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

In the Matter of Request for Feedback on BOEM's Proposed Path Forward for Future Offshore Renewable Energy Leasing on the Atlantic Outer Continental Shelf	BOEM 2018-0018

COMMENTS OF 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 in its development of a path forward for future renewable leasing offshore the United States Atlantic Coast. BOEM's Office of Renewable Energy Programs ("OREP") has already 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. As BOEM performs a high-level assessment of factors to consider for lease locations on the Atlantic Outer Continental Shelf ("OCS"), NASCA urges BOEM to include factors that account for existing submarine cable infrastructure.

Renewable energy projects on the Atlantic 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 renewable energy projects—as recognized by various industry standards and recommendations. Absent sufficient spatial separation and coordination, renewable 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).

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 path forward:

- Recognition of categorical exclusion zones around existing submarine cables for offshore wind leasing areas. 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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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 as it develops a "path forward for future renewable leasing offshore the United States Atlantic Coast."[1] As part of its site selection process, BOEM should account for the need for spatial separation from submarine cable infrastructure. 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").[2] Because the

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1 *See Department of the Interior, Bureau of Ocean Energy Management, Request for Feedback on BOEM's Proposed Path Forward for Future Offshore Renewable Energy Leasing on the Atlantic Outer Continental Shelf*, 83 Fed. Reg. 14,881, 14,881 (Apr. 6, 2018) ("RFF").

2 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

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 performs a high-level assessment of factors to consider for lease locations, NASCA urges BOEM to include factors that account for existing submarine cable infrastructure.

Submarine cables[3] 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 Atlantic Outer Continental Shelf ("OCS"), but the renewable energy industry has little awareness of this critical infrastructure.

To ensure that renewable energy activities do not damage critical U.S. infrastructure, BOEM should incorporate categorical exclusion zones and spatial separation standards into its selection process for lease locations. BOEM can incorporate factors into the assessment to encourage renewable energy projects in locations that will not risk damaging 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

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Relating to Existing Telecommunications Cables (2016), https://www.boem.gov/COP-Guidelines/.

[3] 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."

[4] 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

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 ensure these ends.

These comments are divided into three parts. *First*, NASCA details the extensive presence of submarine cables in the Atlantic OCS and urges BOEM to account for existing and planned submarine cable systems in the Atlantic OCS, the federal agencies regulating such systems, 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 incorporation into BOEM's path forward for leasing activities that would protect existing submarine cable infrastructure and ensure development and protection of future submarine cable infrastructure.

I. IN ITS DEVELOPMENT OF SITE SELECTION FACTORS, BOEM SHOULD ACCOUNT FOR EXISTING AND PLANNED SUBMARINE CABLE SYSTEMS AND THE UNIQUE LEGAL PROTECTIONS FOR SUCH INFRASTRUCTURE.

In developing factors for its proposed path forward for future renewable leasing on the Atlantic OCS, BOEM should expressly account for existing and planned submarine cable

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Corporation; TATA Communications (Americas); Tyco Electronics Subsea Communications, LLC; and Verizon Business.

systems and the unique legal protections for such infrastructure. As a marine activity pervasive throughout the Atlantic OCS, submarine cables are critical to U.S. economic and national-security interests. 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.[5] 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.[6]

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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[5] *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").

[6] *Cf. id.* at 16; *see also* TeleGeography, Submarine Cable Map (July 5, 2018), http://www.submarinecablemap.com ("TeleGeography Submarine Cable Map").

generally own and operate its own submarine cable systems for communications purposes.[7] Submarine cables have long been designated as critical infrastructure by the U.S. Government.[8]

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.[9]

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[7] *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.

[8] 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.

[9] *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, https://www.iscpc.org /documents/?id=1753 ("About Submarine Telecommunications Cables").

Timely repairs are critical given the economic and national security significance 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.[10]

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

The Atlantic OCS contains significant existing submarine cable infrastructure, and more is planned. At present, approximately 37 in-service submarine cable systems traverse the Atlantic OCS of the United States and its territories, and at least six new systems have been announced or are presently under construction.[11]

The following in-service submarine cable systems currently traverse the North Atlantic, Mid-Atlantic, South Atlantic, and Straits of Florida OCS Planning Areas (collectively, "Atlantic OCS Planning Areas"):

- ***AEC-1***: landing at New York; Iceland; Ireland; and the United Kingdom;
- ***Americas-I North***: landing at Florida and the U.S. Virgin Islands;
- ***Americas-II***: landing at Florida; Puerto Rico; the U.S. Virgin Islands; Brazil; Curaçao; French Guyana; Martinique; Trinidad and Tobago; and Venezuela;
- ***AMX-1***: landing at Florida; Puerto Rico; Brazil; Colombia; the Dominican Republic; Guatemala; and Mexico;
- ***Antillas-1***: landing at Puerto Rico and the Dominican Republic;
- ***Antilles Crossing***: landing at the U.S. Virgin Islands; Barbados; and St. Lucia;

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[10] *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.

[11] *See* Appendix, Maps of Submarine Cables Landing on the United States Atlantic Coast; *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/.

- ***Apollo***: landing at New Jersey; New York; France; and the United Kingdom;
- ***ARCOS-1***: landing at Florida; Puerto Rico; Bahamas; Belize; Colombia; Costa Rica; Curaçao; the Dominican Republic; Guatemala; Honduras; Mexico; Nicaragua; Panama; Turks & Caicos Islands; and Venezuela;
- ***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;
- ***Bahamas-II***: landing at Florida and the Bahamas;
- ***Bahamas Internet Cable System***: landing at Florida and the Bahamas;
- ***Canada-United States-1 (CANUS-1)***: landing at New Jersey and Canada;
- ***Challenger Bermuda***: landing at Rhode Island and Bermuda;
- ***CFX-1***: landing at Florida; Colombia; and Jamaica;
- ***Columbus-II b***: landing at Florida and the U.S. Virgin Islands;
- ***Columbus-III***: landing at Florida; Italy; Portugal; and Spain;
- ***FLAG Atlantic-1***: landing at New York; France; and the United Kingdom;
- ***Gemini Bermuda***: landing at New Jersey and Bermuda;
- ***Global Caribbean Network***: landing at Puerto Rico; the U.S. Virgin Islands; Antigua and Barbuda; Barbados; Dominica; Guadeloupe; Martinique; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago;
- ***Globenet***: landing at New Jersey; Florida; Bermuda; Brazil; Colombia; and Venezuela;
- ***GTMO-1***: landing at Guantanamo Bay, Cuba, and Dania Beach, Florida;
- ***GTT Atlantic:*** landing at Massachusetts; United Kingdom; Ireland; Canada; and the United Kingdom;
- ***Hibernia Atlantic***: landing at Massachusetts; Canada; Ireland; and the United Kingdom;
- ***MAREA****:* landing at Virginia and Spain;
- ***MAYA-1***: landing at Florida; Cayman Islands; Colombia; Costa Rica; Honduras; Mexico; and Panama;
- ***Mid-Atlantic Crossing***: landing at New York; Florida; and the U.S. Virgin Islands;
- ***Monet***: landing at Florida and Brazil;
- ***Pan American***: landing at the U.S. Virgin Islands; Aruba; Chile; Colombia; Ecuador; Panama; Peru; and Venezuela;
- ***Pacific-Caribbean Cable System***: landing at Florida; Panama; Colombia; Aruba; Ecuador; Panama; Puerto Rico; Curacao; and Virgin Islands (U.K.);

- ***SAm-1***: landing at Florida; Puerto Rico; Argentina; Brazil; Chile; Colombia; Ecuador; Guatemala; and Peru;
- ***Seabras-1***: landing at New Jersey and Brazil;
- ***SMPR-1***: landing at Puerto Rico and St. Maarten;
- ***St. Thomas – St. Croix System***: landing at the U.S. Virgin Islands;
- ***Taino-Carib***: landing at Puerto Rico and the U.S. Virgin Islands;
- ***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.[12]

The following planned or announced new submarine cable systems will traverse the Atlantic OCS Planning Areas:

- ***BRUSA***: landing at Virginia; Brazil; and Puerto Rico;
- ***Deep Blue***: landing at Florida; Puerto Rico; Haiti; Colombia; Trinidad and Tobago; Guyana; Aruba; Jamaica; Sint Eustatius and Saba; Panama; Jamaica; Suriname; Turks and Caicos Islands; Dominican Republic; Virgin Islands (U.K.); Cayman Islands; and Curaçao;
- ***GTMO-PR***: landing at Guantanamo Bay, Cuba and Puerto Rico;
- ***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.[13]

The planned commercial lifespan of these and other submarine cable systems is 25 years.[14] 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

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12 *See id.*

13 *See id.*

14 UNEP-WCMC-ICPC Report at 33.

landing licenses for a term of 25 years from commencement of commercial service, subject to renewal.[15]

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. 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 renewable 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.[16] Principles articulated in these treaties have since been recognized as customary international law.

Specifically, these treaties guarantee:

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[15] 47 C.F.R. § 1.767(g)(15) (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").

[16] *See* Convention for the Protection of Submarine Cables, Mar. 14, 1884, 24 Stat. 989, 25 Stat. 1424 (entered into force definitively for the United States on May 1, 1888) ("1884 Convention"); Convention on the High Seas, Apr. 29, 1958, 13 U.S.T. 2312, 450 U.N.T.S. 11 (entered into force definitively for the United States on Sept. 30, 1962) ("High Seas Convention"); Convention on the Continental Shelf, Apr. 29, 1958, 15 U.S.T. 471, 499 U.N.T.S. 311 (entered into force definitively for the United States on June 10, 1964) ("Continental Shelf Convention"); United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 (entered into force on Nov. 16, 1994) ("LOS Convention").

- The freedom to install submarine cables on the high seas beyond the continental shelf and to repair existing cables without impediment or prejudice;[17]
- The freedom to install and maintain submarine cables on the continental shelf,[18] subject to reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources;[19]

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[17] 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 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.").

[18] 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").

[19] 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").

- The freedom to install and maintain submarine cables in the exclusive economic zone of all states;[20]
- The ability to install submarine cables in a state's territory or territorial sea subject to conditions and exercise of national jurisdiction;[21] and
- The freedom to maintain existing submarine cables passing through the waters of an archipelagic state without making landfall.[22]

These treaty obligations are now treated as customary international law,[23] in particular by the United States.[24]

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

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[20] 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").

[21] *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").

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

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

[24] 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).

structures which may interfere with the exercise of the rights of the coastal state in the EEZ or on the continental shelf.[25] Although these treaties 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 which are not undertaken for natural resource exploration or exploitation.[26] 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.[27]

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.

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

[26] *Id.* art. 79(2); Continental Shelf Convention art. 4.

[27] *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.

Coastal states also have obligations to prevent willful or negligent damage to cables.[28] And all states "shall have due regard to cables or pipelines already in position."[29] Submarine cables are thus afforded 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.[30] 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 a submarine cable or any buoy placed to mark the position of a submarine cable. Violators are subject to imprisonment and financial penalties.[31] In addition, submarine cable owners have a right under U.S. law to sue for damage to their cables.[32]

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[28] *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.").

[29] *Id.* art. 79(5).

[30] 47 U.S.C. §§ 21 (willful damage), 22 (negligent damage).

[31] *See* 47 U.S.C. § 25.

[32] 47 U.S.C. § 28.

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."[33]

Unsurprisingly, conflicts have arisen where operators of existing submarine cables have discovered belatedly that offshore renewable energy project developers have planned projects directly on top of or in very close proximity to those 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 North American Submarine Cable Association 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.[34] 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

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[33] 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 ("CSRIC Spatial Separation Report").

[34] *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 & P-14585 (filed Sept. 15, 2014), http://elibrary.ferc.gov/idmws/file_list.asp?document_id=14251566.

advance identification of the affected submarine cables or coordination with their operators.[35] 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 awareness of submarine cables. While BOEM's COP Guidelines promote awareness at the project planning phase, addressing submarine cable location at the site selection phase can ensure industry selection of locations that would not pose risk to submarine cables in the first place.

II. UNCOORDINATED RENEWABLE ENERGY ACTIVITIES ON THE ATLANTIC 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 seafloor. Without adequate spatial separation and coordination, renewable energy activities on the Atlantic OCS 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. They frequently operate in less-than-perfect weather and ocean

[35] 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.

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 the 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 seafloor 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 seafloor, 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 seafloor 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 seafloor 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 seafloor to reach up to the cable ship, provide length for manipulation and repair activities on board, and reach back down to the seafloor.

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. It 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.[36] The key recommendations of the International Cable Protection Committee ("ICPC") 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

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

		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 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 an 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	2	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 the 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.[37]

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.[38] 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

[37] 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/.

[38] *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/.

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.[39]

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."[40]

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).[41] 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.[42] ICPC Recommendation

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39 *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.

40 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").

41 *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.").

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

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.

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.[43] 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.[44]

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[43] *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")..

[44] *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.

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 (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."[45] 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."[46] 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.[47]

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

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45 *See* CSRIC Spatial Separation Report at 57.

46 *Id.* at 12.

47 *Id.* at 57-58.

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.[48] For greater water depths, NASCA 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 Renewable Energy Activities on Submarine Cables

As noted in the CSRIC Spatial Separation Report, "[u]ncoordinated renewable energy development poses numerous risks to submarine cables."[49] Without adequate spatial separation and coordination, offshore renewable energy activities on the Atlantic 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.[50] Direct physical disturbance can result from anchoring, seafloor 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.[51] Both the vessels necessary to construct a renewable energy facility, or

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48 *See* ESCA Letter at 4.

49 CSRIC Spatial Separation Report at 39.

50 *Id.* at 33.

51 UNEP-WCMC-ICPC Report at 45.

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

Placing renewable energy facilities near submarine cables increases the risk of harm through seafloor scouring. Seafloor scouring occurs when "currents erod[e] sediment in the areas around a structure on the sea floor."[52] Scouring can lead submarine cables, which are typically laid either directly on or trenched into the seafloor, 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.[53]

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.[54]

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[52] CSRIC Spatial Separation Report at 39.

[53] *Id.* at 40.

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

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 portions of the cable under or nearest 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.[55]

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 ATLANTIC OCS.

BOEM's RFF seeks "input on all aspects of its proposed path forward, but particularly on the merits" of the factors it proposes for site selection, and "any other factors BOEM should consider."[56] BOEM's factors should address the location of existing submarine cable systems on

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[55] *See id.*

[56] RFF, 83 Fed. Reg. at 14,881.

the Atlantic OCS, 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 of harm to personnel working on submarine cables or wind energy projects.

Specifically, BOEM should recognize categorical exclusion zones around existing submarine cables and withdraw those areas from leasing. At a minimum, BOEM should recognize default spatial separation from submarine cables as a factor in selecting lease locations. 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 as it develops its path forward.

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 those lease blocks or portions of lease blocks traversed by existing submarine cables. BOEM should incorporate these categorical exclusion zones into its factors for selecting locations for offshore wind projects. As described in part II.A above, the spatial requirements for cable installation and maintenance operations are well-established.

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."[57] 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."[58] These solutions include "[c]onstruction of a wind farm in a different area."[59] Accordingly, BOEM can reduce the risks posed by wind energy 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 incorporate a factor when it selects lease locations to 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.[60] Because the recommendation of 750 meters of separation on either side of the cable (500 meters as a safety zone, and 250 meters as an additional hazard area zone) is meant to be the basis for case-by-case proximity agreements, in addition to categorical exclusion

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57 CSRIC Spatial Separation Report at 57.

58 ICPC Recommendation No. 13, at 14.

59 *Id.*

60 CSRIC Spatial Separation Report at 57-58.

zones, BOEM could incorporate the default separation distance recommendation into consideration as a positive factor—encouraging locations that are sufficiently separated from existing submarine cables at the initial site selection phase.

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 renewable energy projects and submarine cable operators are still necessary on a case-by-case basis where projects are within one nautical mile of submarine cable infrastructure.[61] In addition to establishing the proximity of renewable energy projects and cables, these agreements need 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."[62]

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61 *See* ICPC Recommendation No. 13, at 7.

62 COP Guidelines, Attachment G at 60.

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.[63] 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.[64]

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

NASCA also urges BOEM to develop interagency coordination measures with those 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."[65]

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63 *Id.* at 61.

64 *Id.* at 60-61.

65 *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-

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.[66] 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",[67] 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 path forward, 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 establish formal consultation and coordination procedures to minimize potential conflicts between submarine cables and renewable energy projects on the Atlantic OCS. The adoption of both measures would provide BOEM with valuable and relevant information necessary for the development of its path forward for future renewable leasing projects on the Atlantic OCS.

Interjurisdictional-Coordination_June2016.pdf (encouraging the FCC to take an active role in marine spatial planning activities, including those of BOEM).

[66] 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.").

[67] 42 U.S.C. § 4332(C)(v); 40 C.F.R. §§ 1501.6, 1508.5.

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 integral parts of BOEM's path forward for renewable energy projects on the Atlantic OCS.

Respectfully submitted,

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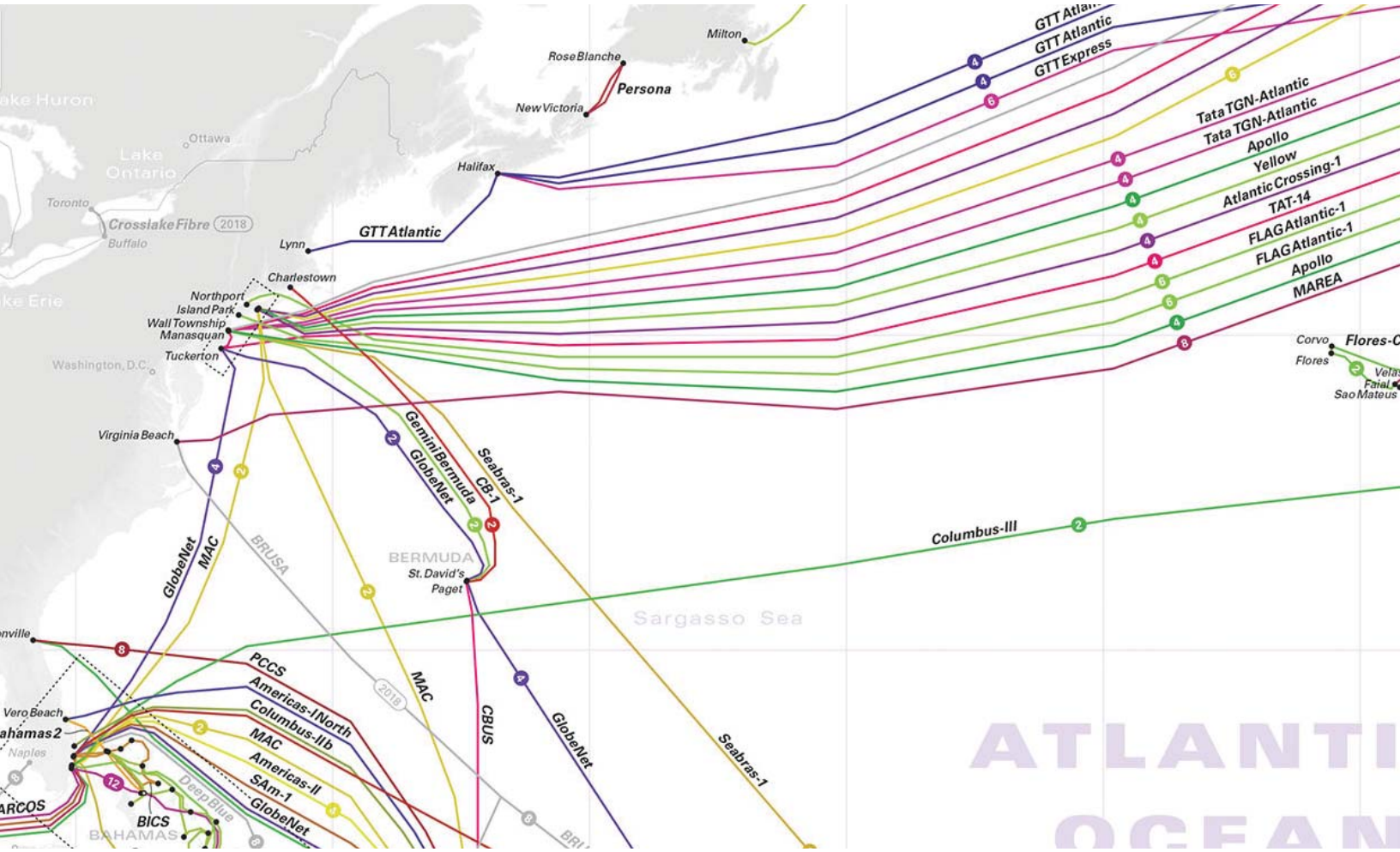
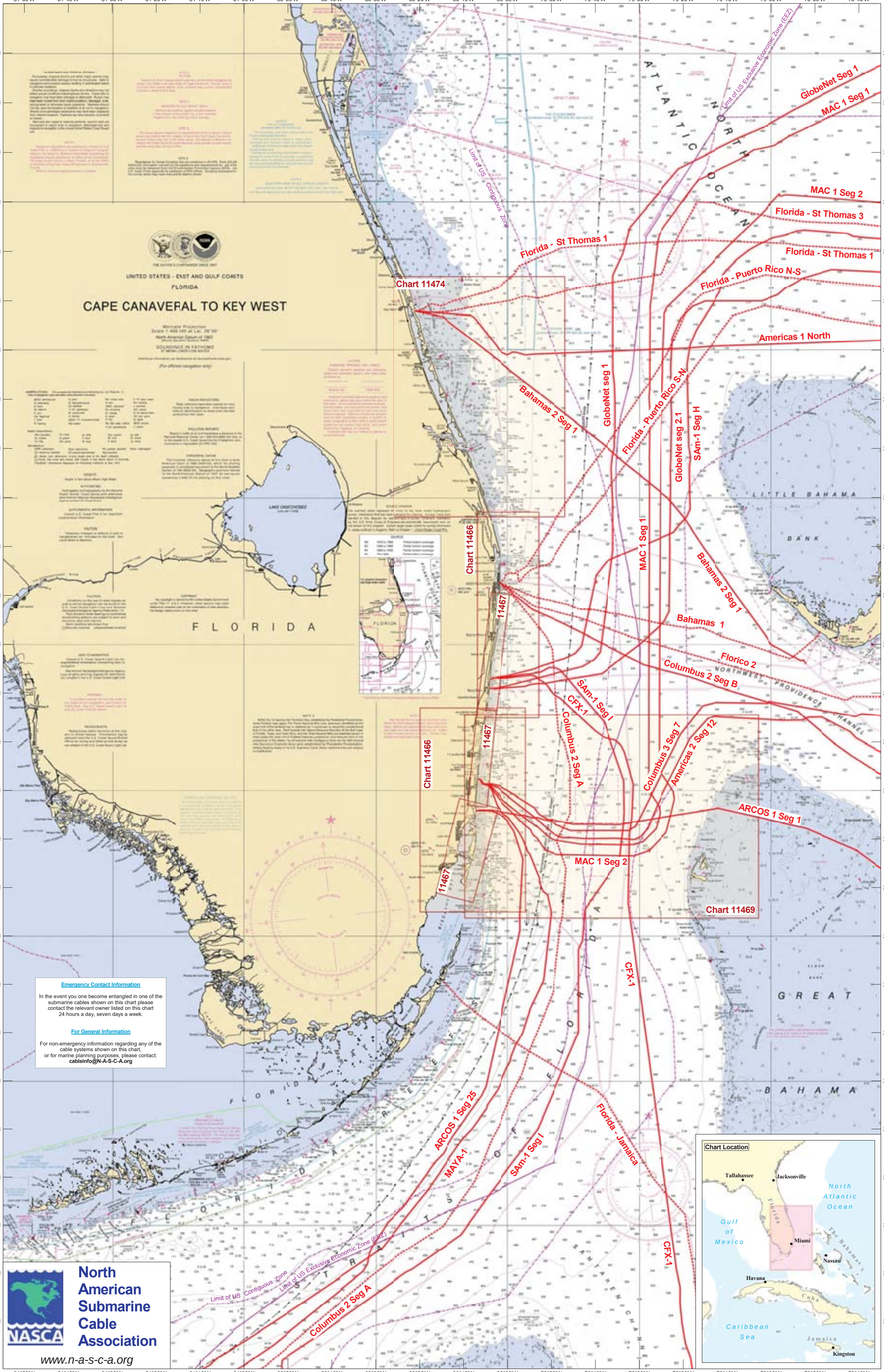
North American Submarine Cable Association

5 July 2018

Appendix 1: Maps of Submarine Cables Landing on the United States Atlantic Coast



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



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.
Americas 1 North	*In Service*	AT&T	1-866-466-2288, Prompt 5
Americas 2 Segment 12	*In Service*	AT&T	1-866-466-2288, Prompt 5
ARCOS 1 Segment 1 & 25	*In Service*	Columbus Networks	786.274.8818
Bahamas 1	*OOS*	AT&T	1-866-466-2288, Prompt 5
Bahamas 2 Segment 1	*In Service*	AT&T	1-866-466-2288, Prompt 5
CFX-1	*In Service*	Columbus Networks	786.274.8818
Columbus 2 Segment A & B	*OOS*	AT&T	1-866-466-2288, Prompt 5
Columbus 3 Segment 7	*In Service*	AT&T	1-866-466-2288, Prompt 5
Florico 2	*OOS*	AT&T	1-866-466-2288, Prompt 5
Florida-Jamaica	*OOS*	AT&T	1-866-466-2288, Prompt 5
Florida-Puerto Rico N-S & S-N	*OOS*	AT&T	1-866-466-2288, Prompt 5
Florida-St Thomas 1 & 3	*OOS*	AT&T	1-866-466-2288, Prompt 5
GlobeNet Segment 1 & 2.1	*In Service*	Globenet	1-609-377-9494 or 1-609-294-8661
MAC 1 Segment 1 & 2	*In Service*	Level 3	1-877-881-9205
MAYA-1	*In Service*	AT&T	1-866-466-2288, Prompt 5

NATURAL SCALE 1 : 466,930 at 26°30' N

0 10 20 30
Miles

0 10 20 30
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
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CHART BACKGROUND:

NOAA Chart 11460. 43rd Edition, July 2012

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

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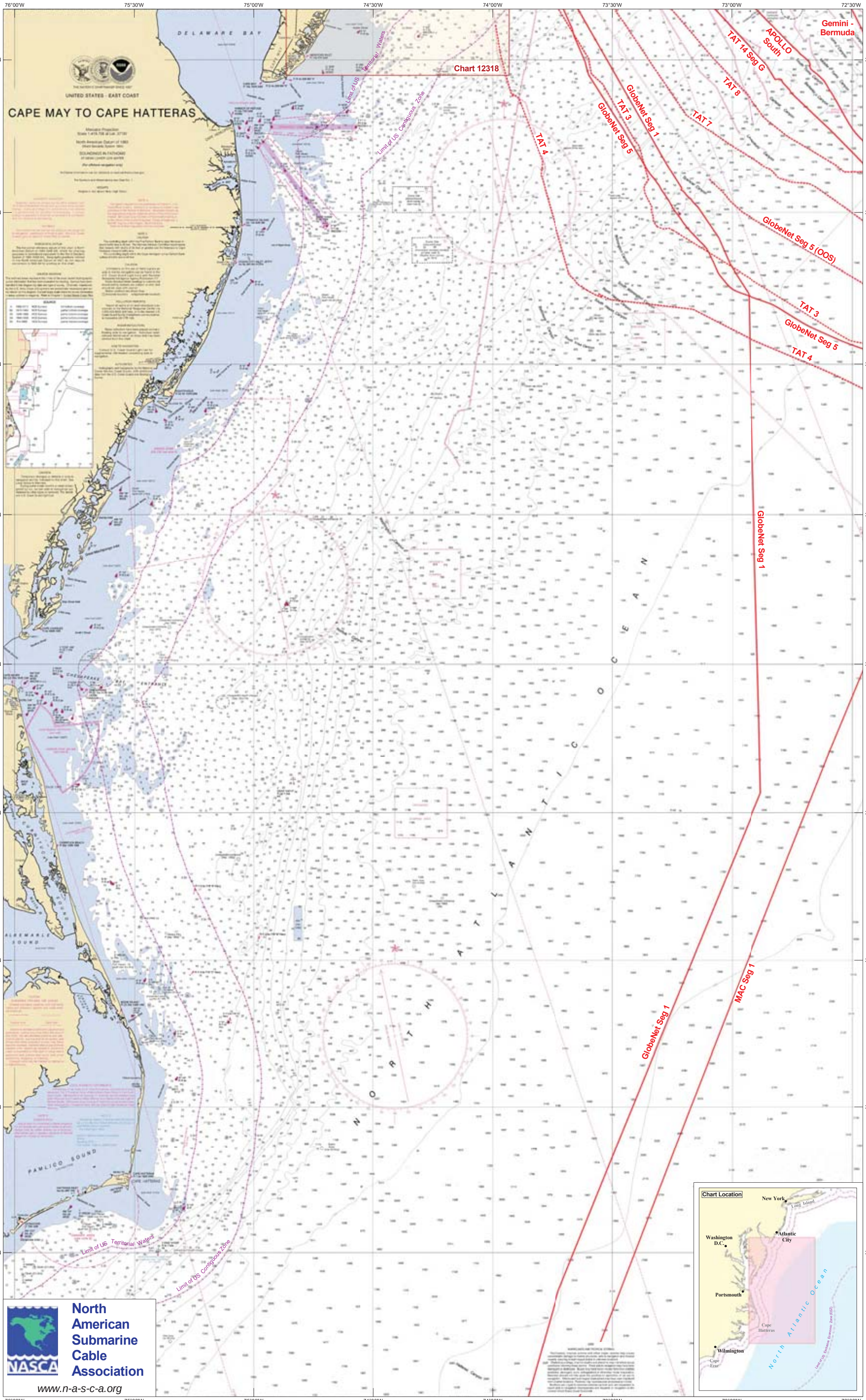
NASCA Cable Awareness Chart

Mid-Atlantic Region

Chart no. 11460

CAPE CANAVERAL TO KEY WEST



76°00'W 75°30'W 75°00'W 74°30'W 74°00'W 73°30'W 73°00'W 72°30'W

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.
APOLLO South	*In Service*	Apollo	+44 (0) 20 7138 7117
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
GlobeNet Segment 5 (OOS)	*OOS*	Globenet	1-609-377-9494 or 1-609-294-8661
MAC 1 Segment 1	*In Service*	Level 3	1-877-881-9205
TAT 3	*OOS*	AT&T	1-866-466-2288, Prompt 5
TAT 4	*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 14 Segment G	*In Service*	AT&T	1-866-466-2288, Prompt 5

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 : 419,706 at 37°00' N

0 5 10 15 20 25 30
Miles

0 5 10 15 20 25 30
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 12200. 51st Edition, June 2014

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

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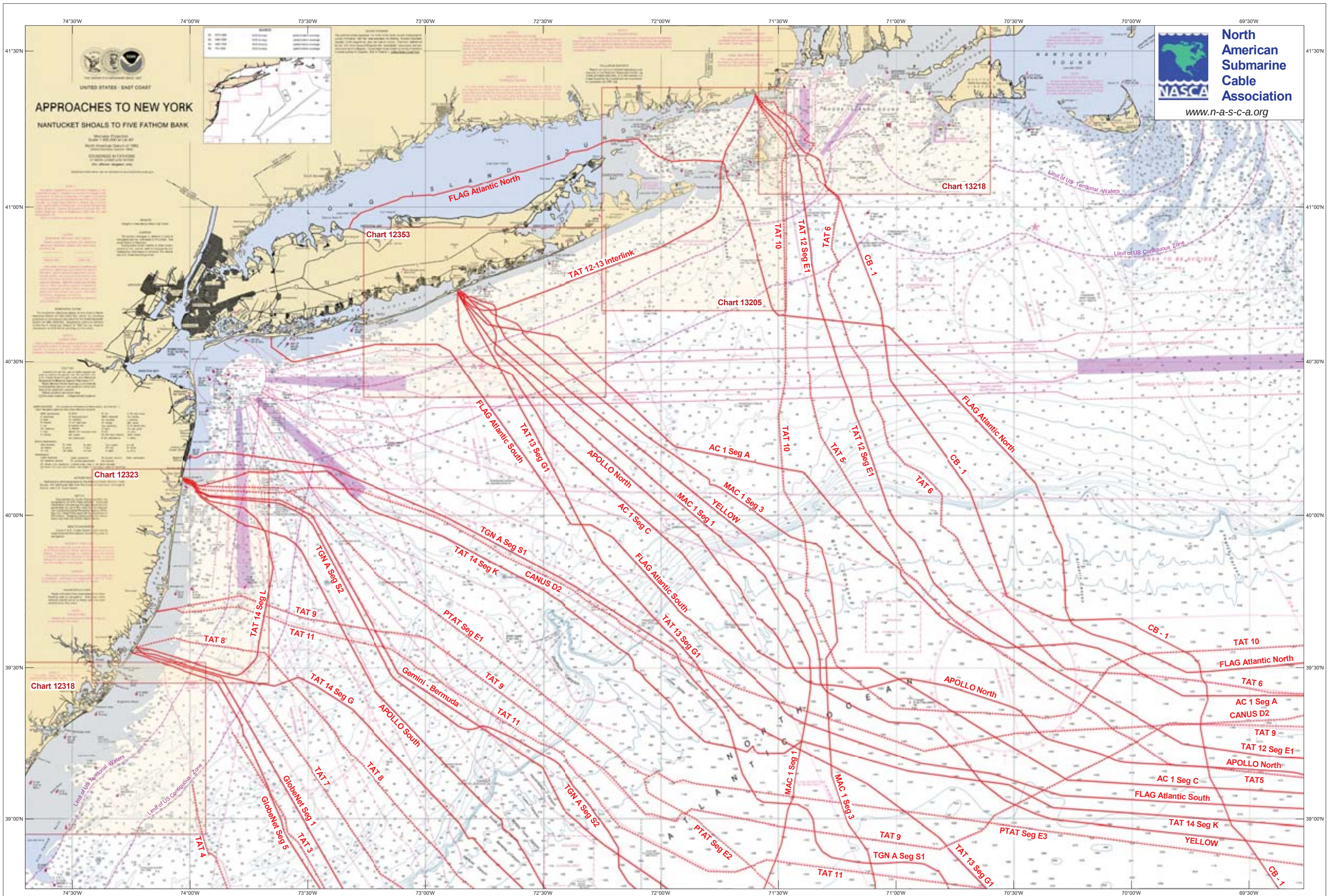
NASCA Cable Awareness Chart

Mid-Atlantic Region

Chart no. 12200

CAPE MAY TO CAPE HATTERAS



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
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
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

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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

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NASCA Cable Awareness Chart

Mid-Atlantic Region

Chart no. 12300

APPROACHES TO NEW YORK

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

To whom it may concern

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

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.

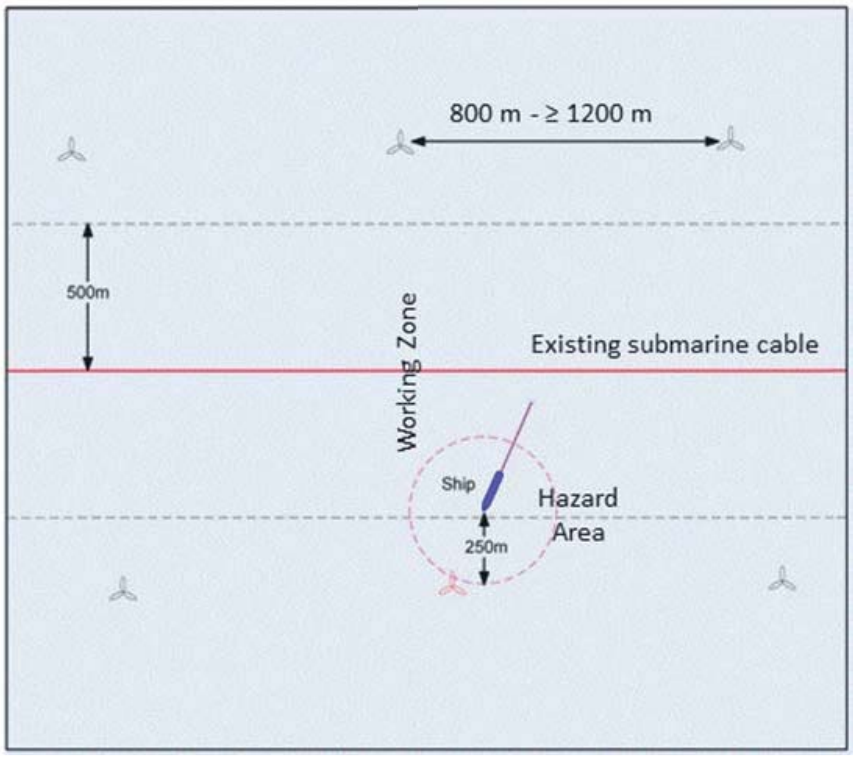

Figure 6 from Guideline 6

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.

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