiple circuit tower configurations.</td>
</tr>
</tbody>
</table>

Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.12 Multiple Circuit Tower (MCT) Separations

**Question 4-12** Describe all work to separate multiple circuit towers in the Phase One Proposal and the installed cost estimate for each multiple circuit tower separation.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the lines that are being separated and their corresponding voltage levels, the location where the separation occurs and the installed cost estimate for the work related to the separation of the lines. No cost or rating information shall be provided in this section unless the MCT separation is the only work being done to the lines and there is no reconductoring or rebuild work associated with those lines. Information on ratings and costs associated with the reconductoring or rebuilding of existing lines shall be listed with each line’s corresponding entry in the appropriate section above (see Sections 4.6 to 4.9).</td>
<td>Confidential Information</td>
</tr>
<tr>
<td>If there is more than one entry, then an entry at the end of the response shall be added to reflect the total installed cost for all of the multiple circuit tower separations. The response shall be submitted in a narrative form and not in an uploaded file. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td></td>
</tr>
</tbody>
</table>

One existing double circuit tower supporting the existing overhead 345kV lines 355 and 342-3 will be removed near the existing Pilgrim Substation. This separation is being performed as part of the work to tap these lines into the proposed Anbaric Plymouth Substation. As stated in Section 4.7, the LTE and STE ratings will match the existing 342-3 and 355 lines and the associated costs are included in the new line (AN33 and AN34) total of $\text{[redacted]}$.

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6 https://www.iso-ne.com/system-planning/transmission-planning/competitive-transmission-projects

7 Life-cycle cost is a single value and shall be calculated as the summation of the present value of annual costs over the full life span of the Phase One Proposal. (To calculate the present value of the annual costs, the discount rate is 8.3%, the inflation rate is 1.5% and the cost valuation year is 2023.) The annual costs shall include the design, engineering, construction, operation, maintenance, repair, taxes, depreciation, interest, equity, and administration costs.

4.13 New Stations Including Breakers and Switches

Question 4-13 - Describe all new station(s) installations including breakers and switches in the Phase One Proposal and the installed cost estimate for the new station(s).

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the voltage level, whether it is an air insulated</td>
<td>Confidential Information</td>
</tr>
<tr>
<td>substation or gas insulated substation (AIS or GIS), the breaker arrangement</td>
<td>Anbaric – 345kV Plymouth Switchyard (STA2)</td>
</tr>
<tr>
<td>(e.g. breaker and a half), new name (if known), substation ID, the interrupting</td>
<td></td>
</tr>
<tr>
<td>capability of any new breakers, other major work that is related to the new</td>
<td>New construction of a 345kV AIS breaker-</td>
</tr>
<tr>
<td>station and the installed cost estimate for the work. If there is more than</td>
<td>and-a-half arrangement with 362kV,</td>
</tr>
<tr>
<td>one new station, then an entry at the end of the response shall be added to</td>
<td>3,000A, 40kA rated dead-tank circuit</td>
</tr>
<tr>
<td>reflect the total installed cost for all of the new station work. Each new</td>
<td>breakers.</td>
</tr>
<tr>
<td>station shall be marked with an identifier (substation name and voltage level)</td>
<td></td>
</tr>
<tr>
<td>that will be consistently used in other responses in the RFP. Note – Large</td>
<td></td>
</tr>
<tr>
<td>equipment such as transformers and capacitors shall be discussed in other</td>
<td></td>
</tr>
<tr>
<td>questions. The response shall be submitted in a narrative form and not in</td>
<td></td>
</tr>
<tr>
<td>an uploaded file.</td>
<td></td>
</tr>
</tbody>
</table>
## Section 4 Phase One Proposal - Facility Description and Cost Estimates

### 4.14 Existing Stations Including Breakers and Switches

**Question 4-14 - Describe all work in existing station(s) including breakers and switches in the Phase One Proposal and the installed cost estimate for the work.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the voltage level, the name of the existing station, the major work in the existing station, the interrupting capability of any newly installed circuit breaker, and the installed cost estimate for the work. If there is more than one existing station requiring major work, then an entry at the end of the response shall be added to reflect the total installed cost for all of the existing station work. Note – Large equipment such as transformers and capacitors shall be discussed in other questions. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td><strong>Confidential Information</strong></td>
</tr>
<tr>
<td><strong>Eversource – 345kV Mystic Substation</strong></td>
<td>No major work required at the tie in point of this existing 345kV GIS station bus.</td>
</tr>
<tr>
<td><strong>Installed Cost for Substation Upgrade Work:</strong></td>
<td><strong>Installed Cost for Substation Upgrade Work:</strong></td>
</tr>
<tr>
<td><strong>National Grid W. Amesbury substation</strong></td>
<td>As reflected in Responses 4.9 and 4.20 - Install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line.</td>
</tr>
<tr>
<td><strong>Installed Cost for Substation Upgrade Work:</strong></td>
<td><strong>Installed Cost for Substation Upgrade Work:</strong></td>
</tr>
<tr>
<td><strong>Total Install Cost for Upgrade Work at Existing Substations:</strong></td>
<td><strong>Total Install Cost for Upgrade Work at Existing Substations:</strong></td>
</tr>
</tbody>
</table>
### Section 4 Phase One Proposal - Facility Description and Cost Estimates

#### 4.15 Transformers

**Question 4-15- Describe all transformer work in the Phase One Proposal and the installed cost estimate for the work.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (add, replace, or remove), the voltage level, the summer normal, LTE and STE rating in MVA, the tap changing capability and controls for the transformer if any, the station where the transformer work is taking place, and the installed cost estimate for the work. If the work includes more than one transformer, then an entry at the end of the response shall be added to reflect the total installed cost for all of the transformer work. Each new transformer shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.16 Shunt Capacitors

Question 4-16 - Describe all shunt capacitor work in the Phase One Proposal and the installed cost estimate for the work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the size in MVAR at nominal voltage, the switching capability and controls for the shunt capacitors, the station where the shunt capacitor work is taking place, and the installed cost estimate for the work for each shunt capacitor installation. If the work includes more than one capacitor, then an entry at the end of the response shall be added to reflect the total installed cost for all of the capacitor work. Each new capacitor shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.17 Shunt Reactors

**Question 4-17** - Describe all shunt reactor work in the Phase One Proposal and the installed cost estimate for the work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the size in MVAR at nominal voltage, shunt reactor type (fixed or variable), the switching capability and controls for the shunt reactors, the station where the shunt reactor work is taking place, and the installed cost estimate for the work for each shunt reactor installation. If the work includes more than one shunt reactor, then an entry at the end of the response shall be added to reflect the total installed cost for all of the shunt reactor work. Each new shunt reactor shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.18 Dynamic Reactive Devices

Question 4-18 - Describe all dynamic reactive device work in the Phase One Proposal and the installed cost estimate for the work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
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<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the size in MVAR at nominal voltage, device (e.g. STATCOM, SVC, DVAR, synchronous condenser, etc.), the station where the dynamic reactive device work is taking place, the controls and the installed cost estimate for the work. If the work includes more than one dynamic reactive device, then an entry at the end of the response shall be added to reflect the total installed cost for all of the dynamic reactive device work. Each new dynamic reactive device shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
### 4.19 Phase Angle Regulators (PARs)

**Question 4-19 - Describe all phase angle regulator (PAR) work in the Phase One Proposal and the installed cost estimate for the work.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
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</thead>
<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the range measured in degrees, the control scheme of the PAR, the station where the PAR work is taking place, and the installed cost estimate for the work. If the work includes more than one PAR, then an entry at the end of the response shall be added to reflect the total installed cost for all of the PAR work. Each new PAR shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.20 Series Reactors

Question 4-20 - Describe all series reactor work in the Phase One Proposal and the installed cost estimate for the work.

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
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<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the impedance of the series reactor in % (on a 100 MVA base), the station where the series reactor work is taking place, any automatic control schemes, and on what transmission element the series reactor is being installed, and the installed cost estimate for the work. If the work includes more than one series reactor, then an entry at the end of the response shall be added to reflect the total installed cost for all of the series reactor work. Each new series reactor shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>Confidential Information</td>
</tr>
</tbody>
</table>

As reflected in responses 4.9 and 4.14, install a new 115 kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115 kV line at the W. Amesbury substation at an installed cost of $\text{insert confidential number here}$.
### Section 4 Phase One Proposal - Facility Description and Cost Estimates

#### 4.21 Series Capacitors

**Question 4-21 - Describe all series capacitor work in the Phase One Proposal and the installed cost estimate for the work.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
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<tbody>
<tr>
<td>The response shall state the type of work being done (new, replace, or remove), the voltage level, the impedance of the series capacitor in % (on a 100 MVA base), the station where the series capacitor work is taking place, any automatic control schemes, and on what transmission element the series capacitor is being installed, and the installed cost estimate for the work. If the work includes more than one series capacitor, then an entry at the end of the response shall be added to reflect the total installed cost for all of the series capacitor work. Each new series capacitor shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.22 HVDC

**Question 4-22 - Describe all HVDC work in the Phase One Proposal and the installed cost estimate for the work.**

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
</tr>
</thead>
<tbody>
<tr>
<td>The response shall state the capacity of the HVDC line in MW, the voltage level of the HVDC line, the HVDC converter terminal stations, and the installed cost estimate for the work, and the HVDC technology (e.g. VSC or conventional). If the work includes more than one HVDC line, then an entry at the end of the response shall be added to reflect the total installed cost for all of the HVDC work. Each new HVDC line shall be marked with an identifier that will be consistently used in other responses in the RFP. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td><strong>Confidential Information.</strong> Install a new 1200MW, +/-320kV HVDC line ID # AN31 from the new Anbaric Plymouth Converter Station (STA3) in Plymouth, MA to a new Anbaric Everett Converter Station (STA1) in Everett, MA. This line includes 45.6 miles of submarine cable from Plymouth to Everett, MA, followed by 4.9 miles of underground cable from the submarine cable landing in Everett to the new Anbaric converter station in Everett. The HVDC technology is VSC. Each converter station will provide 400 MVAR of reactive power. The total installed cost for this line and converter stations is $123,456,789.10.</td>
</tr>
</tbody>
</table>
Section 4 Phase One Proposal - Facility Description and Cost Estimates

4.23 All Other Work

*Question 4-23- Describe all other work in the Phase One Proposal that has not been discussed in the previous questions and the installed cost estimate for the work.*

<table>
<thead>
<tr>
<th>Instructions</th>
<th>RFP 360</th>
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<tbody>
<tr>
<td>The response shall describe the other work that has not been discussed in the previous questions and shall include voltage level, size of equipment, the location of the work if applicable, any control schemes, and the installed cost estimate for the work. If the other work includes more than one line item, then an entry at the end of the response shall be added to reflect the total installed cost for all of the other work. The response shall be submitted in a narrative form and not in an uploaded file.</td>
<td>NA</td>
</tr>
</tbody>
</table>
Section 5 Modeling Data

Power flow and short circuit models are provided using the preferred Option 1. The following files have been submitted in accordance with these instructions.

- **5.1_Add_Anbaric_Mystic Reliability Wind Link_HVDC Alternative.idv**: This single file in Siemens PTI PSS®E “IDEV” format adds all power flow model data associated with this Phase One proposal.

- **5.1_Anbaric_Mystic Reliability Wind Link_HVDC Alternative.con**: This file contains all new and modified power flow contingencies that result from introducing this Phase One Proposal into the New England steady state power flow model. There are no contingencies to be deleted.

- **5.1_Add_Anbaric_Mystic Reliability Wind Link_HVDC Alternative.chf**: This single file in ASPEN One-Line “Change File” format adds all short circuit model data associated with this Phase One proposal.

Note that the Carver 862 breaker failure contingency has been modified based on its definition in the PSS®E contingency (.con) file provided by ISO-NE, although we note the ISO-NE 345 kV Breaker Diagram indicates a series breaker (862P and 862S) that would eliminate the need to model this contingency.
Section 5 Stability Analysis Contingencies Eliminated Due to the Anbaric Mystic Reliability Wind Link Phase One Proposal

**P4 Events**

SLG_LN_342_at_PILGRIM345_BF_PILGM_104

- This contingency is deleted because Line 342 no longer terminates at Pilgrim. It is replaced by a new contingency, SLG_LN_AN33_at_PILGRIM345_BF_PILGM_104.

SLG_LN_355_at_PILGRIM345_BF_PILGM_105

- This contingency is deleted because Line 355 no longer terminates at Pilgrim. It is replaced by a new contingency, SLG_LN_AN34_at_PILGRIM345_BF_PILGM_105.

**Category 2 Extreme Events**

E2_3PH_LN_342_at_PILGRIM345_BF_PILGM_104

- This contingency is deleted because Line 342 no longer terminates at Pilgrim. It is replaced by a new contingency, E2_3PH_LN_AN33_at_PILGRIM345_BF_PILGM_104.

E2_3PH_LN_355_at_PILGRIM345_BF_PILGM_105

- This contingency is deleted because Line 355 no longer terminates at Pilgrim. It is replaced by a new contingency, E2_3PH_LN_AN34_at_PILGRIM345_BF_PILGM_105.
Section 5 Modeling Data

The Anbaric Mystic Reliability DC Wind Link power flow data models the project using the PSS®E Voltage Source Converter (VSC) DC Transmission Line model. The converter transformers are modeled explicitly and the HVDC cable (Line AN31) is included in the VSC model. The VSC model is set to control the DC power order at the Everett bus and DC voltage at the Plymouth bus. The reactive power capability of each VSC converter is used to control the AC bus voltage to the “as found” voltage in the power flow case. The dynamic representation of the project is provided by the standard PSS®E library model, VSCDCT.

Similarly, the ASPEN short circuit data models the converter transformers explicitly and models the HVDC converters voltage controlled current sources. The 345 kV transformer windings are modeled wye-grounded. The final winding configuration and grounding will be determined during detailed project design; solid-grounding is represented in the Phase One model as this contributes the highest level of short circuit current.

The two cables between the Anbaric Everett Substation and the Eversource Mystic Substation (Lines AN35 and AN36) are modeled separately in the power flow and short circuit models; however, they will be switched as a single circuit. This is reflected in the power flow and transient stability contingency files.

The series reactor at W. Amesbury has been modeled in service in the power flow case. A bypass breaker will be provided and is modeled as a zero-impedance branch in parallel with the reactor. The system operator will be able to bypass the series reactor by closing the circuit breaker at times it is advantageous to bypass the series reactor. The series reactor is modeled bypassed in the short circuit case to provide the maximum fault current.
Section 5 Modeling Data

The responses for this section are required to be submitted in the form of attached files. Details concerning the attached files are discussed below. The calculation of percent impedance values provided in the modeling data shall be based on a 100 MVA base.

The calculations of applicable ratings shall be consistent with the ISO Planning Procedure No. 7: Procedures for Determining and Implementing Transmission Facility Ratings in New England. ISO Planning Procedure No. 7 applies to: overhead conductors, cables, power transformers, series and shunt capacitors/reactors, circuit breakers, switches, current transformers, wave traps, current transformers circuit components, VAR compensators and HVDC systems.

5.4 Handling of Conflicts

The following order shall be used to determine the controlling response if there is conflict between any provided modeling information:

1. The data submitted in PSSE files for steady state power flow modeling,
2. The data submitted in ASPEN files for short circuit modeling,
3. The data contained in any submitted stability modeling related files,
4. The data contained in the Modeling Data Workbook and contingency definitions provided in a Text file, and
5. Any other responses provided in this RFP
6.1 Phase One Proposal Scope Summary

To solve the stated needs the Anbaric Phase One Proposal includes:

- The existing overhead transmission lines (342-3 and 355) that currently serve the existing Eversource 345kV Pilgrim Substation will be intercepted adjacent to the proposed Anbaric Plymouth Switchyard (STA2) (approx. 500’). Two (2) new 345kV overhead lines (AN33 and AN34) will be installed from STA2 to the Eversource 345kV Pilgrim Substation and terminated to the transmission line dead ends which formally terminated lines 342-3 and 355 (approx. 1500’).
- A new 345kV AC underground transmission line from the proposed Anbaric Everett Converter Station (STA1) in Everett, MA to the existing Eversource Mystic Substation. The length of this transmission line is 1.35 miles.
- A new AIS 345kV breaker-and-a-half Anbaric Switchyard (STA2) in Plymouth, MA
- At the Eversource 345kV Mystic Substation the existing indoor GIS equipment, which formally served as the connection points for generators 8 & 9 to the Mystic station, will be utilized for this project. Two (2) of these existing GIS breakers will be used to terminate the incoming lines AN35 and AN36, leaving the Mystic station 7 breaker position open for future use.
- A new +/- 320kV DC transmission line (AN31) from a new Anbaric Plymouth Switchyard (STA2) in Plymouth, MA to a new Anbaric Everett Switchyard (STA1) in Everett, MA. This line includes 45.6 miles of submarine cable from Plymouth to Everett, MA, followed by 4.9 miles of underground +/- 320 kV HVDC cable from the submarine cable landing in Everett to the new Anbaric converter station in Everett.
- Install a new +/-320kV DC 1200MW Anbaric Everett Converter station (STA1)
- Install a new +/-320kV DC 1200MW Anbaric Plymouth converter station (STA3)
- Install a new 115kV SCADA operated 3% series reactor (SR) on the W. Amesbury – King Street 115kV line at the W. Amesbury Substation.
Section 6 Installed Cost Estimate Workbook (The ISO anticipates the responses in this section may contain confidential information)

**Question 6 – Upload a completed Installed Cost Estimate Workbook.**

Anbaric has submitted cost estimates using the specified values in the uploaded, completed Installed Cost Estimate Workbook, *Anbaric Development Partners LLC_Q6_Cost Estimate Workbook.xls*
Section 7

Phase One Proposal – Performance, Feasibility, and Schedule

The system reliability as identified in Sections 2 and 5 of Part 1 of the RFP and detailed by ISO-NE in the Final Boston Needs Assessment Update ("Needs Assessment") are all addressed by the Mystic Reliability DC Wind Link. Further, Anbaric has tested the performance of the Mystic Reliability DC Wind Link against system issues that were observed in the prior version of the Needs Assessment that did not include the New England Clean Energy Connect ("NECEC") project. Load flow analysis has demonstrated that the Mystic Reliability DC Wind Link will address those system issues as well should the NECEC be delayed or cancelled.

The needs identified by ISO in the Needs Assessment can be grouped into three categories:

- **Northern Boston 345kV Overloads** – three 345kV thermal overloads that occur for N-1-1 contingency conditions.
- **North Shore 115kV Overload** – one 115kV thermal overload for an N-1 contingency condition.
- **System Restoration** – the need for ±150MVar of dynamic reactive support to replace the support provided by the Mystic generators during system restoration.

The Mystic Reliability DC Wind Link provides an integrated and full feature solution comprised of two components designed to address these needs. The first component is an HVDC transmission line from Plymouth to Everett. The HVDC line addresses the Northern Boston 345kV overloads by providing a controllable transmission resource capable of delivering up to 1,200MW to replace power formerly supplied by the Mystic generating units. Injecting power within the Boston import interface relieves loading on the limiting 345kV facilities for the N-1-1 conditions identified in the Needs Assessment.

The second component consists of a series reactor installed in the W. Amesbury – King Street 115kV line. The series reactor, in conjunction with injection of up to 1,200MW of power at Mystic, reduces the loading on the 115kV line below the LTE rating, eliminating the need for an operating procedure to address thermal overloads for the N-1 conditions identified in the Needs Assessment.

The HVDC transmission line also addresses the System Restoration need by providing dynamic reactive support as specified by ISO-NE in the Needs Assessment. The DC converter at Anbaric’s Everett Switchyard will exceed the need identified by ISO-NE by providing ±400MVar of dynamic reactive capability. The DC converter is capable of providing this reactive capability regardless of whether the converter is transmitting active power. The DC converter will be connected to the Mystic 345kV Substation by two underground cables, 1.35 miles in length. The charging associated
with these cables is 37.2MVAr, which is below the 40MVAr threshold established by ISO-NE in the Needs Assessment.

ISO-NE also identified overloads on the two Stoughton – K Street cables that would fall into a fourth category of Southern Boston 345kV Overloads in its initial needs assessment, as well as a fourth Northern Boston 345kV N-1-1 overload. Subsequent to presenting the initial assessment, ISO-NE modified its generation dispatch assumptions based on contracts awarded to certain projects and the results of its then most recent Forward Capacity Auction. These modified assumptions eliminated the overloads in the Southern Boston 345kV Overload category and the fourth Northern Boston 115kV N-1-1 overload. Although, notable among the modified assumptions is the inclusion of the NECEC project to import power from Québec into Maine. Given the uncertainty as to whether this project will receive all permits and approvals needed to proceed to construction, and the potential timing issues if it does proceed, EN Engineering has performed power flow analysis to assess the impact of a delay or cancellation of the NECEC project. Our analysis confirms that if NECEC is removed from the dispatches used for the 2028 Boston Needs Assessment, the reliability needs in the Southern Boston 345kV Overloads category and the fourth Northern Boston 345kV N-1-1 overload would resurface and would require a solution, which would require time to develop, site and construct at potentially significant additional cost. The Mystic Reliability DC Wind Link was tested against those needs and EN Engineering confirmed that the project as designed will address those additional reliability needs.
Section 7

Phase One Proposal – Performance, Feasibility, and Schedule

7.2 Feasibility

Confidential Information

In order for the accepted solution to the reliability needs created by the retirement of the Mystic power plant to be in service by June 1, 2024 – a little over four years away from this bid submission date, and less than three years from the outside window for final project selection – a highly feasible project design is essential. Recent lessons learned directly from the greater Boston metro area upgrades, however, indicate that such upgrades in the Boston metro area take from six to nine years.

Failure to place a transmission solution for this RFP in place by June 1, 2024, would result in a gap RFP or other contracted-for supply solutions at a cost likely to exceed $200 million per year based on known stop-gap costs in the needed location.

Route Feasibility

In the development of the Mystic Reliability DC Wind Link, Anbaric has been aware that the key to the project’s feasibility is avoiding areas where delay would be likely, and focusing on where transmission could be installed with a minimal amount of traffic disruption and impact on residential areas, while also avoiding environmental impediments that could create permitting delays. Anbaric began community outreach in 2019 to ensure that town elected officials and community members in areas where the project will be located understand the project and its impacts. This work has also extended to early discussion with fishing interests, state and federal elected officials, and organized labor.

At the southern end of the project, Anbaric engaged in discussions during 2019 with the owner of property in Plymouth. Negotiations for a property option for the acreage needed for the 345kV switch yard, along with rights to and from the Atlantic Ocean and to the 345kV line tap, are at an advanced stage. No other property is needed on the southern end of the project.

Leaving the Anbaric Converter Station, the HVDC cable bundle enters the water through a horizontal direct drill ("HDD") installation that then transitions to a buried sea route. Anbaric has worked with its consultant ESS over the course of 2019 to develop the subsea cable route. The route stays in state waters and thus no permits are required from the Bureau of Ocean Energy Management.

To evaluate the constructability of the sea route, Anbaric and ESS commissioned a preliminary reconnaissance sea survey in January 2020. The survey confirmed the majority of the planned
route is feasible for cable installation. Where difficult soil conditions were identified, the survey vessel was able to locate an alternative path.

Anbaric is working with ESS and Durand and Anastas, as well as local counsel Partridge Snow & Hahn, to prepare the required Coastal Zone Management permitting work. Based on over two years of route planning investigations, facilities design, and pre-permitting key stakeholder outreach, we are confident the project can receive its required environmental approvals within a 12-16-month period of filing the initial applications. We have already commenced preparation of the Project’s state MEPA Environmental Notification Form (ENF) and its collaborative review with the Massachusetts Energy Facilities Siting Board Certification Application (EFSB). We will also be requesting more expedited Project review procedures allowed under MEPA and EFSB procedural reviews.

Anbaric is also working with local fishing groups to ensure that any concerns related to the sea cable burying process and location are addressed and mitigated from the outset.

On the northern end, Anbaric looked at several approaches to the Mystic Substation, including through Boston Harbor, which presents a large set of environmental challenges. In the end, the current route, under Revere Beach and then largely in the multi-lane state route 16, was selected based on a foot-by-foot review of the feasibility of in-ground installation of the 345kV cable duct banks.

The sea cables will land at the southern end of Revere Beach, using a coffer dam and HDD to pull the cables ashore underground and then transition to the land cables at a buried vault. The cables proceed through duct banks through State Route 16, a multi-lane road that was selected because of its constructability attributes, including the ability to continue the installation without closing the entire traffic flow on the worksite, and the commercial characteristics that allow for night work.

In addition to ESS, Anbaric is working with Bond Brothers construction (“Bond”) for the routing analysis and civil engineering of the project. Bond has extensive experience installing in-ground transmission and substation construction for many of the incumbent utilities in the region and elsewhere. This exclusive working arrangement assisted Anbaric with the information needed to enable Anbaric to bid the Mystic Reliability DC Wind Link as the solution that can be in-service on June 1, 2024.

Anbaric intends to install a spare set of duct banks while it has the roads open for the duct banks and vaults of the Mystic Reliability DC Wind Link project. This spare set provides flexibility for subsequent projects, such as a potential 1200MW HVDC project to BOEM lease areas. This additional duct work is being done at Anbaric’s cost and is not being added to the cost of the project. This built-in transmission expandability will allow for cable to be pulled at a later time without needing to completely re-trench the roads to the Mystic substation or engage in a new siting proceeding. This built-in expandability will allow the region to quickly and affordably add significant offshore wind power directly into the Boston area without
increasing the regional network service rate. The additional duct work requires minor additional room in the trench, and the work will not create permitting delays.

Leaving Route 16, Anbaric has identified several possible approaches to its property in Everett. The two preferred routes are shown on the maps submitted in response to Question 4.2 of this RFP. These routes again avoid residential areas.

The over five acres for Anbaric’s Everett Converter Station have already been secured. The property owner for the Anbaric Converter Station site also owns substantial other property around Everett, including around the switchyard location, and has guaranteed access to and from the property through these other parcels.

Leaving the Anbaric Everett Converter Station, 345kV AC cables will be installed in a buried duct bank approximately 1.35 miles to the Mystic Substation. The route includes crossing perpendicularly under Route 16 in the vicinity of Mystic View Road, the cable will be installed perpendicularly under State Route 99 to Washburn Street. From Washburn Street the cable will be installed in local streets to the Mystic Substation.

Anbaric has held introductory meetings to discuss the project and its routing with representatives from each of the affected state agencies – MBTA, DCR and Mass Highway – as well as elected officials in each of the directly impacted communities.

Once again, this path is through non-residential areas and commercial areas under redevelopment. This route culminates in an underground directional drill into the Mystic substation where the final interconnection to the Mystic unit 8 and 9 positions in the Mystic substation will be made.

Construction

To ensure the feasibility of equipment order queues, manufacturing timelines, and delivery, Anbaric has also already initiated procurement discussions with selected equipment vendors.

As noted above, Anbaric has teamed up with Bond for the terrestrial civil construction on this project. Bond has done a detailed constructability analysis with Anbaric to arrive at the schedule shown in Section 7.5 of this RFP response.

Similarly, Anbaric has been in discussions with Nexans as the cable supplier and potentially EPC for the transmission cable portion of this project. In addition to the permitting process, Anbaric has begun discussions with fishing interests along its route so that disruptions to commercial interests and project installation are minimized.

Operation and Maintenance
Anbaric will form an operating company to oversee operation and maintenance of the Mystic Reliability DC Wind Link. This operating company is similar to those utilized on projects in which Anbaric previously has been involved. The operation of the Mystic Reliability DC Wind Link will be supported by skilled, competitively selected, third parties with the requisite technical and engineering capabilities and who adherence to industry accepted best practices and standards, hiring of personnel, tools, and contractors, and engage in preventative, predictive, and emergency maintenance and 24/7 outage response.

Upon completion of construction, the projects in which development Anbaric entities were a founding partner have been operated and maintained by an operating company which executed long-term O&M contracts with Siemens and Prysmian. Anbaric plans to use a similarly qualified O&M Contractor (or contractors) to achieve its forced outage response implementation tasks for this project. Vendor-contracted support for forced outage restoration is common in the utility industry and even large transmission owning entities have several standing contracts with independent crews to wholly address or assist with storm outages and other issues. Anbaric’s operating company will have a 24/7 staffed contact point for unanticipated system issues and emergency response.

For day-to-day operations, the Mystic Reliability DC Wind Link will have visibility to the ISO control room via electronic telemetry as well as ISO-control (via the ISO’s main control room or Local Control Center) of the converter stations and switchyard equipment. As with Anbaric’s prior projects, routine maintenance will be carried out through vendor contracts and manufacturer support. Anbaric will contract for maintenance and management of spare parts, spare structures, and/or spare equipment inventories as recommended by OEMs and its electrical consultants with input from its insurance advisor for its electric transmission lines and substations. As is common in the utility industry, Anbaric will have arrangements in place with vendors as needed to observe good utility practice, NERC, NPCC, state and ISO-NE criteria.

**Mitigation of Potential Obstacles**

Early development work has been undertaken to identify and avoid potential obstacles in terms of project design and routing. This work is continuing as noted above with outreach. While project routing shows preferred paths, Anbaric has worked through alternatives that can be utilized if needed. In terms of supply chain and construction, Anbaric has worked with its team and vendors, again as detailed above, to ensure that potential issues are identified early and avoided to ensure that the project can be in service when needed.
Section 7
Phase One Proposal – Performance, Feasibility, and Schedule

7.3 Expandability

Additional Duct Banks and Vaults for a Future 1200MW HVDC Project

Anbaric has designed the project so that the work that will go into the Mystic Reliability DC Wind Link to site, permit and install it will position the Project to play an additional role to meet the energy needs of the Boston-area and larger New England system. This design is based on the view that the number of transmission paths into the dense load area of Greater Boston is limited, and each route must be optimized for future delivery, especially of the clean, renewable energy that is available off the south coast of Massachusetts.

Thus, the Mystic Reliability DC Project will contain a separate duct and vault system that will enable a later project for as much as 1200MW from offshore wind farms to be transmitted to the Mystic substation. This separate pre-constructed transmission conduit will not be added to the cost of Mystic Reliability DC Wind Link. It is costly to open city streets and repeat all of the permitting and sitting work that is already being done for the Mystic Reliability DC Wind Link. By building in additional capacity for a future project, and by Anbaric’s willingness to bear the costs and not put them into the regional network service rates, the Mystic Reliability DC Wind Link provides unique and extensive expandability, which provides for exceptional value for New England rate payers.

Connects Renewables to Load Avoiding the Need for a Later 345kV Path

The core design of the Mystic Reliability DC Wind Link provides a completely new 1200 MW HVDC path directly connecting southeastern Massachusetts (“SEMA”) to northeastern Massachusetts (“NEMA”). Unlike upgrades to existing circuits, this provides system capability to move the large amount of renewable energy that has been procured to interconnect into the SEMA area to the NEMA zone where the Mystic generation is retiring.

As shown on slide 6 in the August 8, 2019 presentation to the Planning Advisory Committee, above a certain level of offshore wind interconnections into SEMA, a new 345kV circuit is shown as needed from SEMA to NEMA. The Mystic Reliability DC Wind Link solves for that future system expansion issue today, effectively providing a project that solves for the present reliability needs in the most cost effective and efficient manner to be in service by June 1, 2024, while also providing a new HVDC path from SEMA to NEMA to move future wind power directly to the region’s largest load center.

Further, Boston imports are presently limited by facilities on the north side of the interface and are sensitive to transfers from northern New England. As offshore wind resources are integrated in southern New England, the distribution of power across individual facilities comprising the Boston Import interface will change and different facilities and contingencies will become limiting. Previous studies, including the initial 2028 Boston Needs Assessment, have identified the Stoughton – K Street 345 kV cables as potential reliability needs and these facilities or other adjacent facilities are likely to become limiting under conditions with high transfers from SEMA into Boston. The Mystic Reliability DC Wind Link will provide a parallel...
path from SEMA into Boston to prevent degradation in Boston Import capability resulting from higher transfers from SEMA avoiding the need for other future system expansions to address that emerging need and thus allowing for power system integration of these offshore wind resources.
Section 7

Phase One Proposal – Performance, Feasibility, and Schedule

7.4 Performance

Question 7-4 - Provide a summary of the anticipated electric system performance of the proposed solution.

The Anbaric Mystic Reliability DC Wind Link solution provides substantial thermal and voltage margin for the reliability needs identified by ISO-NE. The 345kV cable loading in Boston is reduced below 80 percent of LTE ratings for the Woburn – N. Cambridge and the N. Cambridge – Mystic cables for the most limiting N-1-1 contingency pairs. The loading on the W. Amesbury – King Street 115kV line is similarly reduced below 90 percent of the LTE rating for the most limiting N-1 contingency, eliminating the need for the operating procedure in addition to providing margin below the LTE rating.

Similarly, the project provides margin for the limiting high voltage conditions in Boston. While these needs were classified as time-sensitive and are not part of the RFP, the Mystic Reliability DC Wind Link provides a reduction in the overvoltage conditions observed in the minimum load case. The project reduces voltage by up to 0.9 to 2.4 percent at 16 of the identified buses and up to 0.5 percent at the remaining 5 buses. These reductions are observed prior to application of the transmission owner solutions; thus, the project will provide added margin with the solutions in place.

The project has been studied for transient stability contingencies including single-line-to-ground faults with breaker failure and three-phase faults with breaker failure. These studies demonstrate that the project exhibits no adverse impact on generator rotor angle swings for design and extreme contingencies.

The project also does not have a significant adverse impact on short circuit levels, maintaining substantial margin on the stations closest to the project and maintaining all circuit breakers within their interrupting capability. Short circuit levels at the Mystic 345kV and 115kV buses are 33kA and 34kA respectively – below the levels with Mystic units 8 and 9 operating and well below breaker interrupting capability. The maximum fault duty at the Pilgrim bus increases to 26kA, but is still well below breaker interrupting capability. The short circuit levels are based on solidly grounded neutrals on 345kV windings of the converter transformers. The short circuit levels at the Mystic and Pilgrim 345kV buses can be mitigated during detailed design, if needed.

The project has been studied using stressed cases appropriate for evaluating proposed plan applications in addition to the Needs Assessment cases provided by ISO-NE to confirm that in addition to addressing the needs identified by ISO-NE, that project will not have significant adverse impacts on other facilities.

The project has also been studied for transient stability contingencies modeling three-phase faults with delayed clearing resulting from local protection system failure and fault clearing at remote stations. Faults were modeled at several buses in Boston and SEMA and marginal improvements in system performance was observed, based on a comparison of generator rotor angle swings with and without the project. Therefore, the project is not expected to result in a change of BPS classification for 115kV substations in the area.
The project also provides substantial benefits for transfer capability. By providing a controllable transmission resource capable of delivering up to 1,200MW to replace power formerly supplied by the Mystic generating units, the project relieves loading on limiting 345kV and 115kV facilities and increases Boston import capability by 1,100MW. The project also provides an additional transmission path capable of transmitting 1,200MW from SEMA into NEMA, helping to eliminate NEMA / SEMA zonal separation in the capacity market. While the SEMA/RI Export interface is stability limited and we have not quantified the potential increase, the project will off load other facilities to provide additional capacity to transfer power from offshore wind resources interconnecting in SEMA.

The project impact on system losses is dependent on overall system operating conditions. With the project modeled at rated power transfer from Plymouth to Everett, New England system losses are increased in the Needs Assessment cases. However, the Needs Assessment power flow cases model higher North-South transfers of 1,350 to 2,700MW and lower SEMA/RI Export transfers of 0 to 1,050MW. Preliminary analysis with 3,600MW of off-shore wind modeled in southern New England indicates that the project will reduce system losses as contracted-for off-shore wind comes on-line in the middle of this decade.

The project does not create new extreme contingency issues as the new 345kV circuits are not placed into rights-of-way with other existing circuits. Neither are new extreme contingency issues created by system interconnections on the north and south ends of the project.

Further, Boston imports are presently limited by facilities on the north side of the interface and are sensitive to transfers from northern New England. As offshore wind resources are integrated in southern New England, the distribution of power across individual facilities comprising the Boston Import interface will change and different facilities and contingencies will become limiting. Previous studies, including the initial 2028 Boston Needs Assessment, have identified the Stoughton – K Street 345kV cables as potential reliability needs and these facilities or other adjacent facilities are likely to become limiting under conditions with high transfers from SEMA into Boston. The Mystic Reliability DC Wind Link will provide a parallel path from SEMA into Boston to prevent degradation in Boston Import capability resulting from higher transfers from SEMA avoiding the need for other future system expansions to address that emerging need and thus allowing for power system integration of these offshore wind resources.
Section 7

Phase One Proposal – Performance, Feasibility, and Schedule

7.5 Schedule

The project schedule for the Mystic Reliability DC Wind Link is set out below. Overall, the permitting, final engineering, procurement, construction and commissioning of the Mystic Reliability DC Wind Link will take 32 months, with an in-service target date of June 2024. More detail regarding feasibility of the project, including steps taken to mitigate potential obstacles, is set out in Section 7.2 of this RFP response.

In calculating this schedule, additional time has been afforded for permitting to provide for a margin. Both the on land (such as the Energy Facilities Siting Board) and subsea (such as the Coastal Zone Management) sets of permits require a substantial amount to process. Anbaric has already begun the process of preparing the data required for these permits, and will continue to work through the ISO-NE evaluation process of our bid. That work will accelerate even more if the Mystic Reliability DC Wind Link is selected to proceed to Phase 2.

Assuming selection on or about September 2021, we have allocated 18 to 24 months to complete all on-land and subsea permits, so that construction can begin on or about the third quarter of 2023. Permitting work that can be advanced will be. For example, we have already commenced preparation of the Project’s state MEPA Environmental Notification Form (ENF) and its collaborative review with the Massachusetts Energy Facilities Siting Board Certification Application (EFSB). We will also be requesting more expedited Project review procedures allowed under MEPA and EFSB procedural reviews.

If it is possible to initiate construction (and the preparation for construction) earlier than the projected 18 to 24 month permitting schedule, of course, we will do so.

Work on this project is in six major sections. From south-to-north, these are:

1. Tapping the 342-3 and 355 lines in Plymouth
2. Construction of the Anbaric Plymouth 345 kV converter station
3. Installation of the 320kV DC subsea cable
4. Installation of the underground terrestrial portion of the 320kV DC transmission line between Revere and the Anbaric property in Everett
5. Construction of the Anbaric Everett 320kV DC to 345kV AC converter station
6. Connection of the Anbaric Everett converter station 345kV AC to the Eversource Mystic substation.
7. Installation of a series reactor on the King St to W. Amesbury 115kV line at the W. Amesbury Substation.

Construction on these sections may proceed in parallel without interdependencies, which offers significant flexibility for completion of the project within the required timeline. As noted in Section 7.6, and depicted on the maps in Section 4, real estate discussions are in an advanced stage for the Anbaric Plymouth converter station site. We anticipate that those will be finalized in Q2 2020. Real estate site control has already been secured for the Anbaric Everett converter station. Overland portions of the project proceed largely through public rights of way, the use of which the Massachusetts EFSB will approve if the installation respects local construction.
requirements such as time-of-day restrictions. The subsea cable will remain in the Massachusetts state waters, avoiding the need for federal Bureau of Ocean Energy Management approvals.

The key to the schedule set out below is both the practicality of the route selected (it avoids residential neighborhoods, stays in multilane state roads) and the work being done now with Anbaric’s civil construction and engineering firms to prove out the project design, identify issues and address those areas that may cause delay. Finally, working with our vendors early has enabled us to pin down manufacturing and delivery time frames for the AC and DC electrical equipment and transmission cables.

Based on this scope and the planning performed to date, we anticipate the following major milestone dates for the project.

**Project Milestone Dates:**

**Preliminary Siting and Engineering**  
4Q 2019 to 3Q 2020

**Initial Survey and Geotechnical Data Collection:**  
1Q 2020 to 4Q 2021

**ISO-NE decision on Phase II**  
3Q 2020

**Continued Anbaric permit preparations**  
3Q 2020 to 3Q 2021

**Phase II Siting/Engineering**  
2Q 2021 to 4Q 2022

**ISO-NE Award**  
3Q 2021

**Major Permits – EFSB, CZM**  
3Q 2021 to 3Q 2023

**Onland Cable Route Permitting Processes**  
3Q 2021 to 1Q 2023

**Subsea Cable Route Permitting Processes**  
3Q 2021 to 3Q 2023

**Major Equipment Procurement**

- **Subsea cable:**  
  3Q 2021 to 2Q 2023
- **UG Cable:**  
  3Q 2021 to 2Q 2022
- **Gas Insulated Switchyard Equip.:**  
  4Q 2021 to 1Q 2023
- **Substation breakers:**  
  3Q 2022 to 1Q 2023
- **HVDC Converter:**  
  3Q 2021 to 1Q 2024
- **Miscellaneous Switchyard Equip.:**  
  3Q 2022 to 1Q 2023

**Construction**

- **Subsea cable:**  
  2Q 2023 to 2Q 2024
- **UG cable, Revere Beach to Everett Sub.:**  
  2Q 2023 to 2Q 2024
- **UG cable, Everett Sub. to Mystic Sub.:**  
  2Q 2023 to 2Q 2024
- **Anbaric Plymouth Converter Station:**  
  2Q 2023 to 2Q 2024
- **Anbaric Everett Converter Station:**  
  2Q 2023 to 2Q 2024
- **Anbaric Plymouth Substation cut-in:**  
  1Q 2024 to 2Q 2024
- **W. Amesbury 115kV Series Reactor:**  
  2Q 2023 to 1Q 2024

**Commission and Energize:**  
1Q 2024 to 2Q 2024
Section 7

Phase One Proposal – Performance, Feasibility, and Schedule

7.6 Real Estate

Confidential Information

South End – Plymouth

Negotiations began in 2019 with a company that controls significant land, focused on acquiring rights to approximately five acres adjacent to the Atlantic Ocean in Plymouth, MA. Discussions between Anbaric and the town of Plymouth have confirmed that this site does not interfere with redevelopment plans for the area.

Sea Route

While the sea route isn’t exactly a “real estate” issue, Anbaric offers the following information to ISO-NE as an indication of how it intends to procure the right to lay a cable on the coastal seabed. The right of way for the sea route will be secured through a permit authorized by a Chapter 91 license issued by DEP/Waterways. Anbaric will initiate this process in Phase 2. Anbaric began the work to secure this permit in 2019 with a preliminary reconnaissance sea survey in January 2020. This survey work has developed the sea floor conditions information needed to both confirm feasibility of the cable installation, and developed data that will be needed for route permitting. Given the lead times to reserve this type of survey and weather delays associated with such work, Anbaric undertook the work to confirm that the project is highly feasible so that ISO could rely on its submission as an option that in fact could be executed within the needed narrow time window before June 1, 2024. Anbaric is continuing to develop needed data with ESS for the sea permitting work including the draft environmental assessment.

Building in some time for delays, and with an early start time enabled by the advanced development work described above, Anbaric anticipates that permitting will be complete for this sea route portion of the route by the second quarter of 2023.

North End – Revere-to-Everett

The 320kV HVDC cables come ashore via a horizontal directional drill (“HDD”) under Revere Beach in Revere, MA. Revere Beach is a state park managed by the Massachusetts Department of Conservation and Recreation (“DCR”). From a transition vault installed in a public way behind the beach at Revere Beach Parkway near the Eliot Circle Rotary, the cables will be installed in buried duct banks for approximately one mile along State Route 145 to the point where it intersects with State Route 16, a multi-lane road fronted primarily by commercial properties. At two points along Route 145 the duct banks will be installed by means of jack-and-bore construction under MBTA controlled rail lines. Proceeding east to west from Route 145, the cable will be installed
within Route 16 for approximately 3.6 miles through the communities of Revere, Chelsea, and Everett. Access to this public right of way will be via siting permits granted by the state Energy Facilities Siting Board and construction permits granted by the towns of Revere, Chelsea, and Everett, Massachusetts.

While multiple in-road paths exist between Route 16 and the Anbaric-secured property, all arrive at property owned by the same owner of the Anbaric site who has agreed to let Anbaric traverse their land into and out of the Anbaric Converter Station.

**Anbaric Everett Converter Station to Mystic Substation**

Leaving the Anbaric Everett converter station, 345kV AC cables will be installed in a buried duct bank approximately 1.35 miles to the Mystic substation. The route includes crossing perpendicularly under Route 16 in the vicinity of Mystic View Road. The cable will be installed perpendicularly under State Route 99 to Washburn Street. From Washburn Street the cable will be installed in local streets to the Mystic substation.

Anbaric has held introductory meetings to discuss the project and its routing with representatives from each of the affected state agencies – MBTA, DCR and Mass Highway – as well as elected officials in each of the directly impacted communities.
**Section 7**

**Phase One Proposal – Performance, Feasibility, and Schedule**

7.7 LSP Coordination

**Question 7-7 – Identify any Local System Plans (LSP) that require coordination with the proposed solution.**

The Mystic Reliability DC Wind Link interconnects into the service territories of Eversource on the south and in or near the Eversource and National Grid service territories on the north end. Anbaric has identified these companies as proximate PTOs to the project and has reviewed the Local System Plans (“LSPs”) of these PTOs.

Anbaric has determined there are no projects in the these plans that require coordination with the Mystic Reliability DC Wind Link. We have considered all projects in the LSPs including those classified as “Conceptual.” After reviewing the projects in NEMA, Boston, and SEMA, we conclude the projects in these LSPs are primarily in-kind asset replacements that will not impact the transmission system topology and will not have a significant impact on system impedance and power flow. These projects, by their nature, also will not require coordination of construction activities or construction outages. Examples include numerous step-down transformer replacements and additions at distribution substations, replacement of underground pipe-type cables with solid dielectric cables, relocating and reconductoring an existing underground cable in Boston, rebuild of the Bell Rock Substation, replacement of circuit breakers and protection systems, refurbishment of overhead transmission line structures, and shield wire replacement.

The remaining projects are installation of a new 115kV transmission line between Andrews Square and Dewar Street, a new 115kV transmission line from Cross Road to Fisher Road, and distribution substation additions. The Andrews Square – Dewar Street transmission line installation is in South Boston and the Cross Road – Fisher Road transmission line is in the Fall River area, both of which are distant from any facilities that comprise the Mystic Reliability DC Wind Link. Likewise, the Wing Lane (Acushnet), Assonet, N. Burlington, Reynolds Avenue (Rehoboth), and Old Boston Rd (Tewksbury) substations are distant from any facilities that comprise the Mystic Reliability Wind Link. The Fulkerson Substation project in Cambridge is the most significant project in terms of scope and ISO-NE performed a sensitivity in the 2028 Boston Needs Assessment that confirmed there is no interaction between the identified needs and the Fulkerson project.

There are a limited number of projects in proximity to Mystic Reliability DC Wind Link facilities. These include the “Planned” East Eagle Substation (Chelsea) and the “Proposed” Pembroke Substation and Hendersonville Substation (Everett). While these new substations are in proximity to the Mystic Reliability DC Wind Link facilities in Plymouth and Everett, these step-down distribution stations will not materially impact the operating characteristics of the transmission system are not near Anbaric’s proposed facilities in Everett and Plymouth and are not near the proposed underground cable route from landfall in Revere to Everett.
Section 8  
Phase One Proposal - Cost Structure Proposals

8.1 Cost Cap or Cost Containment Mechanisms

Question 8-1-- Are any cost cap or cost containment mechanisms being included as part of the proposal? If yes, provide a high level summary of the mechanisms.

Anbaric proposes two significant initiatives to contain the overall and capital cost of the Mystic Reliability DC Wind Link: (a) a return on equity of only 7.9%, which is 25% lower than the customary level of 10.5% (note that the usual RTO-participation adder will not be sought on top of this 7.9 ROE); and (b) a cap on installed capital costs.

Anbaric’s ROE proposal will save New England consumers more than $100 million over the life of the project versus the customary ROE charged by its competitors. Anbaric views this as a fair return for the risk of the project, and believes that the competitive bid process should result in lower overall costs to consumers than those traditionally imposed.

Anbaric also believes New England consumers should not bear the risk of cost over-runs historically passed on (and then granted an approximately 10.5% return plus incentives bringing the ROEs to over 11%), an incentive system misaligned with consumer needs. Anbaric has been working with its engineering consultants, Power Engineers and EN Engineering, to solicit, analyze, and evaluate proposals and indications from the vendors of the primary products and services that constitute the Mystic Reliability DC Wind Link: cables, construction and installation, switch yard equipment, and engineering services. The base cost of the project is estimated to be $682,547,422. This includes the project’s engineering, labor and construction, equipment, real estate, professional services, and commodity costs, and excludes AFUDC and certain other soft costs such as insurance during construction, DSRA fund up, and other financing costs. These excluded costs are captured in the life cycle costs of the project. Adding AFUDC to the base cost brings the total installed cost, as defined in the Installed Cost Workbook to $744,840,962.

Each element of the project contains the potential for complications that could increase that cost, but Anbaric recognized that ratepayers cannot be asked to provide uncapped protection against those increases. Therefore, to protect ratepayers Anbaric is willing to agree to a cap on the base cost of $812,934,923, with exclusions to the cap on the base cost limited only to extraordinary force majeure events beyond Anbaric’s control.
The following response places the Mystic Reliability DC Wind Link project in the context of ISO New England’s three sets of evaluation criteria. This information supplements other sections of the RFP but also collects key points that can easily be matched against ISO-NE’s published evaluation criteria.

**Group 1 – Highest Priority**

**Life-cycle cost, including all costs associated with right of way acquisition, easements, and associated real estate**

The Mystic Reliability DC Wind Link project presents exceptional life cycle costs due to:

- Excellent project pricing, which is well developed due to early real estate, equipment vendor, and project team discussions, as well as extensive route survey work to ensure constructability and feasibility for an in-service day by or before June 1, 2024. These costs include a hard price cap to insulate ratepayers from risk.
- A ground-breaking, capped ROE of 7.9%
- A recovery period of 40 years, which, while lowering near-term returns to Anbaric, lowers the cost of the project to consumers
- A project design that ensures long asset life, low risk of power interruptions from weather events, and very good resilience with individual switching of the two 450 MW cables.
- Costs to the region that are potentially better than other projects because the project will be in service by June 1, 2024, avoiding $200 to $300M per year for an extended reliability contract or possibly even higher costs from a GAP RFP. Given multi-year delays of other projects in the Greater Boston area, Anbaric’s ability to place the project into service within a window as short as three-and-a-half years is critical to overall costs to the region.

**Any cost cap or cost containment provisions**

The base cost of the project is $682,547,422, excluding AFUDC, and the installed cost including AFUDC is $744,840,962, as defined in the Installed Cost Workbook. The base cost of the project is capped at $812,934,923, as described in Section 8. This ensures that rate payers are protected and the developer bears more risk. Work done to date enables Anbaric to bid with confidence and allows the ISO to rely on estimates in comparing the costs of solutions.

The project is coupled with a capped 7.9% ROE, saving customers more than $100 million over the rate recovery period compared to a similarly-priced project with a base ROE of 10.5% and even more for ROEs that request incentive adders. This capped ROE will make the project much less expensive than others that may at first glance appear to promise a lower cost.

**In-service date of the project or portion(s) thereof**

The costs of failing to be in service by June 1, 2024 could be $200 to $300M, or more, to keep the Mystic station and its needed LNG terminal operating for each additional year, even though they will be needed for a limited number of hours. These costs are currently allocated to the region, but would be allocated entirely to the NEMA (Boston) zone if it is deemed to be needed for the transmission security issues addressed by this RFP. These costs may be even higher if supply is procured through a GAP RFP for 800 MWs, a need likely only able to be filled by the Mystic generating plant.
Anbaric has designed the Mystic Reliability DC Wind Link in light of the well-known propensity of traditional upgrades to be above budget and behind schedule. For example, the Greater Boston Reliability Project upgrades awarded in 2015 with a near-term expected in-service date, have seen extensive opposition and delay. Large components are still not expected to be in-service until 2021, six years after siting began. Other components have a “TBD” date of more years out having just finished siting. Any significant upgrades in these same areas that are proposed to address the system issues identified in this Needs Assessment should be disqualified as infeasible. The present project award date of late summer 2021 provides only three-and-a-half years for a project to be in service to avoid the significant costs of a reliability stop-gap.

With early project route analysis already done on-land and in sea, and early work evaluating civil construction feasibility, permitting analysis, and equipment ordering, delivery and installation times, Anbaric’s Mystic Reliability DC Wind Link is designed to be ready before June 1, 2024.

Significantly, the project also addresses other system needs identified by ISO-NE if the NECEC project is delayed. This is critical as in-street upgrades around the Boston area are more expansive and significantly more costly if NECEC does not move forward. Rather than multiple years needed to identify, procure and install these additional upgrades, the Mystic Reliability DC Wind Link can address these issues without any design changes. This element took on more importance recently as a referendum was put on the ballot for November in Maine that could find that construction and operation of the NECEC transmission project are not in the public interest of the people of Maine, and therefore there is not a public need for project. It is Anbaric’s understanding that in this context, a referendum in Maine has the force of legislation, and could make the finding there is not a public need, and the developer’s request for a certificate of public convenience and necessity for the project could be denied.

Potential siting/permitting issues or delays

Siting permitting and delays appear unlikely given that the route leaving Plymouth is in coastal water, is well understood, avoids the need for BOEM permitting, and uses public rights of way in multi-lane state roads towards the Anbaric Everett switchyard.

System performance

The Mystic Reliability Wind Link provides exceptional system performance across areas highlighted by the ISO:

- The Anbaric Mystic Reliability DC Wind Link solution provides substantial thermal and voltage margin for the reliability needs identified by ISO-NE. The 345kV cable loading in Boston is reduced below 80 percent of LTE ratings for the Woburn – N. Cambridge and the N. Cambridge – Mystic cables for the most limiting N-1-1 contingency pairs. The loading on the W. Amesbury – King Street 115kV line is similarly reduced below 90 percent of the LTE rating for the most limiting N-1 contingency, eliminating the need for the operating procedure in addition to providing margin below the LTE rating.
- The project has been studied for transient stability contingencies including single-line-to-ground faults with breaker failure and three-phase faults with breaker failure. These studies demonstrate that the project exhibits no adverse impact on generator rotor angle swings for design and extreme contingencies.
- The project also does not have a significant adverse impact on short circuit levels, maintaining substantial margin on the stations closest to the project and maintaining all circuit breakers within their interrupting capability. Short circuit levels at the Mystic 345kV and 115 kV buses are 33kA and 34kA respectively – below the levels with Mystic units 8 and 9 operating and well below breaker interrupting capability.
- Potential significant adverse impacts on other facilities – design work has been iterative to ensure that issues identified in system studies modeling stressed system conditions
have been addressed through design modifications. This ensures that the project will not result in significant adverse impacts on other facilities.

- Impact on NPCC Bulk Power System (BPS) Classification – simulation of faults modeling local protection system failure and fault clearing at remote stations demonstrates the project does not adversely impact system performance, which is indicative that the project will not result in reclassification of non-BPS buses as part of the NPCC BPS.
- Addresses potential future limiting elements in the Boston area as discussed in Section 7.4.

**Group 2: Second highest priority**

**Operational impacts**

Operational options are improved by the project and do not require operator intervention to make the project work reliably. See Section 7.4 for more detail.

**Interface impacts and transfer capability across and interface**

The project improves transfer between SEMA/NEMA by 1200MW. This new transfer level also helps eliminate NEMA/SEMA zonal separation in the capacity market.

**Evaluation may also consider other metrics such as the impact on production cost**

The project improves system production costs in the NEMA Boston area in the near term by replacing power from the LNG-priced Mystic generation station with lower cost power. Savings will increase significantly in the mid-2020 as significant amounts of offshore wind come on-line with planned interconnections into the SEMA, now totaling over 3600MW.

**Future expandability**

The project is highly expandable adding an extra duct bank for a future 1200MW HVDC cable pull into the Mystic substation area at no additional cost to the region for its inclusion in this project. Further, the switchyards will be designed as four-breaker ring buses with the ability to be expanded to six breaker configurations in the future. Further, by reusing two of the Mystic 8/9 GIS breakers at the Mystic substation, this allows for future use of Mystic 7 position as well as the remaining for Mystic 8/9 breakers and reduces costs for this reliability project.

**Replacement of aging infrastructure**

The project design has found that a new switchyard at the Pilgrim location is more cost effective and will perform better than trying to interconnect and utilize the existing substation. This will also avoid the need to rebuild that equipment, which is of advanced age and has shown system operational issues in the past.

**The QTPS’s ability to finance, build, operate, and maintain the specific facility(ies) described in the proposal**

As described in Section 3, Anbaric has been a founder of the companies that developed two subsea cable projects on time and on budget. As the transmission platform company for the US$150 billion OTPP, Anbaric has the resources to execute large-scale projects and has several other major projects in its pipeline. Anbaric has assembled a project team early to ensure feasibility and cost estimates and be ready to go on day one of the project award.
Generation and transmission facility outages required during construction

Because of the project design, transmission outages are limited to the cut-in on the north and south ends of the project.

Incremental cost for potential resource retirements

The project provides significant, energy (1200MW) and reactive power (+/-400MVAr at each end) to help address future resource retirements in both NEMA and SEMA as described in Sections 7.1 and 7.3.

Group 3 – Third highest priority

Environmental impact

The project is designed to minimize environmental impact by utilizing two tri-core cables. This results in only one ocean trench to move 1,200MW. Anbaric is also working with fishing stakeholders to ensure that any impacts to that industry during installation are minimized. On land, sensitive areas are avoided, and HDDs under Revere beach will be designed to meet up with ducts located underground in public roads.

Design standards

Design of the project results in a robust package given that switchyards are above flood levels and cables are buried. Switchyards are partially GIS and limited exposed switchyard and interconnection equipment will meet or exceed common practice.

Loss savings

Loss performance is described in Section 7.4
Dear Mr. van Welie and Ms. Abernathy,

As state representative for the town of Plymouth, Massachusetts, I am writing to express my support for the Mystic Reliability Wind Link Project (or “Project”) being developed by Anbaric. As the long-time home of the Pilgrim Nuclear Power Station which closed last year, Plymouth has a history of hosting major electric infrastructure facilities within our community. One of the Town’s top priorities is finding and supporting projects that would reuse the industrial portion of the Pilgrim site. Anbaric’s plan to repurpose the existing property with minimal disruption to the community has great merit and should be given your closest attention.

Over the past several years the legislature has worked with Governor Baker to enact several statutes to move the Commonwealth toward a 21st century energy economy particularly with the development and deployment of largescale renewable energy resources, such as offshore wind. I have observed how most of the new offshore wind projects proposed in Massachusetts would connect to nearby Cape Cod and feed into the existing infrastructure that was developed around Pilgrim Station. The Mystic Reliability Wind Link would enable the Plymouth site to move wind energy from here underwater directly to Boston. This strikes me as an efficient way to move energy while avoiding contentious new and expensive overhead lines on land. Investing money now that solves Boston’s reliability problem while at the same time avoids future land-based upgrades provides a solution that will save ratepayers more overall, is smart planning, and good stewardship of consumer dollars.

I am also aware that the closure of the Mystic Generating Station is closely linked to the development of the Northeast Clean Energy Connect (“NECEC’) project to import Canadian
hydro down through Maine. As a Massachusetts initiative, I hope the NECEC project moves forward to completion. However, it is now facing challenges before both the Massachusetts and Maine supreme courts and is the subject of a voter referendum in Maine this coming November.

If that project is not realized, I am concerned that the hundreds of millions of dollars consumers are paying to keep the Mystic plant open will continue without end. I believe the Mystic Reliability Wind Link solves the reliability issues, does so at no additional cost and potentially saves millions of consumers’ hard-earned and currently hard to come by dollars.

Prior to my current role in the legislature, I was a Selectman for the Town of Plymouth. I know that this sort of redevelopment and role for the town as a conduit for large-scale, homegrown renewable energy is an area that has strong support. I have been impressed how Anbaric has actively reached out to many in the Plymouth community. In addition to me and other representatives who serve the area, they have met with the Town Manager and Chairman of the Select Board, as well as local lobstermen, to brief them on the project and gather feedback. I want to emphasize that from my office, this feedback is extremely supportive.

Plymouth is known as America’s hometown. This year it celebrates its 400th anniversary. As it looks forward to the next 400 years during this time of change, I see it as a community that continues its leadership role and can be an important conduit for bringing renewable energy to the Commonwealth. Please count me among those who support the Anbaric Mystic Reliability Wind Link project.

Sincerely,

[Signature]

Mathew J. Muratore
Massachusetts State Representative
April 22, 2020

Gordon van Welie, President and CEO
Kathleen Q. Abernathy, Board Chair
ISO New England, Inc.
One Sullivan Road
Holyoke, MA 01040

RE: Support for the Mystic Reliability Wind Link Project

Dear Mr. van Welie and Ms. Abernathy,

As the State Representative whose district includes both Revere and Chelsea, Massachusetts, I am writing to express my strong support for the Mystic Reliability Wind Link Project (or “Project”) proposed by Anbaric. As a legislator whose tenure in the House has centered on protecting and preserving the environment, it is encouraging to know that a fossil fired energy plant will be coming offline over the next few years. As a Revere resident who lives on Revere Beach, I have met with representatives from Anbaric, the developer of this project. I found them to be qualified, eager to address the concerns of the impacted neighborhoods and most important, focused on establishing a real partnership with the cities I represent.

As you are aware, Massachusetts has worked hard to move our state into the 21st century in a variety of areas – with a particular emphasis on the “energy economy”. The need to expand the footprint of largescale renewable energy resources, such as offshore wind, is real. Offshore wind projects that connect the Cape with the southeast and northeast areas of Massachusetts makes sense. The Project Anbaric proposes is efficient, cost effective and unobtrusive way to solve greater Boston’s reliability problem while at the same time saving ratepayers money. And, because this Project will also diminish the area’s carbon footprint, it is a win-win for all.

I believe Anbaric has made a very positive impression with leaders and residents of the communities I represent. Their early outreach to my colleagues in government as well as active citizens in abutting neighborhoods demonstrates a commitment to our community. They are local people who will employ local workers and companies. In these uncertain times of economic stress, knowing that my constituents will have a hiring preference is critical. I appreciate the leadership of Anbaric’s executive team, and hope you will award them the contract to develop the Project. Please feel free to reach out should you wish to discuss further. Thank you for your consideration, and I hope you stay well.

Sincerely,

RoseLee Vincent
State Representative
Sixteenth Suffolk District