Comments on CRMC's Revised Proposed Draft Cable Regulations

I. Section 1(b) – Policies

CRMC's proposed regulation states:

"The Council shall collaborate with and consider the advice and recommendations of the CRMC's Cable Working Group as part of the Narragansett Bay SAMP, which includes members of the CRMC Fishermen's Advisory Board (FAB), as defined in § 0511.3(E) of this Chapter, representation of the RI Shellfisherman's Association, RI Department of Environmental Management Division of Marine Fisheries (DEM DMF) and other interested stakeholders, to minimize, and when feasible eliminate, potential adverse impacts to Rhode Island coastal resources and uses."

Comment:

Terms such as, "other interested stakeholders", "when feasible" and "potential" are non-specific terms. By including these in section 1b. the requirement to meet the provision becomes burdensome as the terms can be broadly interpreted. For example, a project's construction methods can be feasible but not practicable with respect to schedule, safety, and/or cost. Standards should strive to eliminate actual adverse impacts and not "potential adverse impacts, Suggest adding wind farm developers or renewable energy developers to the list of collaborators to the Cable Working Group. Wind farm developers are a key stakeholder and should continue to have opportunity to participate in Working Group decisions.

We propose the following revision for clarity:

> "The Council shall collaborate with and consider the advice and recommendations of the CRMC's Cable Working Group as part of the Narragansett Bay SAMP, which includes members of the CRMC Fishermen's Advisory Board (FAB), as defined in § 0511.3(E) of this Chapter, and representation of the RI Shellfisherman's Association, RI Department of Environmental Management Division of Marine Fisheries (DEM DMF), offshore renewable energy developers, and other ~~inte rested~~ stakeholders with demonstrated subject matter expertise in or demonstrated susceptibility to impacts from the siting of cable corridors~~, to minimize, and when feasible eliminate, potential adverse impacts to Rhode Island coastal resources and uses~~."

II. Section 1(c) – Policies

CRMC's proposed regulation states:

"For purposes of this Part in designating a renewable energy cable corridor or corridors, representation of commercial fishing interests in state waters, including, but not limited to, the RI Shellfisherman's Association, the RI Lobstermen's Association, etc., shall be included on the CRMC's Cable Working Group to aid the CRMC in identifying areas of active fish, crustacean and shellfish harvesting within state waters and to advise and make recommendations to the

CRMC for the purpose of minimizing, and when feasible eliminating, potential adverse impacts to sensitive and important fish habitats and to the commercial fishing industry as a result of submerged renewable energy cable installation and operation within state waters."

Comment:

Terms such as "when feasible" and "potential" are non-specific. Similarly, "sensitive and important fish habitat" should be a defined term with a threshold requirement for meeting definition as "sensitive and important".

We propose the following revision for clarity:

> "For purposes of this Part in designating a renewable energy cable corridor or corridors, representation of commercial fishing interests in state waters, including, but not limited to, the RI Shellfisherman's Association, the RI Lobstermen's Association, etc., shall be included on the CRMC's Cable Working Group to aid the CRMC in identifying areas of active fish, crustacean and shellfish harvesting within state waters and to advise and make recommendations to the CRMC for the purpose of minimizing, and when ~~feasible~~ practicable eliminating, ~~potential~~ long-term adverse impacts to sensitive and important fish habitats, as defined with the advice and recommendations of RIDEM, and to the commercial fishing industry as a result of submerged renewable energy cable installation and operation within state waters."

III. Section 1(d, e) – Policies

CRMC's proposed regulation states:

"d. It is the Council's policy to identify and designate Areas of Particular Concern (APCs) within state waters with the advice and recommendations of the CRMC's Cable Working Group for the purposes of this Part. APCs shall include those areas as specified in § 05-11.10.2 of this Chapter. In addition, APCs shall include areas of paleolandscapes that contain or have a high probability of containing significant cultural artifacts as may be identified and confirmed through appropriate sources including, but not limited to, the RI Historic Preservation and Heritage Commission.

e. It is the Council's policy to preserve submerged paleolandscapes, which are areas along the seafloor with a higher potential to contain cultural and historical resources, within state waters. In addition, if shipwrecks or possible shipwrecks have been identified within the corridor, these should either be avoided or should be assessed to determine if they are significant cultural resources eligible for listing in the National Register of Historic Places. When paleolandscapes are identified as likely containing significant cultural and historical resources, the Council shall designate them as APCs."

Comment:

Comment: Shipwrecks and potential shipwreck sites in many instances can be avoided; however, in certain areas avoidance could be difficult or impossible. Any data related to likely or known

paleolandscapes should be made available to developers. In Section 1(e), "likely" should be changed to "confirmed" consistent with language used in Section 1 (d).

We propose the following revision for clarity:

"d. It is the Council's policy to identify and designate Areas of Particular Concern (APCs) within state waters with the advice and recommendations of the CRMC's Cable Working Group for the purposes of this Part. APCs shall include those areas as specified in § 05-11.10.2 of this Chapter. In addition, APCs shall include areas of paleolandscapes that contain or have a high probability of containing significant cultural artifacts as may be identified and confirmed through appropriate sources including, but not limited to, the RI Historic Preservation and Heritage Commission.

e. It is the Council's policy to preserve to the extent practicable submerged paleolandscapes, which are areas along the seafloor with a higher potential to contain cultural and historical resources, within state waters. In addition, if shipwrecks or possible shipwrecks have been identified within the corridor, these should either be avoided or should be assessed to determine if they are significant cultural resources eligible for listing in the National Register of Historic Places. When paleolandscapes are identified and confirmed to contain or have a high probability of ~~as likely~~ containing significant cultural and historical resources, the Council shall designate them as APCs."

I. Section 1(f) – Policies

CRMC's proposed regulation states:

"Given the current state of uncertainty in the magnitude of potential impacts to marine organisms from electromagnetic fields (EMF) associated with submerged electrical cables from offshore wind farms in southern New England offshore waters, the Council will establish standards to require applicants to use appropriate cable burial methods and technology for the anticipated or discovered conditions to achieve appropriate cable burial depths in an effort to avoid and minimize adverse EMF effects."

Comment:

Comment: The cable installation methodology does not impact EMF of a cable. Developers of offshore wind should determine best methodology to install cables at the required cable burial depth.

We propose deletion of this paragraph as installation methods are addressed elsewhere:

~~"Given the current state of uncertainty in the magnitude of potential impacts to marine organisms from electromagnetic fields (EMF) associated with submerged electrical cables from offshore wind farms in southern New England offshore waters, the Council will establish standards to require applicants to use appropriate cable burial methods and technology for the anticipated or discovered conditions to achieve appropriate cable burial depths in an effort to avoid and minimize adverse EMF effects."~~

II. Section 2(b) – Standards

CRMC's proposed regulation states:

"Renewable energy cables shall not be installed within the U.S. Department of Defense (DoD) restricted areas of Narragansett Bay, as specified in 33 CFR §§ 334.80, 334.81 and 334.82, without the explicit authorization of the DoD and CRMC approval."

Comment:

DoD does not require or give "explicit authorization" under the regulations, but rather gives "permission" for such installation. We propose the following revision to make this requirement reflect the accurate standard:

> "Renewable energy cables shall not be installed within the U.S. Department of Defense (DoD) restricted areas of Narragansett Bay, as specified in 33 CFR §§ 334.80, 334.81 and 334.82, without the ~~explicit authorization~~ permission of the DoD, or the governing federal agency that has authority to provide such permission, and CRMC approval."

III. Section 2(c) – Standards

CRMC's proposed regulation states:

"Submerged renewable energy cables shall be presumptively excluded from being installed within a CRMC designated APC. This exclusion is rebuttable if the applicant can demonstrate by clear and convincing evidence that there are no practicable alternatives that are less damaging in areas outside of the APC, or that the proposed project will not result in a significant alteration to the values and resources of the APC. When evaluating a project proposal, the Council shall not consider cost as a factor when determining whether practicable alternatives exist. Applicants which successfully demonstrate that the presumptive exclusion does not apply to a proposed project because there are no practicable alternatives that are less damaging in areas outside of the APC must also demonstrate that all feasible efforts have been made to avoid damage to APC resources and values This exclusion is rebuttable if the applicant can demonstrate by clear and convincing evidence that there are no practicable alternatives that are less damaging in areas outside of the APC, or that the proposed project will not result in a significant alteration to the values and resources of the APC. When evaluating a project proposal, the Council shall not consider cost as a factor when determining whether practicable alternatives exist. Applicants which successfully demonstrate that the presumptive exclusion does not apply to a proposed project because there are no practicable alternatives that are less damaging in areas outside of the APC must also demonstrate that all feasible efforts have been made to avoid damage to APC resources and values. The Council may require a successful applicant to provide a mitigation plan that protects the ecosystem."

Comment:

Cost in combination with APC impacts should be considered in the evaluation of alternative cable routes and construction methodologies. Project cost evaluations are customary in state and federal permit applications, costs play an important role in the commercial practicability of a project.

IV. Section (2)(g)(1) -- Submerged Cable Installation (Target Burial Depth)

CRMC's proposed regulation states:

"The target burial depth for submerged cables proposed for installation on a seafloor bottom shall be 4 to 6 feet (1.2 to 1.8 m) below the seafloor (BSF). The target cable burial depths shall be determined through a cable burial risk (or feasibility) assessment (CBRA) based on an assessment of seabed conditions, seabed mobility, and the risk of interaction with external hazards such as commercial fishing gear and vessel anchors. Where sufficient burial depth cannot be achieved based on the CBRA, or protection is required due to cables crossing other cables or pipelines, additional cable protection methods may be used in accordance with § 1.3.1(S)(2)(g)(4) of this Part.

In areas where submerged cable installation may be challenging due to bedrock or other geologic obstruction, the applicant must use appropriate cable burying technology and accepted engineering techniques to achieve target cable burial depth as specified in § 1.3.1(S)(3)(g)(1) of this Part. Jet plow cable installation methods may not be suitable in areas of hard bottom (those containing rocks, cobble, excess clay and silt and other known geologic obstructions)."

Comment:

We do not think the target burial depth requirement of 4-6 ft (1.2 to 1.8) meters is justified by engineering or environmental analyses. Targeting a fixed burial depth is not an industry standard across offshore projects. Industry standard methods of determining target burial depths involve the use of recognized site investigation techniques and engineering assessments whereby a risk-based approach is introduced to achieve optimum target burial depths. These target burial depths must be optimized based on an integrated interpretation of geotechnical and geophysical site investigation data, a seabed mobility assessment and a cable burial risk assessment (CBRA). This approach is in line with the relevant engineering standards such as DNV-GL-ST-0359 and the Carbon Trusts CTC835 methodology. Crucially, this approach minimizes the impact to the environment, coastal resources and coastal users, whilst protecting the integrity of the cable. The use of secondary protection shall be avoided where possible, if the target burial depth achieves adequate protection. The assumption that deeper cable burial is always better for the environment does not take into account the greater impact on the benthos as the burial trench is made deeper and wider than 1.0 meter and the installation period is increased. Deeper burial requirements may also unnecessarily involve the use of secondary cable protection such as rock cover and mattresses. In addition, increases in burial depth increase heating of the cable and increase power losses.

We propose the following revision to make this requirement reflect the accurate standard:

"The target burial depth for submerged cables proposed for installation on a seafloor bottom shall be ~~4 to 6 feet (1.2 to 1.8 m)~~ to depth(s) below the seafloor (BSF) determined by an analysis of site specific conditions. The target cable burial depths shall be determined through a cable burial risk (or feasibility) assessment (CBRA) based on an assessment of seabed conditions, seabed mobility, and the risk of interaction with external hazards such as commercial fishing gear and vessel anchors. Where sufficient burial depth cannot be achieved based on the CBRA, or protection is required due to cables crossing other cables or pipelines, additional cable protection methods may be used in accordance with § 1.3.1(S)(2)(g)(4) of this Part.

In areas where submerged cable installation may be challenging due to bedrock or other geologic obstruction, the applicant must use appropriate cable burying technology and accepted engineering techniques to achieve target cable burial depth as specified in § 1.3.1(S)(3)(g)(1) of this Part~~. Jet plow cable installation methods may not be suitable in areas of hard bottom (those containing rocks, cobble, excess clay and silt and other known geologic obstructions)~~."

V. Section (2)(g)(4) Submerged Cable Installation- (Secondary Cable Protection)

CRMC's proposed regulation states:

"Secondary cable protection methods (e.g., concrete mattresses, rock berms or rock bags) may have adverse impacts on commercial fishing gear by creating obstructions that may snag and cause damage to mobile fishing gear (e.g., trawl nets) or fixed gear (e.g., lobster pots, fish pots and gill nets). Therefore, the applicant shall limit secondary cable protection to areas where the cable is insufficiently protected (presenting a risk to marine users and/or the cable), at crossings with other submerged cables or utilities, or other areas in which cable burial is not possible (e.g., cable joints). In addition, any necessary secondary cable protection shall be constructed of biologically-friendly materials (i.e., that allow epifaunal colonization) that mimic as closely as possible the existing surrounding habitat."

Comment:

Secondary cable protection should be limited to areas where the cable is insufficiently protected based on the CBRA. Cable protection should also be low in profile, as practicable, to limit potential for interaction, for example with fishing gear.

We propose the following revision:

"Secondary cable protection methods (e.g., concrete mattresses, rock berms or rock bags) may have adverse impacts on commercial fishing gear by creating obstructions that may snag and cause damage to mobile fishing gear (e.g., trawl nets) or fixed gear (e.g., lobster pots, fish pots and gill nets). Therefore, the applicant shall limit secondary cable protection to areas where the cable is insufficiently protected (presenting a risk to marine users and/or the cable), at crossings with other submerged cables or utilities, or other areas in which cable burial is ~~not possible~~

inadequate (e.g., cable joints) as determined by the CBRA. In addition, any necessary secondary cable protection shall be constructed of low profile and/or biologically-friendly materials (i.e., that allow epifaunal colonization) such as concrete mattress or rock ~~that mimic as closely as possible the~~compatible with existing surrounding habitat."

VI. Section 2(g)(6) -- Submerged cable installation (Burial Depth at Landfall)

CRMC's proposed regulation states:

"All submerged cables making landfall (onshore of the MLLW line) shall target a burial depth greater than or equal to three (3.0) meters BSF. This standard is best achieved by using horizontal directional drilling (HDD) techniques and may be required by the CRMC. A variance to this standard may be granted where the applicant demonstrates through the CBRA that the cable landing area is composed of a stable seafloor and a shoreline (e.g. man-made) unlikely to suffer significant beach loss and erosion from coastal storms."

Comment:

Cable landing methodology and depth are best determined based on a site-specific locational analysis. Stating a standard construction methodology in section 6 implies a bias against installation methodologies and does not consider alternative trenchless installation technologies, such as Direct Pipe and Micro-tunneling.

We want to confirm that the ability to use multiple trenchless techniques or to obtain a variance from the standard based on the above criteria applies to both the target depth of greater than or equal to 3 meters below seabed and the use of HDD techniques. We suggest the language be revised to state:

> "This standard may be ~~is best~~ achieved by using horizontal directional drilling (HDD) or comparable trenchless techniques and may be required by the CRMC. A variance to this standard may be granted where the applicant demonstrates through the CBRA that the cable landing area is composed of a stable seafloor and a shoreline (e.g., man-made) unlikely to suffer significant beach loss and erosion from coastal storms.

VII. Section 2(g)(8) -- Submerged cable installation (Burial Depth at Landfall)

CRMC's Proposed revised regulation states:

"Following the completion of a submerged cable, including the landfall, the applicant shall develop a cable inspection program and submit it to the CRMC and the CVA. The cable inspection program shall confirm the cable burial depth along the route and identify the need for any further remedial burial activities and/or secondary cable protection. The CVA shall provide the review report to the CRMC within 90 days of completion."

Comment:

The proposed language creates a timing issue for construction vessels. The installation contractor will likely be demobilized from the cable installation site prior to 90 days post cable installation. Remedial action required after the 90-day review and acceptance of a cable protection program would require remobilization of vessels and be overly burdensome for Developers. A Cable Installation Program should be developed prior to cable installation activities commencement. Post-installation reporting is addressed in Section 2(g)(9).

We propose the following revision:

"Prior to the start~~Following the completion~~ of ~~a~~ submerged cable installation, including the landfall, the applicant shall develop a cable ~~inspection~~ installation program and submit it to the CRMC and the CVA. The cable installation program shall detail the target cable burial depth along the route based on the CBRA and identify appropriate remedial burial activities and/or secondary cable protection. The post installation cable survey ~~inspection program~~ shall confirm the cable burial depth along the route and ~~identify the need for any further~~document the location and result of any remedial burial activities and/or secondary cable protection~~. The CVA shall provide the review report to the CRMC within 90 days of completion.~~"

VIII. Section (2)(h)(1) -- Submerged Cable Monitoring (Frequency):

CRMC's proposed revised regulation states:

"The entire cable route within state waters shall be surveyed using multi-beam bathymetry promptly following submerged cable installation and the placement of any secondary cable protection (if necessary). The entire cable route within state waters will again be surveyed following the first and second years of operation. The results of the post-lay, year 1 and year 2 multi-beam cable surveys shall be provided to the CRMC review within 45 days of survey completion and include any remedial actions taken or scheduled to occur. The entire cable route within state waters will continued to be surveyed for the lifecycle of the project using multi-beam bathymetry every two years following completion of the year 2 survey and shall be provided to the CRMC within forty-five (45) days of survey completion."

Comment:

We do not believe the proposed monitoring frequency is practical or necessary. Further survey data has to be processed and analyzed after its collection as well as go through a data quality review. These reviews are conducted by several specialist and data requires a sufficient review time. We request the proposed revisions below to reflect longer times for reporting survey results and adaptive time frames based on observed post-installation conditions. We also propose the ability to use alternative monitoring technology, as follows:

> The entire cable route within state waters shall be surveyed using multi-beam bathymetry or alternative monitoring technologies promptly following submerged cable installation and the placement of any secondary cable protection (if necessary). The entire cable route within state waters will again be surveyed once following the first, and second or

third years of operation. The results of the ~~post-lay~~as-built, year 1, and year 2-3 ~~multi-beam~~ cable surveys shall be provided to the CRMC review within ~~45~~ 90 days of survey completion and include any remedial actions taken or scheduled to occur. The need for further surveys in the lifecycle of the project will be planned based on the findings in the three initial surveys listed above.

If the three consecutive post-construction surveys show that the cable does not pose a hazard to public safety, navigation, or marine resources, additional monitoring survey frequency should decrease to every 5 years thereafter for the operational life of the Project. If any survey shows that the cable does pose a hazard to public safety, navigation, or marine resources from a cable exposure, annual surveys will be performed after corrective action, if required, is completed and until three consecutive surveys show there is no such risk, after which surveys will return to a 5-year cycle. ~~The entire cable route within state waters will continued to be surveyed for the lifecycle of the project using multi-beam bathymetry every two years following completion of the year 2 survey and~~ Survey results or reports shall be provided to the CRMC within ninety (90) ~~forty-five (45)~~ days of survey completion.

IX. Section (2)(i) -- Electromagnetic Field (EMF) Monitoring requirements

CRMC's Proposed Regulation States:

"(1) Applicants shall provide to the CRMC background EMF measurements along the area of the intended cable route within state waters prior to the installation of any submerged renewable energy cable. Both alternating current (AC) and direct current (DC) EMF measurements shall be conducted.

(2) At the completion of installation and activation of any submerged renewable energy cable within state waters, the applicant or successive permit holder shall monitor EMF levels along the cable route at least once annually for the service life of the cable and provide measurements to the CRMC with a location map of all measurement stations. Measurement stations shall include cable portions that achieved the target cable burial depth and cable portions that include secondary protection that did not meet target cable burial depths."

Comments:

Regarding 2(i)(1): We do not think there is any justification for such an extensive requirement for background EMF measurements. The EMF from a proposed cable can more accurately be compared to measured background levels if measurements of background levels are taken at the same time as measurements over the energized cable at a distant control location that is not near the new cable or other existing EMF sources, e.g., existing submarine power cables. Away from such sources, the measured background levels will be negligible, and similar, along the length of the route. Hutchinson et al. (2018)[1] reported that there were "no EMF" at the control enclosure

[1] Hutchison, Z. L., P. Sigray, H. He, A. B. Gill, J. King, and C. Gibson, 2018. Electromagnetic Field (EMF) Impacts on Elasmobranch (shark, rays, and skates) and American Lobster Movement and Migration from Direct Current Cables. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM

358 meters from the Cross Sound transmission cable (pp. xv) and measurements over the cable with no current flowing in it showed "NO" AC magnetic fields and DC magnetic fields of approximately 0.1 µT (Table 3.2).

We propose the following revisions to **2(i)(1):**

> "(1) Applicants shall provide to the CRMC background EMF measurements near the project ~~along the area of the intended cable~~ route at a control location not near any known existing source of EMF within state waters ~~prior to the installation of~~ including any submerged renewable energy cable. Both alternating current (AC) and direct current (DC) EMF measurements shall be conducted at the control location.

Regarding 2(i)(2): Rather than assess levels of EMF at random locations along the cables, a stratified sampling approach that considers variables such as habitat types, may be of more interest to fishery biologists. In addition, if measurements of EMF around the export cable in stratified locations are consistent across the measurement sites and are supplemented by longer term measurements at one site, then subsequent EMF surveys may not be needed at all, or could achieve the same objective by taking measurements at a single fixed site at multi-year intervals.

The goal of the post-construction EMF monitoring requirements is not evident. There is no clear scientific purpose or benefit to be obtained from the requirement for measurement of EMF along the cable route "at least once annually for the service life of the cable." Targeted measurements in the first year followed by monitoring of currents flowing along cables and modeling of EMF effects provide better and more cost-effective evaluation of EMF levels than any routine annual measurement program. Given variable weather conditions that can impact the ability to collect data in the field, the complexity of the data gathered, and the need to integrate from multiple sensors, the delivery of the EMF survey report within the first 6 months of operation is a more reasonable, realistic estimate.

We proposed the following revisions to **2(i)(2)**:

> After~~t~~ the completion of installation and activation of any submerged renewable energy cable within state waters, the applicant or successive permit holder shall measure ~~monitor~~ EMF levels at the background control locations specified in (1) and also at representative sites including different submerged benthic habitats, ~~along the cable route at least once annually for the service life of the cable and provide measurements to the CRMC with a location map of all measurement stations. Measurement stations shall include~~ cable portions that achieved the target cable burial depth and cable portions that include secondary protection that did not meet target cable burial depths, ~~.~~and at a single fixed location at the cable where continuous measurements of EMF can be made over a longer time period (a few days). The measurements shall be provided to the CRMC with a location map of all measurement sites within the first 6 months of operation."

X. Section 2(j) -- Submerged Cable Installation (Fisheries Monitoring Plan)

CRMC's Proposed Regulation States:

"Submerged cable applications shall include a fisheries monitoring plan for state waters. The applicant shall consult with the RIDEM Division of Marine Fisheries for the appropriate inclusion of species, gear methods and sampling protocols and obtain CRMC approval of the fisheries monitoring plan. The applicant shall implement the fisheries monitoring plan to obtain the specified fisheries monitoring data for a minimum of one full year prior to cable installation, through the entirety of the construction period, and for two (2) years following commencement of cable activation and operation. The applicant's fisheries monitoring plan may include data the state has obtained as part of ongoing state monitoring activities as a supplement to the applicant required monitoring data."

Comment:

CRMC's proposed regulation requires cable installation applications to include a fisheries monitoring plan for state waters. The requirement should reference that the applicant can include and rely on any relevant data and information the state has obtained in its ongoing monitoring activities. Our proposed revisions are below:

> Submerged cable applications shall include a fisheries monitoring plan for state waters. The applicant shall consult with RIDEM Division of Marine Fisheries for the appropriate inclusion of species, gear methods and sampling protocols, and obtain CRMC approval of the fisheries monitoring plan. The applicant shall implement the fisheries monitoring plan to obtain the specified fisheries monitoring data for a minimum of one full year prior to cable installation, through the entirety of the construction period, and for two (2) years following commencement of cable activation and operation. The applicant's fisheries monitoring plan may include and rely on data and information the state has obtained as part of ongoing state monitoring activities. ~~as a supplement to the applicant required monitoring data.~~

Response: CRMC's Four Questions:

1. Potential costs that could be incurred by applicants by requiring cable burial at the specified depths or using specified technology within the rules. Are there more cost-effective methods and will they achieve the industry specified cable burial depths necessary (4 to 6 feet) to minimize impacts to the environment, coastal resources and coastal users as well as protect the integrity of the cable itself?

Targeting a fixed burial depth is not an industry standard across offshore projects. The impacts of setting a fixed burial depth are not considered to be within the interest of any party and is not aligned with industry best practice to determine optimal target burial depths based on the site-specific conditions.

Industry standard methods of determining target burial depths involve the use of recognized site investigation techniques and engineering assessments whereby a risk-based approach is introduced to achieve optimum target burial depths. Unnecessary costs and environmental impacts will likely be incurred if specified cable burial depths or specified technology for cable burial is mandated by regulations. Target burial depths must be optimized based on an integrated interpretation of geotechnical and geophysical site investigation data, a seabed mobility assessment, and a cable burial risk assessment (CBRA). This approach is in line with the relevant engineering standards such as DNV-GL-ST-0359 and the Carbon Trusts CTC835 methodology. Crucially, this approach minimizes the impact to the environment, coastal resources and coastal users, whilst protecting the integrity of the cable.

If the proposed fixed burial depth of 4 – 6 feet (1.2-1.8 meters) must be met everywhere and burial is not determined by engineering assessments (such as those mentioned above), then cable burial is not in line with industry best practice and could lead to unsafe or overly conservative burial. A fixed burial requirement may lead to several economic and environmental impacts that could adversely affect CRMC's stakeholders and the applicant such as:

- A slower installation and increased number of cable burial passes, with increased risk to cable integrity. This will lead to greater seabed disturbance with potential impact on the environment, coastal resources, and coastal users.
- Deeper burial than necessary may lead to larger burial tools, installation vessels, and therefore increased environmental impact.
- If fixed burial requirements are prescribed but cannot be achieved it may lead to additional secondary protection, i.e., protective covering, not warranted based on a site specific cable burial risk assessment. This also has an increased impact to the environment and other marine users e.g. fishermen.
- Deeper burial than necessary may increase Operation and Maintenance (O&M) costs and lead to greater future disturbance to the environment and CRMC stakeholders if repairs are required and during decommissioning if cable removal is required.
- Deeper burial than necessary may result in specification of a larger cable diameter to satisfy the electrical design criteria for cable thermal properties. This leads to increased

material use and associated costs during manufacturing and transportation, and potentially greater disturbance to the sea bottom. Fixed burial depths may lead to under conservative burial (when compared to engineering assessments) that may increase the risk of damage to the cable, as well as adversely impact coastal resources and coastal users. This could potentially lead to increased secondary protection and seabed disturbance."

Thus, key stakeholders and the applicant will incur unnecessary additional costs if a fixed burial requirement is included in the regulations.

2. Are the monitoring provisions (e.g., fisheries and electromagnetic frequency) within the proposed rules sufficient to ensure that necessary information is provided to the agency and the public to ensure that the regulatory standards are achieved?
Are there less costly and more efficient methods to achieve the desired monitoring information?

Fisheries Monitoring
The proposed duration of fisheries monitoring is reasonable, and the proposed regulations provide a clear process for assessing the potential impacts of cable installation on biological resources. In particular, the ability to leverage existing data collected through Rhode Island state monitoring activities will improve the understanding of baseline conditions, and provide greater statistical power to evaluate changes from the baseline. Coordination with staff at RIDEM Division of Marine Fisheries will ensure that monitoring activities are directed towards priority species and habitats, and will improve the sampling design and execution of fisheries monitoring. The proposed rules are sufficient to ensure that the necessary information will be collected to evaluate whether the regulatory standards were achieved.

Post-Installation Cable Monitoring

Based on data collected and analyzed thus far, the seabed within most of the proposed cable corridor has very limited seabed change predicted for the project lifetime. An adaptive survey schedule, that extends the interval between surveys based on findings, is a more typical approach in the industry than the once every two years approach proposed in the regulations. We would propose that the entire cable route within state waters be surveyed promptly after cable installation and the placement of any secondary cable protection (if necessary) -- and then again in year 1 and in years 2-3.

A report demonstrating the stability of the seabed based on the initial year monitoring (year 1 & year 2-3), will be submitted to the CRMC ninety (90) days following delivery of the results of the years 2-3 cable survey. If the results of the as-built, year 1 and a year 2-3 cable surveys validate the assumption of high seabed stability, we suggest conducting the next survey in year 5, and then at approximate 5-year intervals thereafter. In the event that observed seabed changes contradict the seabed stability assumptions, more frequent seabed monitoring at locations identified as less stable, may need to be added to the monitoring program.

The monitoring strategy described above ensures a survey approach that is driven by site-specific conditions with the aim of securing cable integrity while minimizing vessel traffic and potential interactions with other marine users. The flexibility recommended in scheduling these seabed surveys (e.g., years 2-3 and approximate year 5) may allow for optimization of this activity with seasonal factors such as weather, and other project and waterway activities.

Alternative methods as/if available should be considered as an alternative to multi-beam bathymetric surveys. In the event that these alternative survey methods identify areas in which there are potential issues with the export cable related to seabed conditions, supplemental multi-beam bathymetric surveys in the identified areas may be warranted.

EMF Monitoring

The EMF monitoring requirements as proposed are unnecessarily costly and there are more effective methods for documenting EMF levels around the submarine cables than those proposed as outlined below.

We do not think there is any justification for such an extensive requirement for background EMF measurements. Background levels of EMF measured just after energization, i.e. contemporaneously with the EMF measurements over the submarine cables, will be more representative than measurements made years earlier. Background EMF levels can be taken at a distant control location that is not near the new cable or other existing EMF sources, e.g., existing submarine power cables. Away from such sources, the measured background levels will be negligible, and similar, along the length of the route. Hutchinson et al. (2018) reported that there were "no EMF" at the control enclosure 358 meters from the Cross Sound transmission cable (pp. xv) and measurements over the cable with no current flowing in it showed "NO" AC magnetic fields and DC magnetic fields of approximately 0.1 µT (Table 3.2).

The goal of the post-construction EMF monitoring requirements is not evident. There is no clear scientific purpose or benefit to be obtained from the requirement for measurement of EMF along the cable route "at least once annually for the service life of the cable." Targeted measurements in the first year followed by periodic monitoring of currents flowing along cables and modeling of EMF effects provide better and more cost-effective evaluation of EMF levels than any routine annual measurement program.

- Initial measurements in different locations and burial depths can demonstrate the known relationship between EMF, burial depth and electric current.
- Longer-term measurements at a known stationary location will provide confirmation on the relationship between electric currents and EMF levels.
- Using measured electric currents on the cables and measured burial depth, highly-accurate models can predict EMF levels at any location surrounding a cable as developed from longer-term measurements at a single location.

With such data, the magnetic field at any point along the cable can be calculated from the burial depth of the cable previously measured by the applicant along the route of the cable, the horizontal distance from cable, and recorded current flow along the cable.

Since the cable corridor may accommodate multiple cables, CRMC may want to add a provision that requires additional EMF monitoring in accordance with this protocol following installation and energization of the additional cable(s).

3. It is expected that having a designated renewable cable corridor or corridors would assist in state agency permitting reviews and provide predictability to applicants and the public. Do the proposed rules provide sufficient flexibility and are there other methods for designating preferred cable corridors within state waters, other than by the proposed rule adoption, that would be more efficient or be less costly?

Additionally, CRMC is soliciting comments on any likely marginal costs or benefits concerning the Narraganset Bay West Passage, specifically regarding location and width, that might impact future offshore wind developers or other stakeholders.

The CRMC's use of a formal administrative proceeding to determine a designated renewable cable corridor(s) signifies that the corridor(s) is an appropriate location for siting the cable. Much like what CRMC did in establishing the Renewable Energy Zone (REZ) in the OSAMP, designating cable corridors in state waters will assist in permitting reviews and provide predictability for applicants and the public.

To establish a cable corridor, CRMC must conduct a detailed analysis, giving consideration to minimizing impact to natural resources (benthic ecology, birds, marine mammals, sea turtles, fisheries resources and habitat) and existing human uses (commercial and recreational fishing, cultural and historic sites, recreation and tourism, marine transportation, navigation and infrastructure).[1] The CRMC may further refine its corridor selection process through public comment. Based on this extensive input, CRMC's designation of cable corridor(s) in its rules provides predictability of location for all developers while also preempting unnecessary complaints about corridor location.

At the same time, to provide flexibility, CRMC should include in its cable corridor rule a provision that an applicant may seek to site a cable in state waters other than in a designated corridor. CRMC should approve a cable sited elsewhere in state waters where it is determined to be appropriate considering costs and the natural resources or human uses of the state waters.

[1] *See e.g.* OSAMP, Section 830.3(2).

4. This proposed rule sets out standards and process for designating Areas of Particular Concern (APC) and CRMC expects future regulatory actions will codify those exact areas consistent with the process specified in the CRMC's Ocean SAMP. Do the standards set out in the proposed rule, and the APCs that are likely to be designated under these standards (e.g., shipwrecks), create any marginal costs or benefits that should be considered?

If a previously unidentified APC is identified within the designated corridor that requires limited deviation from the corridor for avoidance or minimization of impact, CRMC should consider adding a provision to the regulations that provides for review and approval without the need for a formal variance.

Also, as/if information on APCs becomes available, we would suggest that CRMC make GIS mapping of APC locations available to applicants upon request to facilitate siting of cable routes and selection of construction methods within the designated corridor.

Finally, the areas of the seafloor discussed as APC in the proposed regulations are designated as such for purposes of protecting cultural resources related to archaeology and historical significance (shipwrecks, etc.). Two soil types (paleosol and peat) are mentioned as these are layers often associated with such resources. We assume that the ravinement surface is mentioned because it is presumed to have a high likelihood of containing significant cultural resources. We suggest CRMC include information clarifying the specific APC values and resources of the ravinement surface in the rule-making.