HWG | HARRIS, WILTSHIRE & GRANNIS LLP

1919 M STREET NW
SUITE 800
WASHINGTON DC 20036

TEL +1 202 730 1300
FAX +1 202 730 1301
HWGLAW.COM

ATTORNEYS AT LAW

August 13, 2021

VIA ELECTRONIC FILING

Office of Renewable Energy Programs
Bureau of Ocean Energy Management
Department of the Interior
45600 Woodland Road, VAM-OREP
Sterling, Virginia 20166

Re: Atlantic Wind Lease Sale 8 (ATLW-8) for Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Proposed Sale Notice; Docket No. BOEM-2021-0033

To the Bureau:

Due to the presence of substantial submarine cable critical infrastructure in the proposed lease areas, the North American Submarine Cable Association ("NASCA") urges the Bureau of Ocean Energy Management ("BOEM") to modify the proposed Lease Areas for commercial wind energy on the U.S. Outer Continental Shelf ("OCS") in the New York Bight,[1] to ensure better protection of submarine cables transiting the proposed lease areas. As shown on the map in Appendix A, the proposed lease areas identified in the PSN overlap with at least seven active submarine cable systems:

- Apollo South, connecting New Jersey and the United Kingdom;
- CANUS-1, connecting New Jersey and Canada;
- Gemini Bermuda, connecting New Jersey and Bermuda;
- Havfrue, connecting New Jersey and Ireland, Denmark, and Norway;
- Seabras-1, connecting New Jersey and Brazil; and
- TGN Atlantic (also known as VSNL Atlantic), connecting New Jersey and the United Kingdom.

[1] *In the Matter of Atlantic Wind Lease Sale 8 (ATLW-8) for Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Proposed Sale Notice*, 86 Fed. Reg. 31,524, (Jun. 14, 2021) ("PSN").

All of these cables are shown on nautical charts issued by the National Oceanic and Atmospheric Administration ("NOAA"), in the Marine Cadastre, and in other resources readily available to BOEM. Yet nowhere does the PSN mention submarine cables (either generally or those in the Lease Areas), the need to protect them from damage, the need to ensure access for installation and repair activities, or risks to lessees resulting from spatial conflicts and liability claims. NASCA asks that BOEM address these issues in any Final Sale Notice ("FSN"), consistent with NASCA's earlier comments on the New York Bight[2] and the International Cable Protection Committee's best practices for submarine cable protection and resilience.[3]

1. Background on NASCA and Submarine Cables

NASCA is a nonprofit association of the principal submarine cable owners, submarine cable maintenance authorities, and prime contractors for submarine cable systems operating in North America.[4] NASCA members' cables land in seventeen U.S. states and territories, with thousands of kilometers of installed cable traversing the OCS and many more under construction or in the planning stage. As NASCA demonstrated in prior comments, attached hereto as Exhibit A and incorporated herein by reference, such submarine cables carry more than 95 percent of all international voice, data, video and other Internet traffic, including the majority of U.S. Government and military communications and U.S.-based international commercial transactions. Disruptions affecting these cables thus pose significant risks to vital U.S. commercial and governmental interests.[5] For these reasons, submarine cables have long been designated as

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[2] *See* Comments of the North American Submarine Cable Association, *In the Matter of Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations*, 83 Fed. Reg. 15,602-1 (Apr. 11, 2018) ("NASCA 2018 Comments"), attached as Appendix B.

[3] International Cable Protection Committee, *Government Best Practices for Protecting and Promoting Resilience of Submarine Telecommunications Cables* ("ICPC Best Practices"), https://iscpc.org/documents/?id=3733, attached as Appendix C.

[4] NASCA's members include: Alaska Communications Systems; Alaska United Fiber System Partnership (a subsidiary of GCI Communications Corp.); Alcatel Submarine Networks; AT&T Corp; C&W Networks; Edge Networks Services Ltd; Global Cloud Xchange; Global Marine Systems Ltd.; GlobeNet; GTT; Lumen Technologies; OPT French Polynesia; PC Landing Corp.; Rogers Communications; Southern Caribbean Fiber; Southern Cross Cable Network; SubCom, LLC; Tata Communications (Americas); Tampnet; Verizon Business; Vodafone; and Zayo Group.

[5] *See* NASCA 2018 Comments at 4-6.

critical infrastructure by the U.S. Government.[6] NASCA previously noted that there were 14 such submarine cables crossing the New York Bight as of 2018, with 10 within the original lease areas. The current proposed Lease Areas overlap with the routes of seven in-service submarine cables.

2. Stakeholder Engagement and Cable Awareness

While NASCA appreciates BOEM's proposal to require lessees to provide semi-annual reports summarizing engagement with ocean users potentially affected by proposed activities,[7] NASCA believes such measures are insufficient to address known risks to existing submarine cable infrastructure in the proposed Lease Areas. To be effective, coordination between submarine cables and offshore wind energy projects must take place at the earliest stages of project planning, when the chances of modification and compromise are greatest.[8]

The failure to mention the presence of existing submarine cables in the Lease Areas or submarine cable operators as stakeholders in the PSN could, if repeated in the FSN, compound the risks to submarine cables (and timely repair thereof) and to offshore wind projects. The FSN should expressly identify submarine cable owners, operators and maintenance providers as stakeholders with whom lessees should coordinate early and regularly in the planning process for the installation and development of wind power facilities in the Lease Areas. Consistent with BOEM's efforts to sensitize potential lessees regarding potential future restrictions regarding Department of Defense Activities,[9] NASCA asks that submarine cable protection and proximity of existing submarine cables be addressed in the FSN. Specifically, the FSN should note that uncoordinated offshore wind development poses a risk damage to submarine cables from vessel and structure anchoring, sea floor scouring, and power transmission cable crossings and could result in longer, costlier outages resulting from impeded access to the sea floor, water column, and ocean surface for maintenance and repair purposes.[10] At the same time, lessees also face risks from coordination failures, as not only does U.S. law grant cable owners the right to sue for

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6 *See* Press Release, White House President Barack Obama, Presidential Policy Directive – Critical Infrastructure Security and Resilience PPD-21 (Feb. 12, 2013), http://whitehouse.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil; Dep't of Homeland Security, Communications Sector-Specific Plan: An Annex to the National Infrastructure Protection Plan (2010), http://www/dhs.gov/xlibrary/assets/nipp-ssp-communications-2010.pdf.

7 PSN at 31,528, 31,530.

8 *See* ICPC Best Practices § 6.

9 Id. at 31,526-27.

10 *See* NASCA 2018 Comments at 23-25.

damages,[11] but disputes with submarine cable owners and operators can cause project delays and corresponding cost increases. Finally, the FSN should cross-reference the submarine cable protection and coordination procedures contained in Attachment G of BOEM's Information Guidelines for a Renewable Energy Construction and Operations Plan (the "COP Guidelines").

3. Spatial Separation

The FSN should also note the need for spatial separation and coordination to allow safe maneuvering of cable ships for installation and repair and of equipment in the water column and on the seabed used to retrieve and repair submarine cables. For these reasons, NASCA continues to urge BOEM to incorporate categorical exclusion zones and default separation distances in its selection process for lease locations.[12]

These spatial separation needs were addressed extensively in the reports of the Federal Communications Commission's Communications, Security, Reliability and Interoperability Council, which recommended default spatial separation of submarine cables from each other and other marine infrastructure of two and half times of the depth of water, with closer proximity possible upon coordination between the affected parties.[13] The International Hydrographic Organization, which establishes recommendations for nautical charting authorities (which include NOAA) recognizes the need for absolute special separation, directs charting authorities include a text box in publications such as mariners' handbooks and notices to mariners directing vessels to avoid anchoring, fishing, mining, dredging, or engaging in underwater operations near cables at a minimum distance of 0.25-nautical mile on either side of a cable, and recognizing submarine cables as critical infrastructure, noting that damage to a submarine cable can constitute a national disaster.[14]

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11 See 47 U.S.C. § 28.

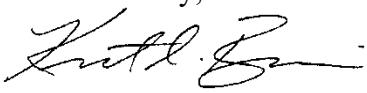
12 See NASCA 2018 Comments at 2, 26-29.

13 *See* Communications Security, Reliability and Interoperability Council, Working Group 8, Submarine Cable Routing and Landing Final Report—Protection of Submarine Cables Through Spatial Separation 36 (2014), https://transition.fcc.gov/pshs/advisory/csric4/CSRIC_IV_WG8_Report1_3Dec2014.pdf; NASCA 2018 Comments at 14-23; ICPC Best Practices § 3.

14 International Hydrographic Organization, Resolution 4/1967 (amended 2017).

NASCA appreciates the opportunity provided by BOEM to comment in this proceeding and urges BOEM to undertake the actions noted above to ensure protection of submarine cables in the New York Bight.

Yours sincerely,



Kent Bressie
Colleen Sechrest

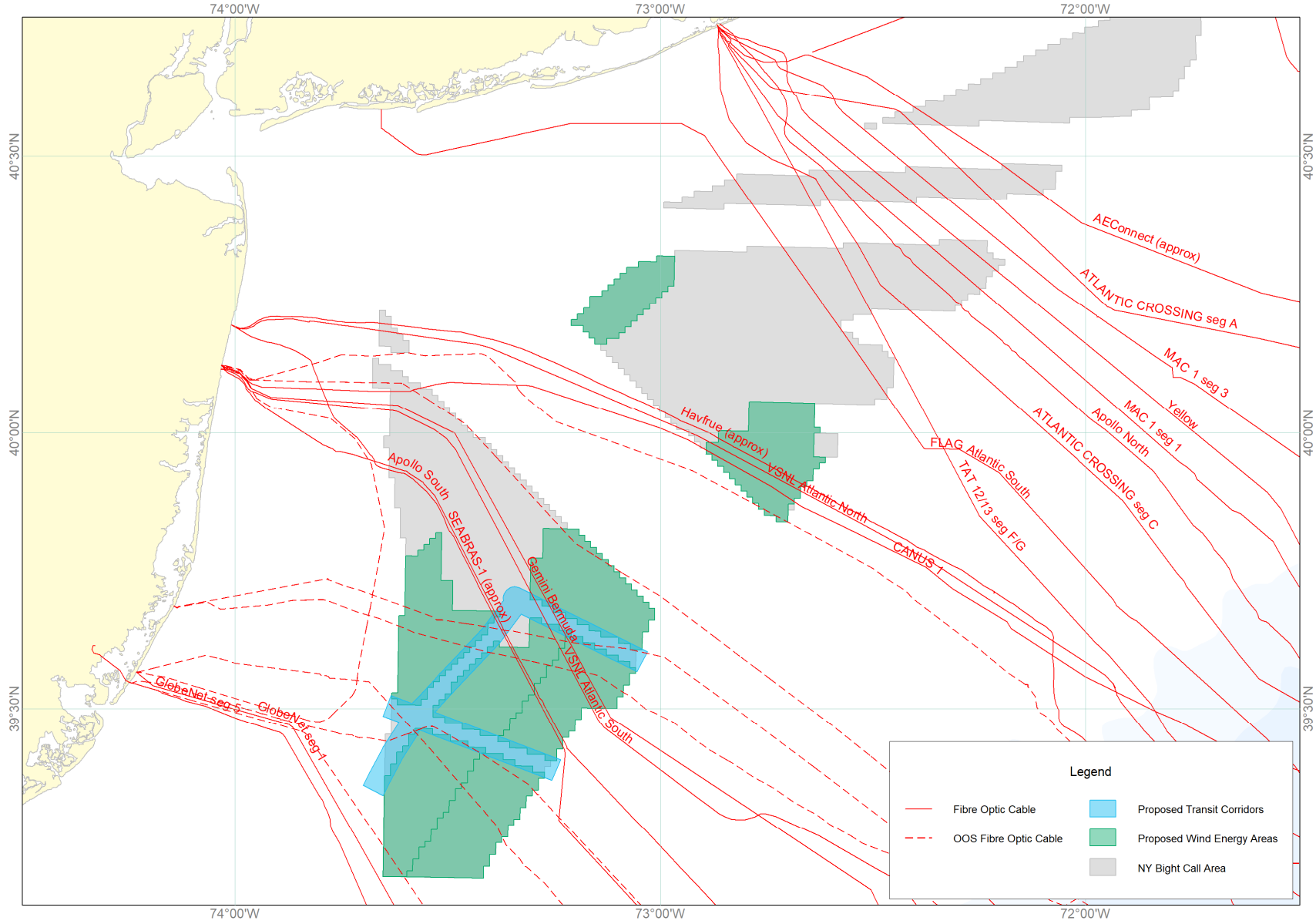
Counsel for the
North American Submarine Cable Association

Attachments

cc: Luke Feinberg
Denise Coca (FCC)
Thomas Sullivan (FCC)
Bridget McGovern (DHS)
Brien Beattie (DHS)

APPENDIX A:

SUBMARINE CABLES IN THE NEW YORK BIGHT



Before the
BUREAU OF OCEAN ENERGY MANAGEMENT
U.S. DEPARTMENT OF THE INTERIOR
Washington, D.C.

In the Matter of Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations	BOEM 2018-0004

COMMENTS OF THE
NORTH AMERICAN SUBMARINE CABLE ASSOCIATION

Kent D. Bressie
Susannah J. Larson
HARRIS, WILTSHIRE & GRANNIS LLP
1919 M Street, N.W., Suite 800
Washington, D.C. 20036-3537
+1 202 730 1337 tel

Counsel for the
North American Submarine Cable Association

30 July 2018

To protect submarine cable infrastructure critical to the U.S. economy and U.S. national security, the Bureau of Ocean and Energy Management ("BOEM") should expressly account for existing and planned submarine cable systems as it considers nominations and makes subsequent decisions to offer areas on the Outer Continental Shelf ("OCS") in the New York Bight for commercial wind leases.[1] BOEM's Office of Renewable Energy Programs ("OREP") has previously developed Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan ("COP Guidelines"), which directs renewable energy project developers to the North American Submarine Cable Association ("NASCA") and its mapping resources as a first step in coordination. Because the COP Guidelines only come into play at the project planning phase, there is some limit to the protections such coordination can afford submarine cables. NASCA urges BOEM to account for existing submarine cable infrastructure as BOEM manages existing leases and determines future areas to offer for commercial wind leases on the New York Bight OCS.

Renewable energy projects on the New York Bight OCS pose significant risks to submarine cable infrastructure. Submarine cable installation, operation, and maintenance activities require spatial separation from other cables and other marine activities—including offshore wind projects—as recognized by various industry standards and recommendations. Absent sufficient spatial separation and coordination, wind energy projects threaten submarine cables with direct physical disturbance and impaired access to submarine cables both at the surface (for cable ships) and on the seafloor (for cables).

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[1] *See Department of the Interior, Bureau of Ocean Energy Management, Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations*, 83 Fed. Reg. 15,602-1 (April 11, 2018) ("Call").

To ensure better coordination with, and protection of, submarine cables, the North American Submarine Cable Association urges BOEM to implement the following actions in its area identification process for the New York Bight call areas:

- Recognition of categorical exclusion zones around existing submarine cables as a buffer from offshore wind energy areas ("WEAs"). These zones should adopt existing industry standards and recommendations regarding default separation distances between installed submarine cables and energy infrastructure, *i.e.*, a default separation distance of at least 750 meters on either side of the cable in water depths of less than 75 meters and the greater of 750 meters or three times the depth of water on either side of the cable in greater water depths;
- Promotion of industry awareness and early coordination with submarine cable operators at the project planning and implementation phase; and
- Establishment of coordination mechanisms with expert agencies engaged in the regulation of submarine cables.

These measures are critical for protecting existing submarine cable infrastructure and ensuring the development and protection of future submarine cable infrastructure.

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Appendix 2: Letter from European Subsea Cables Association to European Marine Authorities & Regulators, et al. re the ESCA position on clear sea-room distances required to properly support subsea cable installation and maintenance in Offshore windfarms, in water depths up to approximately 75m (Aug. 1, 2017)

Before the
BUREAU OF OCEAN ENERGY MANAGEMENT
U.S. DEPARTMENT OF THE INTERIOR
Washington, D.C.

In the Matter of Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations	BOEM 2018-0004

COMMENTS OF THE
NORTH AMERICAN SUBMARINE CABLE ASSOCIATION

To protect submarine cable infrastructure critical to U.S. national security and economic interests, the North American Submarine Cable Association ("NASCA") urges the Bureau of Ocean Energy Management ("BOEM") to account for existing and planned submarine cable systems in its decisions about which areas to offer for commercial wind leases "on the Outer Continental Shelf ("OCS") in the New York Bight."[2] Through its Office of Renewable Energy Programs ("OREP"), BOEM has already adopted proactive measures to protect submarine cables at the planning and implementation stage through its Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan ("COP Guidelines").[3] Because the

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2 *See Department of the Interior, Bureau of Ocean Energy Management, Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations*, 83 Fed. Reg. 15,602-1 (Apr. 11, 2018) ("Call").

3 U.S. Dep't of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, *Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan (COP) Version 3.0*, Attachment G: Coordination Efforts Relating to Existing Telecommunications Cables (2016), https://www.boem.gov/COP-Guidelines/.

COP Guidelines only come into play at the project planning phase, there is some limit to the protections such coordination can afford submarine cables. As BOEM considers potential conflicting uses "in close proximity to, or within, the Call Areas that would be relevant" to BOEM's decisions for areas to offer for leasing,[4] NASCA urges BOEM to account for the need for spatial separation from existing submarine cable infrastructure in the New York Bight OCS area.

Submarine cables[5] carry more than 95 percent of the international voice, data, and Internet traffic of the United States. Without submarine cable infrastructure, the global Internet would not function. Extensive submarine cable deployments exist in the New York Bight OCS, but the renewable energy industry has little awareness of this critical infrastructure. To ensure that wind energy projects do not damage critical U.S. infrastructure, BOEM should incorporate categorical exclusion zones and spatial separation standards in its selection process for lease locations.

NASCA is a nonprofit association of the principal submarine cable owners, submarine cable maintenance authorities, and prime contractors for submarine cable systems operating in North America.[6] NASCA members' cables land in seventeen U.S. states and territories, with

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4 Call, 83 Fed. Reg. at 15,602-1.

5 The terms "submarine cables" and "undersea cables" are used interchangeably here to refer to telecommunications cables deployed in the marine environment. They are distinguished from "power cables" and "power transmission cables."

6 NASCA's members include: Alaska Communications Systems; Alaska United Fiber System Partnership (a subsidiary of GCI Communication Corp.); Alcatel Submarine Networks; Apollo Submarine Cable Ltd; AT&T Corp.; C&W Networks; Edge Network Services Ltd; Global Cloud Xchange; Global Marine Systems Ltd.; GlobeNet; Hibernia Atlantic; Level 3 Communications, LLC; OPT French Polynesia; PC Landing Corp.; Rogers Communications; Southern Caribbean Fiber; Southern Cross Cable Network; Sprint Communications Corporation; TATA Communications (Americas); Tyco Electronics Subsea Communications, LLC; and Verizon Business.

thousands of kilometers of installed cable traversing the U.S. OCS, and many more under construction or in the planning stage. NASCA seeks to protect the interests of the submarine cable industry by educating government decision makers and the public, coordinating with other marine activities, and ensuring efficient government regulation of cable installation and maintenance activities in accordance with applicable law and treaty obligations. For decades, NASCA's members have worked with federal, state, and local government agencies, as well as other concerned parties—such as commercial fishermen, offshore energy companies, and private environmental organizations—to safeguard the submarine cable infrastructure critical to national security.

These comments are divided into three parts. *First*, NASCA details the extensive presence of submarine cables in the New York Bight OCS and urges BOEM to account for existing and planned submarine cable systems in the New York Bight OCS, their national security and economic importance, and the unique treaty and statutory protections for such systems. *Second*, NASCA details the potential threats posed to submarine cables by renewable energy projects. *Third*, NASCA proposes specific recommendations for BOEM as it moves through the area identification process for the New York Bight OCS that would protect existing submarine cable infrastructure and ensure development and protection of future submarine cable infrastructure.

I. IN ITS CONSIDERATION OF LEASING AREAS ON THE NEW YORK BIGHT OCS, BOEM SHOULD ACCOUNT FOR EXISTING AND PLANNED SUBMARINE CABLE SYSTEMS AND THE UNIQUE LEGAL PROTECTIONS FOR SUCH INFRASTRUCTURE.

As BOEM reviews nominations for commercial leasing and makes decisions about which WEAs to offer for commercial wind leasing in the New York Bight area, BOEM should expressly account for existing and planned submarine cable systems and the unique legal

protections for such infrastructure. Submarine cables are critical to the U.S. economy and national security. Due to the high prevalence of such cables crossing the U.S. OCS, in particular in the New York Bight OCS, the potential WEAs in the OCS are of concern because of the risk that wind energy projects will damage cable infrastructure. To aid BOEM's understanding of these systems, NASCA identifies below both existing and planned submarine cable infrastructure, and the treaty and domestic-law protections for such infrastructure.

A. Submarine Cables Are Critically Important to the U.S. Economy and U.S. National Security

Contrary to popular perception, more than 95 percent of all U.S. international voice, data, and Internet traffic travels by submarine cables—a percentage that continues to increase over time.[7] Submarine cables provide the principal connectivity between the contiguous United States and Alaska, Hawaii, American Samoa, Guam, the Northern Marianas, Puerto Rico, and the U.S. Virgin Islands, and also significant intrastate or intra-territorial connectivity within Alaska, Hawaii, the Northern Marianas, and the U.S. Virgin Islands.[8]

Submarine cables play a critical role both in ensuring that the United States can communicate domestically and with the rest of the world, and in supporting the critical economic and national security endeavors of the United States and its citizens. Submarine cables support U.S.-based commerce abroad and provide access to Internet-based content. They also carry the vast majority of civilian and military U.S. Government traffic, as the U.S. Government does not

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[7] *See* United Nations Environment Programme World Conservation Monitoring Centre ("UNEP-WCMC") and International Cable Protection Committee Ltd ("ICPC"), *Submarine Cables and the Oceans – Connecting the World* 8 (UNEP-WCMC Biodiversity Series No. 31 2009), https://www.iscpc.org/documents/?id=132 ("UNEP-WCMC-ICPC Report").

[8] *Cf. id.* at 16; *see also* TeleGeography, Submarine Cable Map (July 11, 2018), http://www.submarinecablemap.com ("TeleGeography Submarine Cable Map").

generally own and operate its own submarine cable systems for communications purposes.[9] Submarine cables have long been designated as critical infrastructure by the U.S. Government.[10]

Submarine cables—which typically have the diameter of a garden hose—are laid and repaired by cable ships built specifically for cable-related operations and designed for covering vast distances and multi-month deployments. These ships use a variety of remotely operated vehicles ("ROVs"), sea plows, lines, and grapnels for manipulating cables and repeaters beyond the ship, whether in the water column or laying on or buried in the seabed.

Although damage to submarine cables is rare, it most often is caused by human activities, such as commercial fishing (in which nets and clam dredges ensnare cables), vessel anchors, dredging related to sand and mineral extraction, petroleum extraction, and pipeline construction.[11] Timely repairs are critical given the economic and national security significance

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[9] *See, e.g.*, John Cummings, *Contract Awarded for Kwajalein Cable System (KCS)*, U.S. Army News, June 13, 2008, http://www.army.mil/-news/2008/06/13/9972-contract-awarded-for-kwajaleincable-system-kcs/ (describing Defense Information Systems Agency's contract for service on the privately-owned HANTRU1 system, which will connect Guam with the U.S. Army Kwajalein Atoll/Reagan Test Site in the Republic of the Marshall Islands); *Capabilities*, Naval Facilities Engineering Command, https://www.navfac.navy.mil/products_and_services/ci/products_and_services/naval_ocean_facilities_program/capabilities.html.

[10] Press Release, White House President Barack Obama, Presidential Policy Directive – Critical Infrastructure Security and Resilience PPD-21 (Feb. 12, 2013), http://www.whitehouse.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil; s*ee* Dep't of Homeland Security, *Communications Sector-Specific Plan: An Annex to the National Infrastructure Protection Plan* (2010), http://www.dhs.gov/xlibrary/assets/nipp-ssp-communications-2010.pdf.

[11] *See* UNEP-WCMC-ICPC Report at 43-48; *see also* Stephen C. Drew and Alan G. Hopper, International Cable Protection Committee, *Fishing and Submarine Cables: Working Together* 19-39 (2d ed. 2009), https://www.iscpc.org/documents/?id=142; *see also* Press Release, International Cable Protection Committee, Loss Prevention Bulletin: Damage to Submarine Cables Caused by Anchors (Mar. 18, 2009), https://www.iscpc.org/documents/?id=139; International Cable Protection Committee, *About Submarine Telecommunications Cables* (presentation) at 40-44, Oct. 2011,

of traffic carried by these cables. Damage to submarine cables can pose grave risks to U.S. national security and the U.S. economy, given the U.S. Government's reliance on such cables to communicate with its civilian and military personnel worldwide and with other governments, and given the dollar-value of commerce conducted using submarine cables.[12]

B. Significant Submarine Cable Infrastructure Already Exists in the New York Bight OCS, and More Is Planned

The OCS in the New York Bight contains significant existing submarine cable infrastructure, and more is planned. At present, approximately 12 in-service submarine cable systems traverse the OCS in the New York Bight, and at least three new systems have been announced or are presently under construction.[13]

The following in-service submarine cable systems currently traverse the OCS in the New York Bight:

- ***AEC-1***: landing at New York; Iceland; Ireland; and the United Kingdom;
- ***Apollo***: landing at New Jersey; New York; France; and the United Kingdom;
- ***Atlantic Crossing-1***: landing at New York; Germany; the Netherlands; and the United Kingdom;
- ***Atlantic Crossing-2/Yellow***: landing at New York and the United Kingdom;
- ***Canada-United States-1 (CANUS-1)***: landing at New Jersey and Canada;
- ***FLAG Atlantic-1***: landing at New York; France; and the United Kingdom;
- ***Gemini Bermuda***: landing at New Jersey and Bermuda;

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https://www.iscpc.org /documents/?id=1753 ("About Submarine Telecommunications Cables").

[12] *See, e.g.*, Asia-Pacific Economic Cooperation (APEC) Policy Support Unit, *Economic Impact of Submarine Cable Disruptions* (2013), http://publications.apec.org/publication-detail.php?pub_id=1382.

[13] *See* Appendix 1, Maps of Submarine Cables Landing in the New York Bight; *see also* TeleGeography Submarine Cable Map; NASCA Member Submarine Cable System Maps, North American Submarine Cable Association, http://www.n-a-s-c-a.org/cable-maps/.

- ***Globenet***: landing at New Jersey; Florida; Bermuda; Brazil; Colombia; and Venezuela;
- ***Mid-Atlantic Crossing***: landing at New York; Florida; and the U.S. Virgin Islands;
- ***Seabras-1***: landing at New Jersey and Brazil;
- ***TAT-14***: landing at New Jersey; Denmark; France; Germany; the Netherlands; and the United Kingdom; and
- ***TATA TGN Atlantic***: landing at New Jersey and the United Kingdom.[14]

The following planned or announced new submarine cable systems will traverse the OCS in the New York Bight:

- ***Havfrue:*** landing at New Jersey; Denmark; Norway; and Ireland.
- ***NYNJ-1***: landing at New Jersey and New York; and
- ***WALL-LI***: landing at New Jersey and New York. [15]

The planned commercial lifespan of these and other submarine cable systems is 25 years.[16] Nevertheless, the commercial lifespan of submarine cable systems can extend well beyond 25 years, particularly where the systems have been upgraded or redeployed. Consistent with these characteristics, the Federal Communications Commission ("FCC") grants cable landing licenses for a term of 25 years from commencement of commercial service, subject to renewal.[17]

C. Submarine Cables Enjoy Unique Treaty Rights and Protections Granted to No Other Activity in the Marine Environment

U.S. treaty obligations and customary international law (as observed by the United States) recognize unique freedoms for the installation and maintenance of submarine cables.

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14 *See id.*

15 *See id.*

16 UNEP-WCMC-ICPC Report at 33.

17 47 C.F.R. § 1.767(g)(14) (providing that "[t]he cable landing license shall expire twenty-five (25) years from the in-service date, unless renewed or extended upon proper application").

These rights and freedoms are not accorded to energy-related activities, commercial fishing, or marine transport, and sometimes these rights and freedoms take precedence over those of other marine activities. Consequently, in establishing rules and policies for use of the OCS for wind energy projects, BOEM must ensure that treaty and customary international law protections for submarine cables are not infringed.

Various international treaties dating back to 1884 guarantee unique freedoms to lay, maintain, and repair submarine cables—freedoms not granted for any other marine activities—and restrict the ability of coastal states (*i.e.*, countries) to regulate them.[18] Principles articulated in these treaties have since been recognized as customary international law.

Specifically, these treaties guarantee:

- The freedom to install submarine cables on the high seas beyond the continental shelf[19] and to repair existing cables without impediment or prejudice;[20]

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[18] *See* Convention for the Protection of Submarine Telegraph Cables, Mar. 14, 1884, 24 Stat. 989, 25 Stat. 1424, T.S. 380, (entered into force definitively for the United States on May 1, 1888) ("1884 Convention"); Geneva Convention on the High Seas, Apr. 29, 1958, 13 U.S.T. 2312, T.I.A.S. 5200, 450 U.N.T.S. 82 (entered into force definitively for the United States on Sept. 30, 1962) ("High Seas Convention"); Geneva Convention on the Continental Shelf, Apr. 29, 1958, 15 U.S.T. 471, T.I.A.S. 5578, 499 U.N.T.S. 311 (entered into force definitively for the United States on June 10, 1964) ("Continental Shelf Convention"); Law of the Sea Convention, Dec. 10, 1982, 1833 U.N.T.S. 397 (entered into force on Nov. 16, 1994) ("LOS Convention").

[19] As used here, the continental shelf generally refers to the juridical continental shelf of a coastal state (rather than the geological continental shelf), and comprises "the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance." LOS Convention art. 76(1).

[20] High Seas Convention arts. 2 ("Freedom of the high seas is exercised under the conditions laid down by these articles and by the other rules of international law. It comprises, inter alia, both for coastal and non-coastal States: . . . Freedom to lay submarine cables and pipelines."), 26(1) ("All States shall be entitled to lay submarine cables and pipelines on the

- The freedom to install and maintain submarine cables on the continental shelf,[21] subject to reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources;[22]
- The freedom to install and maintain submarine cables in the exclusive economic zone ("EEZ") of all states;[23]

bed of the high seas."), 26(3) ("When laying such cables or pipelines the State in question shall pay due regard to cables or pipelines already in position on the seabed. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced."); LOS Convention art. 112(1) ("All States are entitled to lay submarine cables and pipelines on the bed of the high seas beyond the continental shelf.").

[21] LOS Convention arts. 79(1) (providing that "[a]ll States are entitled to lay submarine cables and pipelines on the continental shelf, in accordance with the provisions of this article"), 79(5) (providing that "when laying submarine cables or pipelines, States shall have due regard to cables or pipelines already in position. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced"); *see also* LOS Convention, art. 78(2) (providing that "[t]he exercise of the rights of the coastal State over the continental shelf must not infringe or result in any unjustifiable interference with navigation and other rights and freedoms of other States as provided for in this Convention").

[22] Continental Shelf Convention, art. 4 (providing that "[s]ubject to its right to take reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources, the coastal State may not impede the laying or maintenance of submarine cables or pipe lines on the continental shelf"); LOS Convention, arts. 79(2) (providing that "[s]ubject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines, the coastal State may not impede the laying or maintenance of such cables or pipelines"), 79(4) (providing that "[n]othing in this Part affects the . . . [coastal State's] jurisdiction over cables and pipelines constructed or used in connection with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction").

[23] LOS Convention art. 58(1) (providing that "[i]n the exclusive economic zone, all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines").

- The ability to install submarine cables in a state's territory or territorial sea subject to conditions and exercise of national jurisdiction;[24] and
- The freedom to maintain existing submarine cables passing through the waters of an archipelagic state without making landfall.[25]

These treaty obligations are now treated as customary international law,[26] in particular by the United States.[27]

For purposes of the EEZ and the continental shelf, submarine cables are distinguished from (1) artificial islands, (2) structures and installations used for exploration or exploitation of living or nonliving natural resources or for "other economic purposes," and (3) installations and structures which may interfere with the exercise of the rights of the coastal state in the EEZ or on the continental shelf.[28] Although the relevant treaty provisions permit coastal states to take reasonable measures respecting natural resource exploitation on the continental shelf, they bar states from taking such measures with respect to submarine cables, the construction and repair of

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[24] *Id.* art. 79(4) (providing that "[n]othing in this Part affects the right of the coastal State to establish conditions for cables or pipelines entering its territory or territorial sea").

[25] *Id.* art. 51(2).

[26] *See* Delimitation of Maritime Boundary in Gulf of Maine Area (Can. v. U.S.), 1984 I.C.J Rep. 246, 294 ¶ 94 (Oct. 12).

[27] The United States recognized these freedoms starting in 1983, even though the United States has never ratified the LOS Convention (it signed only in 1994) and even though the Convention did not enter into force for those states that had ratified it until 1994. Presidential proclamations by two different U.S. presidents expressly stated that the establishments of an Exclusive Economic Zone ("EEZ") and a contiguous zone, respectively, did not infringe on the high-seas freedoms to lay and repair submarine cables. *See* Presidential Proclamation No. 5030, Exclusive Economic Zone of the United States of America, 48 Fed. Reg. 10,605 (Mar. 10, 1983) ("Pres. Proc. No. 5030") (establishing the U.S. EEZ); Presidential Proclamation No. 7219, Contiguous Zone of the United States, 64 Fed. Reg. 48,701 (Aug. 2, 1999) (establishing the U.S. contiguous zone).

[28] LOS Convention, arts. 56, 60(1), 80.

which are not undertaken for natural resource exploration or exploitation.[29] These treaty provisions are reflected in the official position of the United Nations' Office of Legal Affairs of the Division for Ocean Affairs and the Law of the Sea, which states that:

> [B]eyond the outer limits of the 12 nm territorial sea, the coastal State may not (and should not) impede the laying or maintenance of cables, even though the delineation of the course for the laying of such pipelines [but not submarine cables] on the continental shelf is subject to its consent. The coastal State has jurisdiction only over cables constructed or used in connection with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction.[30]

Thus, a coastal nation must forbear from imposing any restrictions on the installation or maintenance of submarine cables unless those submarine cables themselves are used for natural resource exploration or exploitation.

Coastal states also have obligations to prevent willful or negligent damage to cables.[31] All states "shall have due regard to cables or pipelines already in position."[32] Thus, the LOS Convention (ratified by 167 countries and the European Union) and U.S.-recognized customary

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29 *Id.* art. 79(2); Continental Shelf Convention, art. 4.

30 *Maritime Space: Maritime Zones and Maritime Delimitations—Frequently Asked Questions*, United Nations Department of Oceans and Law of the Sea, Office of Legal Affairs (responding to Question #7, "What regime applies to the cables and pipelines?"), http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/frequently_asked_questions.htm.

31 *See* LOS Convention, art. 113 ("Every State shall adopt the laws and regulations necessary to provide that the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable beneath the high seas done willfully or through culpable negligence, in such a manner as to be liable to interrupt or obstruct telegraphic or telephonic communications, and similarly the breaking or injury of a submarine pipeline or high-voltage power cable, shall be a punishable offence. This provision shall apply also to conduct calculated or likely to result in such breaking or injury. However, it shall not apply to any break or injury caused by persons who acted merely with the legitimate object of saving their lives or their ships, after having taken all necessary precautions to avoid such break or injury.").

32 *Id.* art. 79(5).

international law afford submarine cables a great degree of protection from regulation or interference by coastal states, reflecting the vital role that submarine cables play in facilitating communications, commerce, and government.

D. U.S. Law Establishes Federal Offenses for Cable Damage

U.S. law provides that damaging a submarine cable—whether deliberately or through negligence—is a federal offense punishable by fine, imprisonment, or both.[33] Federal law imposes obligations on fishing vessels to keep their nets from interfering with or damaging submarine cables, and requires fishing vessels to maintain a minimum distance from any vessel engaged in laying submarine cable or any buoy placed to mark the position of a submarine cable. Violators are subject to imprisonment and financial penalties.[34] In addition, submarine cable owners have a right under U.S. law to sue for damage to their cables.[35]

E. The Offshore Renewable Energy Industry Lacks Awareness of Submarine Cables

The offshore renewable energy industry in the United States remains in the early stages of development. "[S]ubmarine cable operators, offshore renewable energy developers, and regulators have yet to develop systematic risk-minimization strategies and consultation and coordination mechanisms, which has resulted in some unresolved conflicts."[36]

Unsurprisingly, conflicts have arisen where operators of existing submarine cables have discovered belatedly that offshore renewable energy project developers have planned projects

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33 47 U.S.C. §§ 21 (willful damage), 22 (negligent damage).

34 *See* 47 U.S.C. § 25.

35 47 U.S.C. § 28.

36 *See* Communications Security, Reliability and Interoperability Council, *Working Group 8 Submarine Cable Routing and Landing Final Report—Protection of Submarine Cables Through Spatial Separation* 36 (2014),

directly on top of or in very close proximity to existing and planned submarine cables. For example, the Federal Energy Regulatory Commission ("FERC") issued preliminary project permits for the Dynegy Point Estero Wave Park Project and the Dynegy Estero Bay Wave Park Project over the objection of the NASCA that the projects would be located adjacent to or directly over four major trans-Pacific submarine cable systems, and that Dynegy had not made any attempt to identify—much less coordinate with—submarine cable operators in the area.[37] Similarly, FERC granted preliminary permits for tidal energy projects in Puget Sound (threatening the PC-1 cable due to insufficient spatial separation) and in Alaska's Cook Inlet (threatening the Kodiak-Kenai Fiber Link due to insufficient spatial separation) absent any advance identification of the affected submarine cables or coordination with their operators.[38] The statutory penalties for cable damage, noted in Part I.D above, appear not to have deterred these project developers from proposing projects next to or on top of existing submarine cables.

Permit applications for the renewable energy facilities mentioned above demonstrate that the offshore renewable energy industry lacks engagement with and awareness of submarine cables. While BOEM's COP Guidelines promote awareness at the project planning phase, addressing submarine cable locations at the site selection phase can ensure industry selection of

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http://transition.fcc.gov/pshs/advisory/csric4/CSRIC_IV_WG8_Report1 _3Dec2014.pdf ("CSRIC Spatial Separation Report").

37 *Order Issuing Preliminary Permit and Granting Priority to File License Application,* FERC Nos. P-14584 & P-14585, 149 FERC ¶¶ 62,058 & 62,059 (Oct. 28, 2014); *see also* Comments of the North American Submarine Cable Association, FERC Nos. P-14584 and P-14585 (filed Sept. 15, 2014), http://elibrary.ferc.gov/idmws/file_list.asp?document_id=14251566.

38 Federal Energy Regulatory Commission, *Licensed Marine and Hydrokinetic Projects* (Aug. 18, 2015), http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp; Federal Energy Regulatory Commission, *Issued Hydrokinetic Projects Preliminary Permits* (Aug. 18, 2015), http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp.

Wind Energy Areas (WEA) locations that would not pose risk to submarine cables in the first place.

II. UNCOORDINATED RENEWABLE ENERGY ACTIVITIES ON THE NEW YORK BIGHT OCS POSE RISKS OF DAMAGE TO SUBMARINE CABLES.

Submarine cable operators, installers, and maintenance providers have particular spatial requirements on the surface of the ocean and on the sea floor. Without adequate spatial separation and coordination, wind energy activities on the OCS in the New York Bight pose significant risks to submarine cable systems.

A. Submarine Cable Installation, Operation, and Repair Require Spatial Separation from Other Cables and Other Marine Activities, as Well-Established in Various International and Foreign Standards

1. Vessel and Equipment Access

Cable ships—used for both installation and repair activities—are large vessels that consequently require adequate maneuvering space to accommodate operations and the effects of bad weather on the ocean in order to ensure the safety of the vessel, the crew, the submarine cables, and the wind energy infrastructure. They frequently operate in less-than-perfect weather and ocean conditions, which necessitate additional maneuvering room. They operate in such conditions given that the significant running costs of a cable ship (more than US $100,000 per day) make delays costly, given commercial imperatives to minimize the time to market for new systems, and given the commercial and security imperatives to minimize the delay in repairing damaged systems and restoring communications.

2. Installation Activities

During an installation, a cable ship will pay out cable from the ship's tanks, maintaining tension to ensure that the cable does not throw loops, which can result in transmission failures if pulled tight and render a cable more susceptible to physical damage due to greater exposure

above the seabed. Cable installers use various slack management techniques and software to minimize these outcomes. In shallow areas, cable is generally buried using a sea plow (typically to a depth of up to two meters) to protect it from hazards such as commercial fishing and anchoring. In limited areas where there are no significant fishing or anchoring risks or where the seabed does not permit burial, it will be laid on the surface of the seafloor.

3. Cable Retrieval

To recover a cable from the sea floor for repair purposes, a ship can either deploy an ROV, or it can grapple for the cable. ROV use is limited to shallower depths between 50 and 2000 meters. ROV use is generally limited to cable laid or exposed on the surface of the sea floor, although an ROV can be used for retrieval of shallow-buried cable depending on the sediment type. To retrieve a surface-laid cable in deeper water, a cable ship uses grapnels. And to retrieve a buried cable at any depth, a cable ship uses a detrenching grapnel, the size and weight of which increases with the depth of water.

The grapnel (whether for surface-laid or buried cable) is lowered to the sea floor from lines on the cable ship and dragged in a direction perpendicular to the cable. This allows the grapnel to dig into the seabed and under the cable, maximizing the chance that the grapnel will hook the cable (rather than graze or accidentally release it) and bring it to the surface of the seabed. Current ship positioning technology allows for extremely accurate placement of this gear and for controlled cable retrieval. Nevertheless, bad weather, heavy seas, or strong currents can decrease the accuracy of these operations—a situation which poses a greater risk to other submarine cables or sea floor installations in the vicinity of the target cable.

A damaged submarine cable must be repaired onboard a cable ship. But a cable (whether tensioned or not) that is resting on, or buried in, the seabed will lack sufficient slack to reach the surface for repair. Unless a cable is already severed, therefore, it must first be cut in order to be

brought to the surface. This retrieval operation takes at least three passes with the grapnel—one to cut the cable, a second to bring up and buoy one end of the cable, and a third to bring up and bring onboard the second end. After the ends are repaired and tested, a section of cable must be spliced in between the two ends in order to have them meet at the surface and restore connectivity. This additional section is typically two and a half times the depth of water in length. This length permits what was previously a cable lying flat on the sea floor to reach up to the cable ship, provide length for manipulation and repair activities on board, and reach back down to the sea floor.

This final configuration (known as the final bight) must be carefully placed back on the seabed. The ship uses additional rope to pull the bight in a direction perpendicular to the line of the original cable and then lower it to the seabed. Only with this careful placement can the repair ship have any chance of laying the cable flat. It is critical that the cable lay flat. If the cable has loops or is elevated above the seafloor, it is virtually impossible to bury the repaired section. Loops are undesirable for a variety of reasons: they can result in transmission failures if pulled tight, they can stand upright on the seabed, and they are more susceptible to physical damage due to greater exposure above the seabed. Elevation of the cable above the seafloor is undesirable, as it exposes the cable to greater risk of damage by external events. Either exposes even more of the cable to the risk that caused the damage or fault in the first place.

4. Spatial Separation Standards

The submarine cable industry has developed standards to protect submarine cables from other marine activities, including wind energy projects.[39] The key recommendations of the ICPC

[39] Each installation and maintenance company also has more specific methods for handling cable per each cable manufacturer's recommendations.

are summarized below and available at www.iscpc.org. As described in more detail below, ICPC's recommendation for proximity with respect to wind energy projects stems from collaboration from both the submarine cable and renewable energy industries.

Table 1

No.	Issue	Recommendation
1	12	Recovery of Out of Service Cables This document provides the ICPC's recommendations in relation to recovery of a submarine cable system that is redundant or has been taken out of service. Taken into consideration are legal requirements, environmental concerns, salvage, and proximity to adjacent infrastructure (other cables, oil and gas facilities, etc.)
2	10	Cable Routing and Reporting Criteria This Recommendation provides generalized cable routing and notification criteria that the ICPC recommends be used when undertaking cable route planning activities where the cable to be installed crosses, approaches close to or parallels an existing or planned cable system. For parallel submarine cables, this Recommendation recommends a separation distance of the lesser of 3 times depth of water, or where not achievable, 2 times the depth of water following consultation and agreement between affected parties.
3	10	Telecommunications Cable and Oil Pipeline / Power Cables Crossing Criteria The continued increase in both the numbers of submarine cables and the exploitation of oil and gas from the seabed inevitably means that there will be more cases of crossings between telecommunications cables, power cables, and pipelines. The purpose of this document is to give guidance to those who are faced with this situation and to provide some basic questions that need to be asked as the first step in considering any proposed crossing so that areas of concern can be identified and mutually acceptable solutions developed.
4	8	Co-ordination Procedures for Repair Operations Near In Service Cable Systems This document provides recommended procedures with respect to any repair operations that are undertaken near active cable systems. The procedures apply to the repair operations of active cable systems in the vicinity of any cable crossing or cables that are closely parallel. Considerations to be addressed include proximity to each other, ship operations, cable retrieval options, repair scheduling, establishing points of contact, and other non-site specific guidelines.

6	8A	Actions for Effective Cable Protection (Post Installation) This recommendation concerns post-installation measures to mitigate the risk of cable faults caused by human activities such as fishing and vessel anchoring. Such measures are often referred to as marine liaison, offshore liaison, or cable awareness. Different measures may be appropriate in different areas, even when a single cable system is involved. Such measures must take into account the characteristics of the different mariners active in each area, such as fishermen, merchant mariners, pilots, port authorities, military officers, marine traffic control officials, operators of resource extraction vessels, etc. These conditions and risks may change over time.
7	6	Offshore Civil Engineering Work in the Vicinity of Active Submarine Cable Systems This document recommends the procedure to be followed when civil engineering or offshore construction work is undertaken in the vicinity of active submarine cable systems. The construction company responsible for the civil/structural work should discuss their plans with the responsible cable owner in order to determine operational and maintenance issues and liabilities that may impact on the submarine cable or the planned structure. The construction company should work with the cable owner to accurately identify the physical location of the cable systems in the vicinity of the planned civil works. Depending on the circumstances, the location work could require either divers or a Remotely Operated Vehicle (ROV) to assist in the cable locating work.
8	7A	Offshore Seismic Survey Work in the Vicinity of Active Submarine Cable Systems An active submarine cable system includes electro-optic devices that are required to manage the signal at intervals along its route. If the internal components of these submerged devices are subjected to acceleration greater than specification there is a risk of serious damage. This document recommends the procedure to be followed while offshore seismic survey work is undertaken in the vicinity of active submarine cable systems where these are installed in water depths of 200 meters or less.
13	2A	The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters This document provides guidance on the considerations that should be given in the development of projects requiring proximity agreements between offshore wind farm projects and submarine cable projects within national waters. The document addresses installation and maintenance constraints related to wind farm structures, associated cables and other submarine cables where such structures and submarine cables will occupy proximate areas of seabed.

ICPC Recommendation No. 13, which establishes principles for proximity of offshore renewable wind energy installations and submarine cable infrastructure, is instructive for determining spatial separation needs between the two. The recommendation fully adopts and

implements the European Subsea Cables Association ("ESCA") Guideline No. 6, which was created with input from the submarine cable industry, the offshore renewable energy industry, and the United Kingdom's Crown Estate.[40]

To prepare ESCA Guideline No. 6, industry stakeholders and the Crown Estate commissioned a proximity study to determine the needs for spatial separation between submarine cables and offshore renewable energy projects.[41] ESCA Guideline No. 6 used the evidence-based proximity study to make specific recommendations for marine spatial planning that address the need for safety, access, and maintenance for both submarine cables and wind energy projects. ESCA Guideline No. 6 is summarized in a letter, attached hereto as Appendix 2, that ESCA sends to European regulators and authorities to explain the justification for spatial separation needs.[42]

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[40] At the time of publication of ESCA Guideline No. 6, the association was Subsea Cables UK ("SCUK"). In 2015, SCUK became the European Subsea Cables Association ("ESCA"), to better reflect the subsea cable industry sector across Europe. ESCA Guideline No. 6 was subsequently revised to reflect the updated industry association name. *See* ESCA, *ESCA Guideline No. 6, The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK Waters* (Issue 5 2016) ("ESCA Guideline No. 6"). The Crown Estate, a property manager overseeing property and holdings making up the Sovereign's public estate, manages the seabed out to the 12 nautical mile limit. *See*, e.g., *Cables and Pipelines*, The Crown Estate, https://www.thecrownestate.co.uk/energy-minerals-and-infrastructure/cables-and-pipelines/.

[41] *See* Red Penguin Associates Ltd, Submarine Cables and Offshore Energy Installations – Proximity Study Report, The Crown Estate (2012), available for download at https://www.thecrownestate.co.uk/energy-minerals-and-infrastructure/cables-and-pipelines/studies-and-guidance/wind-and-telecoms-cable-proximity/.

[42] *See* Letter from European Subsea Cables Association to European Marine Authorities & Regulators, et al. re the ESCA position on clear sea-room distances required to properly support subsea cable installation and maintenance in Offshore windfarms, in water depths up to approximately 75m (Aug. 1, 2017) ("ESCA Letter"), attached as Appendix 2.

ICPC, which represents the international submarine cable industry, fully adopted ESCA Guideline No. 6 and the associated proximity study. ICPC Recommendation No. 13 is therefore "based upon the combined broad experience and knowledge base contained within the submarine cable industry, the offshore renewable energy industry and the Crown Estate."[43]

ICPC Recommendation No. 13, consistent with ESCA Guideline No. 6, indicates that the ideal distance between submarine cables and offshore energy projects is 1 nautical mile (approximately 1852 meters).[44] For projects in closer proximity, ICPC Recommendation No. 13 recommends the need for a working zone of 500 meters on either side of an in-service submarine cable to enable access for cable maintenance and repair operations, as well as an additional hazard area with a minimum radius of 250 meters *in addition to* the working zone, to address the potential for a vessel undertaking cable operation working at the limit of a working zone. Accordingly, for renewable energy projects in water depths up to 75 meters, a minimum default separation of 750 meters on either side of a cable is recommended.[45] ICPC Recommendation No. 13's separation recommendations are the minimum recommended separation, to be used as a starting point for project-specific proximity agreements between renewable energy projects and submarine cable operators for any infrastructure that will be located within 1 nautical mile of each other.

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43 International Cable Protection Committee, *ICPC Recommendation No. 13, The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters* 6 (Issue 2A 2013) available by request at www.iscpc.org or secretariat@iscpc.org ("ICPC Recommendation No. 13").

44 *Id.* at 7; *see also* ESCA Letter at 4 ("The ideal minimum distance (for waters up to 75m deep) as detailed in [ESCA Guideline No. 6] is somewhat larger than" the minimum recommended distance. "This ideal distance [is] +/- 1 Nautical Mile.").

45 *See* ICPC Recommendation No. 13, at 7; ESCA Letter at 4.

ESCA Guideline No. 6 and ICPC Recommendation No. 13 do not address separation for renewable energy projects in water depths greater than 75 meters, but ICPC Recommendation No. 2 can be instructive for these purposes. ICPC Recommendation 2 establishes principles for submarine cables located adjacent to each other, recognizing that cables can be placed only so close to each other until they endanger other cables during installation and maintenance, or until they impede access for installation and maintenance—particularly if there are multiple installation and maintenance companies operating in the same vicinity above or below the ocean surface. Accordingly, in water depths greater than 75 meters, submarine cable operators follow a guideline according to which two parallel cables are to be separated by a distance equal to the lesser of three (3) times the depth of water or nine (9) kilometers, though actual placement may vary on a case-by-case basis.[46] Similarly, if both operators of parallel cables agree, cables in deeper water may be separated by a distance equal to the lesser of two (2) times the depth of water, or (6) six kilometers.[47]

Similarly, a report adopted unanimously by the FCC's Communications Security, Reliability and Interoperability Council ("CSRIC")—a federal advisory committee advising the FCC Chairman on communications security issues—also discusses and makes recommendations regarding spatial separation standards. In particular, the CSRIC Spatial Separation Report

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[46] *See* International Cable Protection Committee, *ICPC Recommendation No. 2, Recommended Routing and Reporting Criteria for Cables in Proximity to Others* 12 (Issue 11 2015), available by request at www.iscpc.org or secretariat@iscpc.org ("ICPC Recommendation No. 2").

[47] *Id.* While the submarine cable operators may agree to place the cables as little as 200 meters apart—either because the length of the parallel is short or the probability of damage and repair is low—most operators take a more conservative approach to cable separation distances. The "three-times-the-depth-of-water" standard allows the repair ship to lay the repaired cable back flat on the seabed without laying it over the adjacent cable.

(which was drafted by the CSRIC's submarine cable working group, with input from both BOEM and FERC) urges the FCC and submarine cable operators to "work with other U.S. Government agencies and other stakeholders to consult with and among each other at the earliest possible time to address spatial requirements for submarine cables and their relationship to other proposed marine activities and infrastructure."[48] The CSRIC Spatial Separation Report also recommends that the FCC explore with other government agencies the creation of exclusion zones around existing submarine cables, based on well-established spatial requirements for submarine cable installation and maintenance activities, "that would exclude on a categorical basis activities within a defined distance of a submarine cable absent agreement with the submarine cable owner."[49] CSRIC also recommends that the FCC endorse a default separation distance of 500 meters in water depths of less than 75 meters and the greater of 500 meters or two times the depth of water in greater water depths that would govern in the absence of agreement among agencies and affected stakeholders.[50]

CSRIC's spatial separation recommendation of 500 meters provides a guideline for U.S. Government agencies to consider as a starting point for separation from marine activities more generally; this recommendation is further supplemented by the submarine cable and renewable energy industries' recognition that additional separation is needed with respect to renewable energy projects. Accordingly, 750 meters on either side of the cable is the industry-recognized minimum recommended distance for submarine cables in proximity to offshore renewable energy developments in water depths of 75 meters or less.[51] For greater water depths, NASCA

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48 *See* CSRIC Spatial Separation Report at 57.

49 *Id.* at 12.

50 *Id.* at 57-58.

51 *See* ESCA Letter at 4.

recommends a minimum separation of the greater of 750 meters or three times the water depth on either side of the cable to address the increased challenges of projects in deeper waters. Even with this minimum separation, project-specific proximity agreements are necessary to address potential repairs and other construction and maintenance needs of submarine cables and renewable energy projects in close proximity.

B. Potential Impacts of Wind Energy Activities on Submarine Cables

As noted in the CSRIC Spatial Separation Report, "[u]ncoordinated renewable energy development poses numerous risks to submarine cables."[52] Without adequate spatial separation and coordination, offshore wind energy activities on the New York Bight OCS can cause physical disturbance and impede access to cables for installation and maintenance.

1. Direct Physical Disturbance

Renewable energy activities risk disturbing the seabed and damaging existing submarine telecommunications cables.[53] Direct physical disturbance can result from anchoring, sea floor scouring, and power transmission cable crossings, regardless of whether the cable is resting on the surface of the seabed or buried. Anchoring alone accounts for approximately 15 percent of cable faults worldwide.[54] Both the vessels necessary to construct a renewable energy facility, or sometimes the renewable energy facility itself, will rely on anchors. Improperly stowed anchors that release or fall overboard can be dragged for great lengths across the sea floor, damaging

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52 *See* CSRIC Spatial Separation Report at 39.

53 *Id.* at 33.

54 *Id.* at 32.

cables along their paths. Even properly anchored vessels can, depending on sea conditions, drag anchors across the path of submarine cables.

Placing renewable energy facilities near submarine cables increases the risk of harm through seafloor scouring. Sea floor scouring occurs when "currents erod[e] sediment in the areas around a structure on the sea floor."[55] Scouring can cause submarine cables, which are typically laid either directly on or trenched into the sea floor, to become suspended. Suspended cables are at risk of abrasion caused by strumming of the suspended span, and are more exposed to external threats, such as from fishing operations. The risk of scouring could lead submarine cable operators to bury cables more deeply, which is more costly and time consuming both at the time of installation and retrieval for repairs. Scouring can also redeposit sediment above a cable in a manner that increases the risk of erosion and abrasion.[56]

Most, if not all, renewable energy facilities rely on one or more power transmission cables. The installation, operation, and maintenance of those cables all pose a risk of direct physical disturbance to submarine cables in close proximity—particularly if the power transmission cable crosses the submarine cable—and also increase the complexity, time, and cost of submarine cable repair.[57]

2. Impeded Access—at Both the Ocean Surface and Seafloor—for Installation and Maintenance

In addition to the risk of direct physical disturbance, large renewable energy projects can also impede access to submarine cables for maintenance and repair activities. Such projects may attempt to build directly over or very near to existing submarine cables, impairing access to those

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[55] *Id.* at 39.

[56] *Id.* at 40.

[57] *Id.* at 40-41.

portions of the cable under or in close proximity to the marine renewable energy facility. The installation of an energy project can also force new cables into de facto "cable corridors," as all new cables must work around such facilities but may have limited routing options, forcing cables to be placed in closer proximity with each other.[58]

It is more difficult for repair ships and personnel to retrieve and repair damaged cables when in close proximity to other marine activities like renewable energy facilities or other submarine cables. Moreover, forcing cables into these "cable corridors" greatly increases the odds that one damaging mishap could disrupt multiple cables, resulting in prolonged and wide-ranging outages. Where close proximity between cables and other infrastructure exists—especially without prior agreement or coordination—cable faults will be repaired less quickly, communications system outages will last longer, and the costs to cable operators and the customers they serve could increase considerably.

III. BOEM SHOULD UNDERTAKE SPECIFIC MEASURES AT THE SITE SELECTION PHASE TO ENSURE SUBMARINE CABLE PROTECTION ON THE OCS IN THE NEW YORK BIGHT

BOEM's Call seeks comments about "site conditions, resources, and multiple uses in close proximity to, or within, the Call Areas" relevant to BOEM's "review of any nominations" and "possible subsequent decision to offer all or part of the Call Areas for commercial wind leasing."[59] NASCA applauds BOEM's OREP for flagging "cables and other existing infrastructure" as a topic that BOEM is "particularly sensitive to" within the Call Areas.[60] The

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58 *See id.*

59 Call, 83 Fed. Reg. at 15,602-1.

60 *Id.* at 15,605.

New York Bight area is a major landing for numerous submarine cables, and as such, there is a high probability of conflicting use between submarine cables and offshore wind projects.

While it is helpful that BOEM has pointed lessees to the potential need for developing "site-specific crossing and proximity agreements with applicable infrastructure owners,"[61] NASCA urges BOEM to account for submarine cable protection earlier in the process, at the site selection phase. BOEM should address the location of existing submarine cable systems in the New York Bight area, and the need for adequate spatial separation to protect those systems. Consideration of submarine cable infrastructure as part of the site selection phase can decrease the risk of damage to submarine cables and can prevent costly delay to WEA project timelines.

Specifically, BOEM should recognize categorical exclusion zones around existing submarine cables and withdraw those areas from the Call Areas. At a minimum, BOEM should incorporate default spatial separation from submarine cables into its leases. In addition, NASCA urges BOEM to continue to promote awareness and encourage coordination and consultation with submarine cable owners at both the planning and implementation phases. Finally, BOEM should continue to work with expert agencies during its area identification process.

A. BOEM Should Recognize Categorical Exclusion Zones Around Existing Submarine Cables and Withdraw from Leasing Those Lease Blocks or Portions of Lease Blocks Traversed by Existing Submarine Cables

NASCA urges BOEM to recognize categorical exclusion zones around existing submarine cables and to withdraw from leasing the lease blocks or portions of lease blocks within the Call Areas that are traversed by existing submarine cables. BOEM's Call acknowledges the potential need for "buffer zones" between WEAs to "allow for mitigation of

[61] *Id.* at 15,609.

potential conflicts."[62] BOEM should incorporate similar buffers between WEAs and existing submarine cable infrastructure—via categorical exclusion zones—into its Call Areas to help prevent potential conflicts between submarine cables and offshore wind projects. At a minimum, BOEM should incorporate spatial separation from submarine cables as a requirement in its leasing documents.

Effective cable protection requires spatial separation between submarine cables and other marine activities. With sufficient separation, the risks of direct disturbance via equipment or anchors, or impeded access for establishment of diverse routes or timely maintenance are minimized. Technological developments by other marine activities are irrelevant to these minimum spatial requirements, given the access requirements for submarine cable vessels and equipment. The CSRIC Spatial Separation Report recommends that the FCC explore with other government agencies the creation of exclusion zones around existing submarine cables, based on well-established spatial requirements for submarine cable installation and maritime activities "that would exclude on a categorical basis activities within a defined distance of a submarine cable absent agreement with the submarine cable owner."[63] In addition, while the focus of ICPC Recommendation No. 13 is on proximity agreements, it also notes that "[b]efore decisions are made regarding proximity and cable crossings, other solutions should be considered to potentially mitigate or reduce the impact."[64] These solutions include "[c]onstruction of a wind farm in a different area."[65] Accordingly, BOEM can reduce the risks posed by wind energy

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62 *Id.* at 15,616.

63 CSRIC Spatial Separation Report at 57.

64 ICPC Recommendation No. 13, at 14.

65 *Id.*

facilities and submarine cable infrastructure located too close together by incorporating the spatial separation recommendations into the site selection phase.

BOEM should therefore consider the default minimum separation distances established in ESCA's and ICPC's recommendations in establishing exclusion zones and in identifying lease blocks or portions thereof ineligible for leasing. Specifically, BOEM should account for a default separation distance of a minimum of 750 meters on either side of the cable in water depths of less than 75 meters (i.e., 1500 meters total) and the greater of 750 meters or three times the depth of water on either side of the cable in greater water depths.[66] BOEM should recognize this minimum default separation distance as a buffer, or categorical exclusion zone, around submarine cable infrastructure to serve as a basis for case-by-case proximity agreements. These categorical exclusion zones could mirror the 1 nautical mile buffer zones from traffic and shipping lanes that BOEM has already excluded from the proposed Call Areas, as well as the buffer zones recommended by the U.S. Coast Guard for traffic separation schemes that BOEM indicates it may exclude from the proposed areas.[67]

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[66] CSRIC Spatial Separation Report at 57-58.

[67] Call, 83 Fed. Reg. at 15,607 (excluding "[a]ll sub-blocks that overlap with a 1 nmi buffer along all outer edges of traffic lanes, shipping safety fairways, and the above-mentioned 30 nmi delineated area."); *id.* ("USCG issued Marine Planning Guidelines (MPG), which recommends a 2 nmi parallel buffer between the outer or seaward boundary of a traffic lane and offshore structures, and a 5 nmi buffer for a Traffic Separation Scheme entry or exit. USCG has stated that these buffers are guidelines, and has acknowledged that navigational risks can be mitigated on a project-by-project basis, pending more detailed analysis following the lessee's submission of a Navigational Safety Risk Assessment at the construction and operations phase of BOEM's regulatory process. Pending the outcome of future analysis, BOEM may not offer some portions of the Call Areas for leasing or development based on information provided in response to during [sic] the Call regarding safety concerns and historic routes of vessel traffic.").

At a minimum, BOEM should require nominations—and the leases themselves—to incorporate the default separation distances into their projects, and to further coordinate with submarine cable stakeholders. BOEM's Call proposes "adding stipulations in its leases limiting development within a certain distance of adjacent development without the consent of the other developer."[68] While BOEM's proposal applies to spatial separation between wind projects, NASCA urges BOEM to include the same stipulation in its leases for submarine cable infrastructure. Even with categorical exclusion zones recognizing the minimum spatial separation distance, submarine cable industry recommendations recommend consultation between stakeholders for projects within 1 nautical mile of existing submarine cables.[69]

B. BOEM Should Continue to Promote Coordination with Submarine Cable Operators at the Planning and Implementation Phase

NASCA applauds the efforts BOEM's OREP has already made to encourage protection of submarine cables through its COP Guidelines. NASCA encourages BOEM to continue to promote the renewable energy industry's awareness of existing submarine cables and coordination with submarine cable operators in project planning and implementation. Even if OREP creates categorical exclusion zones to account for the minimum separation recommendations of 750 meters on either side of the cable (or the greater of 750 meters or three times the water depth for projects in water depths greater than 75 meters), proximity agreements between wind energy projects and submarine cable operators are still necessary on a case-by-case basis where projects are within 1 nautical mile of submarine cable infrastructure.[70] In addition to establishing the proximity of wind energy projects and cables, these agreements need

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[68] *Id.* at 15,616.

[69] ICPC Recommendation No. 13, at 7.

[70] *See id.* at 7.

to establish case specific details such as procedures to follow for potential cable repairs (e.g., turning off turbines or turning them in a different direction for a repair), insurance requirements, and protections for cable crossings.

As part of its guidance in the COP Guidelines, BOEM directs lessees of renewable energy programs to coordinate with the owners and operators of existing submarine cables "as early as practicable in the project planning process," as well as with all "potential owners and operators of any telecommunications cables that are planned for installation in the lease area."[71] In its COP Guidelines, BOEM directs lessees to NASCA's resources for coordination and planning. BOEM also encourages lessees to gain familiarity with existing guidelines and standards for coordination, including those published by the ICPC.[72] Critically, to facilitate review of renewable energy projects, the COP Guidelines also recommend that lessees include coordination information in their submission of construction and operations plans, which must be approved by BOEM.[73]

To promote awareness and coordination, NASCA urges BOEM to continue to direct industry stakeholders to the COP Guidelines, and to notify renewable energy project developers of the need to involve submarine cable operators as early as possible in project planning to develop project-specific proximity agreements.

C. NASCA Urges BOEM to Establish Coordination with Expert Agencies

As part of BOEM's coordination with other federal and regional bodies for ocean planning,[74] NASCA also urges BOEM to develop interagency coordination measures with those

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71 COP Guidelines, Attachment G, at 60.

72 *Id.*

73 *Id.*

74 *See* Call, 83 Fed. Reg. at 15,603.

federal agencies engaged in regulation of submarine cables or having submarine cable expertise, particularly the FCC. In particular, the CSRIC Spatial Separation Report (which was drafted with input from BOEM) urges the FCC and submarine cable operators to "work with other U.S. Government agencies and other stakeholders to consult with and among each other at the earliest possible time to address spatial requirements for submarine cables and their relationship to other proposed marine activities and infrastructure."[75]

First, BOEM can make better use of the interagency coordination procedures established by the National Environmental Policy Act ("NEPA"), including the provisions for lead agencies and coordinating agencies[76] NASCA urges BOEM to treat the FCC, Team Telecom, and U.S. Army Corps of Engineers as cooperating agencies in its future area identification process. These agencies are qualified agencies with "special expertise",[77] and can provide invaluable information on the economic and social impact on submarine cable infrastructure associated with renewable energy activities. As part of the development of its area identification process, NASCA urges BOEM to seek information from these agencies and coordinate with them to protect existing submarine cable infrastructure and ensure the ability to develop and protect future submarine cable infrastructure.

Second, BOEM should negotiate a memorandum of understanding with the FCC to

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75 *See* CSRIC Spatial Separation Report at 57; *see also* Communications Security, Reliability and Interoperability Council, *Working Group 4A Submarine Cable Resiliency Final Report—Interagency and Interjurisdictional Coordination* 45 (2016), https://transition.fcc.gov/bureaus/pshs/advisory/csric5/WG4A_Report-Intergovernmental-Interjurisdictional-Coordination_June2016.pdf (encouraging the FCC to take an active role in marine spatial planning activities, including those of BOEM).

76 40 C.F.R. § 1506.2(b) – (c); *see also* 42 U.S.C. § 4332 (requiring the lead agency to "consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved.").

77 42 U.S.C. § 4332(C)(v); 40 C.F.R. §§ 1501.6, 1508.5.

establish formal consultation and coordination procedures to minimize potential conflicts between submarine cables and renewable energy projects—including those in the New York Bight area. The adoption of both measures would provide BOEM with valuable and relevant information necessary for the area identification process for future commercial wind projects on the OCS in the New York Bight.

CONCLUSION

For the reasons stated above, NASCA urges BOEM to adopt measures to protect existing and planned submarine cable systems and to address the unique legal protections afforded to such systems as part of BOEM's area identification process for commercial wind leases on the New York Bight OCS.

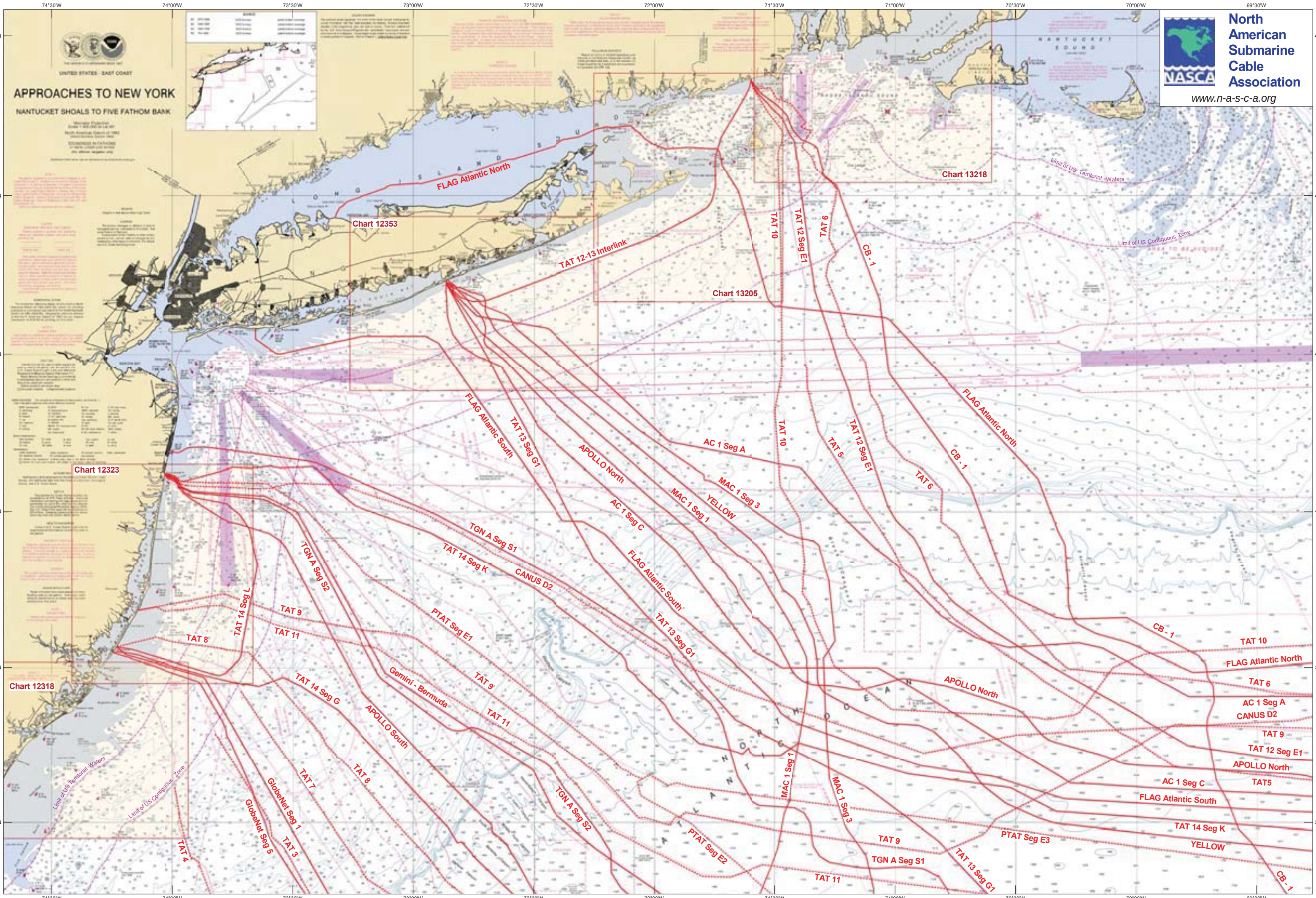
Respectfully submitted,

Kent D. Bressie
Susannah J. Larson
HARRIS, WILTSHIRE & GRANNIS LLP
1919 M Street, N.W., Suite 800
Washington, D.C. 20036-3537
+1 202 730 1337 tel

Counsel for the
North American Submarine Cable Association

30 July 2018

Appendix 1: Maps of Submarine Cables Landing in the New York Bight



LEGEND

- NASCA Member Cables In Service
- NASCA Member Cables Out of Service
- Maritime Boundaries

General Note

These cables are plotted based on the best available data from cable owners and members of the North American Submarine Cable Association (NASCA) at the time of production.

Please be aware that there may be other cables in the area that are not depicted on this chart.

CABLE & CONTACT INFORMATION

Cable System	Status	Owner	Emergency Contact No.
AC 1 Segment A	*In Service*	Level 3	1-877-881-9205
AC 1 Segment C	*In Service*	Level 3	1-877-881-9205
APOLLO North	*In Service*	Apollo	+44 (0) 20 7138 7117
APOLLO South	*In Service*	Apollo	+44 (0) 20 7138 7117
CANUS D2	*OOS*	Tata	1-732-282-4001
CB-1	*In Service*	Verizon	1-866-246-4186
FLAG Atlantic South	*In Service*	Global Cloud Xchange	+44 20-8282-1599
FLAG Atlantic North	*In Service*	Global Cloud Xchange	+44 20-8282-1599
Gemini - Bermuda	*In Service*	Verizon	1-866-246-4186
GlobeNet Segment 1	*In Service*	Globenet	1-609-377-9494 or 1-609-294-8661
GlobeNet Segment 5	*In Service*	Globenet	1-609-377-9494 or 1-609-294-8661

Cable System	Status	Owner	Emergency Contact No.
MAC 1 Segment 1	*In Service*	Level 3	1-877-881-9205
MAC 1 Segment 3	*In Service*	Level 3	1-877-881-9205
PTAT Segment E1	*OOS*	Sprint	1-800-726-2669
PTAT Segment E2	*OOS*	Sprint	1-800-726-2670
PTAT Segment E3	*OOS*	Sprint	1-800-726-2671
TAT 3	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 4	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 5	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 6	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 7	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 8	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 9	*OOS*	AT&T	1-866-466-2288, Prompt 5

Cable System	Status	Owner	Emergency Contact No.
TAT 10	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 11	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 12 Segment E1	*In Service*	AT&T	1-866-466-2288, Prompt 5
TAT 12-13 Interlink	*In Service*	AT&T	1-866-466-2288, Prompt 5
TAT 13 Segment G1	*In Service*	AT&T	1-866-466-2288, Prompt 5
TAT 14 Segment G	*In Service*	AT&T	1-866-466-2288, Prompt 5
TAT 14 Segment K	*In Service*	Sprint	1-800-726-2669
TAT 14 Segment L	*In Service*	AT& T/ Sprint	1-866-466-2288, Prompt 5 / 1-800-728-2669
TGN A Segment S1	*In Service*	Tata	1-732-282-4001
TGN A Segment S2	*In Service*	Tata	1-732-282-4001
YELLOW	*In Service*	Level 3	1-877-881-9205

Emergency Contact Information

In the event you one become entangled in one of the submarine cables shown on this chart please contact the relevant owner listed on this chart 24 hours a day, seven days a week.

For General Information

For non-emergency information regarding any of the cable systems shown on this chart, or for marine planning purposes, please contact: **cableinfo@N-A-S-C-A.org**

NATURAL SCALE 1 : 400,000 at 40°00' N

0 5 10 15 20 25
Miles

0 5 10 15 20 25
Nautical Miles

SPHEROID & DATUM : WGS84

PROJECTION : MERCATOR

Notes:

This chart is intended for general reference only and **NOT FOR NAVIGATION PURPOSES.**

Please be aware that other cables may exist in addition to those shown on this chart.

SOUNDINGS IN FATHOMS
AT MEAN LOW WATER

CHART HISTORY

Produced by Charting Services
Global Marine Systems Limited, Chelmsford, United Kingdom

EDITION No. 1 January 2015

CHART BACKGROUND:

NOAA Chart 12300. 49th Edition, June 2012

For more information see:
www.nauticalcharts.noaa.gov

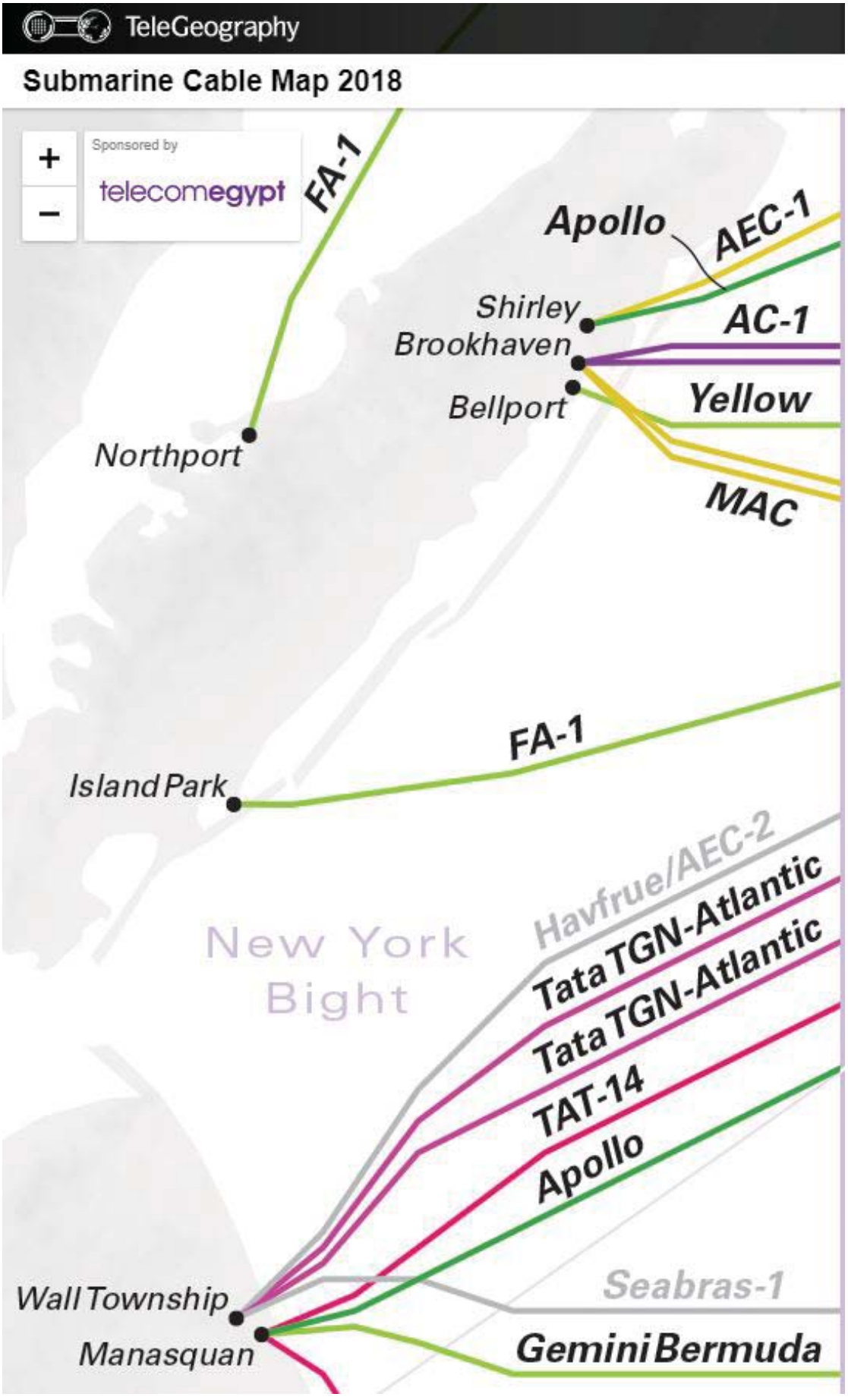
Global Marine Systems Limited
New Saxon House
1 Winsford Way
Boreham Interchange
Chelmsford
Essex CM2 5PD
United Kingdom
Tel: +44 (0) 1245 702000
Fax: +44 (0) 1245 702210
www.globalmarinesystems.com

NASCA Cable Awareness Chart

Mid-Atlantic Region

Chart no. 12300

APPROACHES TO NEW YORK



Source: TeleGeography, Submarine Cable Map, http://www.submarinecablemap.com

Appendix 2: Letter from European Subsea Cables Association to European Marine Authorities & Regulators, et al. re the ESCA position on clear sea-room distances required to properly support subsea cable installation and maintenance in Offshore windfarms, in water depths up to approximately 75m (Aug. 1, 2017)

To:

European Marine Authorities & Regulators
European Wind Energy Developers
European Wind Energy Operators
Other interested parties

European Subsea Cables Association
39 Nightingale Road
Guisborough
North Yorkshire
TS14 8HA
United Kingdom

To whom it may concern

01st August, 2017

The ESCA position on clear sea-room distances required to properly support subsea cable installation and maintenance in Offshore windfarms, in water depths up to approximately 75m

Marine Spatial Planning and the successful co-existence of a number of seabed and sea area users is of paramount importance in the current climate of safe development of our seas as one of the major resources in modern times.

The current drive to deliver greater volumes of environmentally friendly sustainable renewable energy, has resulted in a major acceleration of the planning and development of offshore wind farms, and perhaps soon to be followed by a similar expansion of wave and tidal energy schemes. All of these are currently focussed in shallow shelf seas and the highest concentration is in the waters around Northern Europe which represent one of the finest such areas for these resources.

At the same time, there has never been a greater demand for communications connectivity around the globe, and the demand is increasing near exponentially over time. Internet access is rapidly being considered in the same context as water, electricity supply, heating, lighting and food in developed countries. The world's greatest growth in demand of mobile device data is in the developing countries of the world, such is the desire for reliable connectivity to drive change and improvement in society and future prospects.

The European Subsea Cables Association (ESCA) is a not-for-profit organisation which represents the subsea cable industry sector across Europe. It was formed in 2015 out of Subsea Cables UK, to better reflect the number of European cable owners already involved in SCUK.

With this in mind, ESCA (then known as SCUK) in 2010 updated a guideline first authored in 2003, in conjunction with renewable energy development stakeholders and UK government regulators. The guidance was produced to assist any interested parties in setting out the needs and requirements associated with cables of any type, in relation to fixed structure offshore construction in shallow shelf seas, focusing on offshore wind farms. This was ESCA Guideline No.6, The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK Waters. (http://www.escaeu.org/guidelines/ select the guideline to download).

This document is currently being updated to change the title to reflect applicability to European waters. It originally referred to UK as the organisation was UK focussed at that time. The remit has now been extended to cover all of Europe and the advice and justification remains unchanged.

The International Cable Protection Committee (ICPC) represent the cable industry on a global level, focussed on the primary aspect of cable safety and awareness. The ICPC have also generated a Recommendation document of global coverage, which includes the same guidance as the ESCA document.

In this document, Section 7 details the Guidance for indicative separation distances. It details the concepts of:

- Working Zone – typically +/- 500m, applied either side of the subsea cable in water depth up to 250m. A Working Zone is required either side of an in-service submarine cable to enable access for cable maintenance and repair operations by a suitable vessel; and
- Hazard Area – a minimum of +/- 250m applied around the cable repair vessel.
    - The Hazard Area is independent of, and in addition to, the Working Zone.
    - It is required, where there are fixed structures near to a vessel undertaking cable operations, close to the limit of the expected or planned Working Zone.
    - It provides amelioration of risks to personnel, vessels and structures in working in close proximity to a structure.
    - A Hazard Area should be considered as a trigger radius around the vessel for planning, and any structure potentially within the Hazard Area will trigger the need for additional risk assessment and identification of pre-planned risk mitigation, such as constraints on operational conditions.

More detailed definition is included in the Guideline.

Figures 5, 6 and 7 in the Guideline document show how these apply to a cable work vessel.

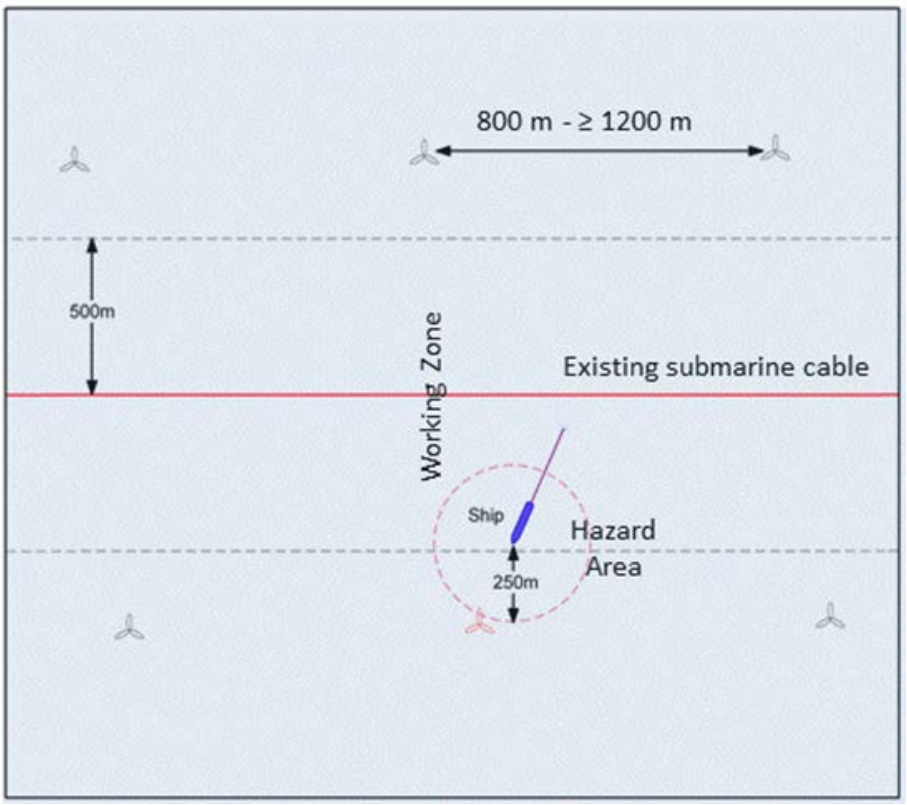


Figure 6 from Guideline 6

The areas and the distances indicated are agnostic of cable type and can be applied equally to telecom and power cable operations.

As can be seen from the diagram, the key requirement for safe cable working in line with existing maintenance agreement contract operational constraints is this overall distance either side of the cable position.

From the diagram above (which represents the minimum acceptable condition that can generally be agreed without extended discussion and assessment) this distance is Working zone plus hazard area radius.

This means the minimum distance is +/- 750m

This can be applied to telecommunications or power cables that are already in situ and over which a wind farm is to be developed.

Or it can be applied to any planned cable installation to be conducted as part of the wind farm development.

Or it can be the guidance for leaving space for a future cable to cross a wind farm development that is being planned.

If this level of space is not provided for in terms of spatial planning, either due to perceived legislation issues, or refusal to collaborate effectively in successful seabed co-existence, then the impacts are several and potentially significant.

For the cable that is already present or planned and is then restricted in the ability to be repaired, will be subject to increase cost of repair as well as increased time to complete repair. The cost has to be covered by some party, and in this instance, any proximity agreement would indicate that the responsibility for any future cost lies with the wind farm developer or operator as applicable.

Loss of connectivity or risk of extended outage, means that connection to internet information hubs for communications cables needing repair may be unacceptably delayed. The impact of this might be that cable owners look to plan their cables to land elsewhere in the longer term. In the shorter term, the cable owners may reduce their traffic to hubs served by cables with this risk.

If these constraints are imposed by a failure to adopt pragmatic distances to allow for co-existence, then major internet hubs in some countries may become isolated as a result of offshore energy development, and so reduce in importance and status where internet connectivity is concerned.

Certainly this would be an issue and for the “over the top” providers like Google and Facebook, for whom the internet connectivity is paramount.

This is why these Guidelines detail the distances and why +/- 750m is the minimum recommended distance around subsea cables for marine spatial planning in co-existence with Offshore Renewable energy developments

The ideal minimum distance (for waters up to 75m deep) as detailed in the Guideline is somewhat larger than this minimum. This ideal distance **+/- 1 Nautical Mile (equivalent to +/- 1852m).**

At this distance in these water depths, it is accepted that neither party even needs to consult the other for undertaking their construction or operations and maintenance activities, as there is no constraint placed by either party on the other.

It is of course prudent for each party to be aware of the other and their plans but this can be informal. Even for a cable through a planned windfarm development, in this instance the courtesy of advising the other party of planned or active operations is all that would be expected, if the separation distance is 1 nautical mile.

This statement is provided in support of cable owners undertaking to make clear to relevant authorities, regulators, offshore energy developers and any other interested party, the industry recommended clear distances needed around cables, based on input from expert seabed stakeholders from the same sectors.

Peter Jamieson IEng, MIET. MSCTE. MCMI
Chairman
www.escaeu.org

Email: chairman@escaeu.org

Principal Engineer
Core Network Engineering
Liberty Global - Technology & Innovation
Tel: +44 01484 320021
Mob: +44 7771 506713
Email: Peter.Jamieson@virginmedia.co.uk

Tony Fisk TD PGDip MRICS MInstRE
Technical and Regulatory Sub Group - Chairman
www.escaeu.org

Email: trsg@escaeu.org

Commercial Director & Head of Practice
Pelagian Ltd
Tel: +44 1666 862140
Mob: +44 7880 894408
Email: aj.fisk@pelagian.co.uk

VERSION 1.1

GOVERNMENT BEST PRACTICES FOR PROTECTING AND PROMOTING RESILIENCE OF SUBMARINE TELECOMMUNICATIONS CABLES

With these Best Practices, the International Cable Protection Committee ("ICPC") identifies recommended actions for governments to foster the development and protection of submarine telecommunications cables and to maintain continuity of communications even in the event of damage to a submarine cable. In implementing these Best Practices, a state should adapt them to address national and regional circumstances, including but not limited to: localized risks to submarine cables; localized activities of other marine industries; national laws, regulations, and governmental structures; and jurisdictional disputes with littoral states.

1. General principles

In adopting and implementing a submarine cable resilience plan, the state should be guided by the following principles:

- Focus on statistically-significant risks where government action could have the greatest impact on risk reduction;
- Promote commercial and regulatory environments that encourage multiple and diverse (both with domestic and foreign landings) submarine cable landings within the state's territory;
- Observe and implement treaty obligations (particularly under the United Nations Convention on the Law of the Sea ("UNCLOS")) and customary international law defining state jurisdiction over, and protection of, submarine cables;
- Promote transparent regulatory regimes that expedite cable deployment and repair according to well-established timeframes;
- Consult closely with industry to understand industry technology and operating parameters and to share data regarding risks;
- Complement existing industry best practices;
- Recognize that laws and government policies themselves can sometimes exacerbate risks of damage and reduce resilience; and
- Engage with other states on a global and regional basis, as other states' actions can greatly affect an individual state's own connectivity.

2. Fishing and anchoring risks

ICPC statistics indicate that each year, fishing and anchoring account for approximately 70 percent of global damage to submarine cables—far more than other human or natural causes. Commercial fishing-related damage is most often caused by bottom-tending fishing gear such as trawl nets and dredges, but it is also caused by long lines and fish aggregation devices anchored to the seabed and pot and trap fisheries using grapnels for gear retrieval. Anchor-related damage is most often caused by: improperly-stowed anchors, which release or fall overboard and can be

dragged for great lengths along the sea floor, damaging cables along the anchor's path; anchoring outside of approved anchorages and near installed submarine cables; anchors dragged by properly-anchored vessels, depending on sea conditions; and dropping of anchors in marine emergencies. Mooring lines of fish aggregating devices ("FADs"), especially in deep-water can cause abrasion to submarine cables during installation, and FAD anchors have caused damage to deployed cables.

The submarine cable industry uses a variety of mitigation measures to limit damage from fishing and anchoring, including: route selection and design to avoid areas of particular risk (for example, routing around designated anchorages); cable armoring; cable burial (from 0.5 meters to 3 meters) for cable installed at water depths less than 1500 meters, where seabed conditions permit; cable awareness and liaison programs designed to educate fishing fleets regarding the location of submarine cables, and actions to take if gear is snagged; and programs to compensate fishermen for snagged gear (so that they abandon snagged gear rather than damage cables in trying to free it). Coordination with FAD owners and with governments to obtain FAD positions so cables can be routed around them, and/or measures to relocate or recover FADs in coordination with the owners have proven beneficial. These industry self-help measures can be effective, but they are insufficient absent additional actions to be taken by governments.

ICPC statistics confirm that state adoption and implementation of effective cable protection measures directed at fishing and anchoring risks can greatly reduce the risk of damage to submarine cables. As best practices, ICPC recommends that states therefore adopt and implement the following measures:

- Prohibit fishing in close proximity to submarine cables—including deployment of drift nets, gill nets, fish aggregation devices, and vessel anchors—consistent with default and minimum separation distances discussed in part 3 below;
- Require use of designated anchorages and establish and prosecute legal offenses for anchoring outside of designated anchorages;
- Promote the distribution and use of cable awareness charts (prepared by submarine cable operators) to fishermen;
- Promote direct engagement between submarine cable operators, including establishment of fishing-cable committees that can compensate fishermen for snagged and lost gear in exchange for not risking cable damage through gear retrieval efforts;
- Require use of automated identification systems ("AIS") and vessel monitoring systems ("VMS") on vessels at all times and establish and prosecute legal offenses where vessel operators turn off or disable AIS or VMS;
- Require that vessel operators carry appropriate insurance;
- Require use of AIS or VMS by even the smallest of vessels; and
- Direct the coast guard to issue local notices to mariners regarding submarine cable protection and to communicate with vessels operating or drifting near submarine cables.
- Limit deployment of FADs proximate to installed and planned submarine cables.

- Establish a FAD registry, requiring FAD owners to identify and update FAD locations, and make such registry available to submarine cable operators during the route planning process for new cables.
- Require removal of ropes and ghost gear in the water column and consider removal requirements for end-of-life disposition of FADs.

3. Spatial separation

Spatial separation of submarine cables from other marine activities is one of the effective means of cable protection. It minimizes the risk of damage from other marine activities and ensures that submarine cable operators have ready and unfettered access to their cables for installation and maintenance needs and to minimize outage time in connection with a repair. The oceans, however, are increasingly crowded spaces where ideal spatial separation might not be possible, and where marine industries make compromises regarding proximity while seeking to reduce risk through closer coordination and communication.

A default separation distance establishes a minimum separation distance between an existing submarine cable and another marine or coastal activity in the absence of any mutual agreement to allow the activity in closer proximity to the submarine cable. By contrast, a minimum separation distance establishes an absolute minimum separation distance between the submarine cable and the other marine or coastal activity. Consistent with ICPC recommendations, many countries—as diverse as China, Denmark, Indonesia, Russia, Singapore, and the United Kingdom—have established default or minimum separation distances to protect submarine cables.

Some states have established cable protection zones and corridors that prohibit specified activities posing risks to submarine cables—including fishing, anchoring, and dredging—within fixed geographic areas. Discretionary cable protection zones grant protections to submarine cables that choose to locate in them or that may be declared around them, as in the case of Australia. Mandatory cable protection zones (or cable corridors) require submarine cable operators to route their infrastructure in defined geographic areas (as in the case of New Zealand). States with cable protection zones enforce them with air and sea patrols and infringement penalties. Submarine cable operators generally disfavor mandatory cable protection zones and corridors because they (1) provide insufficient spatial separation from other submarine cables for installation and maintenance and (2) encourage geographic clustering of submarine cable routes and landings, which magnifies the risk that a single natural or man-made event could damage multiple cables.

As best practices to promote spatial separation, ICPC recommends that states:

- Adopt and enforce the following recommended separation distances between cable ships and other vessels in the exclusive economic zone ("EEZ," extending 200 nautical miles

seaward from the shore) and the territorial sea (extending 12 nautical miles seaward from the shore):
    - In shallow water with a depth of 75 meters or less: 500 meters; and
    - In greater depts of water: the greater of 500 meters or two times the depth of water;
- Implement on nautical charts the text box specified in International Hydrographic Organization ("IHO") Resolution 4/1967 (amended April 2017), as discussed in part 4 below;
- Ensure that any cable protection zones are adopted with consultation and support of cable operators; and
- Maintain flexibility with the number and size of cable protection zones.

4. Charting

Nautical charts (such as Admiralty charts) issued by government hydrographic offices consistent with IHO recommendations are graphical representations of ocean and adjacent coastal areas showing, among other things, water depths, seabed and coastline details, tidal information, and human-made features such as harbors, munitions dumps, offshore wind farms, and submarine cables. Nautical charts aid in navigation and alert users to the presence of other ocean activities. Nautical charts were previously issued periodically in paper form, but they are now generally maintained in electronic form and available on a computer screen or using a print-on-demand function.

Submarine cables are charted using data provided by operators and their contractors to hydrographic offices (such as the U.K. Hydrographic Office, the Indian Naval Hydrographic Office, the South African Navy Hydrographic Office, and the Hydrographic Department of the Maritime and Port Authority of Singapore). Historically, the IHO recommended charting only to a depth of 2,000 meters, in light of a focus on safety at sea. Some submarine cable operators still charted their cables at all depths. In 2018, however, the IHO revised its approach, due in part to a recognition that charting of submarine cables in areas proximate to deep seabed mining could reduce the risk of cable damage. The IHO and ICPC have established a pilot program to chart cables in areas proximate to contract areas of the International Seabed Authority.

As best practices for charting, ICPC recommends that states adopt and implement the following measures:

- Update nautical charts regularly and in near-real-time;
- Show all submarine cables on nautical charts, distinguishing between in-service and out-of-service cables;
- Show on nautical charts all other human activities that could pose risks to submarine cables, including but not limited to mining areas (including sand and gravel borrow areas), renewable energy facilities, traffic separation schemes, munitions dumps, and military test areas;

- Ensure that national and regional charting authorities implement amended IHO Resolution 4/1967, which requires that charting authorities include a text box in publications such as mariners' handbooks and notices to mariners:
    - Directing vessels to avoid anchoring, fishing, mining, dredging, or engaging in underwater operations near cables at a minimum distance of 0.25-nautical mile on either side of a cable, and
    - Recognizing submarine cables as critical infrastructure, noting that damage to a submarine cable can constitute a national disaster.

5. Domestic cable protection laws; penalties for damage

The 1884 Convention on the Protection of Submarine Telegraph Cables requires state parties to establish offenses for cable damage. Article 113 of the UNCLOS provides that every state shall adopt the laws and regulations establishing a punishable offense under national law for the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable beneath the high seas done wilfully or through culpable negligence.

Countries such as Australia and New Zealand have implemented these treaty obligations by establishing substantial penalties—particularly with respect to their cable protection zones—that are more likely to deter those who might damage submarine cables. Other countries such as Sweden impose strict liability, requiring that if the owner of a cable or pipeline causes damage to another cable or pipeline, the owner shall pay the cost of repairing the damage. By contrast, countries such as the United States adopted penalties to implement their 1884 Convention obligations but have not updated the penalty amounts for more than 130 years. Finally, many other states have failed to adopt any measures to punish cable damage, even when their treaty obligations require them to do so.

To implement their treaty obligations, to compensate cable owners for damage, and to deter future damage, particularly by commercial fishermen and vessel anchors, ICPC recommends that states:

- Adopt and enforce effective cable protection laws, consistent with the 1884 Convention and UNCLOS;
- Adopt and update penalties to ensure they are substantial enough to deter damage; and
- Ensure that coast guards and law enforcement agencies are sufficiently familiar with cable protection laws to enforce them, and that they cooperate with and assist cable operators in investigating cable damage claims (including preservation and sharing of evidentiary material).

6. Marine spatial planning and inter-industry coordination

Governmental bodies and other marine industries are often unfamiliar with the presence of, operational requirements for, vulnerabilities of, status as critical telecommunications

infrastructure of, and statutory and treaty protections that apply to, submarine cables. In some cases, marine spatial planning activities omit submarine cables entirely. This lack of familiarity with, or neglect of, submarine cables can greatly impair their protection and resilience.

As best practices, ICPC recommends that states undertake the following to protect cables and de-conflict cable routes:

- Include and consult with submarine cable operators as stakeholders in such processes;
- Identify submarine cables in their mapping resources and tools (not just on nautical charts);
- Identify and include submarine cable operators as critical stakeholders in marine spatial planning and policymaking;
- Adopt regulatory frameworks for other marine activities, such as oil and gas development and renewable energy installations, to require coordination with submarine cables at the earliest stage of planning and development of those other projects; and
- Ensure that planning and leasing documents for oil, gas, and renewables specifically reference submarine cable protection and coordination.

7. Single point of contact

Submarine cable development, installation, operation, and repair implicates the regulatory and policy responsibilities of numerous government agencies, including those ministries, departments, and agencies responsible for telecommunications, maritime and shipping, environment, customs, and national security, to name a few. The dispersion of responsibilities for submarine cables can impair government action with respect to submarine cables and also make it difficult for other industries to coordinate with submarine cables. Singapore has addressed this issue by designating its telecoms regulator, the IMDA, as the point of contact for submarine cables, even if other government bodies have ultimate responsibility for a particular issue.

As a best practice, ICPC recommends that states:

- Establish a single point of contact for submarine cables—and not just for permitting purposes, but also for any issues arising with respect to installation, repair, and protection.

8. Route and landing optimization; geographic diversity

Submarine cable operators consider a variety of factors when choosing routes and landings, including:

- Economic need (for connections between data centers and points of presence, and on highly-trafficked routes);
- Economic opportunity (in the case of wholesale capacity sales);

- Seafloor topography (seeking flat and uninteresting seabed that avoids geographic features with steep gradients, seamounts, vents, or fracture zones);
- Geographic diversity (to minimize the impact of a single event causing damage to multiple cables);
- Proximity to other marine activities and infrastructure (which pose risks of damage);
- Access to terrestrial networks (to ensure secure, diverse, and low-cost connectivity between submarine and terrestrial networks);
- Environmental restrictions (such as marine protected areas); and
- Regulatory considerations (including length and expense of permitting).

They design routes to follow the shortest viable route between landing points exhibiting the lowest risk to the installed cable. They start with a great circle route (the shortest distance between two points on a globe), which provides the lowest latentcy for communications transmissions (the time taken for data to pass from point A to point B) and then adjust for technical, economic, and regulatory factors.

Submarine cable operators and their capacity customers increasingly seek to maximize geographic diversity of submarine cable routes and landings in order to enhance network resilience and reduce the risk of damage from a single event, whether an earthquake, a tsunami, a vessel anchor, fishing gear, or a terrorist attack. Their options may be limited by other factors, such as slow and expensive permitting, coastal landowners, and marine protected areas. Moreover, they operate in dynamic coastal and marine environments that are increasingly crowded and that lack a single landowner or a single regulator. Other activities and infrastructure are frequently authorized without regard to the potential to foreclose particular areas to future submarine cable development, increasing the potential for clustering of cables and landings, and the risks inherent in non-diverse infrastructure.

As best practices, ICPC recommends that states undertake the following to promote resilience of submarine cable networks:

- Adopt and implement regulatory frameworks to optimize routes and landings, including geographic diversity of routes and landings;
- Recognize that diversity can be impaired by government shore-end permitting, marine protected areas, and marine spatial planning (or lack thereof) that results in clustering of cables, magnifying risk that a single incident will damage multiple cables and impair connectivity; and
- Recognize that submarine cables cannot be hidden or armored and buried to guard against all malicious and non-malicious sources of cable damage.

9. Permitting for installation and repair

As noted in part 8 above, permitting can greatly affect route and landing location decisions for submarine cable operators. In many cases, coastal states apply a “one-size-fits-all” permitting

regime that applies equally to polluting activities (such as oil and gas development) and environmentally-benign activities (like submarine cables), which can burden and delay the environmentally-benign activities.

Moreover, the permitting actions of one state can greatly affect the connectivity of other states. UNCLOS articles 2, 58, 79, and 87 authorizes a coastal state to impose conditions and consent requirements for submarine cables entering its territorial sea, but not beyond it in the EEZ or on the continental shelf. UNCLOS articles 2 and 51 also allow archipelagic states to impose conditions for new submarine cables entering archipelagic waters.

As best practices, ICPC recommends that states ensure that permit requirements for installation and repair:

- Are consistent with UNCLOS in the EEZ and archipelagic waters and on the continental shelf—excessive jurisdictional assertions by one's neighbors can impair installation of new cables and repairs of existing ones;
- Reflect the best available science showing that submarine cables are neutral-to-benign in the marine environment;
- Are transparent;
- Establish clear timeframes that are as short as possible; and
- Promote diversity of routes and landings.

10. Cabotage and crewing restrictions

Cabotage is the transport of goods and passengers between domestic ports. For a variety of reasons, including protection of domestic industry and national security, a number of states have restricted cabotage to domestic vessels, with varying criteria including domestically-built, domestically-owned, domestically-flagged, and/or domestically-crewed vessels. Some states have expanded their cabotage restrictions to a broader range of economic activities in their territorial seas and EEZs, including submarine cable installation and repair. Application of cabotage laws to submarine cable installation and repair is inappropriate and undermines the resilience of submarine cable networks.

Cable ships are built specifically for cable-related operations and are crewed by highly trained and experienced merchant mariners, engineers, and cable operations staff. Most of the world's countries with submarine cable landings and transits lack locally-flagged and locally-crewed cable ships. Instead, most of the world's installation and repair services are provided by a few global and regional providers with the necessary expertise and economies of scale. Submarine cable operators often pool risks and resources to contract for cable ships in regional zone agreements. These zone arrangements cover vast multinational geographic areas, meaning that there are no discrete national maintenance markets.

Cabotage and crewing restrictions render installations and repairs more expensive and can result in performance and safety problems arising from the use of inappropriate vessels and inexperienced crew. They generally impair the operation and economies of scale of maintenance consortia. Cabotage and crewing restrictions can also greatly delay critical repairs, as a submarine cable operator must wait to qualify a foreign-flagged/crewed vessel through an exemption or waiver process. Cabotage and crewing restrictions can harm the connectivity of other neighboring countries.

Within the EEZ and on the continental shelf, cabotage and crewing restrictions are inconsistent with UNCLOS articles 79 and 87, which provide for the freedom to install, maintain, and repair submarine cables in those maritime zones. Within archipelagic waters, cabotage restrictions on repair of existing cables that merely transit the state are inconsistent with UNCLOS article 51. Although permissible within the territorial sea, cabotage and crewing restrictions are inadvisable.

As best practices, ICPC recommends that states:

- Refrain from defining submarine cable installation and repair as cabotage, as they do not involve the transport of goods or passengers between domestic ports;
- Refrain from applying cabotage or crewing restrictions on vessels engaged in installation or repair, whether in the territorial sea, archipelagic waters, or EEZ/continental shelf.

11. Port entry requirements

Based on installation or repair work within the territorial sea, archipelagic waters, or EEZ, some states require that a cable ship enter a domestic port for regulatory clearance purposes, even when crew members would not otherwise embark or disembark. Such requirements disrupt operations and delay installation and repair.

As best practices, ICPC recommends that states:

- Refrain from requiring port entry for cable ships conducting installations and repairs beyond the territorial sea; and
- For work within the territorial sea and archipelagic waters, establish annual pre-clearance procedures for cable ships and crews.

12. Customs duties, taxes, and fees

Some states view the entry of new submarine cables into their jurisdictions as an opportunity to extract revenue from the operator in the form of customs duties, taxes, and fees. Such charges increase the cost of capacity to users and in some cases can deter landings, thereby undermining government policies designed to foster new cable landings. Such charges can also serve as a source of disputes that delay installation and repair.

As noted in part 9 above, UNCLOS articles 2, 58, 79, and 87 authorizes a coastal state to impose conditions for submarine cables entering its territorial sea, but not beyond it. UNCLOS articles 2 and 51 also allow archipelagic states to impose conditions for new submarine cables entering archipelagic waters. Some states, however, have sought to impose customs duties, taxes, and fees for activities and infrastructure in the EEZ and on the continental shelf, in contravention of UNCLOS.

As best practices, ICPC recommends that states:

- Refrain from imposing customs duties, taxes, and fees on installation activities beyond the limits of the territorial sea, and on cable ships merely transiting an EEZ;
- Reduce or eliminate customs duties on submarine cable equipment imported into a state's territory, in order to foster submarine cable deployment and facilitate quick access to spare plant for repair; and
- Refrain from imposing importation requirements and customs duties on cable ships conducting installation or repair.

13. Maritime boundary claims and disputes

Competing maritime boundary claims and boundary disputes can impede installation and even foreclose certain routes. Such disputes can also greatly delay repairs due to duplicative and time-consuming permit requirements. In some cases, boundary disputes pose a danger to the cable ship and its crew due to the threat of military action.

As best practices, ICPC recommends that states:

- Facilitate installation and repair without prejudice to any maritime boundary claim; and
- Recognize that submarine cable operators seek to remain neutral in boundary disputes and seek to conduct their activities without prejudice to such disputes.

14. Critical infrastructure designation

Critical infrastructure is generally understood to include assets that are essential for the functioning of society and the economy, and damage or destruction of which would harm national and economic security, public health, and public safety. Governments use critical infrastructure designations to highlight asset criticality and to identify and mitigate vulnerabilities and threats through specific laws and policies.

As best practices, ICPC recommends that states:

- Designate submarine cables as critical infrastructure;
- Gather and assess data regarding vulnerabilities of, and threats to, submarine cables; and
- Develop and implement policies to reduce those vulnerabilities and threats.

15. Sharing of risk and incident data

Sharing of risk and incident data between operators and governments and among operators is useful for identifying patterns of activity, gaps in existing cable protection efforts, areas for improving resilience, and identification of malicious acts by state and non-state actors.

As a best practice, ICPC recommends that states:

- Consistent with competition laws, establish mechanisms for exchanging incident data and threat information.

16. Impact of other high-seas regulatory activities

Regulatory activities of other states, bodies, and institutions far beyond a state's maritime boundaries can impair submarine cable installation, repair, and resilience. Such activities include uncoordinated deep seabed mining and environmental regulation on the high seas under the proposed treatyto conserve and promote sustainable use of biodiversity beyond national jurisdiction ("BBNJ").

Deep seabed mining poses risks of: damage to existing submarine cables, increasing the risk of a communications blackout for certain countries, and route foreclosure for new submarine cables, rendering them less resilient. Some mining contractors have argued either that cable owners proceed at their own risk or that mining contractors have a right to exclude submarine cables from their contract areas, which cover vast areas of the seabed. UNCLOS does not establish any specific coordination mechanisms, including instead only mutual "due regard" and "reasonable regard" obligations. The Exploration Regulations adopted by International Seabed Authority ("ISA") do not address submarine cables at all. Based on a joint proposal by the ICPC and France, with support from numerous other developing and developed states, the Draft Exploitation Regulations now contain provisions to ensure early coordination between mining and submarine cables, to protect existing submarine cables, and to permit future submarine cables. Although the ISA's jurisdiction, and the potential for mining, extends globally throughout the Area (the seabed and subsoil of the high seas), the greatest number of mining contract areas current exist in the Indian and Pacific Oceans.

The proposed BBNJ treaty to promote conservation and sustainable use of BBNJ could impair submarine cable protection and resilience. Specifically, the treaty could require environmental impact assessments ("EIAs") for cables in high seas areas, restrict cable transits and repairs in new marine protected areas on the high seas, and create a new international regulatory body to oversee such activities. Many of the proposals under consideration by the treaty conference would impose significant costs and delays on new builds and repairs and result in cable routes that are less efficient and resilient.

As best practices, ICPC recommends that states:

- Seek to ensure that the ISA Exploitation Regulations protect existing submarine cables and avoid foreclosing routes for future cables;
- Support amendment of the ISA Exploration Regulations to protect existing submarine cables and avoid foreclosing routes for future cables; and
- Seek to ensure that the BBNJ treaty accounts for the socio economic importance of submarine cables, recognize the benign environmental impact of submarine cables and their co-existence in existing MPAs in areas of jurisdiction, and recognizes submarine cables as a sustainable use of the oceans.

Before the
BUREAU OF OCEAN ENERGY MANAGEMENT
U.S. DEPARTMENT OF THE INTERIOR
Washington, D.C.

In the Matter of Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations	BOEM 2018-0004

COMMENTS OF THE
NORTH AMERICAN SUBMARINE CABLE ASSOCIATION

Kent D. Bressie
Susannah J. Larson
HARRIS, WILTSHIRE & GRANNIS LLP
1919 M Street, N.W., Suite 800
Washington, D.C. 20036-3537
+1 202 730 1337 tel

Counsel for the
North American Submarine Cable Association

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To protect submarine cable infrastructure critical to the U.S. economy and U.S. national security, the Bureau of Ocean and Energy Management ("BOEM") should expressly account for existing and planned submarine cable systems as it considers nominations and makes subsequent decisions to offer areas on the Outer Continental Shelf ("OCS") in the New York Bight for commercial wind leases.[1] BOEM's Office of Renewable Energy Programs ("OREP") has previously developed Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan ("COP Guidelines"), which directs renewable energy project developers to the North American Submarine Cable Association ("NASCA") and its mapping resources as a first step in coordination. Because the COP Guidelines only come into play at the project planning phase, there is some limit to the protections such coordination can afford submarine cables. NASCA urges BOEM to account for existing submarine cable infrastructure as BOEM manages existing leases and determines future areas to offer for commercial wind leases on the New York Bight OCS.

Renewable energy projects on the New York Bight OCS pose significant risks to submarine cable infrastructure. Submarine cable installation, operation, and maintenance activities require spatial separation from other cables and other marine activities—including offshore wind projects—as recognized by various industry standards and recommendations. Absent sufficient spatial separation and coordination, wind energy projects threaten submarine cables with direct physical disturbance and impaired access to submarine cables both at the surface (for cable ships) and on the seafloor (for cables).

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[1] *See Department of the Interior, Bureau of Ocean Energy Management, Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations*, 83 Fed. Reg. 15,602-1 (April 11, 2018) ("Call").

To ensure better coordination with, and protection of, submarine cables, the North American Submarine Cable Association urges BOEM to implement the following actions in its area identification process for the New York Bight call areas:

- Recognition of categorical exclusion zones around existing submarine cables as a buffer from offshore wind energy areas ("WEAs"). These zones should adopt existing industry standards and recommendations regarding default separation distances between installed submarine cables and energy infrastructure, *i.e.*, a default separation distance of at least 750 meters on either side of the cable in water depths of less than 75 meters and the greater of 750 meters or three times the depth of water on either side of the cable in greater water depths;
- Promotion of industry awareness and early coordination with submarine cable operators at the project planning and implementation phase; and
- Establishment of coordination mechanisms with expert agencies engaged in the regulation of submarine cables.

These measures are critical for protecting existing submarine cable infrastructure and ensuring the development and protection of future submarine cable infrastructure.

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Appendix 2: Letter from European Subsea Cables Association to European Marine Authorities & Regulators, et al. re the ESCA position on clear sea-room distances required to properly support subsea cable installation and maintenance in Offshore windfarms, in water depths up to approximately 75m (Aug. 1, 2017)

Before the
BUREAU OF OCEAN ENERGY MANAGEMENT
U.S. DEPARTMENT OF THE INTERIOR
Washington, D.C.

In the Matter of Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations	BOEM 2018-0004

COMMENTS OF THE
NORTH AMERICAN SUBMARINE CABLE ASSOCIATION

To protect submarine cable infrastructure critical to U.S. national security and economic interests, the North American Submarine Cable Association ("NASCA") urges the Bureau of Ocean Energy Management ("BOEM") to account for existing and planned submarine cable systems in its decisions about which areas to offer for commercial wind leases "on the Outer Continental Shelf ("OCS") in the New York Bight."[2] Through its Office of Renewable Energy Programs ("OREP"), BOEM has already adopted proactive measures to protect submarine cables at the planning and implementation stage through its Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan ("COP Guidelines").[3] Because the

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2 *See Department of the Interior, Bureau of Ocean Energy Management, Commercial Leasing for Wind Power on the Outer Continental Shelf in the New York Bight—Call for Information and Nominations*, 83 Fed. Reg. 15,602-1 (Apr. 11, 2018) ("Call").

3 U.S. Dep't of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, *Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan (COP) Version 3.0*, Attachment G: Coordination Efforts Relating to Existing Telecommunications Cables (2016), https://www.boem.gov/COP-Guidelines/.

COP Guidelines only come into play at the project planning phase, there is some limit to the protections such coordination can afford submarine cables. As BOEM considers potential conflicting uses "in close proximity to, or within, the Call Areas that would be relevant" to BOEM's decisions for areas to offer for leasing,[4] NASCA urges BOEM to account for the need for spatial separation from existing submarine cable infrastructure in the New York Bight OCS area.

Submarine cables[5] carry more than 95 percent of the international voice, data, and Internet traffic of the United States. Without submarine cable infrastructure, the global Internet would not function. Extensive submarine cable deployments exist in the New York Bight OCS, but the renewable energy industry has little awareness of this critical infrastructure. To ensure that wind energy projects do not damage critical U.S. infrastructure, BOEM should incorporate categorical exclusion zones and spatial separation standards in its selection process for lease locations.

NASCA is a nonprofit association of the principal submarine cable owners, submarine cable maintenance authorities, and prime contractors for submarine cable systems operating in North America.[6] NASCA members' cables land in seventeen U.S. states and territories, with

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4 Call, 83 Fed. Reg. at 15,602-1.

5 The terms "submarine cables" and "undersea cables" are used interchangeably here to refer to telecommunications cables deployed in the marine environment. They are distinguished from "power cables" and "power transmission cables."

6 NASCA's members include: Alaska Communications Systems; Alaska United Fiber System Partnership (a subsidiary of GCI Communication Corp.); Alcatel Submarine Networks; Apollo Submarine Cable Ltd; AT&T Corp.; C&W Networks; Edge Network Services Ltd; Global Cloud Xchange; Global Marine Systems Ltd.; GlobeNet; Hibernia Atlantic; Level 3 Communications, LLC; OPT French Polynesia; PC Landing Corp.; Rogers Communications; Southern Caribbean Fiber; Southern Cross Cable Network; Sprint Communications Corporation; TATA Communications (Americas); Tyco Electronics Subsea Communications, LLC; and Verizon Business.

thousands of kilometers of installed cable traversing the U.S. OCS, and many more under construction or in the planning stage. NASCA seeks to protect the interests of the submarine cable industry by educating government decision makers and the public, coordinating with other marine activities, and ensuring efficient government regulation of cable installation and maintenance activities in accordance with applicable law and treaty obligations. For decades, NASCA's members have worked with federal, state, and local government agencies, as well as other concerned parties—such as commercial fishermen, offshore energy companies, and private environmental organizations—to safeguard the submarine cable infrastructure critical to national security.

These comments are divided into three parts. *First*, NASCA details the extensive presence of submarine cables in the New York Bight OCS and urges BOEM to account for existing and planned submarine cable systems in the New York Bight OCS, their national security and economic importance, and the unique treaty and statutory protections for such systems. *Second*, NASCA details the potential threats posed to submarine cables by renewable energy projects. *Third*, NASCA proposes specific recommendations for BOEM as it moves through the area identification process for the New York Bight OCS that would protect existing submarine cable infrastructure and ensure development and protection of future submarine cable infrastructure.

I. IN ITS CONSIDERATION OF LEASING AREAS ON THE NEW YORK BIGHT OCS, BOEM SHOULD ACCOUNT FOR EXISTING AND PLANNED SUBMARINE CABLE SYSTEMS AND THE UNIQUE LEGAL PROTECTIONS FOR SUCH INFRASTRUCTURE.

As BOEM reviews nominations for commercial leasing and makes decisions about which WEAs to offer for commercial wind leasing in the New York Bight area, BOEM should expressly account for existing and planned submarine cable systems and the unique legal

protections for such infrastructure. Submarine cables are critical to the U.S. economy and national security. Due to the high prevalence of such cables crossing the U.S. OCS, in particular in the New York Bight OCS, the potential WEAs in the OCS are of concern because of the risk that wind energy projects will damage cable infrastructure. To aid BOEM's understanding of these systems, NASCA identifies below both existing and planned submarine cable infrastructure, and the treaty and domestic-law protections for such infrastructure.

A. Submarine Cables Are Critically Important to the U.S. Economy and U.S. National Security

Contrary to popular perception, more than 95 percent of all U.S. international voice, data, and Internet traffic travels by submarine cables—a percentage that continues to increase over time.[7] Submarine cables provide the principal connectivity between the contiguous United States and Alaska, Hawaii, American Samoa, Guam, the Northern Marianas, Puerto Rico, and the U.S. Virgin Islands, and also significant intrastate or intra-territorial connectivity within Alaska, Hawaii, the Northern Marianas, and the U.S. Virgin Islands.[8]

Submarine cables play a critical role both in ensuring that the United States can communicate domestically and with the rest of the world, and in supporting the critical economic and national security endeavors of the United States and its citizens. Submarine cables support U.S.-based commerce abroad and provide access to Internet-based content. They also carry the vast majority of civilian and military U.S. Government traffic, as the U.S. Government does not

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[7] *See* United Nations Environment Programme World Conservation Monitoring Centre ("UNEP-WCMC") and International Cable Protection Committee Ltd ("ICPC"), *Submarine Cables and the Oceans – Connecting the World* 8 (UNEP-WCMC Biodiversity Series No. 31 2009), https://www.iscpc.org/documents/?id=132 ("UNEP-WCMC-ICPC Report").

[8] *Cf. id.* at 16; *see also* TeleGeography, Submarine Cable Map (July 11, 2018), http://www.submarinecablemap.com ("TeleGeography Submarine Cable Map").

generally own and operate its own submarine cable systems for communications purposes.[9] Submarine cables have long been designated as critical infrastructure by the U.S. Government.[10]

Submarine cables—which typically have the diameter of a garden hose—are laid and repaired by cable ships built specifically for cable-related operations and designed for covering vast distances and multi-month deployments. These ships use a variety of remotely operated vehicles ("ROVs"), sea plows, lines, and grapnels for manipulating cables and repeaters beyond the ship, whether in the water column or laying on or buried in the seabed.

Although damage to submarine cables is rare, it most often is caused by human activities, such as commercial fishing (in which nets and clam dredges ensnare cables), vessel anchors, dredging related to sand and mineral extraction, petroleum extraction, and pipeline construction.[11] Timely repairs are critical given the economic and national security significance

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[9] *See, e.g.*, John Cummings, *Contract Awarded for Kwajalein Cable System (KCS)*, U.S. Army News, June 13, 2008, http://www.army.mil/-news/2008/06/13/9972-contract-awarded-for-kwajaleincable-system-kcs/ (describing Defense Information Systems Agency's contract for service on the privately-owned HANTRU1 system, which will connect Guam with the U.S. Army Kwajalein Atoll/Reagan Test Site in the Republic of the Marshall Islands); *Capabilities*, Naval Facilities Engineering Command, https://www.navfac.navy.mil/products_and_services/ci/products_and_services/naval_ocean_facilities_program/capabilities.html.

[10] Press Release, White House President Barack Obama, Presidential Policy Directive – Critical Infrastructure Security and Resilience PPD-21 (Feb. 12, 2013), http://www.whitehouse.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil; s*ee* Dep't of Homeland Security, *Communications Sector-Specific Plan: An Annex to the National Infrastructure Protection Plan* (2010), http://www.dhs.gov/xlibrary/assets/nipp-ssp-communications-2010.pdf.

[11] *See* UNEP-WCMC-ICPC Report at 43-48; *see also* Stephen C. Drew and Alan G. Hopper, International Cable Protection Committee, *Fishing and Submarine Cables: Working Together* 19-39 (2d ed. 2009), https://www.iscpc.org/documents/?id=142; *see also* Press Release, International Cable Protection Committee, Loss Prevention Bulletin: Damage to Submarine Cables Caused by Anchors (Mar. 18, 2009), https://www.iscpc.org/documents/?id=139; International Cable Protection Committee, *About Submarine Telecommunications Cables* (presentation) at 40-44, Oct. 2011,

of traffic carried by these cables. Damage to submarine cables can pose grave risks to U.S. national security and the U.S. economy, given the U.S. Government's reliance on such cables to communicate with its civilian and military personnel worldwide and with other governments, and given the dollar-value of commerce conducted using submarine cables.[12]

B. Significant Submarine Cable Infrastructure Already Exists in the New York Bight OCS, and More Is Planned

The OCS in the New York Bight contains significant existing submarine cable infrastructure, and more is planned. At present, approximately 12 in-service submarine cable systems traverse the OCS in the New York Bight, and at least three new systems have been announced or are presently under construction.[13]

The following in-service submarine cable systems currently traverse the OCS in the New York Bight:

- ***AEC-1***: landing at New York; Iceland; Ireland; and the United Kingdom;
- ***Apollo***: landing at New Jersey; New York; France; and the United Kingdom;
- ***Atlantic Crossing-1***: landing at New York; Germany; the Netherlands; and the United Kingdom;
- ***Atlantic Crossing-2/Yellow***: landing at New York and the United Kingdom;
- ***Canada-United States-1 (CANUS-1)***: landing at New Jersey and Canada;
- ***FLAG Atlantic-1***: landing at New York; France; and the United Kingdom;
- ***Gemini Bermuda***: landing at New Jersey and Bermuda;

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https://www.iscpc.org /documents/?id=1753 ("About Submarine Telecommunications Cables").

[12] *See, e.g.*, Asia-Pacific Economic Cooperation (APEC) Policy Support Unit, *Economic Impact of Submarine Cable Disruptions* (2013), http://publications.apec.org/publication-detail.php?pub_id=1382.

[13] *See* Appendix 1, Maps of Submarine Cables Landing in the New York Bight; *see also* TeleGeography Submarine Cable Map; NASCA Member Submarine Cable System Maps, North American Submarine Cable Association, http://www.n-a-s-c-a.org/cable-maps/.

- ***Globenet***: landing at New Jersey; Florida; Bermuda; Brazil; Colombia; and Venezuela;
- ***Mid-Atlantic Crossing***: landing at New York; Florida; and the U.S. Virgin Islands;
- ***Seabras-1***: landing at New Jersey and Brazil;
- ***TAT-14***: landing at New Jersey; Denmark; France; Germany; the Netherlands; and the United Kingdom; and
- ***TATA TGN Atlantic***: landing at New Jersey and the United Kingdom.[14]

The following planned or announced new submarine cable systems will traverse the OCS in the New York Bight:

- ***Havfrue:*** landing at New Jersey; Denmark; Norway; and Ireland.
- ***NYNJ-1***: landing at New Jersey and New York; and
- ***WALL-LI***: landing at New Jersey and New York. [15]

The planned commercial lifespan of these and other submarine cable systems is 25 years.[16] Nevertheless, the commercial lifespan of submarine cable systems can extend well beyond 25 years, particularly where the systems have been upgraded or redeployed. Consistent with these characteristics, the Federal Communications Commission ("FCC") grants cable landing licenses for a term of 25 years from commencement of commercial service, subject to renewal.[17]

C. Submarine Cables Enjoy Unique Treaty Rights and Protections Granted to No Other Activity in the Marine Environment

U.S. treaty obligations and customary international law (as observed by the United States) recognize unique freedoms for the installation and maintenance of submarine cables.

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14 *See id.*

15 *See id.*

16 UNEP-WCMC-ICPC Report at 33.

17 47 C.F.R. § 1.767(g)(14) (providing that "[t]he cable landing license shall expire twenty-five (25) years from the in-service date, unless renewed or extended upon proper application").

These rights and freedoms are not accorded to energy-related activities, commercial fishing, or marine transport, and sometimes these rights and freedoms take precedence over those of other marine activities. Consequently, in establishing rules and policies for use of the OCS for wind energy projects, BOEM must ensure that treaty and customary international law protections for submarine cables are not infringed.

Various international treaties dating back to 1884 guarantee unique freedoms to lay, maintain, and repair submarine cables—freedoms not granted for any other marine activities—and restrict the ability of coastal states (*i.e.*, countries) to regulate them.[18] Principles articulated in these treaties have since been recognized as customary international law.

Specifically, these treaties guarantee:

- The freedom to install submarine cables on the high seas beyond the continental shelf[19] and to repair existing cables without impediment or prejudice;[20]

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[18] *See* Convention for the Protection of Submarine Telegraph Cables, Mar. 14, 1884, 24 Stat. 989, 25 Stat. 1424, T.S. 380, (entered into force definitively for the United States on May 1, 1888) ("1884 Convention"); Geneva Convention on the High Seas, Apr. 29, 1958, 13 U.S.T. 2312, T.I.A.S. 5200, 450 U.N.T.S. 82 (entered into force definitively for the United States on Sept. 30, 1962) ("High Seas Convention"); Geneva Convention on the Continental Shelf, Apr. 29, 1958, 15 U.S.T. 471, T.I.A.S. 5578, 499 U.N.T.S. 311 (entered into force definitively for the United States on June 10, 1964) ("Continental Shelf Convention"); Law of the Sea Convention, Dec. 10, 1982, 1833 U.N.T.S. 397 (entered into force on Nov. 16, 1994) ("LOS Convention").

[19] As used here, the continental shelf generally refers to the juridical continental shelf of a coastal state (rather than the geological continental shelf), and comprises "the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance." LOS Convention art. 76(1).

[20] High Seas Convention arts. 2 ("Freedom of the high seas is exercised under the conditions laid down by these articles and by the other rules of international law. It comprises, inter alia, both for coastal and non-coastal States: . . . Freedom to lay submarine cables and pipelines."), 26(1) ("All States shall be entitled to lay submarine cables and pipelines on the

- The freedom to install and maintain submarine cables on the continental shelf,[21] subject to reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources;[22]
- The freedom to install and maintain submarine cables in the exclusive economic zone ("EEZ") of all states;[23]

bed of the high seas."), 26(3) ("When laying such cables or pipelines the State in question shall pay due regard to cables or pipelines already in position on the seabed. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced."); LOS Convention art. 112(1) ("All States are entitled to lay submarine cables and pipelines on the bed of the high seas beyond the continental shelf.").

[21] LOS Convention arts. 79(1) (providing that "[a]ll States are entitled to lay submarine cables and pipelines on the continental shelf, in accordance with the provisions of this article"), 79(5) (providing that "when laying submarine cables or pipelines, States shall have due regard to cables or pipelines already in position. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced"); *see also* LOS Convention, art. 78(2) (providing that "[t]he exercise of the rights of the coastal State over the continental shelf must not infringe or result in any unjustifiable interference with navigation and other rights and freedoms of other States as provided for in this Convention").

[22] Continental Shelf Convention, art. 4 (providing that "[s]ubject to its right to take reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources, the coastal State may not impede the laying or maintenance of submarine cables or pipe lines on the continental shelf"); LOS Convention, arts. 79(2) (providing that "[s]ubject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention, reduction and control of pollution from pipelines, the coastal State may not impede the laying or maintenance of such cables or pipelines"), 79(4) (providing that "[n]othing in this Part affects the . . . [coastal State's] jurisdiction over cables and pipelines constructed or used in connection with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction").

[23] LOS Convention art. 58(1) (providing that "[i]n the exclusive economic zone, all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines").

- The ability to install submarine cables in a state's territory or territorial sea subject to conditions and exercise of national jurisdiction;[24] and
- The freedom to maintain existing submarine cables passing through the waters of an archipelagic state without making landfall.[25]

These treaty obligations are now treated as customary international law,[26] in particular by the United States.[27]

For purposes of the EEZ and the continental shelf, submarine cables are distinguished from (1) artificial islands, (2) structures and installations used for exploration or exploitation of living or nonliving natural resources or for "other economic purposes," and (3) installations and structures which may interfere with the exercise of the rights of the coastal state in the EEZ or on the continental shelf.[28] Although the relevant treaty provisions permit coastal states to take reasonable measures respecting natural resource exploitation on the continental shelf, they bar states from taking such measures with respect to submarine cables, the construction and repair of

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[24] *Id.* art. 79(4) (providing that "[n]othing in this Part affects the right of the coastal State to establish conditions for cables or pipelines entering its territory or territorial sea").

[25] *Id.* art. 51(2).

[26] *See* Delimitation of Maritime Boundary in Gulf of Maine Area (Can. v. U.S.), 1984 I.C.J Rep. 246, 294 ¶ 94 (Oct. 12).

[27] The United States recognized these freedoms starting in 1983, even though the United States has never ratified the LOS Convention (it signed only in 1994) and even though the Convention did not enter into force for those states that had ratified it until 1994. Presidential proclamations by two different U.S. presidents expressly stated that the establishments of an Exclusive Economic Zone ("EEZ") and a contiguous zone, respectively, did not infringe on the high-seas freedoms to lay and repair submarine cables. *See* Presidential Proclamation No. 5030, Exclusive Economic Zone of the United States of America, 48 Fed. Reg. 10,605 (Mar. 10, 1983) ("Pres. Proc. No. 5030") (establishing the U.S. EEZ); Presidential Proclamation No. 7219, Contiguous Zone of the United States, 64 Fed. Reg. 48,701 (Aug. 2, 1999) (establishing the U.S. contiguous zone).

[28] LOS Convention, arts. 56, 60(1), 80.

which are not undertaken for natural resource exploration or exploitation.[29] These treaty provisions are reflected in the official position of the United Nations' Office of Legal Affairs of the Division for Ocean Affairs and the Law of the Sea, which states that:

> [B]eyond the outer limits of the 12 nm territorial sea, the coastal State may not (and should not) impede the laying or maintenance of cables, even though the delineation of the course for the laying of such pipelines [but not submarine cables] on the continental shelf is subject to its consent. The coastal State has jurisdiction only over cables constructed or used in connection with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction.[30]

Thus, a coastal nation must forbear from imposing any restrictions on the installation or maintenance of submarine cables unless those submarine cables themselves are used for natural resource exploration or exploitation.

Coastal states also have obligations to prevent willful or negligent damage to cables.[31] All states "shall have due regard to cables or pipelines already in position."[32] Thus, the LOS Convention (ratified by 167 countries and the European Union) and U.S.-recognized customary

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29 *Id.* art. 79(2); Continental Shelf Convention, art. 4.

30 *Maritime Space: Maritime Zones and Maritime Delimitations—Frequently Asked Questions*, United Nations Department of Oceans and Law of the Sea, Office of Legal Affairs (responding to Question #7, "What regime applies to the cables and pipelines?"), http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/frequently_asked_questions.htm.

31 *See* LOS Convention, art. 113 ("Every State shall adopt the laws and regulations necessary to provide that the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable beneath the high seas done willfully or through culpable negligence, in such a manner as to be liable to interrupt or obstruct telegraphic or telephonic communications, and similarly the breaking or injury of a submarine pipeline or high-voltage power cable, shall be a punishable offence. This provision shall apply also to conduct calculated or likely to result in such breaking or injury. However, it shall not apply to any break or injury caused by persons who acted merely with the legitimate object of saving their lives or their ships, after having taken all necessary precautions to avoid such break or injury.").

32 *Id.* art. 79(5).

international law afford submarine cables a great degree of protection from regulation or interference by coastal states, reflecting the vital role that submarine cables play in facilitating communications, commerce, and government.

D. U.S. Law Establishes Federal Offenses for Cable Damage

U.S. law provides that damaging a submarine cable—whether deliberately or through negligence—is a federal offense punishable by fine, imprisonment, or both.[33] Federal law imposes obligations on fishing vessels to keep their nets from interfering with or damaging submarine cables, and requires fishing vessels to maintain a minimum distance from any vessel engaged in laying submarine cable or any buoy placed to mark the position of a submarine cable. Violators are subject to imprisonment and financial penalties.[34] In addition, submarine cable owners have a right under U.S. law to sue for damage to their cables.[35]

E. The Offshore Renewable Energy Industry Lacks Awareness of Submarine Cables

The offshore renewable energy industry in the United States remains in the early stages of development. "[S]ubmarine cable operators, offshore renewable energy developers, and regulators have yet to develop systematic risk-minimization strategies and consultation and coordination mechanisms, which has resulted in some unresolved conflicts."[36]

Unsurprisingly, conflicts have arisen where operators of existing submarine cables have discovered belatedly that offshore renewable energy project developers have planned projects

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33 47 U.S.C. §§ 21 (willful damage), 22 (negligent damage).

34 *See* 47 U.S.C. § 25.

35 47 U.S.C. § 28.

36 *See* Communications Security, Reliability and Interoperability Council, *Working Group 8 Submarine Cable Routing and Landing Final Report—Protection of Submarine Cables Through Spatial Separation* 36 (2014),

directly on top of or in very close proximity to existing and planned submarine cables. For example, the Federal Energy Regulatory Commission ("FERC") issued preliminary project permits for the Dynegy Point Estero Wave Park Project and the Dynegy Estero Bay Wave Park Project over the objection of the NASCA that the projects would be located adjacent to or directly over four major trans-Pacific submarine cable systems, and that Dynegy had not made any attempt to identify—much less coordinate with—submarine cable operators in the area.[37] Similarly, FERC granted preliminary permits for tidal energy projects in Puget Sound (threatening the PC-1 cable due to insufficient spatial separation) and in Alaska's Cook Inlet (threatening the Kodiak-Kenai Fiber Link due to insufficient spatial separation) absent any advance identification of the affected submarine cables or coordination with their operators.[38] The statutory penalties for cable damage, noted in Part I.D above, appear not to have deterred these project developers from proposing projects next to or on top of existing submarine cables.

Permit applications for the renewable energy facilities mentioned above demonstrate that the offshore renewable energy industry lacks engagement with and awareness of submarine cables. While BOEM's COP Guidelines promote awareness at the project planning phase, addressing submarine cable locations at the site selection phase can ensure industry selection of

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http://transition.fcc.gov/pshs/advisory/csric4/CSRIC_IV_WG8_Report1 _3Dec2014.pdf ("CSRIC Spatial Separation Report").

37 *Order Issuing Preliminary Permit and Granting Priority to File License Application,* FERC Nos. P-14584 & P-14585, 149 FERC ¶¶ 62,058 & 62,059 (Oct. 28, 2014); *see also* Comments of the North American Submarine Cable Association, FERC Nos. P-14584 and P-14585 (filed Sept. 15, 2014), http://elibrary.ferc.gov/idmws/file_list.asp?document_id=14251566.

38 Federal Energy Regulatory Commission, *Licensed Marine and Hydrokinetic Projects* (Aug. 18, 2015), http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp; Federal Energy Regulatory Commission, *Issued Hydrokinetic Projects Preliminary Permits* (Aug. 18, 2015), http://www.ferc.gov/industries/hydropower/gen-info/licensing/hydrokinetics.asp.

Wind Energy Areas (WEA) locations that would not pose risk to submarine cables in the first place.

II. UNCOORDINATED RENEWABLE ENERGY ACTIVITIES ON THE NEW YORK BIGHT OCS POSE RISKS OF DAMAGE TO SUBMARINE CABLES.

Submarine cable operators, installers, and maintenance providers have particular spatial requirements on the surface of the ocean and on the sea floor. Without adequate spatial separation and coordination, wind energy activities on the OCS in the New York Bight pose significant risks to submarine cable systems.

A. Submarine Cable Installation, Operation, and Repair Require Spatial Separation from Other Cables and Other Marine Activities, as Well-Established in Various International and Foreign Standards

1. Vessel and Equipment Access

Cable ships—used for both installation and repair activities—are large vessels that consequently require adequate maneuvering space to accommodate operations and the effects of bad weather on the ocean in order to ensure the safety of the vessel, the crew, the submarine cables, and the wind energy infrastructure. They frequently operate in less-than-perfect weather and ocean conditions, which necessitate additional maneuvering room. They operate in such conditions given that the significant running costs of a cable ship (more than US $100,000 per day) make delays costly, given commercial imperatives to minimize the time to market for new systems, and given the commercial and security imperatives to minimize the delay in repairing damaged systems and restoring communications.

2. Installation Activities

During an installation, a cable ship will pay out cable from the ship's tanks, maintaining tension to ensure that the cable does not throw loops, which can result in transmission failures if pulled tight and render a cable more susceptible to physical damage due to greater exposure

above the seabed. Cable installers use various slack management techniques and software to minimize these outcomes. In shallow areas, cable is generally buried using a sea plow (typically to a depth of up to two meters) to protect it from hazards such as commercial fishing and anchoring. In limited areas where there are no significant fishing or anchoring risks or where the seabed does not permit burial, it will be laid on the surface of the seafloor.

3. Cable Retrieval

To recover a cable from the sea floor for repair purposes, a ship can either deploy an ROV, or it can grapple for the cable. ROV use is limited to shallower depths between 50 and 2000 meters. ROV use is generally limited to cable laid or exposed on the surface of the sea floor, although an ROV can be used for retrieval of shallow-buried cable depending on the sediment type. To retrieve a surface-laid cable in deeper water, a cable ship uses grapnels. And to retrieve a buried cable at any depth, a cable ship uses a detrenching grapnel, the size and weight of which increases with the depth of water.

The grapnel (whether for surface-laid or buried cable) is lowered to the sea floor from lines on the cable ship and dragged in a direction perpendicular to the cable. This allows the grapnel to dig into the seabed and under the cable, maximizing the chance that the grapnel will hook the cable (rather than graze or accidentally release it) and bring it to the surface of the seabed. Current ship positioning technology allows for extremely accurate placement of this gear and for controlled cable retrieval. Nevertheless, bad weather, heavy seas, or strong currents can decrease the accuracy of these operations—a situation which poses a greater risk to other submarine cables or sea floor installations in the vicinity of the target cable.

A damaged submarine cable must be repaired onboard a cable ship. But a cable (whether tensioned or not) that is resting on, or buried in, the seabed will lack sufficient slack to reach the surface for repair. Unless a cable is already severed, therefore, it must first be cut in order to be

brought to the surface. This retrieval operation takes at least three passes with the grapnel—one to cut the cable, a second to bring up and buoy one end of the cable, and a third to bring up and bring onboard the second end. After the ends are repaired and tested, a section of cable must be spliced in between the two ends in order to have them meet at the surface and restore connectivity. This additional section is typically two and a half times the depth of water in length. This length permits what was previously a cable lying flat on the sea floor to reach up to the cable ship, provide length for manipulation and repair activities on board, and reach back down to the sea floor.

This final configuration (known as the final bight) must be carefully placed back on the seabed. The ship uses additional rope to pull the bight in a direction perpendicular to the line of the original cable and then lower it to the seabed. Only with this careful placement can the repair ship have any chance of laying the cable flat. It is critical that the cable lay flat. If the cable has loops or is elevated above the seafloor, it is virtually impossible to bury the repaired section. Loops are undesirable for a variety of reasons: they can result in transmission failures if pulled tight, they can stand upright on the seabed, and they are more susceptible to physical damage due to greater exposure above the seabed. Elevation of the cable above the seafloor is undesirable, as it exposes the cable to greater risk of damage by external events. Either exposes even more of the cable to the risk that caused the damage or fault in the first place.

4. Spatial Separation Standards

The submarine cable industry has developed standards to protect submarine cables from other marine activities, including wind energy projects.[39] The key recommendations of the ICPC

[39] Each installation and maintenance company also has more specific methods for handling cable per each cable manufacturer's recommendations.

are summarized below and available at www.iscpc.org. As described in more detail below, ICPC's recommendation for proximity with respect to wind energy projects stems from collaboration from both the submarine cable and renewable energy industries.

Table 1

No.	Issue	Recommendation
1	12	Recovery of Out of Service Cables This document provides the ICPC's recommendations in relation to recovery of a submarine cable system that is redundant or has been taken out of service. Taken into consideration are legal requirements, environmental concerns, salvage, and proximity to adjacent infrastructure (other cables, oil and gas facilities, etc.)
2	10	Cable Routing and Reporting Criteria This Recommendation provides generalized cable routing and notification criteria that the ICPC recommends be used when undertaking cable route planning activities where the cable to be installed crosses, approaches close to or parallels an existing or planned cable system. For parallel submarine cables, this Recommendation recommends a separation distance of the lesser of 3 times depth of water, or where not achievable, 2 times the depth of water following consultation and agreement between affected parties.
3	10	Telecommunications Cable and Oil Pipeline / Power Cables Crossing Criteria The continued increase in both the numbers of submarine cables and the exploitation of oil and gas from the seabed inevitably means that there will be more cases of crossings between telecommunications cables, power cables, and pipelines. The purpose of this document is to give guidance to those who are faced with this situation and to provide some basic questions that need to be asked as the first step in considering any proposed crossing so that areas of concern can be identified and mutually acceptable solutions developed.
4	8	Co-ordination Procedures for Repair Operations Near In Service Cable Systems This document provides recommended procedures with respect to any repair operations that are undertaken near active cable systems. The procedures apply to the repair operations of active cable systems in the vicinity of any cable crossing or cables that are closely parallel. Considerations to be addressed include proximity to each other, ship operations, cable retrieval options, repair scheduling, establishing points of contact, and other non-site specific guidelines.

6	8A	Actions for Effective Cable Protection (Post Installation) This recommendation concerns post-installation measures to mitigate the risk of cable faults caused by human activities such as fishing and vessel anchoring. Such measures are often referred to as marine liaison, offshore liaison, or cable awareness. Different measures may be appropriate in different areas, even when a single cable system is involved. Such measures must take into account the characteristics of the different mariners active in each area, such as fishermen, merchant mariners, pilots, port authorities, military officers, marine traffic control officials, operators of resource extraction vessels, etc. These conditions and risks may change over time.
7	6	Offshore Civil Engineering Work in the Vicinity of Active Submarine Cable Systems This document recommends the procedure to be followed when civil engineering or offshore construction work is undertaken in the vicinity of active submarine cable systems. The construction company responsible for the civil/structural work should discuss their plans with the responsible cable owner in order to determine operational and maintenance issues and liabilities that may impact on the submarine cable or the planned structure. The construction company should work with the cable owner to accurately identify the physical location of the cable systems in the vicinity of the planned civil works. Depending on the circumstances, the location work could require either divers or a Remotely Operated Vehicle (ROV) to assist in the cable locating work.
8	7A	Offshore Seismic Survey Work in the Vicinity of Active Submarine Cable Systems An active submarine cable system includes electro-optic devices that are required to manage the signal at intervals along its route. If the internal components of these submerged devices are subjected to acceleration greater than specification there is a risk of serious damage. This document recommends the procedure to be followed while offshore seismic survey work is undertaken in the vicinity of active submarine cable systems where these are installed in water depths of 200 meters or less.
13	2A	The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters This document provides guidance on the considerations that should be given in the development of projects requiring proximity agreements between offshore wind farm projects and submarine cable projects within national waters. The document addresses installation and maintenance constraints related to wind farm structures, associated cables and other submarine cables where such structures and submarine cables will occupy proximate areas of seabed.

ICPC Recommendation No. 13, which establishes principles for proximity of offshore renewable wind energy installations and submarine cable infrastructure, is instructive for determining spatial separation needs between the two. The recommendation fully adopts and

implements the European Subsea Cables Association ("ESCA") Guideline No. 6, which was created with input from the submarine cable industry, the offshore renewable energy industry, and the United Kingdom's Crown Estate.[40]

To prepare ESCA Guideline No. 6, industry stakeholders and the Crown Estate commissioned a proximity study to determine the needs for spatial separation between submarine cables and offshore renewable energy projects.[41] ESCA Guideline No. 6 used the evidence-based proximity study to make specific recommendations for marine spatial planning that address the need for safety, access, and maintenance for both submarine cables and wind energy projects. ESCA Guideline No. 6 is summarized in a letter, attached hereto as Appendix 2, that ESCA sends to European regulators and authorities to explain the justification for spatial separation needs.[42]

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[40] At the time of publication of ESCA Guideline No. 6, the association was Subsea Cables UK ("SCUK"). In 2015, SCUK became the European Subsea Cables Association ("ESCA"), to better reflect the subsea cable industry sector across Europe. ESCA Guideline No. 6 was subsequently revised to reflect the updated industry association name. *See* ESCA, *ESCA Guideline No. 6, The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK Waters* (Issue 5 2016) ("ESCA Guideline No. 6"). The Crown Estate, a property manager overseeing property and holdings making up the Sovereign's public estate, manages the seabed out to the 12 nautical mile limit. *See*, e.g., *Cables and Pipelines*, The Crown Estate, https://www.thecrownestate.co.uk/energy-minerals-and-infrastructure/cables-and-pipelines/.

[41] *See* Red Penguin Associates Ltd, Submarine Cables and Offshore Energy Installations – Proximity Study Report, The Crown Estate (2012), available for download at https://www.thecrownestate.co.uk/energy-minerals-and-infrastructure/cables-and-pipelines/studies-and-guidance/wind-and-telecoms-cable-proximity/.

[42] *See* Letter from European Subsea Cables Association to European Marine Authorities & Regulators, et al. re the ESCA position on clear sea-room distances required to properly support subsea cable installation and maintenance in Offshore windfarms, in water depths up to approximately 75m (Aug. 1, 2017) ("ESCA Letter"), attached as Appendix 2.

ICPC, which represents the international submarine cable industry, fully adopted ESCA Guideline No. 6 and the associated proximity study. ICPC Recommendation No. 13 is therefore "based upon the combined broad experience and knowledge base contained within the submarine cable industry, the offshore renewable energy industry and the Crown Estate."[43]

ICPC Recommendation No. 13, consistent with ESCA Guideline No. 6, indicates that the ideal distance between submarine cables and offshore energy projects is 1 nautical mile (approximately 1852 meters).[44] For projects in closer proximity, ICPC Recommendation No. 13 recommends the need for a working zone of 500 meters on either side of an in-service submarine cable to enable access for cable maintenance and repair operations, as well as an additional hazard area with a minimum radius of 250 meters *in addition to* the working zone, to address the potential for a vessel undertaking cable operation working at the limit of a working zone. Accordingly, for renewable energy projects in water depths up to 75 meters, a minimum default separation of 750 meters on either side of a cable is recommended.[45] ICPC Recommendation No. 13's separation recommendations are the minimum recommended separation, to be used as a starting point for project-specific proximity agreements between renewable energy projects and submarine cable operators for any infrastructure that will be located within 1 nautical mile of each other.

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43 International Cable Protection Committee, *ICPC Recommendation No. 13, The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters* 6 (Issue 2A 2013) available by request at www.iscpc.org or secretariat@iscpc.org ("ICPC Recommendation No. 13").

44 *Id.* at 7; *see also* ESCA Letter at 4 ("The ideal minimum distance (for waters up to 75m deep) as detailed in [ESCA Guideline No. 6] is somewhat larger than" the minimum recommended distance. "This ideal distance [is] +/- 1 Nautical Mile.").

45 *See* ICPC Recommendation No. 13, at 7; ESCA Letter at 4.

ESCA Guideline No. 6 and ICPC Recommendation No. 13 do not address separation for renewable energy projects in water depths greater than 75 meters, but ICPC Recommendation No. 2 can be instructive for these purposes. ICPC Recommendation 2 establishes principles for submarine cables located adjacent to each other, recognizing that cables can be placed only so close to each other until they endanger other cables during installation and maintenance, or until they impede access for installation and maintenance—particularly if there are multiple installation and maintenance companies operating in the same vicinity above or below the ocean surface. Accordingly, in water depths greater than 75 meters, submarine cable operators follow a guideline according to which two parallel cables are to be separated by a distance equal to the lesser of three (3) times the depth of water or nine (9) kilometers, though actual placement may vary on a case-by-case basis.[46] Similarly, if both operators of parallel cables agree, cables in deeper water may be separated by a distance equal to the lesser of two (2) times the depth of water, or (6) six kilometers.[47]

Similarly, a report adopted unanimously by the FCC's Communications Security, Reliability and Interoperability Council ("CSRIC")—a federal advisory committee advising the FCC Chairman on communications security issues—also discusses and makes recommendations regarding spatial separation standards. In particular, the CSRIC Spatial Separation Report

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[46] *See* International Cable Protection Committee, *ICPC Recommendation No. 2, Recommended Routing and Reporting Criteria for Cables in Proximity to Others* 12 (Issue 11 2015), available by request at www.iscpc.org or secretariat@iscpc.org ("ICPC Recommendation No. 2").

[47] *Id.* While the submarine cable operators may agree to place the cables as little as 200 meters apart—either because the length of the parallel is short or the probability of damage and repair is low—most operators take a more conservative approach to cable separation distances. The "three-times-the-depth-of-water" standard allows the repair ship to lay the repaired cable back flat on the seabed without laying it over the adjacent cable.

(which was drafted by the CSRIC's submarine cable working group, with input from both BOEM and FERC) urges the FCC and submarine cable operators to "work with other U.S. Government agencies and other stakeholders to consult with and among each other at the earliest possible time to address spatial requirements for submarine cables and their relationship to other proposed marine activities and infrastructure."[48] The CSRIC Spatial Separation Report also recommends that the FCC explore with other government agencies the creation of exclusion zones around existing submarine cables, based on well-established spatial requirements for submarine cable installation and maintenance activities, "that would exclude on a categorical basis activities within a defined distance of a submarine cable absent agreement with the submarine cable owner."[49] CSRIC also recommends that the FCC endorse a default separation distance of 500 meters in water depths of less than 75 meters and the greater of 500 meters or two times the depth of water in greater water depths that would govern in the absence of agreement among agencies and affected stakeholders.[50]

CSRIC's spatial separation recommendation of 500 meters provides a guideline for U.S. Government agencies to consider as a starting point for separation from marine activities more generally; this recommendation is further supplemented by the submarine cable and renewable energy industries' recognition that additional separation is needed with respect to renewable energy projects. Accordingly, 750 meters on either side of the cable is the industry-recognized minimum recommended distance for submarine cables in proximity to offshore renewable energy developments in water depths of 75 meters or less.[51] For greater water depths, NASCA

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48 *See* CSRIC Spatial Separation Report at 57.

49 *Id.* at 12.

50 *Id.* at 57-58.

51 *See* ESCA Letter at 4.

recommends a minimum separation of the greater of 750 meters or three times the water depth on either side of the cable to address the increased challenges of projects in deeper waters. Even with this minimum separation, project-specific proximity agreements are necessary to address potential repairs and other construction and maintenance needs of submarine cables and renewable energy projects in close proximity.

B. Potential Impacts of Wind Energy Activities on Submarine Cables

As noted in the CSRIC Spatial Separation Report, "[u]ncoordinated renewable energy development poses numerous risks to submarine cables."[52] Without adequate spatial separation and coordination, offshore wind energy activities on the New York Bight OCS can cause physical disturbance and impede access to cables for installation and maintenance.

1. Direct Physical Disturbance

Renewable energy activities risk disturbing the seabed and damaging existing submarine telecommunications cables.[53] Direct physical disturbance can result from anchoring, sea floor scouring, and power transmission cable crossings, regardless of whether the cable is resting on the surface of the seabed or buried. Anchoring alone accounts for approximately 15 percent of cable faults worldwide.[54] Both the vessels necessary to construct a renewable energy facility, or sometimes the renewable energy facility itself, will rely on anchors. Improperly stowed anchors that release or fall overboard can be dragged for great lengths across the sea floor, damaging

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52 *See* CSRIC Spatial Separation Report at 39.

53 *Id.* at 33.

54 *Id.* at 32.

cables along their paths. Even properly anchored vessels can, depending on sea conditions, drag anchors across the path of submarine cables.

Placing renewable energy facilities near submarine cables increases the risk of harm through seafloor scouring. Sea floor scouring occurs when "currents erod[e] sediment in the areas around a structure on the sea floor."[55] Scouring can cause submarine cables, which are typically laid either directly on or trenched into the sea floor, to become suspended. Suspended cables are at risk of abrasion caused by strumming of the suspended span, and are more exposed to external threats, such as from fishing operations. The risk of scouring could lead submarine cable operators to bury cables more deeply, which is more costly and time consuming both at the time of installation and retrieval for repairs. Scouring can also redeposit sediment above a cable in a manner that increases the risk of erosion and abrasion.[56]

Most, if not all, renewable energy facilities rely on one or more power transmission cables. The installation, operation, and maintenance of those cables all pose a risk of direct physical disturbance to submarine cables in close proximity—particularly if the power transmission cable crosses the submarine cable—and also increase the complexity, time, and cost of submarine cable repair.[57]

2. Impeded Access—at Both the Ocean Surface and Seafloor—for Installation and Maintenance

In addition to the risk of direct physical disturbance, large renewable energy projects can also impede access to submarine cables for maintenance and repair activities. Such projects may attempt to build directly over or very near to existing submarine cables, impairing access to those

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[55] *Id.* at 39.

[56] *Id.* at 40.

[57] *Id.* at 40-41.

portions of the cable under or in close proximity to the marine renewable energy facility. The installation of an energy project can also force new cables into de facto "cable corridors," as all new cables must work around such facilities but may have limited routing options, forcing cables to be placed in closer proximity with each other.[58]

It is more difficult for repair ships and personnel to retrieve and repair damaged cables when in close proximity to other marine activities like renewable energy facilities or other submarine cables. Moreover, forcing cables into these "cable corridors" greatly increases the odds that one damaging mishap could disrupt multiple cables, resulting in prolonged and wide-ranging outages. Where close proximity between cables and other infrastructure exists—especially without prior agreement or coordination—cable faults will be repaired less quickly, communications system outages will last longer, and the costs to cable operators and the customers they serve could increase considerably.

III. BOEM SHOULD UNDERTAKE SPECIFIC MEASURES AT THE SITE SELECTION PHASE TO ENSURE SUBMARINE CABLE PROTECTION ON THE OCS IN THE NEW YORK BIGHT

BOEM's Call seeks comments about "site conditions, resources, and multiple uses in close proximity to, or within, the Call Areas" relevant to BOEM's "review of any nominations" and "possible subsequent decision to offer all or part of the Call Areas for commercial wind leasing."[59] NASCA applauds BOEM's OREP for flagging "cables and other existing infrastructure" as a topic that BOEM is "particularly sensitive to" within the Call Areas.[60] The

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58 *See id.*

59 Call, 83 Fed. Reg. at 15,602-1.

60 *Id.* at 15,605.

New York Bight area is a major landing for numerous submarine cables, and as such, there is a high probability of conflicting use between submarine cables and offshore wind projects.

While it is helpful that BOEM has pointed lessees to the potential need for developing "site-specific crossing and proximity agreements with applicable infrastructure owners,"[61] NASCA urges BOEM to account for submarine cable protection earlier in the process, at the site selection phase. BOEM should address the location of existing submarine cable systems in the New York Bight area, and the need for adequate spatial separation to protect those systems. Consideration of submarine cable infrastructure as part of the site selection phase can decrease the risk of damage to submarine cables and can prevent costly delay to WEA project timelines.

Specifically, BOEM should recognize categorical exclusion zones around existing submarine cables and withdraw those areas from the Call Areas. At a minimum, BOEM should incorporate default spatial separation from submarine cables into its leases. In addition, NASCA urges BOEM to continue to promote awareness and encourage coordination and consultation with submarine cable owners at both the planning and implementation phases. Finally, BOEM should continue to work with expert agencies during its area identification process.

A. BOEM Should Recognize Categorical Exclusion Zones Around Existing Submarine Cables and Withdraw from Leasing Those Lease Blocks or Portions of Lease Blocks Traversed by Existing Submarine Cables

NASCA urges BOEM to recognize categorical exclusion zones around existing submarine cables and to withdraw from leasing the lease blocks or portions of lease blocks within the Call Areas that are traversed by existing submarine cables. BOEM's Call acknowledges the potential need for "buffer zones" between WEAs to "allow for mitigation of

[61] *Id.* at 15,609.

potential conflicts."[62] BOEM should incorporate similar buffers between WEAs and existing submarine cable infrastructure—via categorical exclusion zones—into its Call Areas to help prevent potential conflicts between submarine cables and offshore wind projects. At a minimum, BOEM should incorporate spatial separation from submarine cables as a requirement in its leasing documents.

Effective cable protection requires spatial separation between submarine cables and other marine activities. With sufficient separation, the risks of direct disturbance via equipment or anchors, or impeded access for establishment of diverse routes or timely maintenance are minimized. Technological developments by other marine activities are irrelevant to these minimum spatial requirements, given the access requirements for submarine cable vessels and equipment. The CSRIC Spatial Separation Report recommends that the FCC explore with other government agencies the creation of exclusion zones around existing submarine cables, based on well-established spatial requirements for submarine cable installation and maritime activities "that would exclude on a categorical basis activities within a defined distance of a submarine cable absent agreement with the submarine cable owner."[63] In addition, while the focus of ICPC Recommendation No. 13 is on proximity agreements, it also notes that "[b]efore decisions are made regarding proximity and cable crossings, other solutions should be considered to potentially mitigate or reduce the impact."[64] These solutions include "[c]onstruction of a wind farm in a different area."[65] Accordingly, BOEM can reduce the risks posed by wind energy

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62 *Id.* at 15,616.

63 CSRIC Spatial Separation Report at 57.

64 ICPC Recommendation No. 13, at 14.

65 *Id.*

facilities and submarine cable infrastructure located too close together by incorporating the spatial separation recommendations into the site selection phase.

BOEM should therefore consider the default minimum separation distances established in ESCA's and ICPC's recommendations in establishing exclusion zones and in identifying lease blocks or portions thereof ineligible for leasing. Specifically, BOEM should account for a default separation distance of a minimum of 750 meters on either side of the cable in water depths of less than 75 meters (i.e., 1500 meters total) and the greater of 750 meters or three times the depth of water on either side of the cable in greater water depths.[66] BOEM should recognize this minimum default separation distance as a buffer, or categorical exclusion zone, around submarine cable infrastructure to serve as a basis for case-by-case proximity agreements. These categorical exclusion zones could mirror the 1 nautical mile buffer zones from traffic and shipping lanes that BOEM has already excluded from the proposed Call Areas, as well as the buffer zones recommended by the U.S. Coast Guard for traffic separation schemes that BOEM indicates it may exclude from the proposed areas.[67]

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[66] CSRIC Spatial Separation Report at 57-58.

[67] Call, 83 Fed. Reg. at 15,607 (excluding "[a]ll sub-blocks that overlap with a 1 nmi buffer along all outer edges of traffic lanes, shipping safety fairways, and the above-mentioned 30 nmi delineated area."); *id.* ("USCG issued Marine Planning Guidelines (MPG), which recommends a 2 nmi parallel buffer between the outer or seaward boundary of a traffic lane and offshore structures, and a 5 nmi buffer for a Traffic Separation Scheme entry or exit. USCG has stated that these buffers are guidelines, and has acknowledged that navigational risks can be mitigated on a project-by-project basis, pending more detailed analysis following the lessee's submission of a Navigational Safety Risk Assessment at the construction and operations phase of BOEM's regulatory process. Pending the outcome of future analysis, BOEM may not offer some portions of the Call Areas for leasing or development based on information provided in response to during [sic] the Call regarding safety concerns and historic routes of vessel traffic.").

At a minimum, BOEM should require nominations—and the leases themselves—to incorporate the default separation distances into their projects, and to further coordinate with submarine cable stakeholders. BOEM's Call proposes "adding stipulations in its leases limiting development within a certain distance of adjacent development without the consent of the other developer."[68] While BOEM's proposal applies to spatial separation between wind projects, NASCA urges BOEM to include the same stipulation in its leases for submarine cable infrastructure. Even with categorical exclusion zones recognizing the minimum spatial separation distance, submarine cable industry recommendations recommend consultation between stakeholders for projects within 1 nautical mile of existing submarine cables.[69]

B. BOEM Should Continue to Promote Coordination with Submarine Cable Operators at the Planning and Implementation Phase

NASCA applauds the efforts BOEM's OREP has already made to encourage protection of submarine cables through its COP Guidelines. NASCA encourages BOEM to continue to promote the renewable energy industry's awareness of existing submarine cables and coordination with submarine cable operators in project planning and implementation. Even if OREP creates categorical exclusion zones to account for the minimum separation recommendations of 750 meters on either side of the cable (or the greater of 750 meters or three times the water depth for projects in water depths greater than 75 meters), proximity agreements between wind energy projects and submarine cable operators are still necessary on a case-by-case basis where projects are within 1 nautical mile of submarine cable infrastructure.[70] In addition to establishing the proximity of wind energy projects and cables, these agreements need

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[68] *Id.* at 15,616.

[69] ICPC Recommendation No. 13, at 7.

[70] *See id.* at 7.

to establish case specific details such as procedures to follow for potential cable repairs (e.g., turning off turbines or turning them in a different direction for a repair), insurance requirements, and protections for cable crossings.

As part of its guidance in the COP Guidelines, BOEM directs lessees of renewable energy programs to coordinate with the owners and operators of existing submarine cables "as early as practicable in the project planning process," as well as with all "potential owners and operators of any telecommunications cables that are planned for installation in the lease area."[71] In its COP Guidelines, BOEM directs lessees to NASCA's resources for coordination and planning. BOEM also encourages lessees to gain familiarity with existing guidelines and standards for coordination, including those published by the ICPC.[72] Critically, to facilitate review of renewable energy projects, the COP Guidelines also recommend that lessees include coordination information in their submission of construction and operations plans, which must be approved by BOEM.[73]

To promote awareness and coordination, NASCA urges BOEM to continue to direct industry stakeholders to the COP Guidelines, and to notify renewable energy project developers of the need to involve submarine cable operators as early as possible in project planning to develop project-specific proximity agreements.

C. NASCA Urges BOEM to Establish Coordination with Expert Agencies

As part of BOEM's coordination with other federal and regional bodies for ocean planning,[74] NASCA also urges BOEM to develop interagency coordination measures with those

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71 COP Guidelines, Attachment G, at 60.

72 *Id.*

73 *Id.*

74 *See* Call, 83 Fed. Reg. at 15,603.

federal agencies engaged in regulation of submarine cables or having submarine cable expertise, particularly the FCC. In particular, the CSRIC Spatial Separation Report (which was drafted with input from BOEM) urges the FCC and submarine cable operators to "work with other U.S. Government agencies and other stakeholders to consult with and among each other at the earliest possible time to address spatial requirements for submarine cables and their relationship to other proposed marine activities and infrastructure."[75]

First, BOEM can make better use of the interagency coordination procedures established by the National Environmental Policy Act ("NEPA"), including the provisions for lead agencies and coordinating agencies[76] NASCA urges BOEM to treat the FCC, Team Telecom, and U.S. Army Corps of Engineers as cooperating agencies in its future area identification process. These agencies are qualified agencies with "special expertise",[77] and can provide invaluable information on the economic and social impact on submarine cable infrastructure associated with renewable energy activities. As part of the development of its area identification process, NASCA urges BOEM to seek information from these agencies and coordinate with them to protect existing submarine cable infrastructure and ensure the ability to develop and protect future submarine cable infrastructure.

Second, BOEM should negotiate a memorandum of understanding with the FCC to

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75 *See* CSRIC Spatial Separation Report at 57; *see also* Communications Security, Reliability and Interoperability Council, *Working Group 4A Submarine Cable Resiliency Final Report—Interagency and Interjurisdictional Coordination* 45 (2016), https://transition.fcc.gov/bureaus/pshs/advisory/csric5/WG4A_Report-Intergovernmental-Interjurisdictional-Coordination_June2016.pdf (encouraging the FCC to take an active role in marine spatial planning activities, including those of BOEM).

76 40 C.F.R. § 1506.2(b) – (c); *see also* 42 U.S.C. § 4332 (requiring the lead agency to "consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved.").

77 42 U.S.C. § 4332(C)(v); 40 C.F.R. §§ 1501.6, 1508.5.

establish formal consultation and coordination procedures to minimize potential conflicts between submarine cables and renewable energy projects—including those in the New York Bight area. The adoption of both measures would provide BOEM with valuable and relevant information necessary for the area identification process for future commercial wind projects on the OCS in the New York Bight.

CONCLUSION

For the reasons stated above, NASCA urges BOEM to adopt measures to protect existing and planned submarine cable systems and to address the unique legal protections afforded to such systems as part of BOEM's area identification process for commercial wind leases on the New York Bight OCS.

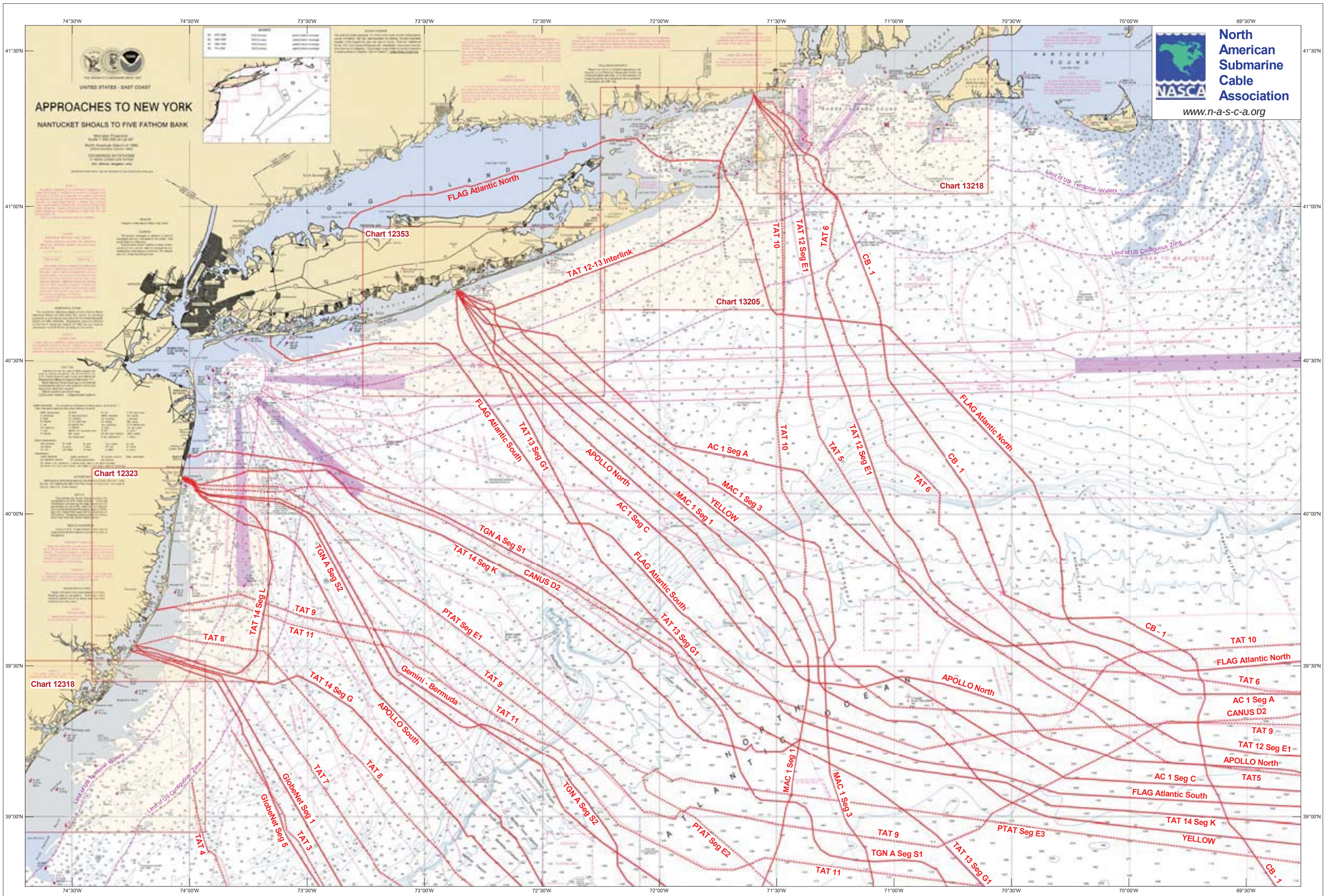
Respectfully submitted,

Kent D. Bressie
Susannah J. Larson
HARRIS, WILTSHIRE & GRANNIS LLP
1919 M Street, N.W., Suite 800
Washington, D.C. 20036-3537
+1 202 730 1337 tel

Counsel for the
North American Submarine Cable Association

30 July 2018

Appendix 1: Maps of Submarine Cables Landing in the New York Bight



LEGEND

- NASCA Member Cables In Service
- NASCA Member Cables Out of Service
- Maritime Boundaries

General Note

These cables are plotted based on the best available data from cable owners and members of the North American Submarine Cable Association (NASCA) at the time of production.

Please be aware that there may be other cables in the area that are not depicted on this chart.

CABLE & CONTACT INFORMATION

Cable System	Status	Owner	Emergency Contact No.
AC 1 Segment A	*In Service*	Level 3	1-877-881-9205
AC 1 Segment C	*In Service*	Level 3	1-877-881-9205
APOLLO North	*In Service*	Apollo	+44 (0) 20 7138 7117
APOLLO South	*In Service*	Apollo	+44 (0) 20 7138 7117
CANUS D2	*OOS*	Tata	1-732-282-4001
CB-1	*In Service*	Verizon	1-866-246-4186
FLAG Atlantic South	*In Service*	Global Cloud Xchange	+44 20-8282-1599
FLAG Atlantic North	*In Service*	Global Cloud Xchange	+44 20-8282-1599
Gemini - Bermuda	*In Service*	Verizon	1-866-246-4186
GlobeNet Segment 1	*In Service*	Globenet	1-609-377-9494 or 1-609-294-8661
GlobeNet Segment 5	*In Service*	Globenet	1-609-377-9494 or 1-609-294-8661

Cable System	Status	Owner	Emergency Contact No.
MAC 1 Segment 1	*In Service*	Level 3	1-877-881-9205
MAC 1 Segment 3	*In Service*	Level 3	1-877-881-9205
PTAT Segment E1	*OOS*	Sprint	1-800-726-2669
PTAT Segment E2	*OOS*	Sprint	1-800-726-2670
PTAT Segment E3	*OOS*	Sprint	1-800-726-2671
TAT 3	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 4	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 5	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 6	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 7	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 8	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 9	*OOS*	AT&T	1-866-466-2288, Prompt 5

Cable System	Status	Owner	Emergency Contact No.
TAT 10	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 11	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 12 Segment E1	*In Service*	AT&T	1-866-466-2288, Prompt 5
TAT 12-13 Interlink	*In Service*	AT&T	1-866-466-2288, Prompt 5
TAT 13 Segment G1	*In Service*	AT&T	1-866-466-2288, Prompt 5
TAT 14 Segment G	*In Service*	AT&T	1-866-466-2288, Prompt 5
TAT 14 Segment K	*In Service*	Sprint	1-800-726-2669
TAT 14 Segment L	*In Service*	AT& T/ Sprint	1-866-466-2288, Prompt 5 / 1-800-728-2669
TGN A Segment S1	*In Service*	Tata	1-732-282-4001
TGN A Segment S2	*In Service*	Tata	1-732-282-4001
YELLOW	*In Service*	Level 3	1-877-881-9205

Emergency Contact Information

In the event you one become entangled in one of the submarine cables shown on this chart please contact the relevant owner listed on this chart 24 hours a day, seven days a week.

For General Information

For non-emergency information regarding any of the cable systems shown on this chart, or for marine planning purposes, please contact: **cableinfo@N-A-S-C-A.org**

NATURAL SCALE 1 : 400,000 at 40°00' N

0 5 10 15 20 25 Miles

0 5 10 15 20 25 Nautical Miles

SPHEROID & DATUM : WGS84

PROJECTION : MERCATOR

Notes:

This chart is intended for general reference only and **NOT FOR NAVIGATION PURPOSES.**

Please be aware that other cables may exist in addition to those shown on this chart.

SOUNDINGS IN FATHOMS
AT MEAN LOW WATER

CHART HISTORY

Produced by Charting Services
Global Marine Systems Limited, Chelmsford, United Kingdom

EDITION No. 1 January 2015

CHART BACKGROUND:

NOAA Chart 12300. 49th Edition, June 2012

For more information see:
www.nauticalcharts.noaa.gov

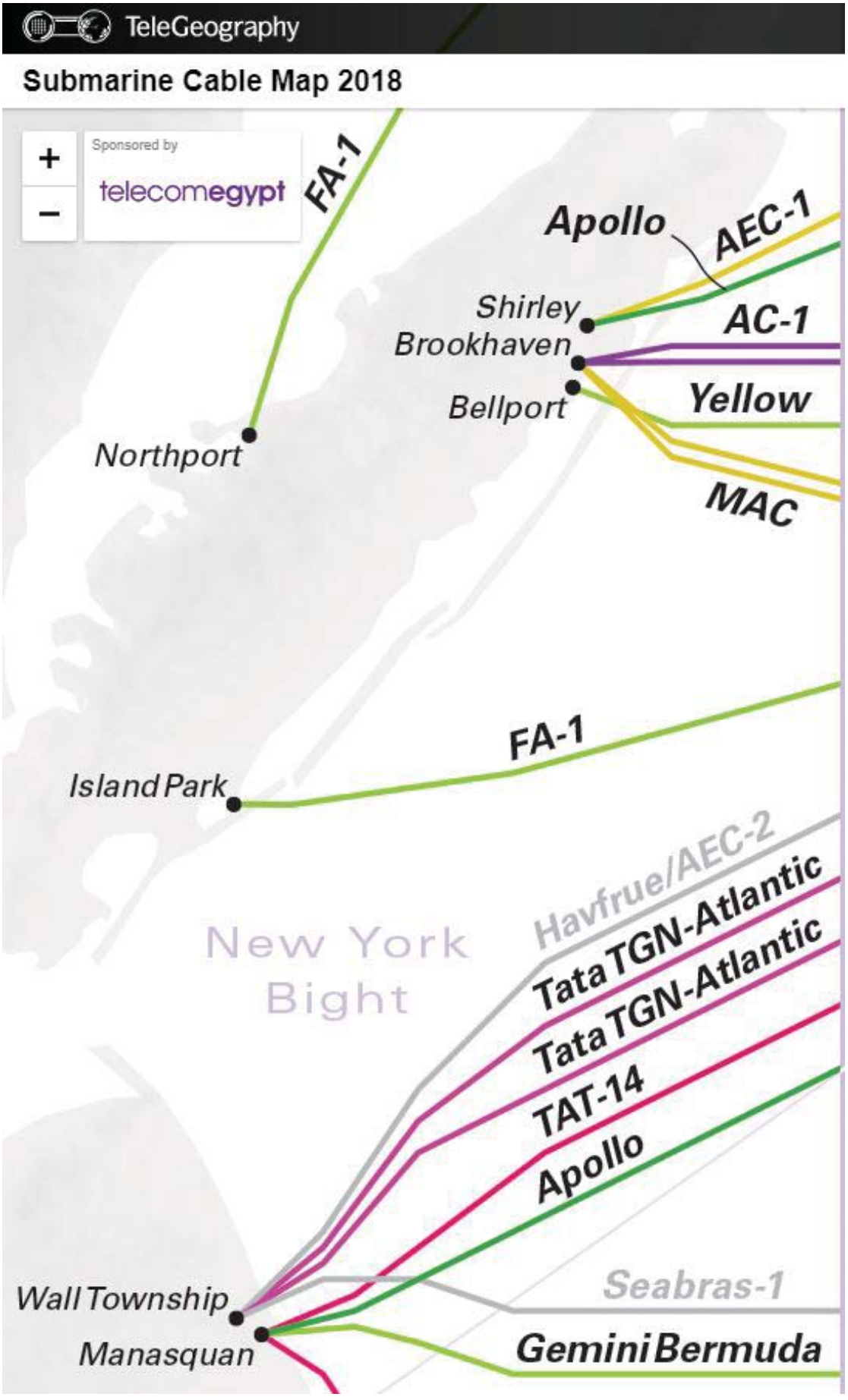
Global Marine
Global Marine Systems Limited
New Saxon House
1 Winsford Way
Boreham Interchange
Chelmsford
Essex CM2 5PD
United Kingdom
Tel: +44 (0) 1245 702000
Fax: +44 (0) 1245 702210
www.globalmarinesystems.com

NASCA Cable Awareness Chart

Mid-Atlantic Region

Chart no. 12300

APPROACHES TO NEW YORK



Source: TeleGeography, Submarine Cable Map, http://www.submarinecablemap.com

Appendix 2: Letter from European Subsea Cables Association to European Marine Authorities & Regulators, et al. re the ESCA position on clear sea-room distances required to properly support subsea cable installation and maintenance in Offshore windfarms, in water depths up to approximately 75m (Aug. 1, 2017)

To:

European Marine Authorities & Regulators
European Wind Energy Developers
European Wind Energy Operators
Other interested parties

European Subsea Cables Association
39 Nightingale Road
Guisborough
North Yorkshire
TS14 8HA
United Kingdom

To whom it may concern

01st August, 2017

The ESCA position on clear sea-room distances required to properly support subsea cable installation and maintenance in Offshore windfarms, in water depths up to approximately 75m

Marine Spatial Planning and the successful co-existence of a number of seabed and sea area users is of paramount importance in the current climate of safe development of our seas as one of the major resources in modern times.

The current drive to deliver greater volumes of environmentally friendly sustainable renewable energy, has resulted in a major acceleration of the planning and development of offshore wind farms, and perhaps soon to be followed by a similar expansion of wave and tidal energy schemes. All of these are currently focussed in shallow shelf seas and the highest concentration is in the waters around Northern Europe which represent one of the finest such areas for these resources.

At the same time, there has never been a greater demand for communications connectivity around the globe, and the demand is increasing near exponentially over time. Internet access is rapidly being considered in the same context as water, electricity supply, heating, lighting and food in developed countries. The world's greatest growth in demand of mobile device data is in the developing countries of the world, such is the desire for reliable connectivity to drive change and improvement in society and future prospects.

The European Subsea Cables Association (ESCA) is a not-for-profit organisation which represents the subsea cable industry sector across Europe. It was formed in 2015 out of Subsea Cables UK, to better reflect the number of European cable owners already involved in SCUK.

With this in mind, ESCA (then known as SCUK) in 2010 updated a guideline first authored in 2003, in conjunction with renewable energy development stakeholders and UK government regulators. The guidance was produced to assist any interested parties in setting out the needs and requirements associated with cables of any type, in relation to fixed structure offshore construction in shallow shelf seas, focusing on offshore wind farms. This was ESCA Guideline No.6, The Proximity of Offshore Renewable Energy Installations & Submarine Cable Infrastructure in UK Waters. (http://www.escaeu.org/guidelines/ select the guideline to download).

This document is currently being updated to change the title to reflect applicability to European waters. It originally referred to UK as the organisation was UK focussed at that time. The remit has now been extended to cover all of Europe and the advice and justification remains unchanged.

The International Cable Protection Committee (ICPC) represent the cable industry on a global level, focussed on the primary aspect of cable safety and awareness. The ICPC have also generated a Recommendation document of global coverage, which includes the same guidance as the ESCA document.

In this document, Section 7 details the Guidance for indicative separation distances. It details the concepts of:

- Working Zone – typically +/- 500m, applied either side of the subsea cable in water depth up to 250m. A Working Zone is required either side of an in-service submarine cable to enable access for cable maintenance and repair operations by a suitable vessel; and
- Hazard Area – a minimum of +/- 250m applied around the cable repair vessel.
    - The Hazard Area is independent of, and in addition to, the Working Zone.
    - It is required, where there are fixed structures near to a vessel undertaking cable operations, close to the limit of the expected or planned Working Zone.
    - It provides amelioration of risks to personnel, vessels and structures in working in close proximity to a structure.
    - A Hazard Area should be considered as a trigger radius around the vessel for planning, and any structure potentially within the Hazard Area will trigger the need for additional risk assessment and identification of pre-planned risk mitigation, such as constraints on operational conditions.

More detailed definition is included in the Guideline.

Figures 5, 6 and 7 in the Guideline document show how these apply to a cable work vessel.

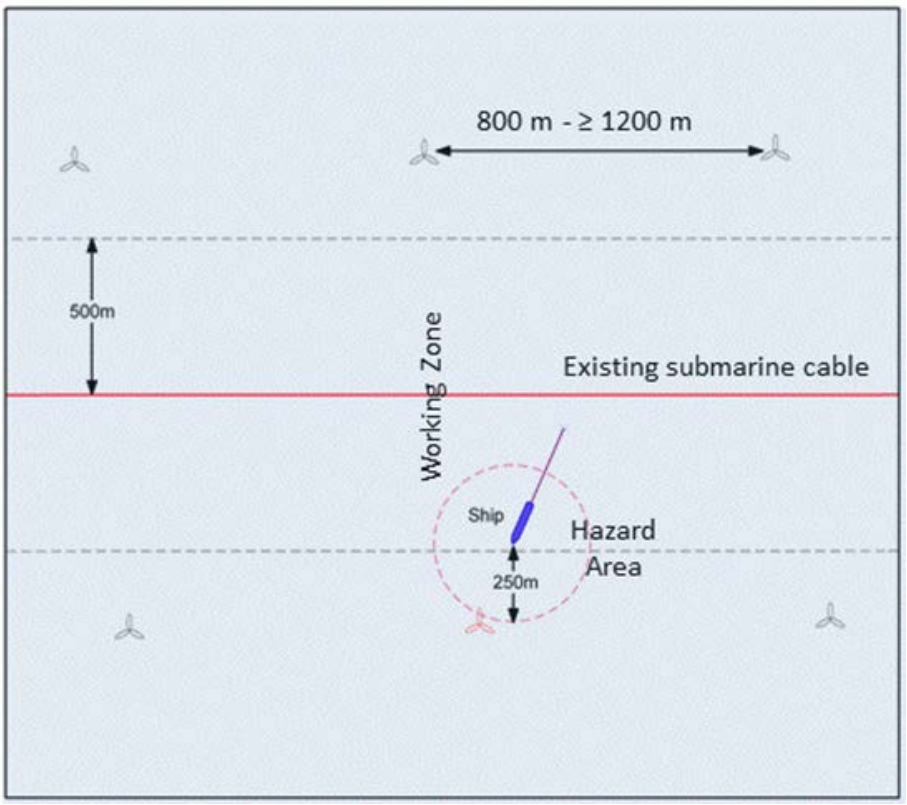


Figure 6 from Guideline 6

The areas and the distances indicated are agnostic of cable type and can be applied equally to telecom and power cable operations.

As can be seen from the diagram, the key requirement for safe cable working in line with existing maintenance agreement contract operational constraints is this overall distance either side of the cable position.

From the diagram above (which represents the minimum acceptable condition that can generally be agreed without extended discussion and assessment) this distance is Working zone plus hazard area radius.

This means the minimum distance is +/- 750m

This can be applied to telecommunications or power cables that are already in situ and over which a wind farm is to be developed.

Or it can be applied to any planned cable installation to be conducted as part of the wind farm development.

Or it can be the guidance for leaving space for a future cable to cross a wind farm development that is being planned.

If this level of space is not provided for in terms of spatial planning, either due to perceived legislation issues, or refusal to collaborate effectively in successful seabed co-existence, then the impacts are several and potentially significant.

For the cable that is already present or planned and is then restricted in the ability to be repaired, will be subject to increase cost of repair as well as increased time to complete repair. The cost has to be covered by some party, and in this instance, any proximity agreement would indicate that the responsibility for any future cost lies with the wind farm developer or operator as applicable.

Loss of connectivity or risk of extended outage, means that connection to internet information hubs for communications cables needing repair may be unacceptably delayed. The impact of this might be that cable owners look to plan their cables to land elsewhere in the longer term. In the shorter term, the cable owners may reduce their traffic to hubs served by cables with this risk.

If these constraints are imposed by a failure to adopt pragmatic distances to allow for co-existence, then major internet hubs in some countries may become isolated as a result of offshore energy development, and so reduce in importance and status where internet connectivity is concerned.

Certainly this would be an issue and for the “over the top” providers like Google and Facebook, for whom the internet connectivity is paramount.

This is why these Guidelines detail the distances and why +/- 750m is the minimum recommended distance around subsea cables for marine spatial planning in co-existence with Offshore Renewable energy developments

The ideal minimum distance (for waters up to 75m deep) as detailed in the Guideline is somewhat larger than this minimum. This ideal distance **+/- 1 Nautical Mile (equivalent to +/- 1852m).**

At this distance in these water depths, it is accepted that neither party even needs to consult the other for undertaking their construction or operations and maintenance activities, as there is no constraint placed by either party on the other.

It is of course prudent for each party to be aware of the other and their plans but this can be informal. Even for a cable through a planned windfarm development, in this instance the courtesy of advising the other party of planned or active operations is all that would be expected, if the separation distance is 1 nautical mile.

This statement is provided in support of cable owners undertaking to make clear to relevant authorities, regulators, offshore energy developers and any other interested party, the industry recommended clear distances needed around cables, based on input from expert seabed stakeholders from the same sectors.

Peter Jamieson IEng, MIET. MSCTE. MCMI
Chairman
www.escaeu.org

Email: chairman@escaeu.org

Principal Engineer
Core Network Engineering
Liberty Global - Technology & Innovation
Tel: +44 01484 320021
Mob: +44 7771 506713
Email: Peter.Jamieson@virginmedia.co.uk

Tony Fisk TD PGDip MRICS MInstRE
Technical and Regulatory Sub Group - Chairman
www.escaeu.org

Email: trsg@escaeu.org

Commercial Director & Head of Practice
Pelagian Ltd
Tel: +44 1666 862140
Mob: +44 7880 894408
Email: aj.fisk@pelagian.co.uk

VERSION 1.1

GOVERNMENT BEST PRACTICES FOR PROTECTING AND PROMOTING RESILIENCE OF SUBMARINE TELECOMMUNICATIONS CABLES

With these Best Practices, the International Cable Protection Committee ("ICPC") identifies recommended actions for governments to foster the development and protection of submarine telecommunications cables and to maintain continuity of communications even in the event of damage to a submarine cable. In implementing these Best Practices, a state should adapt them to address national and regional circumstances, including but not limited to: localized risks to submarine cables; localized activities of other marine industries; national laws, regulations, and governmental structures; and jurisdictional disputes with littoral states.

1. General principles

In adopting and implementing a submarine cable resilience plan, the state should be guided by the following principles:

- Focus on statistically-significant risks where government action could have the greatest impact on risk reduction;
- Promote commercial and regulatory environments that encourage multiple and diverse (both with domestic and foreign landings) submarine cable landings within the state's territory;
- Observe and implement treaty obligations (particularly under the United Nations Convention on the Law of the Sea ("UNCLOS")) and customary international law defining state jurisdiction over, and protection of, submarine cables;
- Promote transparent regulatory regimes that expedite cable deployment and repair according to well-established timeframes;
- Consult closely with industry to understand industry technology and operating parameters and to share data regarding risks;
- Complement existing industry best practices;
- Recognize that laws and government policies themselves can sometimes exacerbate risks of damage and reduce resilience; and
- Engage with other states on a global and regional basis, as other states' actions can greatly affect an individual state's own connectivity.

2. Fishing and anchoring risks

ICPC statistics indicate that each year, fishing and anchoring account for approximately 70 percent of global damage to submarine cables—far more than other human or natural causes. Commercial fishing-related damage is most often caused by bottom-tending fishing gear such as trawl nets and dredges, but it is also caused by long lines and fish aggregation devices anchored to the seabed and pot and trap fisheries using grapnels for gear retrieval. Anchor-related damage is most often caused by: improperly-stowed anchors, which release or fall overboard and can be

dragged for great lengths along the sea floor, damaging cables along the anchor's path; anchoring outside of approved anchorages and near installed submarine cables; anchors dragged by properly-anchored vessels, depending on sea conditions; and dropping of anchors in marine emergencies. Mooring lines of fish aggregating devices ("FADs"), especially in deep-water can cause abrasion to submarine cables during installation, and FAD anchors have caused damage to deployed cables.

The submarine cable industry uses a variety of mitigation measures to limit damage from fishing and anchoring, including: route selection and design to avoid areas of particular risk (for example, routing around designated anchorages); cable armoring; cable burial (from 0.5 meters to 3 meters) for cable installed at water depths less than 1500 meters, where seabed conditions permit; cable awareness and liaison programs designed to educate fishing fleets regarding the location of submarine cables, and actions to take if gear is snagged; and programs to compensate fishermen for snagged gear (so that they abandon snagged gear rather than damage cables in trying to free it). Coordination with FAD owners and with governments to obtain FAD positions so cables can be routed around them, and/or measures to relocate or recover FADs in coordination with the owners have proven beneficial. These industry self-help measures can be effective, but they are insufficient absent additional actions to be taken by governments.

ICPC statistics confirm that state adoption and implementation of effective cable protection measures directed at fishing and anchoring risks can greatly reduce the risk of damage to submarine cables. As best practices, ICPC recommends that states therefore adopt and implement the following measures:

- Prohibit fishing in close proximity to submarine cables—including deployment of drift nets, gill nets, fish aggregation devices, and vessel anchors—consistent with default and minimum separation distances discussed in part 3 below;
- Require use of designated anchorages and establish and prosecute legal offenses for anchoring outside of designated anchorages;
- Promote the distribution and use of cable awareness charts (prepared by submarine cable operators) to fishermen;
- Promote direct engagement between submarine cable operators, including establishment of fishing-cable committees that can compensate fishermen for snagged and lost gear in exchange for not risking cable damage through gear retrieval efforts;
- Require use of automated identification systems ("AIS") and vessel monitoring systems ("VMS") on vessels at all times and establish and prosecute legal offenses where vessel operators turn off or disable AIS or VMS;
- Require that vessel operators carry appropriate insurance;
- Require use of AIS or VMS by even the smallest of vessels; and
- Direct the coast guard to issue local notices to mariners regarding submarine cable protection and to communicate with vessels operating or drifting near submarine cables.
- Limit deployment of FADs proximate to installed and planned submarine cables.

- Establish a FAD registry, requiring FAD owners to identify and update FAD locations, and make such registry available to submarine cable operators during the route planning process for new cables.
- Require removal of ropes and ghost gear in the water column and consider removal requirements for end-of-life disposition of FADs.

3. Spatial separation

Spatial separation of submarine cables from other marine activities is one of the effective means of cable protection. It minimizes the risk of damage from other marine activities and ensures that submarine cable operators have ready and unfettered access to their cables for installation and maintenance needs and to minimize outage time in connection with a repair. The oceans, however, are increasingly crowded spaces where ideal spatial separation might not be possible, and where marine industries make compromises regarding proximity while seeking to reduce risk through closer coordination and communication.

A default separation distance establishes a minimum separation distance between an existing submarine cable and another marine or coastal activity in the absence of any mutual agreement to allow the activity in closer proximity to the submarine cable. By contrast, a minimum separation distance establishes an absolute minimum separation distance between the submarine cable and the other marine or coastal activity. Consistent with ICPC recommendations, many countries—as diverse as China, Denmark, Indonesia, Russia, Singapore, and the United Kingdom—have established default or minimum separation distances to protect submarine cables.

Some states have established cable protection zones and corridors that prohibit specified activities posing risks to submarine cables—including fishing, anchoring, and dredging—within fixed geographic areas. Discretionary cable protection zones grant protections to submarine cables that choose to locate in them or that may be declared around them, as in the case of Australia. Mandatory cable protection zones (or cable corridors) require submarine cable operators to route their infrastructure in defined geographic areas (as in the case of New Zealand). States with cable protection zones enforce them with air and sea patrols and infringement penalties. Submarine cable operators generally disfavor mandatory cable protection zones and corridors because they (1) provide insufficient spatial separation from other submarine cables for installation and maintenance and (2) encourage geographic clustering of submarine cable routes and landings, which magnifies the risk that a single natural or man-made event could damage multiple cables.

As best practices to promote spatial separation, ICPC recommends that states:

- Adopt and enforce the following recommended separation distances between cable ships and other vessels in the exclusive economic zone ("EEZ," extending 200 nautical miles

seaward from the shore) and the territorial sea (extending 12 nautical miles seaward from the shore):
    - In shallow water with a depth of 75 meters or less: 500 meters; and
    - In greater depts of water: the greater of 500 meters or two times the depth of water;
- Implement on nautical charts the text box specified in International Hydrographic Organization ("IHO") Resolution 4/1967 (amended April 2017), as discussed in part 4 below;
- Ensure that any cable protection zones are adopted with consultation and support of cable operators; and
- Maintain flexibility with the number and size of cable protection zones.

4. Charting

Nautical charts (such as Admiralty charts) issued by government hydrographic offices consistent with IHO recommendations are graphical representations of ocean and adjacent coastal areas showing, among other things, water depths, seabed and coastline details, tidal information, and human-made features such as harbors, munitions dumps, offshore wind farms, and submarine cables. Nautical charts aid in navigation and alert users to the presence of other ocean activities. Nautical charts were previously issued periodically in paper form, but they are now generally maintained in electronic form and available on a computer screen or using a print-on-demand function.

Submarine cables are charted using data provided by operators and their contractors to hydrographic offices (such as the U.K. Hydrographic Office, the Indian Naval Hydrographic Office, the South African Navy Hydrographic Office, and the Hydrographic Department of the Maritime and Port Authority of Singapore). Historically, the IHO recommended charting only to a depth of 2,000 meters, in light of a focus on safety at sea. Some submarine cable operators still charted their cables at all depths. In 2018, however, the IHO revised its approach, due in part to a recognition that charting of submarine cables in areas proximate to deep seabed mining could reduce the risk of cable damage. The IHO and ICPC have established a pilot program to chart cables in areas proximate to contract areas of the International Seabed Authority.

As best practices for charting, ICPC recommends that states adopt and implement the following measures:

- Update nautical charts regularly and in near-real-time;
- Show all submarine cables on nautical charts, distinguishing between in-service and out-of-service cables;
- Show on nautical charts all other human activities that could pose risks to submarine cables, including but not limited to mining areas (including sand and gravel borrow areas), renewable energy facilities, traffic separation schemes, munitions dumps, and military test areas;

- Ensure that national and regional charting authorities implement amended IHO Resolution 4/1967, which requires that charting authorities include a text box in publications such as mariners' handbooks and notices to mariners:
    - Directing vessels to avoid anchoring, fishing, mining, dredging, or engaging in underwater operations near cables at a minimum distance of 0.25-nautical mile on either side of a cable, and
    - Recognizing submarine cables as critical infrastructure, noting that damage to a submarine cable can constitute a national disaster.

5. Domestic cable protection laws; penalties for damage

The 1884 Convention on the Protection of Submarine Telegraph Cables requires state parties to establish offenses for cable damage. Article 113 of the UNCLOS provides that every state shall adopt the laws and regulations establishing a punishable offense under national law for the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable beneath the high seas done wilfully or through culpable negligence.

Countries such as Australia and New Zealand have implemented these treaty obligations by establishing substantial penalties—particularly with respect to their cable protection zones—that are more likely to deter those who might damage submarine cables. Other countries such as Sweden impose strict liability, requiring that if the owner of a cable or pipeline causes damage to another cable or pipeline, the owner shall pay the cost of repairing the damage. By contrast, countries such as the United States adopted penalties to implement their 1884 Convention obligations but have not updated the penalty amounts for more than 130 years. Finally, many other states have failed to adopt any measures to punish cable damage, even when their treaty obligations require them to do so.

To implement their treaty obligations, to compensate cable owners for damage, and to deter future damage, particularly by commercial fishermen and vessel anchors, ICPC recommends that states:

- Adopt and enforce effective cable protection laws, consistent with the 1884 Convention and UNCLOS;
- Adopt and update penalties to ensure they are substantial enough to deter damage; and
- Ensure that coast guards and law enforcement agencies are sufficiently familiar with cable protection laws to enforce them, and that they cooperate with and assist cable operators in investigating cable damage claims (including preservation and sharing of evidentiary material).

6. Marine spatial planning and inter-industry coordination

Governmental bodies and other marine industries are often unfamiliar with the presence of, operational requirements for, vulnerabilities of, status as critical telecommunications

infrastructure of, and statutory and treaty protections that apply to, submarine cables. In some cases, marine spatial planning activities omit submarine cables entirely. This lack of familiarity with, or neglect of, submarine cables can greatly impair their protection and resilience.

As best practices, ICPC recommends that states undertake the following to protect cables and de-conflict cable routes:

- Include and consult with submarine cable operators as stakeholders in such processes;
- Identify submarine cables in their mapping resources and tools (not just on nautical charts);
- Identify and include submarine cable operators as critical stakeholders in marine spatial planning and policymaking;
- Adopt regulatory frameworks for other marine activities, such as oil and gas development and renewable energy installations, to require coordination with submarine cables at the earliest stage of planning and development of those other projects; and
- Ensure that planning and leasing documents for oil, gas, and renewables specifically reference submarine cable protection and coordination.

7. Single point of contact

Submarine cable development, installation, operation, and repair implicates the regulatory and policy responsibilities of numerous government agencies, including those ministries, departments, and agencies responsible for telecommunications, maritime and shipping, environment, customs, and national security, to name a few. The dispersion of responsibilities for submarine cables can impair government action with respect to submarine cables and also make it difficult for other industries to coordinate with submarine cables. Singapore has addressed this issue by designating its telecoms regulator, the IMDA, as the point of contact for submarine cables, even if other government bodies have ultimate responsibility for a particular issue.

As a best practice, ICPC recommends that states:

- Establish a single point of contact for submarine cables—and not just for permitting purposes, but also for any issues arising with respect to installation, repair, and protection.

8. Route and landing optimization; geographic diversity

Submarine cable operators consider a variety of factors when choosing routes and landings, including:

- Economic need (for connections between data centers and points of presence, and on highly-trafficked routes);
- Economic opportunity (in the case of wholesale capacity sales);

- Seafloor topography (seeking flat and uninteresting seabed that avoids geographic features with steep gradients, seamounts, vents, or fracture zones);
- Geographic diversity (to minimize the impact of a single event causing damage to multiple cables);
- Proximity to other marine activities and infrastructure (which pose risks of damage);
- Access to terrestrial networks (to ensure secure, diverse, and low-cost connectivity between submarine and terrestrial networks);
- Environmental restrictions (such as marine protected areas); and
- Regulatory considerations (including length and expense of permitting).

They design routes to follow the shortest viable route between landing points exhibiting the lowest risk to the installed cable. They start with a great circle route (the shortest distance between two points on a globe), which provides the lowest latentcy for communications transmissions (the time taken for data to pass from point A to point B) and then adjust for technical, economic, and regulatory factors.

Submarine cable operators and their capacity customers increasingly seek to maximize geographic diversity of submarine cable routes and landings in order to enhance network resilience and reduce the risk of damage from a single event, whether an earthquake, a tsunami, a vessel anchor, fishing gear, or a terrorist attack. Their options may be limited by other factors, such as slow and expensive permitting, coastal landowners, and marine protected areas. Moreover, they operate in dynamic coastal and marine environments that are increasingly crowded and that lack a single landowner or a single regulator. Other activities and infrastructure are frequently authorized without regard to the potential to foreclose particular areas to future submarine cable development, increasing the potential for clustering of cables and landings, and the risks inherent in non-diverse infrastructure.

As best practices, ICPC recommends that states undertake the following to promote resilience of submarine cable networks:

- Adopt and implement regulatory frameworks to optimize routes and landings, including geographic diversity of routes and landings;
- Recognize that diversity can be impaired by government shore-end permitting, marine protected areas, and marine spatial planning (or lack thereof) that results in clustering of cables, magnifying risk that a single incident will damage multiple cables and impair connectivity; and
- Recognize that submarine cables cannot be hidden or armored and buried to guard against all malicious and non-malicious sources of cable damage.

9. Permitting for installation and repair

As noted in part 8 above, permitting can greatly affect route and landing location decisions for submarine cable operators. In many cases, coastal states apply a “one-size-fits-all” permitting

regime that applies equally to polluting activities (such as oil and gas development) and environmentally-benign activities (like submarine cables), which can burden and delay the environmentally-benign activities.

Moreover, the permitting actions of one state can greatly affect the connectivity of other states. UNCLOS articles 2, 58, 79, and 87 authorizes a coastal state to impose conditions and consent requirements for submarine cables entering its territorial sea, but not beyond it in the EEZ or on the continental shelf. UNCLOS articles 2 and 51 also allow archipelagic states to impose conditions for new submarine cables entering archipelagic waters.

As best practices, ICPC recommends that states ensure that permit requirements for installation and repair:

- Are consistent with UNCLOS in the EEZ and archipelagic waters and on the continental shelf—excessive jurisdictional assertions by one's neighbors can impair installation of new cables and repairs of existing ones;
- Reflect the best available science showing that submarine cables are neutral-to-benign in the marine environment;
- Are transparent;
- Establish clear timeframes that are as short as possible; and
- Promote diversity of routes and landings.

10. Cabotage and crewing restrictions

Cabotage is the transport of goods and passengers between domestic ports. For a variety of reasons, including protection of domestic industry and national security, a number of states have restricted cabotage to domestic vessels, with varying criteria including domestically-built, domestically-owned, domestically-flagged, and/or domestically-crewed vessels. Some states have expanded their cabotage restrictions to a broader range of economic activities in their territorial seas and EEZs, including submarine cable installation and repair. Application of cabotage laws to submarine cable installation and repair is inappropriate and undermines the resilience of submarine cable networks.

Cable ships are built specifically for cable-related operations and are crewed by highly trained and experienced merchant mariners, engineers, and cable operations staff. Most of the world's countries with submarine cable landings and transits lack locally-flagged and locally-crewed cable ships. Instead, most of the world's installation and repair services are provided by a few global and regional providers with the necessary expertise and economies of scale. Submarine cable operators often pool risks and resources to contract for cable ships in regional zone agreements. These zone arrangements cover vast multinational geographic areas, meaning that there are no discrete national maintenance markets.

Cabotage and crewing restrictions render installations and repairs more expensive and can result in performance and safety problems arising from the use of inappropriate vessels and inexperienced crew. They generally impair the operation and economies of scale of maintenance consortia. Cabotage and crewing restrictions can also greatly delay critical repairs, as a submarine cable operator must wait to qualify a foreign-flagged/crewed vessel through an exemption or waiver process. Cabotage and crewing restrictions can harm the connectivity of other neighboring countries.

Within the EEZ and on the continental shelf, cabotage and crewing restrictions are inconsistent with UNCLOS articles 79 and 87, which provide for the freedom to install, maintain, and repair submarine cables in those maritime zones. Within archipelagic waters, cabotage restrictions on repair of existing cables that merely transit the state are inconsistent with UNCLOS article 51. Although permissible within the territorial sea, cabotage and crewing restrictions are inadvisable.

As best practices, ICPC recommends that states:

- Refrain from defining submarine cable installation and repair as cabotage, as they do not involve the transport of goods or passengers between domestic ports;
- Refrain from applying cabotage or crewing restrictions on vessels engaged in installation or repair, whether in the territorial sea, archipelagic waters, or EEZ/continental shelf.

11. Port entry requirements

Based on installation or repair work within the territorial sea, archipelagic waters, or EEZ, some states require that a cable ship enter a domestic port for regulatory clearance purposes, even when crew members would not otherwise embark or disembark. Such requirements disrupt operations and delay installation and repair.

As best practices, ICPC recommends that states:

- Refrain from requiring port entry for cable ships conducting installations and repairs beyond the territorial sea; and
- For work within the territorial sea and archipelagic waters, establish annual pre-clearance procedures for cable ships and crews.

12. Customs duties, taxes, and fees

Some states view the entry of new submarine cables into their jurisdictions as an opportunity to extract revenue from the operator in the form of customs duties, taxes, and fees. Such charges increase the cost of capacity to users and in some cases can deter landings, thereby undermining government policies designed to foster new cable landings. Such charges can also serve as a source of disputes that delay installation and repair.

As noted in part 9 above, UNCLOS articles 2, 58, 79, and 87 authorizes a coastal state to impose conditions for submarine cables entering its territorial sea, but not beyond it. UNCLOS articles 2 and 51 also allow archipelagic states to impose conditions for new submarine cables entering archipelagic waters. Some states, however, have sought to impose customs duties, taxes, and fees for activities and infrastructure in the EEZ and on the continental shelf, in contravention of UNCLOS.

As best practices, ICPC recommends that states:

- Refrain from imposing customs duties, taxes, and fees on installation activities beyond the limits of the territorial sea, and on cable ships merely transiting an EEZ;
- Reduce or eliminate customs duties on submarine cable equipment imported into a state's territory, in order to foster submarine cable deployment and facilitate quick access to spare plant for repair; and
- Refrain from imposing importation requirements and customs duties on cable ships conducting installation or repair.

13. Maritime boundary claims and disputes

Competing maritime boundary claims and boundary disputes can impede installation and even foreclose certain routes. Such disputes can also greatly delay repairs due to duplicative and time-consuming permit requirements. In some cases, boundary disputes pose a danger to the cable ship and its crew due to the threat of military action.

As best practices, ICPC recommends that states:

- Facilitate installation and repair without prejudice to any maritime boundary claim; and
- Recognize that submarine cable operators seek to remain neutral in boundary disputes and seek to conduct their activities without prejudice to such disputes.

14. Critical infrastructure designation

Critical infrastructure is generally understood to include assets that are essential for the functioning of society and the economy, and damage or destruction of which would harm national and economic security, public health, and public safety. Governments use critical infrastructure designations to highlight asset criticality and to identify and mitigate vulnerabilities and threats through specific laws and policies.

As best practices, ICPC recommends that states:

- Designate submarine cables as critical infrastructure;
- Gather and assess data regarding vulnerabilities of, and threats to, submarine cables; and
- Develop and implement policies to reduce those vulnerabilities and threats.

15. Sharing of risk and incident data

Sharing of risk and incident data between operators and governments and among operators is useful for identifying patterns of activity, gaps in existing cable protection efforts, areas for improving resilience, and identification of malicious acts by state and non-state actors.

As a best practice, ICPC recommends that states:

- Consistent with competition laws, establish mechanisms for exchanging incident data and threat information.

16. Impact of other high-seas regulatory activities

Regulatory activities of other states, bodies, and institutions far beyond a state's maritime boundaries can impair submarine cable installation, repair, and resilience. Such activities include uncoordinated deep seabed mining and environmental regulation on the high seas under the proposed treatyto conserve and promote sustainable use of biodiversity beyond national jurisdiction ("BBNJ").

Deep seabed mining poses risks of: damage to existing submarine cables, increasing the risk of a communications blackout for certain countries, and route foreclosure for new submarine cables, rendering them less resilient. Some mining contractors have argued either that cable owners proceed at their own risk or that mining contractors have a right to exclude submarine cables from their contract areas, which cover vast areas of the seabed. UNCLOS does not establish any specific coordination mechanisms, including instead only mutual "due regard" and "reasonable regard" obligations. The Exploration Regulations adopted by International Seabed Authority ("ISA") do not address submarine cables at all. Based on a joint proposal by the ICPC and France, with support from numerous other developing and developed states, the Draft Exploitation Regulations now contain provisions to ensure early coordination between mining and submarine cables, to protect existing submarine cables, and to permit future submarine cables. Although the ISA's jurisdiction, and the potential for mining, extends globally throughout the Area (the seabed and subsoil of the high seas), the greatest number of mining contract areas current exist in the Indian and Pacific Oceans.

The proposed BBNJ treaty to promote conservation and sustainable use of BBNJ could impair submarine cable protection and resilience. Specifically, the treaty could require environmental impact assessments ("EIAs") for cables in high seas areas, restrict cable transits and repairs in new marine protected areas on the high seas, and create a new international regulatory body to oversee such activities. Many of the proposals under consideration by the treaty conference would impose significant costs and delays on new builds and repairs and result in cable routes that are less efficient and resilient.

As best practices, ICPC recommends that states:

- Seek to ensure that the ISA Exploitation Regulations protect existing submarine cables and avoid foreclosing routes for future cables;
- Support amendment of the ISA Exploration Regulations to protect existing submarine cables and avoid foreclosing routes for future cables; and
- Seek to ensure that the BBNJ treaty accounts for the socio economic importance of submarine cables, recognize the benign environmental impact of submarine cables and their co-existence in existing MPAs in areas of jurisdiction, and recognizes submarine cables as a sustainable use of the oceans.