

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of
Improving Outage Reporting for Submarine Cables
and Enhanced Submarine Cable Outage Data
GN Docket No. 15-206

REPORT AND ORDER

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By the Commission: Chairman Wheeler and Commissioners Clyburn and Rosenworcel issuing separate statements; Commissioners Pai and O’Rielly dissenting and issuing separate statements.

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I. INTRODUCTION

1. This Report and Order serves the public interest and promotes the national and economic security of the nation by requiring submarine cable licensees to report to the Federal Communications Commission (“Commission” or “FCC”) when submarine (or “undersea”) cable outages¹ occur and communications over those facilities are disrupted. By moving – as we do today – from an ad hoc outage reporting system to one that will ensure the Commission has a dependable, holistic view of the operating status of submarine cables, we will be in a better position to examine the resiliency posture of submarine cable infrastructure and to ensure the reliability of the critical national security and economic communications that transit it.

2. The actions we take today build upon the *Notice of Proposed Rulemaking*² in this docket, with modifications as warranted by the record, recognizing that submarine cable infrastructure is unique from the other forms of communications infrastructure for which the Commission currently requires outage reporting. In this Report and Order, we:

- Require submarine cable licensees to report to the Commission service outages, defined as “a failure or significant degradation in the performance of a licensee’s cable service regardless of whether the traffic can be re-routed to an alternate path.”
- Specify that an outage requires reporting when there is:
 - An outage, including those caused by planned maintenance, of a portion of a submarine cable system between submarine line terminal equipment (SLTE) at one end of the system and SLTE at another end of the system for more than 30 minutes; or
 - The failure or significant degradation of any fiber pair, including losses due to terminal equipment issues, on a cable segment for four hours or more, regardless of the number of fiber pairs that comprise the total capacity of the cable segment.
- Define the reporting requirements to include a Notification within eight hours (to become four hours after three years) of the time of determining that a reportable outage has occurred; an Interim Report within 24 hours of receiving a Plan of Work (relating to repairs); and a Final Report within seven days of completing repair.
- Clarify the content required in the reports to allow for the fact that not all requested information may be known when the reports are due.
- Treat the information provided through this reporting system as confidential, consistent with section 4.2 of our rules for existing outage reporting.
- Provide that these requirements will become effective six months after OMB approval of these rules to provide ample time for implementation.

II. THE NEED FOR RULES

3. *Background.* Submarine cables provide the conduit for the vast majority of voice, data and Internet connectivity between the mainland United States and consumers in Alaska, Hawaii, Guam American Samoa, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands, as well as the connectivity between the United States and the rest of the world.³ In the *Submarine Cable Outage Notice*, the Commission estimated that submarine cables “carry over 95 percent of all U.S.-international voice

¹ Throughout this Report and Order, “submarine cable” and “undersea cable” are used interchangeably.

² *Improving Outage Reporting for Submarine Cables and Enhancing Submarine Cable Outage Data*, GN Docket 15-206, Notice of Proposed Rulemaking, 30 FCC Rcd 10492 (2015) (*Submarine Cable Outage Notice* or *Notice*).

³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10492-93, para. 1.

and data traffic.”⁴ Other sources estimate that submarine cables carry 99 percent of such traffic.⁵ Accordingly, the operation and maintenance of the approximately 60 undersea cables licensed in the United States⁶ are essential to the nation’s economic stability, national security and other vital public interests.⁷

4. The Communications Act of 1934, as amended, charges the Commission with promoting “the safety of life and property through the use of wire and radio communication.”⁸ This foundational mission underlies our efforts to promote resilient, reliable, and secure communications across the mainland United States and its territories, and informs how we interpret our duties under the Cable Landing License Act⁹ and Executive Order 10530,¹⁰ which provide the Commission with authority to grant, withhold, condition and revoke submarine cable landing licenses and, in particular, for such grants to occur “upon such terms as shall be necessary to assure just and reasonable . . . service in the operation and use of cables so licensed.”¹¹

5. Presently, submarine cable licensees are not required to report on their cables’ operational status. Rather, licensees provide such operational information to the Commission on a voluntary, ad hoc basis through the Commission’s Undersea Cable Information System (UCIS).¹² This ad hoc approach contrasts significantly with the Commission’s part 4 outage reporting requirements for other communication services.¹³ Furthermore, the Network Outage Reporting System (NORS) established for part 4 data reporting has not previously provided the Commission with the necessary information to analyze undersea cable disruptions, as the system was designed for different types of infrastructure outage reporting, not submarine cable reporting.¹⁴

⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10494, para. 8.

⁵ See, e.g., Greg Miller, *Undersea Internet Cables are Surprisingly Vulnerable*, Wired (Oct. 29, 2015) <http://www.wired.com/2015/10/undersea-cable-maps/>.

⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10493, para. 1 & n.3. As of March 31, 2015, there are 62 FCC licensed submarine cables operating or planned to enter service. See FCC, *Submarine Cable Landing Licenses*, <https://transition.fcc.gov/ib/pd/pf/scll.html> (last visited Mar. 1, 2016).

⁷ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10493, para. 1 & n.2. APEC Policy Support Unit, *Economic Impact of Submarine Cable Disruptions* at 9 (Dec. 2012), http://publications.apec.org/publication-detail.php?pub_id=1382 (citing a U.S. Federal Reserve representative’s seminar presentation) (“APEC Report”). The United States is a member of APEC. See APEC, *Member Economies*, <http://www.apec.org/About-Us/About-APEC/Member-Economies.aspx> (last visited Sept. 18, 2015). Noting the Asia Pacific Economic Cooperation (APEC) estimated that submarine cables carry traffic associated with over \$10 trillion in transactional value globally per day.

⁸ 47 U.S.C. § 151.

⁹ Cable Landing License Act of 1921, 47 U.S.C. §§ 34-39 (Cable Landing License Act).

¹⁰ Exec. Order No. 10,530, 19 Fed. Reg. 2709 (May 10, 1954).

¹¹ Cable Landing License Act 47 U.S.C. §§ 34-35; *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509-10510, para. 48. In acting upon applications for such licenses, the Commission seeks the approval of the U.S. Department of State. Executive Order 10530, § 5(a). Pursuant to its authority, the Commission has adopted rules governing submarine cable service at Sections 1.767 and 1.768 of the Commission’s rules. 47 CFR §§ 1.767, 1.768.

¹² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10494, para. 5.

¹³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10494, para. 5; See 47 CFR pt. 4. Part 4 outage reporting requires more targeted information on the causes and effects of communications outages, establishes specific reporting triggers and thresholds, and provides specific deadlines for those reports to be made.

¹⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10499, para. 19. Because NORS was not designed for submarine cable reporting, it lacks many of the data fields that are needed to report on submarine cable infrastructure.

6. The July 8, 2015 Northern Mariana Island outage provides a critical example of the limitations of the present system and the need for the changes in outage reporting. The damage from a typhoon to a submarine cable between the Commonwealth of the Northern Mariana Islands (CNMI) and Guam severed off-island wireless and wireline voice and data services for thousands of CNMI residents and businesses for nearly three weeks. Services affected during the outage included phone, Internet, banking, credit-card transactions, ATM withdrawals and health care.¹⁵ The Commission was hampered in its ability to assess or monitor the CNMI outage impact, restoration developments, and other critical issues under the available reporting systems.¹⁶

7. The concerns of the Commission go beyond that of disruptions caused by natural events. Some news accounts since we adopted the *Notice*, for example, highlight the critical role of this infrastructure to national security.¹⁷ Given the high volume and nature of the traffic carried over submarine cables (including traffic relating to U.S. Government civilian and military operations and functions), submarine cable operational status is of the utmost importance to the nation's communications security, and useful outage information concerning undersea cables will assist the Commission in effectuating its role in ensuring the reliability of that infrastructure.¹⁸

8. Given that undersea cables are estimated to support nearly \$10 trillion in transactions each day, their economic significance cannot be overstated.¹⁹ Nevertheless, industry representatives note that, globally, there are few enforceable laws governing the use or protection of submarine cables, presenting a significant assurance gap for this infrastructure.²⁰ Currently, parts 1 and 43 of the Commission's rules require undersea cable applicants and licensees to report their cable capacity information to the Commission,²¹ but, in contrast with the Commission's part 4 rules for other wireline, wireless and satellite providers, they are not required to report on a cable's operational status.²² Instead,

¹⁵ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10499, para. 20 & n.43.

¹⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10500, para. 22.

¹⁷ See David E. Sanger, Eric Schmitt, *Russian Ships Near Data Cables Are Too Close for U.S. Comfort*, The New York Times (Oct. 25, 2015), http://www.nytimes.com/2015/10/26/world/europe/russian-presence-near-undersea-cables-concerns-us.html?_r=0.

¹⁸ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10495, paras. 9-10 n.19. See National Security Telecommunications Advisory Committee (NSTAC), *Cybersecurity Collaboration Report: Strengthening Government and Private Sector Collaboration Through a Cyber Incident Detection, Prevention, Mitigation, and Response Capability* at 20 (2009), <http://www.dhs.gov/sites/default/files/publications/NSTAC%20CCTF%20Report.pdf> (“[U]ndersea cable infrastructure carries approximately 95% of the international traffic, including Internet traffic, and . . . restoration of that infrastructure requires international cooperation. The NSTAC believes that the Federal Government should review these recommendations and consider its appropriate role in the protection and security of that infrastructure.”).

¹⁹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10496, para. 11.

²⁰ See International Cable Protection Committee (ICPC) Press Release, “ICPC comments on submarine cable security around the world,” Feb. 16, 2016, available at <https://www.iscpc.org/documents/?id=2039> (ICPC Press Release). ICPC is an international association of undersea cable operators, and 23 of its members are U.S. entities. See ICPC Member List, available at <https://www.iscpc.org/about-the-icpc/member-list/>.

²¹ Under Section 1.767, applicants for a cable landing license must include a description of the “type and number of channels and the capacity” of the proposed cable in the application. 47 CFR § 1.767(a)(4). Section 43.62 requires licensees of international cables to report annually the capacity of the cable as of December 31 of the preceding year and the planned capacity two years out. 47 CFR § 43.62(a)(2)(i).

²² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10494, para. 8. NORS, outlined in part 4 and used for legacy domestic communications outages, is currently ill-suited for submarine cable operators in the absence of mandatory reporting requirements because a voluntary, ad hoc data supply cannot present a comprehensive, reliable picture of undersea cable operational health and status sufficient to support sound analysis. See *id.* at 10499, para. 19

licensees submit information on operational status to the Commission on a voluntary basis to UCIS, an online portal with terrestrial route maps, information on post-incident restoration, and system messages with respect to outages involving undersea cables landing in the United States.²³

9. The record highlighted several problems with the current approach. First, UCIS, as a voluntary program, only reflects information on approximately 25 percent of undersea cables in use today, and accordingly, the Commission lacks visibility into the vast majority of undersea cable infrastructure and related outages or disruptions.²⁴ Second, the information submitted through UCIS is not uniform and there are no standardized triggers to require reporting, so the information that is provided to the Commission is inconsistent and not necessarily reliable or probative about the root cause of the outage.²⁵ Third, UCIS was designed as a “file depository,” meaning that there is no systematic data collection effort or a database to house the information.²⁶ This makes the limited reports the Commission does receive difficult to analyze, and not useful for identifying network reliability trends.²⁷ Fourth, although some licensees report certain cable faults through NORS, or to the National Coordinating Center for Communications (NCC) within the Department of Homeland Security, most licensees have opted not to report in UCIS in a consistently reliable fashion.²⁸ These deficiencies make it difficult for the Commission to learn about outages and related trends, thereby interfering with the Commission’s obligation²⁹ to confirm that critical communication facilities that it licenses, and over which it has jurisdiction, are reasonably available and operational.

10. Even in light of the CNMI incident, some commenters challenge the idea that a mandatory outage data collection effort is necessary. For example, NASCA submits that there is no “hidden undersea cable outage problem,”³⁰ and that voluntary participation in UCIS is low simply because there are few reportable events.³¹ Quintillion argues that the application for each landing license already contains many of the details that would be required with the proposed outage reporting regime, and when coupled with other annual reporting requirements, these details are sufficient to provide the Commission with visibility into the operational status of submarine cables and protect “data traveling across those cables from unintended use by competitors or other interests.”³² Verizon urges the

²³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10494, para. 5. See also FCC, Notice of Public Information Collection(s) Being Submitted for Review to the Office of Management and Budget, 73 Fed. Reg. 23460-61 (April 30, 2008) (OMB Public Information Collection). Notice of Office of Management and Budget Action, “Request for a new OMB Control Number” (for Submarine Cable Reporting) (rel. Apr. 16, 2008), “Supporting Statement” at 1 (OMB Control Number 3060-1116 and Supporting Statement). Since UCIS’s inception in 2008, the Commission has received in UCIS terrestrial route maps for 37 cables, a location spreadsheet for 35 cables, and a description of restoration capabilities for 18 cables; thus participation in the “static” aspects of UCIS has ranged from 29-60 percent of cables.

²⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10494, para. 6, and 10497 para. 13.

²⁵ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10494, para. 6, 10497 para. 13, and 10498-9 para. 17.

²⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10498, para. 16.

²⁷ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10498, para. 16.

²⁸ North American Submarine Cable Association Comments at 6 (NASCA).

²⁹ See *infra* section IV.D (discussing the Commission’s legal authority and mandate).

³⁰ NASCA Comments at i. See also AT&T Appendix A at 3 (citing only two undersea faults within 200 nautical miles of the U.S. coastline since 1990).

³¹ NASCA Comments at 6. NASCA states that many members have had no or only one outage that could have been reported to UCIS. *Id.* NASCA also faults the Commission for low participation rates that it says result from failing to adequately publicize the existence of UCIS. *Id.*

³² Quintillion Comments at 1.

Commission to first pursue non-regulatory efforts to improve information gathering and oversight of submarine cable systems, such as improving the voluntary UCIS system.³³

11. On the other hand, the record also includes support for a mandatory reporting regime for submarine cable outages. CNMI notes that “efforts to mitigate the damages caused by the July cable break were hampered by IT&E’s reluctance to disclose data . . .”³⁴ Docomo Pacific, Inc., (Docomo) argues that “[g]iven the breadth of the Commission’s existing network outage reporting rules . . . no public policy reason exists to exempt submarine cable operators from a mandatory obligation to report network outages, and commenters offer none.”³⁵ Docomo also adds that the proposed rules will be beneficial not only to the Commission but to the entities served by submarine cables because they “will create additional incentives and opportunities for submarine cable operators to implement measures to protect against outages and to remedy any outages promptly.”³⁶ AT&T does not oppose submarine cable disruption reporting obligations, so long as the actual costs of implementing such requirements are recognized and adequate time is provided to transition to a new regime.³⁷

12. *Discussion.* We find that a mandatory outage reporting regime is necessary to provide the Commission with greater visibility into the availability and health of these networks to allow it to better track and analyze submarine cable resiliency, and suggest or take appropriate actions when the data so indicate, i.e., before there is a significant problem. Although as NASCA notes, there may be no glaring evidence of a present “hidden undersea cable outage problem” for U.S. cable landing parties,³⁸ one industry estimate suggests there are approximately 200 submarine cable faults each year globally,³⁹ and we have previously estimated that there would be approximately 40 hours spent per licensee on annual restoration or trouble reports that would warrant a filing in UCIS.⁴⁰ This is the quintessential communications infrastructure assurance aim served by NORS reporting, to collect information on “service disruptions that could affect homeland security, public health or safety, and the economic well-being of our Nation.”⁴¹ The need for such reporting is only heightened when, as is the case with submarine cable infrastructure, the facilities are few,⁴² are vital to U.S. economic activity and national security,⁴³ have unique vulnerabilities in their environment,⁴⁴ and are exceptionally challenging to repair.⁴⁵

³³ Verizon Reply Comments at 1, 7.

³⁴ Attorney General of the Northern Mariana Islands Comments at 2.

³⁵ Docomo Reply Comments at 3.

³⁶ Docomo Reply Comments at 3. *See also* Letter from Bennett L. Ross, Counsel, Docomo Pacific, Inc. to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-206, at 1-2 (filed Oct. 14, 2015) (Docomo Ex Parte) (“Even if such information is considered confidential for purposes of the Commission’s outage reporting rules, operators would be more readily able to keep system users informed of the extent of the outage and associated repair efforts – comprehensive information that [Docomo] had difficulty obtaining from IT&E during its recent outage.”).

³⁷ AT&T Comments at 1-2; *see also infra* paras. 35, 58, 62, 58, 71, 90.

³⁸ NASCA Comments at 4.

³⁹ ICPC Press Release at 1.

⁴⁰ OMB Control Number 3060-1116, ICR Reference No. 201409-3060-017, FCC Supporting Statement at 8 (2014).

⁴¹ *2004 Part 4 Report and Order*, 19 FCC Rcd at 16832, para. 1.

⁴² *See supra* para. 3, noting there are approximately 60 licensed submarine cables affecting the United States.

⁴³ *See supra* paras. 6-8.

⁴⁴ Communications, Security, Reliability, and Interoperability Council (CSRIC) IV, Final Report – Protection of Submarine Cables Through Spatial Separation at 2 (2014), https://transition.fcc.gov/pshs/advisory/csric4/CSRIC_IV_WG8_Report1_3Dec2014.pdf (CSRIC IV Report) (noting the multitude of threats to submarine cables, including commercial fishing, dredging, energy projects, and other cable activity, as well as natural threats such as earthquakes or landslides).

13. Further, it is clear that UCIS has failed to become the comprehensive source of information about undersea cable outages it was intended to be: few reports are filed; those that are filed are inconsistent from entity to entity; and the design of UCIS lacks the analytical capabilities necessary for the Commission to perform meaningful analysis. In the intervening time since the *Notice*'s release, the Commission is aware of two events that presumably fit within UCIS' filing scope, yet were not reported. In one instance, a Florida lightning strike hampered communications with the Cayman Islands.⁴⁶ In another instance, submarine cable connectivity between Guam, a U.S. territory, and Australia was severed; not only was this incident not reported in UCIS but, the cable at issue has not even been registered in UCIS.⁴⁷ These omissions reveal UCIS' shortcomings as an assessment tool for such critical communications infrastructure, and especially given the evolving and intensifying nature of the national security issues the United States faces, we decline to defer action in this proceeding while waiting for voluntary participation in UCIS to reach appropriate levels to provide the information needed.⁴⁸

14. We recognize that redundancies (i.e., traffic re-route engineering) are already in place for many cables that prevent or at least mitigate service outages, but this argument misses the broader goal of the proposed mandatory reporting regime, which is that both the cables and the services provided over them must be protected. For the Commission to ensure the stability of submarine cable infrastructure, it must have greater visibility than what is currently provided through UCIS into the connectivity and capacity of all undersea cables landing in the United States. And, even though we recognize that the low number of reports filed in UCIS might be due to a low number of reportable outages, the record suggests otherwise. As mere examples, the outages discussed above are important evidence of how it is not only the number of outages, but rather, also the potential impact of the outages, as well as the deficit in the Commission's situational awareness of a major outage, that convince us that reporting needs to be mandatory and of the scope described herein. Accordingly, we adopt the mandatory reporting regime for undersea cable operators described below. This regime will replace UCIS in its entirety and we direct the Bureau to retire UCIS upon the effective date of these rules.

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⁴⁵ See CSRIC IV Report at 26-30 (describing the unique difficulties in repairing submarine cable infrastructure).

⁴⁶ See Charles Duncan, *Lightning Knocks Out Internet*, Cayman Compass (Feb. 17, 2016) <https://www.caymancompass.com/2016/02/17/lightning-knocks-out-internet/>; ("A lightning strike along one of the submarine cables that connects Cayman's Internet to the rest of the world knocked out Internet service for many on Grand Cayman Tuesday evening. The lightning hit a landing station at the U.S. end of the Maya-1 cable system between Cancun, Mexico and Hollywood, Florida, on Tuesday afternoon, affecting Internet access and some phone service in Cayman, according to local telecom companies and regulators.").

⁴⁷ Rohan Pierce, *Repair Work Underway on TPG's PPC-1 Cable*, Computerworld (Mar. 9, 2016) <http://www.computerworld.com.au/article/595555/repair-work-begins-tpg-ppc-1-cable/> ("PPC-1 is a submarine cable that stretches from Sydney [to] Guam and is operated by the TPG's subsidiary Pipe. PPC-1 suffered a major fault on 5 February, taking down the entire cable system. TPG has been routing traffic via Southern Cross and the Australian Japan Cable system since the outage.").

⁴⁸ The lack of participation in UCIS contrasts with the Commission's analogous voluntary Disaster Information Reporting System (DIRS), which service providers have largely embraced and has been provided the Commission with critical situational awareness of service outages during disaster situations. DIRS is similarly a voluntary, web-based portal through which communications companies – e.g., wireless, wireline, broadcast, and cable providers-- can report communications infrastructure status and situational awareness information during a crisis. That the utilization rate of the voluntary UCIS program has never approached that of the voluntary DIRS program, though they were set up within a year of each other, strengthens our view that submarine cable outage reporting will not increase absent Commission action to require it. See FCC, Disaster Information Reporting System, <https://transition.fcc.gov/pshs/services/cip/dirs/dirs.html> (last visited Mar. 23, 2016).

III. REPORTING OBLIGATIONS

A. Establishing Outage Definitions and Metrics

1. Defining a Reportable Outage

15. *Background.* In the *Submarine Cable Outage Notice*, we proposed to construct rules for submarine cable outage reporting based on our part 4 outage reporting rules,⁴⁹ using a tailored definition of outage for submarine cables as a “failure or significant degradation in the performance of a submarine cable, regardless of whether the traffic traversing that cable can be re-routed to an alternate cable.”⁵⁰ In the *Notice*, we explained that this approach was analogous to our part 4 reporting approach for simplex outage events and that such reporting is necessary, given that one or multiple, related or unrelated events may cause damage to multiple cables, and that generally few undersea cables are available for re-routing.⁵¹

16. Commenters’ support for our proposal to define a reportable outage ranges from support of the reporting requirement regardless of re-routing availability,⁵² to favoring a definition that is limited to a complete failure in service and excludes cases where licensees have re-routed traffic.⁵³ Docomo acknowledges that including re-routed traffic in the outage definition would align the submarine cable outage reporting with the current part 4 outage reporting rules.⁵⁴ Others object to including an obligation to report events when traffic is re-routed, in part, because they state there is no service disruption or potential impact on customers in these configurations.⁵⁵ Verizon suggests that we focus on events for which “re-routing of traffic is not available and when service is adversely affected.”⁵⁶

17. Other commenters support a definition based on disruptions to communications,⁵⁷ or suggest that we limit reporting to catastrophic and unforeseen events.⁵⁸ NASCA states that submarine cable operators do not have retail customers, and instead offer “wholesale capacity to third parties,” or provide capacity as “an input to affiliates that may offer their own retail telecommunications or information services.”⁵⁹ Therefore, NASCA instead proposes a definition with a “reference to the

⁴⁹ 47 C.F.R. § 4.5(a).

⁵⁰ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10502-03, para. 30.

⁵¹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10502-03, para. 30.

⁵² Docomo Reply Comments at 4, referencing AT&T Comments at 10 (acknowledging that the proposed reporting requirements are “somewhat analogous to the current FCC reporting of simplex outages, where there is also no adverse impact on services to customers”).

⁵³ NASCA Comments 12-15; Submarine Cable Coalition Reply at 2-3; Letter from Arturo Pellerano Guerra, Treasurer, Latam Telecommunications, LLC, to Marlene Dortch, Secretary, FCC, GN Docket No. 15-206, at 1-2 (filed Feb. 1, 2016) (Latam Telecommunications Ex Parte) (favoring a definition that excludes incidents that do not degrade or negatively affect communications services transiting the cable, including events where re-routing traffic is available); Submarine Cable Coalition Comments at 4-6 (supporting a definition limited to unforeseen and catastrophic events that result in a significant degradation where traffic cannot be rerouted).

⁵⁴ Docomo Reply Comments at 4.

⁵⁵ NASCA Comments at iv, 34 (referencing “potential impact on customers, exclude events that do not disrupt communications), Latam Telecommunications Ex Parte at 1-2 (supporting the exclusion of events that “do not degrade or negatively affect communications services transiting the cable”).

⁵⁶ Verizon Reply at 2; Latam Telecommunications Ex Parte at 2 (supporting Verizon’s proposal and adding an exclusion to disregard events occurring on “terrestrial pathways beyond the cable’s terminal stations”).

⁵⁷ NASCA Comments at 34; Latam Telecommunications Ex Parte at 1-2.

⁵⁸ Submarine Cable Coalition Comments at 4-6.

⁵⁹ NASCA Comments at 16.

potential impact on customers,” excluding events that do not disrupt communications, noting that this is consistent with the approach in other countries.⁶⁰ The Submarine Cable Coalition would limit the definition to unforeseen and catastrophic events that result in significant degradation where traffic cannot be re-routed, and proposes instead, (1) a periodic report summarizing events that meet our proposed outage definition, and (2) to limit outage reporting obligations to events that “affect fifty percent or more of the fiber pairs on a cable and where traffic is not rerouted.”⁶¹ In arguing for a less stringent reporting requirement, the Submarine Cable Coalition notes that the reporting obligation for interconnected Voice over Internet Protocol (VoIP) service is for events resulting in a complete loss of service and that some other services, such as simplex, have extended reporting timelines.⁶²

18. *Discussion.* To effectively achieve undersea cable infrastructure assurance, consistent with part 4 traditionally, we will define reportable outages without regard to a licensee’s or provider’s re-routing of the traffic carried over a given cable, or some other measure requiring a complete loss of service. Accordingly, we define “outage” as “a failure or significant degradation in the performance of a licensee’s cable service regardless of whether the traffic can be re-routed to an alternate path.”

19. Though there are redundant configurations in some,⁶³ but not all submarine cable infrastructure,⁶⁴ we adopt our proposal to require a reporting obligation regardless of whether traffic is re-routed, and we use the broader term “path” to avoid analysis of whether the traffic was specifically re-routed to another cable. For the purpose of promoting and advancing the national security and public safety interests served by our U.S.-based landings and connections as a whole, we need to assess outages across the total undersea cable environment serving the United States. For example, in some situations the redundant paths could be over-utilized due to an emerging problem, such as an expansive coastline area disruption affecting several independent submarine cables. Using such an approach would help us understand operability of submarine cables holistically to better safeguard reliability of this important part of the nation’s communications system.

20. We also modify our proposed definition to limit reportable events to failures or “significant” degradation in the performance of a communications provider’s cable. As explained in the section below on outage reporting triggers,⁶⁵ we are adjusting our metrics to require the reporting of only

⁶⁰ NASCA Comments at 34.

⁶¹ Submarine Cable Coalition Comments at 6 (favoring reporting only for events that “affect fifty percent or more of the fiber pairs on a cable and where the traffic is not rerouted”).

⁶² Submarine Cable Coalition Comments at 5.

⁶³ The record reflects that some operators today use several methods to ensure service reliability. *See* AT&T Comments at 5-6, Attachment A at 3 (describing “mesh” network restoration that uses connection between multiple cables to automatically and instantaneously reroute traffic to the next best path when a failure occurs; and “ring” systems that automatically switch traffic to the other side of the ring in event of a failure); Verizon Reply at 1 (“most U.S. undersea cable systems offer built-in redundancy and extensive traffic re-routing capabilities”); Docomo Ex Parte at 2; Docomo Reply Comments at 6 (discussing plans to add a redundant path between Guam and the Commonwealth of the Northern Mariana Islands); NASCA Comments at ii, iv, 14-16 (stating “almost all submarine cable systems landing in the United States have same-system, intra-company, or third-party submarine cable redundancy or satellite backup on routes with limited submarine cable connectivity,” or “hold capacity on an infeasible right of use or lease basis on competing systems,” and “operators on routes with limited or no submarine cable capacity” rely on satellite capacity); Submarine Cable Coalition Comments at 6; Verizon Reply at 1.

⁶⁴ *See* Attorney General of the Northern Mariana Islands Comments at 1 (stating that the “Commonwealth of the Northern Mariana Islands and American Samoa are unique among U.S. jurisdictions in that they each lie precariously on the ends of a single submarine cable. If those cables break, the entire jurisdiction’s capacity to transmit and receive information is limited to backup microwave systems, which are inadequate to handle modern telecommunications traffic.).

⁶⁵ *See supra* paras. 21-30.

significantly degraded service and not all incidents of degraded service, which will better align our outage reporting rules for submarine cables with our current part 4 outage reporting requirements. Further, our adjustment to include “significant” degradation is consistent with our long established outage reporting requirement that an outage includes events where even “some traffic might be getting through during a period of massive disruption.”⁶⁶ However, we decline to adjust our proposal to require an impact to end users, or “customers” as NASCA has suggested.⁶⁷ Submarine cables are unique in that they do not generally have retail customers, and that they offer “wholesale capacity.”⁶⁸ We agree with Latam Telecommunications (Latam) that submarine cables are used for numerous types of voice and data communications by different types of users, and therefore a “customer-based definition is unworkable.”⁶⁹ Moreover, were we only to receive periodic reporting of events meeting our proposed definition as the Submarine Cable Coalition suggests, this would hinder our ability to act in the interests of public safety and national security through timely receipt of communication from and sharing of information with relevant parties such as DHS.⁷⁰ We have, however, taken into account the unique aspects of submarine cable infrastructure as the Submarine Cable Coalition requests in other metrics such as the report contents and timing as discussed below.⁷¹

2. Reportable Outage Metrics

21. *Background.* To capture significant events in our submarine cable outage reporting, we proposed in the *Notice* to require reporting when, “regardless of whether the traffic is re-routed,” an event occurred in which “connectivity in either the transmit mode or the receive mode is lost for at least 30 minutes,” or in which “50 percent or more of a cable’s capacity in either the transmit mode or receive mode is lost for at least 30 minutes.”⁷² We distinguished connectivity from capacity, explaining that connectivity is the “fundamental ability to transmit a signal,” and capacity is the “bandwidth or throughput” that the cable is “capable of transmitting at any one time.”⁷³ We proposed to capture significant degradation events by measuring the cable’s capacity, establishing a minimum threshold capacity at a loss of 50 percent or more, for at least 30 minutes.⁷⁴ In addition, for this purpose, we asked whether other capacities or measurements should be considered, including the capacity definitions used in the part 43 cable capacity reporting.⁷⁵ Further, we proposed to include planned maintenance within the scope of our submarine cable outage reporting rules.⁷⁶

⁶⁶ 47 C.F.R. § 4.5(a); *Amendment of Part 63 of the Commission's Rules to Provide for Notification by Common Carriers of Service Disruptions*, CC Docket No. 91-273, Report and Order, 7 FCC Rcd 2010, 2012, para. 11 (1992); *New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 16830, 16860, 16862, 16920, para. 55, nn.168, 182, Appendix B (2004).

⁶⁷ NASCA Comments at 16.

⁶⁸ NASCA Comments at 34, Docomo Reply Comments at 5.

⁶⁹ Latam Telecommunications Ex Parte at 5.

⁷⁰ See *infra* Section III.D.2.

⁷¹ See *infra* Section III.C.

⁷² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10503, para. 31.

⁷³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10503, para. 31.

⁷⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10503-04, paras. 32-33.

⁷⁵ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10503-04, para. 33.

⁷⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10505-06, paras. 37, 39.

22. The record suggests that we should modify our proposed reporting triggers to better account for the unique nature of submarine cable infrastructure. Some commenters opposed our proposed metrics and offered alternative proposals,⁷⁷ while others opposed a reporting obligation altogether.⁷⁸

23. *Connectivity.* In response to our proposal to require reports when connectivity in either the transmit mode or the receive mode is lost for at least thirty minutes, some commenters supported the concept while suggesting an adjusted metric,⁷⁹ while others opposed the proposal.⁸⁰ AT&T does not oppose a connectivity metric, but advocates that it be adjusted to include only events “caused by failures or breaks in the optical fiber of the cable . . . or power failures.”⁸¹ AT&T argues that reporting for other causes, such as card failures or other problems affecting cable station terminal equipment is unwarranted because they usually involve traffic degradations under fifty percent of the cable capacity, are more readily repaired, and do not involve the use of a repair ship.⁸² Further, AT&T argues that a definition including all losses in connectivity would require outage reporting of large numbers of potential terminal equipment issues, and that a requirement to report indications of potential problems or potential traffic-impacting conditions is vague and ambiguous.⁸³ NASCA similarly states our proposal would capture mundane events or routine occurrences, such as power feed equipment failures, shunt faults, and scheduled or routine maintenance.⁸⁴ NASCA argues that in the case of a power outage, an “interruption may be brief,” or in the case of a shunt fault, “the system can be rebalanced, leaving traffic either unaffected or quickly restored.”⁸⁵ The Submarine Cable Coalition opposes reporting obligations, and adds that “disruptions can be caused by minor changes in a single customer’s equipment while the system as a whole would not be affected,” and proposes an alternative definition of when “there is an event related to damages or replacements of a portion of a submarine cable system between the submarine line terminal equipment (SLTE) at one end of the system and the SLTE at another end of the system, that disrupts traffic provisioned on fifty percent or more of the fiber pairs in the system for more than three hours” or based on traffic provisioned disruptions on fifty percent or more of the fiber pairs.⁸⁶ Others oppose including events that occur on terrestrial pathways beyond a cable’s terminal stations.⁸⁷

24. *Capacity.* The record reflects a mixed reaction to our original capacity metric proposal, i.e., the loss for at least 30 minutes of fifty percent or more of the capacity of the submarine cable, in either the transmit or receive mode.⁸⁸ Commenters argue that a capacity-based metric is difficult to measure, in light of the dynamic nature of capacity use, capacity owners’ continual capacity activation

⁷⁷ AT&T Comments at 14; Submarine Cable Coalition Comments at 3; NASCA Comments at 31-35.

⁷⁸ Quintillion Comments at 1.

⁷⁹ AT&T Comments at 3, 13, 15, Appendix A at 9.

⁸⁰ NASCA Comments at 10.

⁸¹ AT&T Comments at 15-16, Appendix A at 9; Submarine Cable Coalition Reply at 5-6; Verizon Reply at 3 (stating this would exclude from reporting routine maintenance and minor non-service-affecting incidents, such as “card failures or other problems . . . affecting terminal equipment at cable stations”).

⁸² AT&T Comments, Appendix A at 9.

⁸³ AT&T Comments at 15.

⁸⁴ NASCA Comments at 10.

⁸⁵ NASCA Comments at 10.

⁸⁶ Submarine Cable Coalition Comments at 3.

⁸⁷ Latam Telecommunications Ex Parte at 2.

⁸⁸ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10503, para. 31.

and deactivation according to their business needs,⁸⁹ or capacity application in multi-segmented and ring-configuration systems.⁹⁰ However, several commenters support an alternative proposal replacing a capacity measure and instead basing a reporting requirement on the loss of any fiber pair on the cable.⁹¹

25. *Planned Maintenance.* Some commenters supported our proposal to include planned maintenance events within the scope of our outage reporting rules,⁹² while others argued against including events resulting from planned maintenance.⁹³ The Submarine Cable Coalition argues that planned outages are conducted to complete routine maintenance or upgrades; and “customers are provided with advance notice of such outages and they are accounted for in service level agreements.”⁹⁴ Docomo argues that our part 4 requirements were recently reaffirmed to include events resulting from planned maintenance because their exemption would detract from the purpose of part 4.⁹⁵

26. *Discussion.* We adopt a modified outage reporting metric to capture significant degradations and to simplify reporting in general. Under the originally proposed metric, events causing performance failures would not be reportable until all connectivity was lost.⁹⁶ We therefore modify both proposed metrics, addressing the connectivity and capacity metrics to account for performance failures and events resulting from planned maintenance.

27. Connectivity is an important metric but we are persuaded to modify it to exclude reporting that could be burdensome and of limited value. Accordingly, we adopt a modified version of the connectivity metric proposed by the Submarine Cable Coalition and require reporting when there is an outage, including those caused by planned maintenance, of a portion of a submarine cable system between SLTE at one end of the system and SLTE at another end of the system for more than 30 minutes. We are persuaded to make this modification in order to limit the burdens caused by reporting routine terminal equipment issues that can be corrected rapidly. While the Submarine Cable Coalition does not specifically define the term “SLTE” in its comments, it is commonly understood to be part of the “dry plant”⁹⁷ comprised of “signal processing equipment and optical multiplexing equipment that allows transmission over the submarine cable.”⁹⁸ Thus, we focus on issues resulting in outages that fall between the SLTE due to problems with the “wet plant,” including the submarine cable, repeaters, optical

⁸⁹ AT&T Comments at 14, Attachment at 7-8 (stating it would be “difficult to identify in the wide variety of capacity and facility arrangements that apply to these cables, or where cooperation between different landing parties or testing work by a landing party was required to obtain necessary information,” and the “task may even require canvassing other owners of capacity on a cable to determine the total amount of lost capacity.”).

⁹⁰ NASCA Comments at iv, 11-13 (discussing that “[a]n impairment of active capacity does not necessarily mean an impairment of used capacity, i.e., traffic loss”; and the various types of capacities: lit capacity, purchased capacity, used capacity, or design capacity, compared to the capacity related definitions to comply with filing requirements in 47 C.F.R. § 43.62); Verizon Reply at 3 (stating that the capacity based definition would be difficult to apply across different cable systems and events).

⁹¹ AT&T Comments at 13-14, Appendix A at 8-9; Docomo Reply Comments at 4; Submarine Cable Coalition Comments at 3.

⁹² Docomo Reply Comments at 4.

⁹³ NASCA Comments at 10; Submarine Cable Coalition Comments at 4, 6.

⁹⁴ Submarine Cable Coalition Comments at 6.

⁹⁵ Docomo Reply Comments at 4.

⁹⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10503, paras. 31-32.

⁹⁷ See Submarine Cable Networks, <http://www.submarinenetworks.com/stations/blog> (last visited Apr. 19, 2016) (“The Dry Plant of a submarine cable system is a segment between the beach manhole and the cable landing station, comprised of land cable, power feeding equipment (PFE) and submarine line terminal equipment (SLTE), etc.”).

⁹⁸ EASSy Network, Submarine Technology, http://www.eassy.org/network_subtech_2.html.

equalizer, and branching unit.⁹⁹ We believe 30 minutes, not three hours, is an appropriate timeframe to trigger a reporting obligation for such failures because damage or repair to facilities between the SLTE likely indicates a long-term problem that will not be cleared quickly, so there is no benefit to further delaying reporting.

28. Further, to simplify our original capacity metric (i.e., reporting required when fifty percent or more of the capacity of the submarine cable, in either the transmit or receive mode, is lost for at least 30 minutes), we adopt a modification of our original proposal.¹⁰⁰ In doing so, we also seek to create a reporting backstop that is broader than the connectivity metric described above and designed to capture events that affect even a single fiber pair, yet provide a longer window before the event becomes reportable. We adopt a metric requiring a report for the failure or significant degradation of any fiber pair, including losses due to terminal equipment issues, on a cable segment for four hours or more, regardless of the number of fiber pairs that comprise the total capacity of the cable segment. We are persuaded by commenters' arguments that a capacity-based metric presents various problems and may be difficult to implement and execute.¹⁰¹ AT&T's alternative proposal presents a simplified method that removes the complications involving measuring various types of capacities by limiting the measurement to the loss of any fiber pair.¹⁰² Because issues may arise at the landing station that will affect submarine cable system operation, we include outages that are due to SLTE failures. To avoid commenters' concerns of reporting large numbers of potential terminal equipment issues,¹⁰³ or brief interruptions in which service or function is rapidly restored, we limit the reporting scope to events lasting for at least four hours or more, as NASCA suggests; however we encourage reporting entities that know earlier than four hours that an event will last more than four hours to report that event more expeditiously.¹⁰⁴ We believe the four-hour event threshold is consistent with the unique nature of submarine cable operations compared to that of our legacy outage reporting, giving submarine cable operators more flexibility.¹⁰⁵ This is also consistent with our goals of having a holistic view of submarine cable infrastructure while minimizing burdens on licensees.

29. We adopt our proposal to require reporting on planned maintenance to the extent that the maintenance-related outage reaches the thresholds described above. While we have modified our proposals to account for the unique nature of submarine cable infrastructure, we agree with Docomo that there is no unique, compelling reason that would cause the Commission to depart from its past part 4 practice of requiring reports on planned maintenance events that meet the reporting triggers. We reiterate that one of the goals of the actions we take today is to improve situational awareness of the operating status of submarine cable infrastructure. Thus, the Commission should be advised of planned maintenance for many of the same reasons that cable operators like those in the Submarine Cable Coalition make their customers aware of it: planned maintenance has an effect on the overall ecosystem (i.e., available capacity, vulnerability of the total plant in service, etc.) of submarine cable infrastructure.

⁹⁹ EASSy Network, Submarine Technology, http://www.eassy.org/network_subtech_2.html. See also Submarine Cable Networks, <http://www.submarinenetworks.com/stations/blog> (last visited Apr. 19, 2016) (“The Wet Plant of a submarine cable system lies between the beach manholes, consists of submarine cable, repeater/gain equalizer, branching unit.”).

¹⁰⁰ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10503-04, para. 31-33.

¹⁰¹ AT&T Comments at 14, Appendix A at 7-8; NASCA Comments at iv, 11-13; Verizon Reply at 3.

¹⁰² AT&T Comments at 14, Appendix A at 8-9.

¹⁰³ AT&T Comments at 15, Appendix A at 9.

¹⁰⁴ NASCA Comments at 10 (suggesting “[t]o avoid capturing such events, the Commission would need either to increase the time period in this criterion—to four hours—or expressly to exclude routine occurrences such as power feed equipment failures, shunt faults, and scheduled or routine maintenance).

¹⁰⁵ Submarine Cable Coalition Reply at 2.

30. We are not persuaded by Submarine Cable Coalition's proposal for system-wide reporting¹⁰⁶ because the metric scope is too broad and does not equip the Commission with the necessary detailed information to meet either our reliability or our national security and public safety obligations.

B. Covered Entities

31. *Background.* In the *Notice*, we proposed to impose an outage reporting obligation on all submarine cable licensees, asked whether non-licensees should be included, and sought comment on whether reporting obligations should be a licensing condition.¹⁰⁷ Pursuant to the Cable Landing License Act and Executive Order 10530,¹⁰⁸ the Commission has promulgated cable licensing rules,¹⁰⁹ and the following entities are required to hold a cable license: (1) any entity that owns or controls a cable landing station in the United States; and (2) all other entities owning or controlling a five percent or greater interest in the cable system and using the United States points of the cable system.¹¹⁰

32. For arrangements where submarine cables are owned and operated by multiple licensees, such as in a consortium, to allow these licensees to designate, for compliance purposes, a licensee (Responsible Licensee) to the Commission, and require the Responsible Licensee to file on behalf of the consortium.¹¹¹ In the *Notice*, we also proposed to hold every submarine cable licensee liable for compliance with outage reporting requirements, and asked questions concerning appropriate scope of enforcement in situations in which a designated "Responsible Licensee" fails to timely or adequately file information on a reportable outage.¹¹² We further asked if, where multiple licensees own and operate a cable or operate in a consortium, the Commission should hold all jointly and severally liable for any forfeiture.¹¹³

33. In response to our covered entity proposal, some commenters favor requiring current covered licensees to report,¹¹⁴ while others favor more flexibility in arrangements involving multiple licensees or a consortium.¹¹⁵ Docomo states that "no public policy reason exists to exempt submarine cable operators from a mandatory obligation to report network outages."¹¹⁶ NASCA however, argues that our proposal will apply differently for those licensed prior to 2002 and reporting obligations will burden the pre-2002 licensees. Accordingly it states that our new requirements should provide flexibility for each cable system to decide how to allocate responsibilities associated with their undersea cables,

¹⁰⁶ Submarine Cable Coalition Comments at 3.

¹⁰⁷ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10501, para. 26.

¹⁰⁸ Cable Landing License Act; Executive Order 10530.

¹⁰⁹ 47 CFR §§ 1.767, 1.768. Cable landing licensing rules that require a person or entity to obtain a cable landing license to connect: (1) the contiguous United States with any foreign country; (2) Alaska, Hawaii, or United States territories or possessions with a foreign country, the contiguous United States, or with each other; and (3) points within the contiguous United States, Alaska, Hawaii, or a territory or possession in which the cable is laid within international waters (e.g., Washington State to Alaska). *Id.*

¹¹⁰ 47 CFR § 1.767(h). Although an entity with less than 5% ownership in a submarine cable is not required to be a licensee under the current rules, it may be a licensee, particularly on cables licensed prior to the rule change in 2002. See *Review of Commission Consideration of Applications under the Cable Landing License Act*, IB Docket No. 00-106, Report and Order, 16 FCC Rcd 22167, 22194-98, paras. 53-59 (2001).

¹¹¹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10501-02, paras. 27-28.

¹¹² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10502, paras. 29.

¹¹³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10502, paras. 29.

¹¹⁴ Docomo Reply at 3.

¹¹⁵ NASCA Comments at 35.

¹¹⁶ Docomo Reply at 3.

including outage reporting obligations.¹¹⁷ Quintillion raises several concerns, including increased costs and competitive disadvantages as reasons it opposes our proposal to add reporting requirements as a condition to submarine cable licensees.¹¹⁸

34. Several commenters raised concerns about our proposal's application to consortiums due in part to the nature of the arrangements among operators and also due to the complexity of identifying licensee-specific information in a given reportable event.¹¹⁹ NASCA argues that many cables are operated by consortiums, and at times the segments lie outside U.S. territory where monitoring responsibility may rest on foreign consortium members; it calls for limiting the scope of U.S.-based co-licensees (on whom U.S. reporting obligations presumably will be assigned within a consortium) by excluding cable events occurring on segments outside their responsibility and control realm but that otherwise may result in reportable outages.¹²⁰ Further, NASCA explains that an event on a cable may not have the same effects on each cable owner; cable owners sometimes control specific segments and landing stations, or a particular fiber pair on a cable with several fiber pairs. Damage to a cable, such as a crush but not a complete cut, could affect some but not all fiber pairs on a single cable.¹²¹

35. Several commenters support our Responsible Licensee proposal,¹²² and others advocate for additional flexibility.¹²³ AT&T supports our proposal and adds that "all licensees should have a continued duty to ensure proper reporting," in order to provide an incentive to work together in the consortium, to establish and implement procedures and systems as necessary.¹²⁴ Further, AT&T explains that a designation requirement allows the consortium cable licensees to "identify a mutually agreed responsible licensee based on the relevant facts specific to each cable."¹²⁵ NASCA explains that electing a Responsible Licensee and proposing joint and several liability could require a consortium to amend several documents, specifically in arrangements where owners are not joint cable landing licensees, such as those systems licensed prior to 2002.¹²⁶ The Submarine Cable Coalition opposes our proposal and

¹¹⁷ NASCA Comments at v, 18-19. NASCA states that until 2002 foreign owned submarine cables largely were not required to be licensees, only those operators with U.S. endpoints of the cable were required to be licensees. Accordingly, because of the shift in license rules, the compliance obligation will "fall solely on the narrow set of required licensees of pre-2002 systems," without any guarantee that these will be able to obtain information needed from submarine cable partners that were not required to be licensees.

¹¹⁸ Quintillion Comments at 1 (arguing that based on our proposal, principle concerns include increased administrative cost, increased barrier to market entry, potential use of data by competitors, and the exposure of a network's potential vulnerability).

¹¹⁹ NASCA Comments at v, 17; Submarine Cable Coalition Reply at 4.

¹²⁰ NASCA Comments at v, 17-18 (stating that our proposal "expands the 5-percent threshold for 'licensee' status on a system . . . into a proxy for direct management and oversight of system operations").

¹²¹ NASCA Comments at 18; Submarine Cable Coalition Comments at 9.

¹²² AT&T Comments at 2-3, 8 (supporting a "required designation" obligation). *See also* Verizon Reply Comments at 6 ("[T]he overall record supports giving licensees the option of mutually designating a single party with exclusive responsibility *and* liability for filing outage reports on behalf of the system.").

¹²³ NASCA Comments at 35; Submarine Cable Coalition Reply at 4.

¹²⁴ AT&T Comments at 2-3, 8.

¹²⁵ AT&T Comments at 8-9 (stating, for example, which licensee is better placed to make reports, such as a U.S. landing party or an operator of a Network Operations Center).

¹²⁶ NASCA Comments at 26-27 (arguing that it would be an added coordination cost for reporting compliance in situations where the Responsible Licensee may have to rely on foreign consortium members for cable segments located outside the U.S. territory, which may create problems due to language barriers and multiple time zones).

argues that efficiencies gained from a single report per outage are offset by the resources expended by licensees needing to police the Responsible Licensee to ensure reporting compliance.¹²⁷

36. On the subject of joint and several liability associated with consortia or other arrangements among licensees, commenters' reactions were mixed.¹²⁸ AT&T supports holding consortium members to a shared duty to ensure proper reporting and to a "joint liability in the event of an enforcement action" in order to promote cooperation.¹²⁹ NASCA argues that imposing joint and several liability on all licenses for a cable system could add an additional layer of review, such as a legal compliance review for each report prior to submission.¹³⁰ Although it opposes our responsible licensee proposal, the Submarine Cable Coalition argues that if adopted, enforcement should be limited to licensees that "actually experience capacity or connectivity losses sufficient to trigger a reporting requirement," and those that do not should not be held joint and severally liable for forfeitures.¹³¹

37. *Discussion.* We adopt a requirement that all licensees, regardless of when the license was obtained, must comply with license conditions, including the outage reporting rules we now adopt. We agree with Docomo that there is no public policy reason to exempt submarine cable licensees from the obligation to report. All licensees are integral components in the provision of submarine cable infrastructure, and the Commission could not meet its goal of acquiring a comprehensive viewpoint of the operational status of all submarine cables if certain licensees were exempted. We believe with the flexibilities discussed below, pre-2002 licensees would be unlikely to have increased burden compared to post-2002 licensees. Most pre-2002 cables operate as a consortium. Consortium cables generally use construction and maintenance agreements (C&MA),¹³² which can be amended to incorporate new regulatory requirements as necessary. To the extent that extra flexibility or time is required to revise the C&MAs to ensure compliance with the outage reporting requirements adopted herein, we address that below.

38. In light of concerns raised regarding the operations of consortiums or that of a cable with multiple licensees,¹³³ we choose to permit, but not require, a Responsible Licensee designation. We have made this decision to add flexibility to the Responsible Licensee system due to the concerns expressed about how our rules could be complicated given the nature of consortiums, including their size, domestic/foreign composition, potential language barriers, and time zone challenges,¹³⁴ as well as how compliance review will add to costs for reporting.¹³⁵ Consortium members are in the best position to determine which member is best placed to comply and meet the reporting obligation for the consortium,

¹²⁷ Submarine Cable Coalition Comments at 10; Submarine Cable Coalition Reply at 4.

¹²⁸ AT&T Comments at 9; Submarine Cable Coalition Comments at 9.

¹²⁹ AT&T Comments at 9-10, 11-12 (explaining that in addition to the shared duties and liabilities, consortium agreements will require parties to take necessary actions to ensure the "continuation of required licenses and the cost-sharing principles that underpin these agreements," however designating an operator may be time consuming and may require a transition period).

¹³⁰ NASCA Comments at 27.

¹³¹ Submarine Cable Coalition Comments at 10; Submarine Cable Coalition Reply at 4.

¹³² The Commission formerly required consortium cables to file their C&MAs. *See, e.g., Joint Application for a License to Land and Operate a Submarine Cable Network Between the United States and Japan*, Cable Landing License, 14 FCC Rcd 13066 (1999). While the Commission no longer requires consortium cables to file C&MAs we retain our ability to request them on a case-by-case basis. 47 CFR § 1.767(a)(10).

¹³³ NASCA Comments at v, 17; Submarine Cable Coalition Reply at 4; Verizon Reply at 5-6.

¹³⁴ NASCA Comments at 18-19, 20, 27; PC Landing Corp. Comments at 3.

¹³⁵ NASCA Comments at 27.

such as a U.S. landing operator or a Network Operations Center (NOC) operator.¹³⁶ We agree with Verizon that under this approach, licensees and non-licensees, including those operating with pre-2002 licensees, are free to negotiate and allocate the underlying risk and financial responsibility.¹³⁷ Nonetheless, should a Responsible Licensee be designated, it must register with and keep the Commission updated as to its Responsible Licensee status pursuant to our rules.¹³⁸ We will hold the Responsible Licensee responsible for reporting compliance once designated and registered with the Commission. As Verizon states, this approach combined with a Responsible Licensee option, gives the Commission a single entity to hold accountable while providing for systems flexibility to apportion roles to meet accountability thresholds.¹³⁹

39. If no Responsible Licensee is designated with the Commission or in effect at the time of an outage, each party experiencing a reportable outage can be held responsible for reporting and liable should the Commission need to pursue enforcement action. This is a departure from our proposal to hold all consortium members jointly and severally liable when a cable experiences an outage, in order to provide additional flexibility to covered providers.¹⁴⁰ In this way we limit enforcement liability to those licensees experiencing an outage.

C. Filing Obligations

1. Notification Requirements

40. *Background.* In the *Notice*, we proposed to require licensees to file a notification in NORS within 120 minutes of discovering the outage.¹⁴¹ We proposed that notifications filed in NORS would include the name of the reporting entity; the name of the cable and a list of all licensees for that cable; a brief description of the event, including root cause; whether the event is planned or unplanned; the date and time of the onset of the outage (or estimate start time/date of the repair for planned events); nearest cable landing station; approximate location of the event, in nautical miles or in latitude/longitude, as measured from the nearest cable landing station; best estimate of the duration of the event; and contact information to provide to the Commission.¹⁴² We sought comment on whether all of this information would be readily available to licensees in the near term after an outage, as well as whether additional information on other technical elements should be required.¹⁴³

a. Content of Notification

41. Commenters argue that several of the proposed elements of a notification would likely be unknown at the time a submarine cable operator would be required to file a notification. First, multiple commenters agree that submarine cable operators rarely know the root cause of an outage in its immediate

¹³⁶ NASCA Comments at 18-19; Verizon Reply at 7.

¹³⁷ Verizon Reply at 5-6.

¹³⁸ See Appendix B *infra*, section 4.15(b)(1) (“Licensees opting to designate a Responsible Licensee must jointly notify the Chief of the Public Safety and Homeland Security Bureau’s Cybersecurity and Communications Reliability Division of this decision in writing. Such notification shall include the name of the submarine cable at issue; and contact information for all licensees on the submarine cable at issue, including the Responsible Licensee.”).

¹³⁹ Verizon Reply at 7.

¹⁴⁰ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10502, paras. 29.

¹⁴¹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10505 para. 37.

¹⁴² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10505 para. 37.

¹⁴³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10505 para. 37.

aftermath.¹⁴⁴ For example, AT&T states that root cause information “is not generally known until the completion of the repair, sometimes requires further analysis and laboratory testing after that time, and in some circumstances is never determined.”¹⁴⁵ Second, AT&T and NASCA oppose a requirement for the approximate location of an outage, noting that it can take a significant amount of time to identify the location of an outage given the length of trans-oceanic cables.¹⁴⁶ AT&T suggests that cable operators should only be required to provide its best estimate of the location of the outage, as such an estimate can be provided in a timely manner.¹⁴⁷ Third, NASCA submits that cable operators would be hard pressed to provide an estimate on how long an outage might last.¹⁴⁸ More generally, NASCA contends that “[t]he NPRM’s assumption that this data is readily available already is ... incorrect,”¹⁴⁹ and that “[t]he Commission should also recognize the trade-off between a quick report and an informed report.”¹⁵⁰

42. *Discussion.* We require licensees to provide a preliminary notification in NORS¹⁵¹ once it has been determined that an undersea cable outage has occurred.¹⁵² We find that having awareness of an outage, even without certain information about that outage, helps achieve our goal of improving situational awareness as to the operational status of undersea cable networks. Reporting via widely available electronic means is affordably feasible and quite often a normal part of operations. As proposed in the *Notice*, notifications must contain the name of the reporting entity; the name of the cable and a list of all licensees for that cable; whether the event is planned or unplanned; and contact information for the Commission. We recognize, however, that access to information about the root cause, approximate location, and estimated duration of an outage will often be unavailable in the period immediately following an operator’s determination that there has been an undersea cable outage. Accordingly, we modify our original proposal from the *Notice* and require such information only if known at the time of the notification.

43. We acknowledge that the root cause of an outage many times cannot be determined until after repair work is done, and only seldom is it known at the time of an outage. Accordingly, in their notifications licensees must provide a brief description of the event and need only include information on the root cause if known at the time. If the root cause is unknown, licensees should specify as such and provide further information where available in Interim or Final Reports.¹⁵³

¹⁴⁴ See, e.g., NASCA Comments at 19-20 (“When a submarine cable operator first becomes aware of a fault, it rarely has any data other than identification of the affected segment and almost certainly will not have any information on the root cause of the problem...”); AT&T Comments at 16 (“Some information proposed to be included in the notification is unlikely to be available at the early stages of identifying and addressing cable outages, or will unnecessarily delay these reports unless provided as a best estimate.”). See also NASCA Comments at v-vi; PC Landing Corp. Comments at 2; AT&T Comments at 16-17, citing AT&T Declaration at 9-10; Verizon Reply Comments at 4.

¹⁴⁵ AT&T Comments at 16-17, Appendix A at 9-10.

¹⁴⁶ NASCA Comments at 33; AT&T Comments at 17-18, Appendix A at 9-10.

¹⁴⁷ AT&T Comments at 17, Appendix A at 10.

¹⁴⁸ NASCA Comments at 20.

¹⁴⁹ NASCA Comments at 20.

¹⁵⁰ NASCA Comments at 20.

¹⁵¹ All reports described herein are to be filed in NORS in a system designed specifically for submarine cable outage reporting. We direct the Public Safety and Homeland Security Bureau to make any necessary modifications to NORS for this purpose in addition to retiring UCIS upon the effective date of these rules. See *supra* para. 14.

¹⁵² The timing for this notification is discussed below at paras. 46-50.

¹⁵³ See also paras. 52-53, 58-59.

44. With respect to the location of an outage, licensees must provide the name of the nearest cable landing station if known, as well as its best estimate of the location of the event, expressed in either, nautical miles and the direction from the nearest cable landing station, or in approximate latitude and longitude coordinates. We have added “the direction from” the nearest cable landing station (e.g., 15 nautical miles west of [the cable landing station]) to improve clarity in reporting, if known. We acknowledge that undersea cables traverse vast distances, and it can be a complicated and time-consuming task to determine the location of an undersea cable outage. Though we only proposed that licensees report the “approximate location” of an outage, we clarify that we do not seek to divert time and attention away from service restoration efforts by requiring licensees to provide this information. As with root cause information, licensees must provide this information if known at the time of the notification, and if unknown, licensees should provide further detail where possible in subsequent reports.

45. With respect to the duration of the event, licensees must provide their best estimate in the notification, but supplement with further information as it becomes available in their Interim or Final Reports. As with root cause and location information, our aim in including this information in the notification is to provide preliminary situational awareness in the immediate wake of an outage, which can be supplemented or corrected through later reports.

b. Timeframe for Notification

46. *Background.* Commenters state that a 120-minute timeframe for filing a notification as proposed in the *Notice* (i.e., requiring that the notification include root cause information, approximate location, and estimated duration of the outage) would be unreasonable to impose on submarine cable operators.¹⁵⁴ As noted above, submarine cable operators usually know little about the root cause of an outage in the time immediately following its occurrence, as submarine cable outage identification can be a complex and time-consuming task, and in many cases requires coordination with foreign landing parties.¹⁵⁵ Moreover, multiple commenters express concern that requiring operators to file notifications within such a short timeframe would result in operators having to divert attention away from immediate restoration of service.¹⁵⁶ NASCA argues that this time window would essentially require cable operators to have staff available 24 hours per day, 7 days per week to be ready to report outages, which would increase costs and which is inconsistent with the fact that NORS lacks a similar requirement for round-the-clock staff.¹⁵⁷ AT&T states that the average timeframe for outage notifications it has received from foreign consortium parties in recent years has been approximately eight (8) hours, noting that “few foreign landing parties operate cable stations on a seven-day, 24-hour basis, and that their personnel may initially focus on service rerouting or restoration rather than notifying consortium partners.” Despite the

¹⁵⁴ NASCA Comments at 20; Latam Telecommunications Ex Parte at 2-3; PC Landing Corp. Comments at 4; Submarine Cable Coalition Comments at 8.

¹⁵⁵ See e.g., Submarine Cable Coalition Comments at 7 (“[T]he ... 120 minute requirement for the Notification is an unreasonable expectation given the logistics involved in communicating with a remote [NOC] and ensuring the information is relayed to the responsible licensee. Specifically, once NOC is alerted of a problem, it takes critical personal and diagnostics to determine whether a disruption is reportable, especially if the responsible licensee is in a foreign jurisdiction.”); PC Landing Corp. Comments at 3-4 (“The highly accelerated submission requirement proposed by the FCC fails to recognize that submarine cables constitute international infrastructure and that the individuals with the most information about an outage may be located outside the U.S., in different time zones and potentially speaking different languages.”); NASCA Comments at 20 (“Incident data may not reach Commission licensees for a particular submarine cable system as quickly as the NPRM assumes they will, due to time zone and language issues.”). See also Latam Telecommunications Ex Parte at 2-3; AT&T Comments at 12-13; Verizon Reply at 4.

¹⁵⁶ NASCA Comments at 20; Latam Telecommunications Ex Parte at 2; PC Landing Corp. Comments at 4; AT&T Declaration at 5.

¹⁵⁷ NASCA Comments at 20. For a more detailed discussion on costs, see sect. IV.C.

average cited by AT&T, nearly all commenters agree that operators should have a minimum of 48 hours to notify the Commission in the event of a submarine cable outage.¹⁵⁸

47. *Discussion.* Again, we recognize that the determination of root cause, approximate location, and duration of an outage typically takes much longer than 120 minutes after the determination that an outage has occurred. Moreover, we agree with commenters that licensees' primary objective in the wake of an outage should be to restore service, and that reporting obligations should be subordinate to that objective. As discussed above, we modify our original notification proposal to require licensees to provide root cause information, approximate location, and estimated duration of an outage only when available. The notification process is intended to be preliminary in nature and simply provide notice of, not necessarily detail about, an undersea cable outage, for purposes of situational awareness.

48. We also emphasize that the timeframe for reporting starts upon "the time of *determining* that an event is reportable" and not necessarily the moment that an event *becomes* reportable. Several commenters, in arguing that the Commission's proposed notification timeframe is infeasible, point to difficulties in receiving the initial notification. For example, AT&T asserts that "most notifications of the occurrence of outages on consortium cables that AT&T receives from foreign consortium parties are not provided within two hours of the cable failure."¹⁵⁹ Even if the foregoing complications arose preventing a licensee from knowing of an outage when it became reportable, the licensee would only be "on the clock" to report the event when it determines (i.e., has knowledge that) the event is reportable. This distinction should alleviate many of the concerns that licensees will need to implement new network monitoring processes.

49. We continue to believe that licensees can report within the proposed two-hour timeframe from determining that an event is reportable, particularly as they need not provide substantive detail on the root cause, location, or duration of the outage if unavailable at that time; we believe that quick notification is an essential element in achieving the Commission's goal of developing comprehensive situational awareness of submarine cable infrastructure. We additionally note our view that many of the submarine cable operators have the technical capabilities to near-instantly detect outages and are standard within the industry.¹⁶⁰

50. That said, given the support on the record for a longer notification timeframe and AT&T's statements that it will need time to implement these requirements with its consortium partners,¹⁶¹ we will initially, for a three year period from the effective date of these rules, require licensees to notify the Commission of an outage within eight hours of determining that an event is reportable. Three years after the effective date of these rules, licensees will be responsible for filing notifications within four hours of determining that an event is reportable. After three years, the Commission will open a proceeding to revisit. We find that allowing four hours from the time of determining an event is reportable, not when the event necessarily becomes reportable, is feasible, particularly as we have allowed for licensees to include approximations and best estimates in their filings. This phased-in approach will give licensees ample time to hone their reporting structure while still achieving the aforementioned goal of prompt situational awareness. A further elongated timeframe does not as

¹⁵⁸ NASCA Comments at 20; Latam Telecommunications Ex Parte at 2-3; PC Landing Corp Comments at 4; Submarine Cable Coalition Comments at 8; Verizon Reply Comments at 4. *See also* Submarine Cable Coalition Reply at 3 (suggesting that a 72-hour timeframe would be even more appropriate).

¹⁵⁹ AT&T Comments, Appendix A at 4.

¹⁶⁰ *See, e.g.*, Akamai, State of the Internet Report Q415 at 51-54 (2016), <https://www.stateoftheinternet.com/resources-connectivity-2015-Q4-state-of-the-internet-report.html> (showing that Akamai can very quickly detect changes in Internet traffic levels that result from a submarine cable outage). We believe that licensees, or at least their customers, would have at least the same visibility into network performance and should be able to rapidly determine when an outage has occurred.

¹⁶¹ AT&T Comments, Appendix A at 6-7.

adequately serve the Commission's goal of acquiring rapid situational awareness of submarine cable infrastructure.

2. Interim Report

51. *Background.* In the *Notice*, we proposed to require licensees to file an Interim Report, if applicable (i.e., for an unplanned outage), 120 minutes from when the repair has been scheduled.¹⁶² We further proposed to require Interim Reports to include name of the reporting licensee; the name of the cable and a list of all licensees for that cable; the date and time of onset of the outage; a brief description of the event, including root cause; nearest cable landing station; approximate location of the event (either in nautical miles from the nearest cable landing station or in latitude and longitude); best estimate of the duration of the event (total amount of time connectivity is lost or 50 percent or more of the capacity is lost); and a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity.¹⁶³ We explained that the NORS electronic interface automatically populates information previously entered for the Notification filing, and asked whether additional technical elements should be requested in this report as opposed to in the Notification or Final Report filings.¹⁶⁴

a. Content of Interim Report

52. Commenters argue that either our proposal should be modified,¹⁶⁵ or that the Interim Report is unnecessary as details may not be available given the timeframe.¹⁶⁶ AT&T suggests that we decline to require the "root cause" explanation, or at least, request this information in the Interim Report, if available.¹⁶⁷ NASCA argues that details of the incident may be unknown until repairs are completed and then, this information can be included in the Final Report; the Interim Report may not contain more information than the Notification filing.¹⁶⁸ NASCA further argues that we should reject proposals to collect additional operational data.¹⁶⁹ Submarine Cable Coalition raises the possibility that details with respect to scheduled time to repair, repair duration, and root cause may change over time as additional details become available.¹⁷⁰

53. *Discussion.* We adopt modified Interim Report content requirements to address concerns that a root cause may not always be known in this adjusted timeframe. We require licensees to report on all of the elements described above in the original proposal, observing that many of these elements (name of the reporting licensee; the name of the cable and a list of all licensees for that cable; the date and time of onset of the outage; and a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity) will be auto-filled from the Notification and thus will likely require no additional work on the part of the reporting entity barring administrative changes. These fields remain important for basic factual references and we see no reason to exclude them from the Interim Report. We will also continue to require a brief description of the

¹⁶² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10505-06, para. 38.

¹⁶³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10505-06, 10515, para. 38 and Appendix A.

¹⁶⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10505-06, para. 38.

¹⁶⁵ AT&T Comments at 20.

¹⁶⁶ NASCA Comments at 20-21.

¹⁶⁷ AT&T Comments at 19-20, Appendix A at 9-10 (noting that as with the Notification filing, root cause information is not available usually until repair work is completed or even until subsequent analysis is undertaken).

¹⁶⁸ NASCA Comments at vi, 20-21 (raising the same argument as with the Notification filing, the Commission should recognize "the trade-off between a quick report and an informed report").

¹⁶⁹ NASCA Comments at 22.

¹⁷⁰ Submarine Cable Coalition Comments at 8.

event, including root cause; nearest cable landing station; approximate location of the event (either, in nautical miles and the direction from the nearest cable landing station or in latitude and longitude); and the best estimate of the duration of the event. These are the fields that will supply the Commission with necessary situational awareness about the status of the outage, particularly when the information is updated from that which we received in the Notification. We depart slightly from our original proposal, however, and will now only require the root cause description if known at the time. We are persuaded by commenters' arguments that the root cause may need extended analysis and sometimes may not be known until the repair is completed.¹⁷¹ We have again added "the direction from" the nearest cable landing station (e.g., "15 nautical miles west of [the cable landing station]") to improve clarity in reporting, if known. We emphasize that an approximate location of the event and best estimate of the duration of the event are all that is required; licensees will not be penalized for the later-determined accuracy of these interim responses if they are submitted in good faith. We also adopt our proposal that Interim Reports are not required for planned outages so long as the planned nature of the event was appropriately signaled in the Notification.¹⁷²

b. Timeframe for Interim Report

54. *Background.* Commenters disfavor our 120 minute proposal and instead offer several extended timeframe alternatives due to concerns about the information and operations necessary to complete the Interim Report as proposed.¹⁷³ Submarine Cable Coalition argues that due to coordination needed from when a submarine cable owner is able to schedule a repair to the time that information is communicated to the Responsible Licensee, hours could pass, an issue which is complicated by differing time zones.¹⁷⁴ AT&T and several others support that an interim report should be required at a set amount of time after the receipt of the "Plan of Work" for the cable repair in order to "allow licensees to provide the 'additional useful information' that the Commission seeks to obtain from this report."¹⁷⁵ Verizon adds that waiting until the distribution of the Plan of Work to other parties on the system would allow the Responsible Licensee to provide more useful information to the Commission rather than using our proposed reporting timeframe.¹⁷⁶ Verizon further argues that the "operational tasks such as scheduling the repair and receiving the Plan of Work may occur several time zones away."¹⁷⁷

55. *Discussion.* We adopt a modified reporting timeframe for the Interim Report. We believe that AT&T's proposal to base the reporting timeframe off of when the licensee receives the Plan of Work to be a reasonable accommodation that takes into account the unique nature of submarine cable repair and adopt that approach. We also agree with commenters that further coordination may be necessary upon receipt of the Plan of Work.¹⁷⁸ We do not, however, agree that licensees need elongated timeframes, such as 72 hours from receipt of the Plan of Work, in order to file their Interim Reports, particularly as we have allowed for licensees to include approximations and best estimates in their filings. Such an elongated timeframe does not serve the Commission's goal of acquiring rapid situational

¹⁷¹ AT&T Comments at 19-20.

¹⁷² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10505, para. 36.

¹⁷³ AT&T Comments at 19-21, Appendix A at 11 (proposing 72 hours after the plan of work is received); Verizon Reply at 4 (proposing 72 hours from when the plan of work is distributed); Submarine Cable Coalition Comments at 8 (proposing 48 hours after repairs have been scheduled).

¹⁷⁴ Submarine Cable Coalition Comments at 7.

¹⁷⁵ AT&T Comments at 18-19, and Declaration 10-11; Submarine Cable Coalition Comments at 3; Verizon Reply at 4.

¹⁷⁶ Verizon Reply at 4.

¹⁷⁷ Verizon Reply at 4.

¹⁷⁸ AT&T Comments at 19-21; Verizon Reply at 4; Submarine Cable Coalition Comments at 7.

awareness of submarine cable infrastructure. Accordingly, we will require licensees to file an Interim Report, if required, within 24 hours of receipt of the Plan of Work, which we believe strikes the appropriate balance between allowing licensees sufficient time for necessary coordination to amply inform the Commission with useful and timely information.

3. Final Report

56. *Background.* In the *Notice*, we proposed to require licensees to file a Final Report seven days after the repair is completed.¹⁷⁹ We sought comment on this requirement, and whether licensees should report additional information that would enable the Commission to perform more thorough and systematic outage reporting analysis.¹⁸⁰ As proposed in the *Notice*, an undersea cable licensee would be required to file a Final Report in NORS within seven days after the repair is completed.¹⁸¹ We proposed that the following elements be required in a Final Report: the name of the reporting entity; the name of the cable; whether the outage was planned or unplanned; the date and time of onset of the outage (for planned events, this is the start date and time of the repair); a brief description of the event; nearest cable landing station; approximate location of the event (either in nautical miles from the nearest cable landing station or in latitude and longitude); duration of the event; the restoration method; a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity.¹⁸²

57. The two components of the Final Report that differ from the Notification and the Interim Report are (1) the duration of the event and (2) the restoration method. The *Notice* proposed that this type of Final Report, with the inclusion of these two additional elements, would enable the Commission to work directly with communication providers using a data-driven method on collaborative reliability improvement initiatives that will produce measurable results for undersea cables.¹⁸³

a. Contents of Final Report

58. The majority of commenters support our proposals for what content should be provided in the Final Report.¹⁸⁴ Verizon supports our proposal that the Final Report information will be available seven days after the repair completion.¹⁸⁵ However, Verizon noted that completion of the root cause analysis for certain outages, such as repeater failures, can take several months to complete and flexibility for those cases is needed.¹⁸⁶ AT&T also supports our proposal as to the contents of the Final Report, but similarly noted that the information (specifically the root cause of an outage) may not be known at the time the Final Report is due and that additional time should be given to supplement the report once the root cause is determined.¹⁸⁷ Submarine Cable Coalition supports our Final Reporting content proposal, but encourages the Commission to consider a mechanism by which details of the Final Report may be amended in good faith given the number of parties involved in a submarine cable repair and the complexities of obtaining the technical information and other criteria required for the Final Report.¹⁸⁸

¹⁷⁹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10506, para 39.

¹⁸⁰ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10506, para 39.

¹⁸¹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10506, para. 39.

¹⁸² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10506, para. 39.

¹⁸³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10504, para. 35.

¹⁸⁴ Verizon Reply Comments at 4; Submarine Cable Coalition Comments at 9; AT&T Comments at 21.

¹⁸⁵ Verizon Reply Comments at 4.

¹⁸⁶ Verizon Reply Comments at 4; AT&T Comments at 20, Appendix A at 11.

¹⁸⁷ AT&T Comments at 20, Appendix A at 11; Verizon Reply Comments at 4.

¹⁸⁸ Submarine Cable Coalition Comments at 9.

Latam objected to the Final Report content proposal, in so far as it believes that cable operators will likely lack documentation and information needed to complete the report within the seven day timeframe.¹⁸⁹

59. *Discussion.* As with both the Notification and Interim Reports, we understand the commenters' concerns that particular information may not be known at the time the repairs have been completed given the complexities of undersea cable repairs.¹⁹⁰ We also take into account that submarine cable licensees often work together in consortiums, and that although one member may know a certain element of the Final Report, the information may not make its way to other consortium members who are also experiencing an outage or disruption on the same cable.¹⁹¹ For these reasons, we adopt our proposals for the content reporting obligations for the Final Report,¹⁹² but with a modification for the "brief description of the event." Here, in a Final Report, a licensee will need to provide the root cause in its brief description of the event only if known at the time of filing. Both Verizon and AT&T noted that in some cases, completion of the root cause analysis may not be known in the proposed timeframe, and in some instances, never be determined.¹⁹³ Nonetheless, the Commission expects providers to conduct reasonable due diligence to ascertain the root cause of an event. We have also again added "the direction from" the nearest cable landing station (e.g., "15 nautical miles west of [the cable landing station]") to improve clarity in reporting, if known.

60. After the submission of the Final Report, particular details of an event may become known or change as research is done and repairs are completed.¹⁹⁴ In order for the Commission to obtain the most accurate information, previous Final Reports (and only Final Reports) must be supplemented after the Final Report if that information materially alters the previously reported material. Amendments to Final Reports should be made in good faith.

61. The parallels of the Final Report content to our existing Part 4 rules, in conjunction with the NORS platform, create an most efficient, streamlined and user-friendly system when implementing these new procedures. Furthermore, we believe that the contents of the Final Report would be easily compiled, as NORS interface automatically populates the fields where information required duplicates that of the Notification and Interim Report, so the reporting licensee would not have to reenter data unless it is to amend or edit a previously-supplied response.¹⁹⁵ We note that the Commission recently adopted a *Further Notice of Proposed Rulemaking* which sought comment on applying a two-step reporting process to all covered services, which, if adopted, would apply to submarine cable outage reporting.¹⁹⁶ Interested parties may file comments on this issue in the part 4 proceeding.

b. Timeframe for Final Report

62. *Background.* The record reflects support for requiring licensees to file a Final Report seven days after the repair of a submarine cable is completed. AT&T agrees that after the repair is completed, a seven day deadline for the Final Report generally provides sufficient time for the submission

¹⁸⁹ Latam Telecommunications Ex Parte at 3.

¹⁹⁰ Submarine Cable Coalition Comments at 9, AT&T Comments at 21, Latam Telecommunications Ex Parte at 3.

¹⁹¹ The Submarine Cable Coalition Initial Comments at 9

¹⁹² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10506, para. 39.

¹⁹³ Verizon Reply Comments at 4; AT&T Comments at 20, Appendix A at 11.

¹⁹⁴ See AT&T Comments at 20 ("[R]epair ship contracts for many U.S. landed cables allow the ship operator up to 30 days to provide a final completion report after finishing the repair.").

¹⁹⁵ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10506, para. 39.

¹⁹⁶ See *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications et. al.*, PS Docket Nos. 15-80 and 11-82 *et. al.*, Report and Order and Further Notice of Proposed Rulemaking and Order on Reconsideration, FCC 16-63, 55-56 at para. 127 (May 26, 2016).

of the required information.¹⁹⁷ NASCA concurs and proposes that after a repair concludes, “the operator would submit a final report within seven days.”¹⁹⁸ The Submarine Cable Coalition does not object and considers seven days after completion of the repair a reasonable amount of time for submission.¹⁹⁹ And Verizon submits that companies should be able to meet the proposed filing deadline of seven days and provide most of the proposed information for the Final Report after repair completion.²⁰⁰

63. Only one commenter argues that the Final Report deadline should extend to 45 days at a minimum.²⁰¹ Latam submits that 45 days should be the minimum threshold the Commission should undertake, adding that “a deadline of 60 days following repair would give a cable operator the opportunity to receive the final report from the repair vessel, as well as any other critical documentation, and draft a detailed report for the Commission.”²⁰²

64. *Discussion.* We adopt our proposal to require licensees to file a Final Report seven calendar days²⁰³ after the repair is completed. There is substantial record support for requiring submission of this critical information within a week following the repair completion. The Commission has a responsibility to ensure the reliability and security of the nation’s communications infrastructure, and obtaining timely information on communications service disruptions is essential to that goal.

65. We are not persuaded by the proposal to extend the deadline to a minimum of 45 days.²⁰⁴ We find that a majority of the information that must be included in a Final Report is readily available following the repair of the submarine cable. As mentioned above, the Commission is aware of the unique nature of submarine cable repairs, which is why the Final Report shall be amended, when necessary. Therefore, we decline to adopt Latam’s proposal of a 45-day minimum for a Final Report deadline. The seven day requirement we adopt today provides the Commission critical network outage information within a reasonable time.

D. Good Faith and Confidentiality

1. Good Faith Requirements in Section 4.11

66. *Background.* In the *Notice*, we proposed to adopt substantially the same wording codified in Section 4.11 of our rules for the submarine cable outage reporting requirements to the extent that it addresses authorized personnel, the requirement of good faith, the method of attestation that the information supplied is complete and accurate, and the manner of filing.²⁰⁵ We sought comment on whether there were any problems with applying this rule to submarine cable reporting.²⁰⁶

67. Commenters did not oppose our proposal, but they raised concerns regarding the good faith requirement and flexibility in amending reports.²⁰⁷ NASCA asserts that there are circumstances where the root cause of an outage resulting from a damaged cable may never be known, adding that

¹⁹⁷ AT&T Comments at 20, Appendix A at 11.

¹⁹⁸ NASCA Comments at 35.

¹⁹⁹ Submarine Cable Coalition Comments at 9.

²⁰⁰ Verizon Reply Comments at 5.

²⁰¹ Latam Telecommunications Ex Parte at 3.

²⁰² Latam Telecommunications Ex Parte at 3.

²⁰³ See 47 CFR § 1.4(g) (excluding non-business days only when the filing period is less than 7 days).

²⁰⁴ Latam Telecommunications Ex Parte at 3.

²⁰⁵ *Submarine Cable Notice*, 30 FCC Rcd at 10506-07, para. 40.

²⁰⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10506-07, para. 40.

²⁰⁷ See, NASCA Comments at 33-34; See also, Submarine Cable Coalition Comments at 9.

“[c]able operators should not be penalized if they cannot in all cases provide all of the information that the Commission may wish to know but have submitted the information available to them in good faith.”²⁰⁸ Similarly, the Submarine Cable Coalition highlights the complexities involved in assessing and repairing a damaged cable, and encourages “the Commission to consider a mechanism by which details of the Final Report may be amended in good faith without running afoul of the attestation provision in Section 4.11 of the Commission’s rules.”²⁰⁹

68. *Discussion.* We adopt substantially the same wording codified in Section 4.11 of our rules for the submarine cable outage reporting system. We are cognizant of the complexities and uncertainties that may arise with outages resulting from a damaged cable. However, the good faith and attestation requirements will not be violated if the authorized personnel submitting a report does in fact submit all of the information known to them, in good faith, at the time of reporting. Also, as made clear above, licensees have the duty to amend their Final Reports, in good faith, if the licensee later learns that the reported information is inaccurate. Accordingly, consistent with support from the record, we will require a good faith requirement and an attestation consistent with Section 4.11.

2. Confidentiality of Submarine Outage Reports and Data

69. *Background.* The *Notice* proposes to treat undersea cable reporting information as presumptively confidential consistent with Section 4.2 of the Commission’s rules governing outage reporting.²¹⁰ Specifically, Section 4.2 of the Commission’s rules governing outage reporting states that “[r]eports filed under this part will be presumed to be confidential.”²¹¹ Under NORS, the Commission shares part 4 outage reporting data with DHS.²¹² We sought comment on whether the information the Commission receives should be shared with other federal agencies and/or state governments, and if so, which agencies.²¹³ Additionally, we sought comment on whether sharing should be limited to cases where a government entity is directly affected.²¹⁴

70. The majority of commenters supported our proposal in part and objected in part. Many agreed that submarine outage reporting data should be treated as presumptively confidential under Section 4.2. However, some commenters noted information sharing should be limited to certain agencies,²¹⁵ while others endorsed a need for greater transparency.²¹⁶

71. AT&T agrees with our proposal, submitting that cable outage reports should be presumptively confidential and consistent with existing rules governing outage reporting, specifically

²⁰⁸ NASCA Comments at 33-34.

²⁰⁹ Submarine Cable Coalition Comments at 9.

²¹⁰ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10507, para. 41.

²¹¹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10507, para. 41 & n.73; 47 C.F.R. § 4.2.

²¹² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10507, para. 41 & n.74; *Part 4 Report and Order*, 19 FCC Rcd at 16856, para. 47 (“We will, therefore, make available to DHS, in encrypted form and immediately upon receipt, all electronically submitted outage reports. DHS can then undertake to provide information from those reports to such other governmental authorities as it may deem to be appropriate.”).

²¹³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10507, para. 41;

²¹⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10507, para. 41.

²¹⁵ NASCA Comments at 21 (noting that national security concerns necessitate withholding of such data from public inspection and any information sharing with other U.S. government agencies should be limited to the Department of Defense and the DHS).

²¹⁶ Docomo Reply at 5-6; Attorney General of the Northern Mariana Islands Comments at 1-2; Comments of James Brooks at 1.

noting the role confidentiality plays in the context of undersea cable consortiums.²¹⁷ NASCA also agrees with our proposal and believes the Commission should treat all outage reporting data as proprietary and exempt from public disclosure.²¹⁸ NASCA further submits that national security concerns necessitate withholding such data from public inspection and any information sharing with other U.S. Government agencies should be limited to the Department of Defense and the DHS.²¹⁹

72. Docomo agrees in part and objects in part to our proposal. Docomo submits that any treatment of network outage reports as confidential should be conditioned upon a requirement that the cable operator notify affected customers of the outage and keep customers informed of its repair efforts.²²⁰ Docomo acknowledges that network outage reports contain proprietary information that should ordinarily be sealed from public disclosure. They noted, however, because the public who rely on submarine cables do not "have traditional retail customers" privileges, end users are completely at the mercy of the operator to provide timely information about a network outage and its efforts to repair that outage.²²¹ Therefore, Docomo believes notice to parties affected by an outage should be a precondition of confidential treatment of that operator's network outage reports.²²²

73. The Attorney General of the Northern Mariana Islands objects to our confidentiality proposal and, instead, recommends that the Commission require "submarine cable operators to report outages, and that in jurisdictions that are served by a single cable, operators must also transmit copies of outage reports to the jurisdiction's governor."²²³ James Brooks also objects to the confidentiality proposal, suggesting instead that summaries of the reports should be made available to the public on an annual basis.²²⁴ James Brooks proposes that the summaries "could be scrubbed of commercially confidential information while still providing information relevant to the general public that relies on submarine cables."²²⁵

74. *Discussion.* We adopt our proposal that undersea cable reporting information is to be treated as presumptively confidential consistent with Section 4.2 of the Commission's rules governing outage reporting. Maintaining the confidentiality of submarine cable outage data is critical to safeguarding weaknesses or damage to our national communications infrastructure that could potentially

²¹⁷ AT&T Comments at 21 ("The assurance of confidential treatment for this information would also be important for other consortium parties and could be helpful in obtaining their cooperation in providing the necessary information for these reports. A number of consortium agreements require such information to be treated as confidential, and also require consortium parties to request confidential treatment for this information when it is provided to regulators.")

²¹⁸ NASCA Comments at 21 (confidentiality procedures should be consistent with the current NORS practice and the Freedom of Information Act).

²¹⁹ NASCA Comments at 21 (noting that report information should not be shared with other submarine cable operators).

²²⁰ Docomo Reply at 5 (noting they had difficulty obtaining information from an operator of the submarine system serving the CNMI in connection with a recent cable cut. Also noting the same was true for the government of the CNMI, which did not receive prompt reports of the cable break, resulting in entire communities left without emergency services for a longer period than necessary).

²²¹ Docomo Reply at 5.

²²² Docomo Reply at 5-6 ("This approach would ensure that proprietary information is adequately protected from public disclosure while not leaving wholesale and enterprise customers in the dark when an outage to a submarine cable occurs.")

²²³ Attorney General of the Northern Mariana Islands Comments at 2 (such information would mitigate damages in the event of an outage, such as the July, 2015 cable break).

²²⁴ Comments of James Brooks at 1.

²²⁵ Comments of James Brooks at 1.

facilitate enemies targeting our nation's key resources.²²⁶ The Communications Act of 1934 charges the Commission with promoting "the safety of life and property through the use of wire and radio communication."²²⁷ Releasing detailed and sensitive information regarding submarine cable outages and disruptions would contradict this core mission of the Commission. We will, however, share information with DHS as is customary with our part 4 outage reports. This model is consistent with the Commission's past precedent for outage reporting and we do not see a need to depart here from that practice solely for submarine cable outage reporting.

75. We acknowledge, however, the safety and transparency concerns raised by the Attorney General of the Northern Mariana Islands and James Brooks. The July 8, 2015 Northern Mariana Island outage proved that there are situational awareness gaps at multiple levels when submarine outages occur. We also note that the Commission recently adopted a *Further Notice of Proposed Rulemaking* addressing many of these same issues and has not yet decided if or how it will change its outage report information sharing practices more broadly.²²⁸ Interested parties may file comments on this issue in the part 4 proceeding. We believe that a broader proceeding is a better context for making decisions on how outage information should be shared more generally, and allow for submarine cable outage information sharing to be considered in that context. We also observe that initiating this program in a manner that is consistent with the confidentiality in other part 4 reporting would allow for reevaluation at a later date of a different approach.²²⁹

IV. OTHER ISSUES

A. Implementation

76. *Background.* In this *Report and Order* we adopt rules requiring submarine cable licensees to report service outages that meet defined minimum criteria. We did not specifically seek comment on the implementation timing of these rules but numerous commenters requested additional time to implement system changes should the Commission decide to act. All who commented requested a transitional period after the Commission issued rules to implement system changes, requesting anywhere from 12 to 15 months as a grace period.²³⁰

77. *Discussion.* These rules will become effective six (6) months after OMB approval of this information collection, representing a balance between industry's needs to adequately prepare for these reporting requirements and the Commission's need to obtain timely situational awareness of the operational status of the nation's submarine cable infrastructure. As the incident in the CNMI has shown, the Commission cannot continue to wait for licensees to take advantage of the current voluntary approach. Yet, we find that a six month extension is warranted to allow those providers who did not previously report such outages to develop processes for doing so. We also recognize that consortium members may need additional time to determine reporting structures. We do not believe extending the rule implementation date beyond six months from OMB approval is warranted because of the significant

²²⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10507, para. 41 & n.71; OMB Control Number 3060-1116 and Supporting Statement at 6.

²²⁷ 47 U.S.C. §151.

²²⁸ See e.g., *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications et. al.*, PS Docket Nos. 15-80 and 11-82 *et.al.*, Report and Order and Further Notice of Proposed Rulemaking and Order on Reconsideration, FCC 16-63, 37-38 at paras. 88-89 (May 26, 2016).

²²⁹ See e.g., *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications et. al.*, PS Docket Nos. 15-80 and 11-82 *et.al.*, Report and Order and Further Notice of Proposed Rulemaking and Order on Reconsideration, FCC 16-63, 60-61 at paras. 145-148 (May 26, 2016).

²³⁰ See AT&T Comments at 7 (requesting 15 months from the effective date of the final order for implementation); NASCA Comments at 35 (requesting one year from OMB approval for implementation); Submarine Cable Coalition Reply Comments at 6 (requesting 12-15 months as a transition period).

adjustments to the proposed rules to add in flexibility and clarify responsibilities. Additionally, commenters have stated that many providers are already providing some level of notifications in the event of an outage.²³¹ These entities should not need longer than six months from the time of OMB approval to adapt their previous reporting system to the one described herein.

B. Interagency Coordination

78. *Background.* We observed in the *Notice* that the installation of submarine cable systems involves authorizations or permits from a number of federal and state agencies.²³² We sought comment on the submarine cable deployment processes generally, and requested any information concerning, for example, burdensome regulations or other issues that may impede rapid deployment and maintenance of undersea cables.²³³ We also took note of CSRIC's position that "[t]he FCC and submarine cable operators should 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."²³⁴ We also sought comment on whether there are any actions we can take or steps we can encourage other agencies to take.²³⁵

79. Commenters generally support efforts by the Commission to serve as a facilitator to increase coordination among the various U.S. Government agencies and stakeholders. Verizon has proposed that the Commission should facilitate improved coordination among Federal agencies instead of adopting a mandatory reporting requirement.²³⁶ NASCA emphasizes the need for a centralized system to facilitate submarine cable deployment and contact information.²³⁷ NASCA states that it "welcomes the Commission's proposal to develop and improve interagency coordination processes. . ."²³⁸ NASCA identified the Commission as "best positioned to serve as a single point of contact for various governmental agencies with respect to information about installed and planned submarine cable systems."²³⁹ NASCA asserts that this facilitator function will help to streamline permitting and enhance submarine cable protection initiatives.²⁴⁰

80. *Discussion.* In the *Notice*, we directed the International Bureau, in coordination with the Public Safety and Homeland Security Bureau, to "reach out to relevant government agencies, under its

²³¹ See NASCA Comments at 6 ("Other NASCA members that do not report in UCIS already report certain submarine cable faults in NORS or in the National Coordinating Center for Communications ('NCC') of the Department of Homeland Security.").

²³² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509, para 45 (citing CSRIC IV Report at 21-22).

²³³ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509, para 46.

²³⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509, para 46 (citing CSRIC IV Report at 57).

²³⁵ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509, para 46.

²³⁶ Verizon Reply at 1-2. See also Docomo Reply at 6.

²³⁷ NASCA Comments at 37. NASCA states that by undertaking this role, the Commission "would largely formalize an informational role that it already plays in many respects." NASCA Comments at 41. NASCA also indicates that the Commission could "draw greater attention to existing industry resources, such as NASCA's online mapping tool, which provides extensive location data and contact information for installed submarine cables." NASCA Comments at 41.

²³⁸ NASCA Comments at 37.

²³⁹ NASCA Comments at 41. See also AT&T Comments at 23 (stating that "the Commission is well-placed as the primary regulator of submarine cables to play a leading role in promoting the need for improved measures and processes to protect this critical infrastructure among other federal, state and local government agencies.").

²⁴⁰ Letter from Kent Bressie, Counsel, NASCA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-206, at 3 (filed Feb. 17, 2016).

existing delegated authority,²⁴¹” to “develop and improve interagency coordination processes and best practices vis-à-vis submarine cable deployment activities and related permits and authorizations to increase transparency and information sharing among the government agencies, cable licensees, and other stakeholders.”²⁴² As discussed above, commenters who commented on interagency coordination support our proposed approach in the *Notice* and state that as the primary regulator of submarine cables, the Commission should serve as a facilitator and take a leading role in promoting the need for improved measures and processes to protect this critical infrastructure among other federal, state and local government agencies.²⁴³ We note that the Bureaus have met with several of the stakeholders since the *Submarine Cable Outage Notice* was adopted and that work on this matter is ongoing.²⁴⁴ We agree with commenters’ that interagency coordination is very important to protect submarine cable infrastructure. To this end, the International Bureau, in coordination with the Public Safety and Homeland Security Bureau, will continue to lead interagency coordination efforts to help increase transparency and information sharing among the government agencies, cable licensees, and other stakeholders and promote improved interagency coordination processes to mitigate threats to undersea cables and facilitate new projects to improve geographic diversity.

C. Cost-Benefit Analysis

1. Potential Costs of Compliance

81. *Background.* In the *Notice*, we estimated that the total annual burden will be \$8,000 for the entire industry once the licensees have set up adequate reporting processes.²⁴⁵ To derive this annual burden, we estimated that there will be 50 reportable events, a conservative estimate based upon reports estimating 100-200 incidents requiring repair each year globally, the majority of which appear to have occurred on cables not directly connected to the United States.²⁴⁶ In addition, based on our experience with NORs, we estimated that reporting the Notification will require 15 minutes to complete, the Interim Report will require 45 minutes to complete, and the final report will require one hour to complete, for a total of two hours per reportable event. At an assumed labor cost of \$80/hour, and two hours for each of the 50 reporting cycles, the total cost of compliance would be \$8,000.²⁴⁷ We also recognized that there are costs of implementation and sought comment on what those may be, including the extent to which our reporting required covered entities to provide information beyond which they were already collecting.²⁴⁸ Similarly, we sought comment on whether the *Notice*’s proposed Responsible Licensee system affected the costs of compliance, both in the short term (factoring in inter-licensee negotiations) and long-term (alleviating the need for many licensees on a consortium cable to establish new reporting systems).²⁴⁹ We sought comment on all aspects of these proposed analysis and received a number of comments.

82. NASCA states that the Commission failed to account for numerous costs of compliance and is therefore inconsistent with the Paperwork Reduction Act of 1995 (“PRA”), codified at 44 U.S.C.

²⁴¹ 47 C.F.R. § 0.51(c), (f).

²⁴² *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509, para. 47.

²⁴³ See e.g., NASCA Comments at 41. See also AT&T Comments at 23.

²⁴⁴ Letter from Kent Bressie, Counsel, NASCA, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-206, at 1 (filed Feb. 17, 2016).

²⁴⁵ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10508, para. 44.

²⁴⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10508, paras. 43-44 & nn.80-81

²⁴⁷ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10508, para. 44.

²⁴⁸ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10508, para. 44.

²⁴⁹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10508-09, para. 44.

§§ 3501-22.²⁵⁰ First, NASCA states that the Commission should account for the costs of reviewing and understanding instructions associated with new reporting requirements, estimating that could range from \$200 to \$5,500 per operator based on previous experience.²⁵¹ Second, NASCA advises that the Commission did not adequately account for the costs of acquiring, installing, and using technology and systems and establishing new policies and procedures.²⁵² NASCA details that new software and training would be required in even the most basic ownership structure but the unique ownership nature of consortium submarine cables would require significant consultation amongst the members of the consortium, adding unaccounted expense.²⁵³ NASCA notes that the *Notice*'s proposed joint and several liability for the Responsible Licensee system makes these consultations all the more necessary and detailed.²⁵⁴ Third, NASCA argues that the *Notice* did not adequately account for coordination the data necessary for the reports.²⁵⁵ Fourth, NASCA states that the *Notice*'s actual estimates of time necessary to complete the reports are inaccurate, failing to account for the significant review in a consortium cable setting, particularly where licensees are exposed to joint and several liability.²⁵⁶ Fifth, NASCA states that the Commission should revise its burden analysis to account for adjusting the existing ways of doing business, particularly as a "number of submarine cable operators (including some NASCA members) currently report outages on submarine cable facilities using the NORS system, rather than UCIS, and to DHS's NCC."²⁵⁷ Finally, NASCA states that the Commission's assumed \$80/hour labor rate "significantly underestimates" the actual labor costs required.²⁵⁸ NASCA also submits that the proposed reporting requirements fail to satisfy OMB criteria for new information collections because the proposals are not the least burdensome way to collect information, duplicate other federal rules, and have no practical utility.²⁵⁹ Other commenters echo these comments and reflect similar concerns.²⁶⁰

83. Others focus on how the details of the proposed regulations would add costs. AT&T states that "the required expense to implement and operate the necessary procedures and technology to make these reports would likely be hundreds of times greater than the estimate set forth in the Notice of \$8000 per year for the entire industry."²⁶¹ While the Submarine Cable Coalition states that the rules, as proposed, would generate hundreds of reports per system per year, multiples higher than our estimated 50 reportable events per year.²⁶² Similarly NASCA states that the proposed rules would capture "mundane" events unless modified, which would also presumably drive up the costs of compliance.²⁶³

²⁵⁰ NASCA Comments at 23-28.

²⁵¹ NASCA Comments at 24-25.

²⁵² NASCA Comments at 25.

²⁵³ NASCA Comments at 25-26.

²⁵⁴ NASCA Comments at 26.

²⁵⁵ NASCA Comments at 26-27. NASCA believes in order to monitor for 50 percent or more loss of a cable's capacity, its members would need to implement new tools and methods for data collection. *Id.* at 11.

²⁵⁶ NASCA Comments at 27.

²⁵⁷ NASCA Comments at 28.

²⁵⁸ NASCA Comments at 28 (providing data on the billing rates for law firm partners and associates as data points).

²⁵⁹ NASCA Comments at 29-30.

²⁶⁰ The Submarine Cable Coalition Reply at 3-4 (arguing that the Commission should revised its cost estimate in line with NASCA's recommendation); Latam Telecommunications Ex Parte at 2; Quintillion Comments at 1.

²⁶¹ AT&T Appendix A at 7.

²⁶² Submarine Cable Coalition Comments at 3.

²⁶³ NASCA Comments at 10.

84. *Discussion.* The record makes clear that there are additional costs, beyond the *Notice*'s initial \$8,000 cost estimate (premised upon the costs of filing the three versions of outage reports for 50 events) that should be factored into our total estimate of the costs of the regulations we enact today. Our finding that this cost figure should be adjusted, however, is not a result of the *Notice* failing to account for costs; instead the *Notice* affirmatively sought comment on items such as implementation costs, the extent to which the information required is not available in the normal course of business, and the costs of inter-licensee negotiations that are unique to consortium submarine cables.²⁶⁴ In some instances commenters attempted to provide concrete cost estimates,²⁶⁵ but in most other instances commenters simply noted that the costs would be significant due to the nature of the proposed reporting requirements.²⁶⁶

85. As an initial matter, we note that many of the proposals that commenters claimed would inflate the costs have been revised or clarified in an effort to reduce burdens in response to the record. For example, we limited the reporting on issues related to terminal-equipment to those events lasting four hours, and thus presumably eliminated many of the “mundane” events from the reporting requirement, thereby reducing compliance costs.²⁶⁷ We extended the proposed reporting timeframes for the Notification and the Interim Report while clarifying that reports are due within a set period from when the licensee determines that the event is reportable, not from when the event itself becomes reportable.²⁶⁸ In this way, we alleviate the concerns of those that claim they would have to update their entire network monitoring system in order to comply.²⁶⁹ We also allowed for best estimate reporting on many of the fields that commenters indicated would be costly to identify with precision on a timely basis.²⁷⁰ We have taken the Responsible Licensee system, which was explicitly designed to mitigate burdens by having only one licensee per submarine cable report on behalf of other licensees on that cable, and allowed licensees not to use that system if they find it burdensome.²⁷¹

86. Thus, while we acknowledge that \$8,000 figure may not represent the total cost of compliance and that upward adjustments should be made, the record on industry costs does not speak with specificity or even generalities to the requirements we have enacted given our record-based modifications. Accordingly, we instead recognize the OMB-approved 2014 UCIS collection of \$305,000.²⁷² We note that the costs associated with UCIS also included costs beyond those which we now require. UCIS asked licensees to provide four categories of information for each submarine cable with a cable landing in the United States: (1) a terrestrial route map; (2) a location spreadsheet; (3) a general description of restoration plans in the event of an incident; and (4) system restoration messages.²⁷³ As we described in the *Notice*, “the first three categories are static insofar as the route, the geographic coordinates (i.e., location), and restoration plans change infrequently. Information provided in the fourth

²⁶⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10508-09, para. 44.

²⁶⁵ See NASCA at 24 (estimating \$200-\$5,500 compliance costs to review and understand new reporting instructions.).

²⁶⁶ See *supra* paras. 83-84.

²⁶⁷ See *supra* paras. 23, 84.

²⁶⁸ See *supra* para. 48.

²⁶⁹ See, e.g., AT&T Appendix A at 7.

²⁷⁰ See *supra* paras. 40-41, 50-51, 53, 55.

²⁷¹ See *supra* paras. 38-39.

²⁷² OMB Control Number 3060-1116, ICR Reference No. 201409-3060-017, FCC Supporting Statement at 8 (2014).

²⁷³ FCC, Notice of Public Information Collection(s) Being Submitted for Review to the Office of Management and Budget, 73 Fed. Reg. 23460-61 (April 30, 2008) (OMB Public Information Collection). *Notice of Office of Management and Budget Action*, “Request for a new OMB Control Number” (for Submarine Cable Reporting) (rel. Apr. 16, 2008), “Supporting Statement” at 1 (OMB Control Number 3060-1116 and Supporting Statement).

category is dynamic, insofar as such messages should be updated after an incident and during the repair process.”²⁷⁴ It is the fourth category of reporting system restoration messages that is directly analogous to the outage reporting requirements we enact.

87. The costs of UCIS associated with the three “static” categories represented \$183,000 of the \$305,000 total, with the system restoration messages accounting for \$122,000 in reporting costs annually for the industry.²⁷⁵ If we increased this figure by 25 percent (to account for moving from 40 to 50 hours reporting per licensee per year),²⁷⁶ we would arrive at a total of approximately \$152,500 for an analogous reporting requirement. We find this to be a credible annual burden estimate based on the record and analogous UCIS processes, as confirmed by industry. Moreover, even if expected costs were to include all four elements of the UCIS collection at a total cost of \$335,500, we would still, as discussed below, consider this a minimal cost in comparison to the potential benefits from our improved ability to monitor outages on cables that are so vital to both our economy and national security.

88. Many of NASCA’s concerns are directly related to the Paperwork Reduction Act and OMB approval.²⁷⁷ As noted below,²⁷⁸ we seek comment on Paperwork Reduction Act implications separately, however NASCA’s comments will inform our burden estimates. We disagree with NASCA’s statement that these requirements “fail[] to satisfy OMB criteria for new information collection” for the reasons outlined above.²⁷⁹ As described above, we have taken numerous steps to ensure that our collection reduces the burdens on licensees over the *Notice*’s original proposal,²⁸⁰ and we have established that this information collection is “necessary for the proper performance of the agency’s functions.”²⁸¹ We also disagree with NASCA’s statement that these rules duplicate other recordkeeping obligations and have no practical utility.²⁸² NASCA itself states that “many submarine cable operators already report” outage-type information to DHS’s NCC.²⁸³ It is apparent from NASCA’s statement that there is no common requirement that *all* submarine cable licensees report on outages in any fashion, let alone in a common place and in a uniform manner that allows for systematic analysis and provides a holistic view of the operational status of submarine cable infrastructure. The Commission’s own experience with licensees failing to report demonstrates that status quo has proven inadequate to meeting the Commission’s needs.

²⁷⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10497, para. 12.

²⁷⁵ OMB Control Number 3060-1116, ICR Reference No. 201409-3060-017, FCC Supporting Statement at 8 (2014). The Supporting Statement estimates that this figure represents the annual recurring burden; it does not recognize one-time costs.

²⁷⁶ OMB Control Number 3060-1116, ICR Reference No. 201409-3060-017, FCC Supporting Statement at 8 (2014). This \$122,000 annual cost estimate was derived from use of two conservative assumptions. First, that a single set of outage reports would involve as many as 40 hours, rather than only the two hours that we estimate above. Second, that all 61 cables licensed in 2014 would experience an outage every year. (We used the number of licensed cables, rather than the number of cable licensees, because it is common for multiple licensees to operate on a single cable, and past experience indicates that consortia (or multiple licensees operating on a single cable) generally designate only one licensee to prepare and file the report.) We then used an estimated labor rate of \$50 rather than \$80 per hour, to be consistent with the 2014 OMB Supporting Statement’s UCIS cost estimate. Thus, 40 x 61 x \$50 = \$122,000.

²⁷⁷ *See infra* at para. 82, NASCA Comments at 23-28.

²⁷⁸ *See infra* para. 98.

²⁷⁹ *See supra* at para. 82, NASCA Comments at 29-30.

²⁸⁰ *See supra* para. 85.

²⁸¹ *See supra* section II.

²⁸² NASCA Comments at 30.

²⁸³ NASCA Comments at 30 (emphasis added).

2. Public Interest Benefits

89. *Background.* The *Notice* tentatively concluded that “the benefits to be gained from this new reporting regime will substantially outweigh any costs to providers.”²⁸⁴ We sought comment on this conclusion.

90. The Attorney General of the Northern Mariana Islands, having experienced the effects of a submarine cable outage and the resultant 911 outage, “strongly recommend[s] that the FCC require submarine cable operators to report outages”²⁸⁵ AT&T supports our objectives of remaining advised of submarine cable outages and receiving the “information necessary to understand the nature of the damage and potential impacts on critical U.S. economic sectors, national security and other vital interests.”²⁸⁶ Docomo summarizes the record by noting that “[w]ith few exceptions, most commenters do not object to a requirement that submarine cable operators report network outages, although they take issue with some aspects of the Commission’s proposed rules.”²⁸⁷ Docomo further states that our rules will “create additional incentives and opportunities for submarine cable operators to implement measures to protect against outages and to remedy any outages promptly,”²⁸⁸ and moreover a reporting requirement would “help the industry develop best practices in addressing outages,” and “ensure that operators of undersea cable systems collect and report information about system outages and planned repairs.”²⁸⁹ Those that do object generally do so on the basis that “the reporting requirements require modification in order to be consistent with the technical and operational realities of the submarine cable industry.”²⁹⁰ Still, some commenters claim that the proposal “while well-intentioned, would be needlessly burdensome without corresponding policy benefits and unworkable as a practical matter.”²⁹¹

91. *Discussion.* We find that, on balance, the record reflects support for our conclusion. We continue to find that the relative concentration of submarine cables serving as conduits for traffic to and from the United States render the Commission’s situational awareness and ability to facilitate communications alternatives not only beneficial, but vital to the public interest. These submarine cables are the primary conduit for connectivity between the contiguous United States and Alaska, Hawaii, American Samoa, Guam, the Northern Marianas, Puerto Rico, and the U.S. Virgin Islands. They also carry 95 percent of U.S. international communications, with the potential for significant impacts on national security and the economy.²⁹² In some circumstances, the public welfare cost of outage of such communications could be extremely high, as lives and tremendous financial interests are at stake. It is precisely because there is a very substantial public interest in the submarine cables that the Commission has authority to license the use of submarine cables and to condition the use of those lines. Simply put, there is too much riding on these cables for the Commission to be less than fully aware about the status of these crucial lines of communication.

²⁸⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10507, para. 42.

²⁸⁵ Attorney General of the Northern Mariana Islands Comments at 2.

²⁸⁶ AT&T Comments at 1.

²⁸⁷ Docomo Reply at 1.

²⁸⁸ Docomo Reply at 3.

²⁸⁹ Docomo Ex parte at 1-2 (stating that “even if such information is considered confidential for purposes of the Commission’s outage reporting rules, operators would be more readily able to keep system users informed of the extent of the outage and associated repair efforts”).

²⁹⁰ Submarine Cable Coalition Reply at 1.

²⁹¹ NASCA Comments at 1.

²⁹² *See supra* at paras. 1, 3, 8, 12-13, 19, 30, 88, 90 (discussing importance of submarine cables to the nation’s national security and economy).

92. We find that the anticipated benefits of the rules that we adopt today clearly outweigh the costs to providers, even with the adjustments made above.²⁹³ When the Commission adopted its original part 4 rules, it observed that previous outage reports required of wireline carriers enabled it to initiate investigations and, when appropriate, take corrective action with respect to certain carriers.²⁹⁴ The Commission explained that, “[e]nsuring that the United States has reliable communications requires us to obtain information about communications disruptions and their causes to prevent future disruptions that could otherwise occur from similar causes, as well as to facilitate the use of alternative communications facilities while the disrupted facilities are being restored.”²⁹⁵ This situation was borne out when the Commission was hampered in its ability to respond to the CNMI outage due to delayed situational awareness.²⁹⁶ Based on the record, we conclude that it is entirely appropriate and in the public interest for this agency to systematize, coordinate, review and analyze outage reports from various sources across the industry because this will help ensure that best practices will be identified and shared and recurring problems can be eliminated or mitigated. The Commission’s improved situational awareness will help ensure that licensees are consistently and appropriately acting to ensure the availability of submarine cable service, which has direct benefits to public safety and the national defense.

D. Legal Authority

93. *Background.* We observed in the *Notice*, that the Cable Landing License Act²⁹⁷ and Executive Order 10530²⁹⁸ provide the Commission with authority to grant, withhold, condition and revoke submarine cable landing licenses.²⁹⁹ In concert, the Cable Landing License Act and Executive Order provide that the Commission may place conditions on the grant of a submarine cable landing license in order to “assure just and reasonable rates and service in the operation and use of cables so licensed.”³⁰⁰ We stated in the *Notice* that “‘just and reasonable service’ entails assurance that the cable infrastructure will be reasonably available.”³⁰¹ We also observed that “availability of service is essential given that submarine cables carry 95 percent of international communications traffic in and out of the United States and are the primary means of connectivity for numerous U.S. states and territories.”³⁰² We also expressed our view in the *Notice* that submarine cable connectivity plays a vital role in the nation’s security and

²⁹³ See *supra* at paras. 84-88.

²⁹⁴ 2004 Part 4 Report and Order, 19 FCC Rcd at 16837, para. 12.

²⁹⁵ 2004 Part 4 Report and Order, 19 FCC Rcd at 16837, para. 12.

²⁹⁶ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10500, para. 22.

²⁹⁷ Cable Landing License Act, 47 U.S.C. §§ 34-39.

²⁹⁸ Executive Order 10530.

²⁹⁹ See *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509-10510, para. 48. In acting upon applications for such licenses, the Commission seeks the approval of the U.S. Department of State. Executive Order 10530, § 5(a). Pursuant to its authority, the Commission has adopted rules governing submarine cable service at Sections 1.767 and 1.768 of the Commission’s rules. 47 CFR §§ 1.767, 1.768. The Cable Landing License Act does not apply to cables that lie wholly within the continental United States. See 47 U.S.C. § 34.

³⁰⁰ See *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509-10510, para. 48. See also 47 U.S.C. § 35. The Commission most recently used its authority under the Cable Landing License Act as the basis for adopting international circuit data reporting requirements for submarine cable landing licensees. *Part 43 Second Report and Order*, 28 FCC Rcd at 606, para. 104.

³⁰¹ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10510, para. 48.

³⁰² See *Submarine Cable Outage Notice*, 30 FCC Rcd at 10492-10493, paras. 1-2.

economy,³⁰³ and that the Act and Executive Order authorize the Commission to withhold or revoke a cable landing license when doing so would promote the security of the United States.³⁰⁴

94. We recognize that one commenter questioned the Commission's legal authority to implement the new reporting requirements. NASCA asserts that the Commission did not adequately explain how the proposed reporting requirements would effectuate its statutory obligations of promoting the public interest and our nation's economic and national security.³⁰⁵ In addition, NASCA argues that the two general purposes of the Communications Act that the Commission cited in the *Notice* – namely, to enable “national defense” and “promot[e] safety of life and property through the use of wire and radio communication” – do not authorize the Commission to regulate service restoration and repair of undersea cables.³⁰⁶ NASCA further asserts that neither the Act nor the Executive Order authorize the Commission to take a role in restoration and repair of undersea cables.³⁰⁷

95. *Discussion.* We disagree with NASCA and find that the Commission in fact possesses ample authority to regulate reporting as to the restoration and repair of undersea cables and effects on the related facilities licensed by the Commission. NASCA appears to misunderstand our recitation and reliance on legal authority. The Commission is instituting a uniform and tailored system of accountability designed to ensure that the licenses granted to submarine cable licensees are used to supply “just and reasonable . . . service in the operation and use of cables so licensed[,]” and we have explained why our role is critical here where the communications facilities at issue bear on national security and the economy and why the existing voluntary regime fails to adequately inform that role.³⁰⁸ In other words, the reporting requirements are designed to inform our understanding of whether the facilities that the Commission has licensed are working. Although our intent is to defer to licensees to institute the necessary repairs to their facilities and consider them to have adequate incentive to do so such that our direct involvement seems unwarranted at this time, it could be that enhancing our situational awareness will have the added benefit of improving licensees' broader understanding of outage events. The main goal of our requirements, however, is to help ensure that submarine cable service will be reasonably available.

96. As explained above, availability of service is essential given that submarine cables carry at least 95 percent of international communications traffic in and out of the United States and are the primary means of connectivity for numerous U.S. states and territories.³⁰⁹ As a result, submarine cable connectivity plays a vital role in the nation's security and economy. Accordingly, we conclude that that the Cable Landing License Act and Executive Order provide the Commission with ample authority to adopt the outage reporting requirements and compliance obligations as proposed in the *Notice* and as adopted today, and it is critical that we exercise it.³¹⁰

³⁰³ See *Submarine Cable Outage Notice*, 30 FCC Rcd at 10509-10510, para. 48.

³⁰⁴ *Submarine Cable Outage Notice*, 30 FCC Rcd at 10510, para. 48 (citing 47 U.S.C. § 35).

³⁰⁵ NASCA Comments at 6-7.

³⁰⁶ NASCA Comments at 9.

³⁰⁷ NASCA Comments at 9.

³⁰⁸ See 47 U.S.C. § 35; *supra* at paras. 1, 3, 8, 12-13, 19, 30, 88, 90.

³⁰⁹ See discussion *supra* Sec. IV.D.

³¹⁰ 47 U.S.C. § 35; 47 C.F.R. § 1.767(g)(1)(i).

V. PROCEDURAL MATTERS**A. Regulatory Flexibility Act**

97. Pursuant to the Regulatory Flexibility Act of 1980, as amended,³¹¹ the Commission's Final Regulatory Flexibility Analysis (FRFA) relating to this *Report and Order* is attached as Appendix C.

B. Paperwork Reduction Act

98. This document contains new information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. It will be submitted to the Office of Management and Budget (OMB) for review under Section 3507(d) of the PRA. OMB, the general public, and other Federal agencies are invited to comment on the new or modified information collection requirements contained in this proceeding.

99. In addition, we note that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we previously sought specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees. In this present document, we have assessed the effects of the new rules adopted herein, which require submarine cable licensees to report when they experience outages of certain durations and causes, on small business concerns and find that the rules adopted here minimize the information collection burden on such entities.

C. Congressional Review Act

100. The Commission will send a copy of this Report & Order to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

VI. ORDERING CLAUSES

101. Accordingly, IT IS ORDERED pursuant to sections 1, 4(i), 4(j), 4(o), of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j) & (o), and pursuant to the Cable Landing License Act of 1921, 47 U.S.C. §§ 34-39 and 3 U.S.C. § 301 that this Report and Order in GN Docket No. 15-206 IS ADOPTED.

102. IT IS FURTHER ORDERED that parts 1 and 4 of the Commission's rules ARE AMENDED as set forth in Appendix B.

103. IT IS FURTHER ORDERED that this Report and Order SHALL BE effective six months after approval of the Office of Management and Budget under the Paperwork Reduction Act.

104. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

³¹¹ *See* 5 U.S.C. § 604.

APPENDIX AList of filers in GN Docket 15-206

AT&T Services Inc.

Attorney General of the Northern Mariana Islands

Docomo Pacific, Inc.

James Brooks

Latam Telecommunications, LLC

North American Submarine Cable Coalition (NASCA)

PC Landing Corp.

Quintillion

Submarine Cable Coalition

Telstra

The International Cable Protection Committee (ICPC)

Verizon

APPENDIX B**Final Rules**

Parts 1 and 4 of the Commission's Rules, 47 C.F.R. parts 1 and 4, are amended as follows:

PART 1 – PRACTICE AND PROCEDURE

1. The authority for Part 1 is revised to read as follows:

Authority: 47 U.S.C. §§ 151, 154(i), 155, 157, 225, 303(r), 309, 1403, 1404, 1451, and 1452.

2. Section 1.767 is amended by adding new paragraph (g)(15), revising paragraph (n) and adding new paragraph (o) to read as follows:

§ 1.767 Cable landing licenses.

* * * * *

(g) * * *

(15) Licensees shall file submarine cable outage reports as required in part 4 of this Title.

* * * * *

(n)(1) With the exception of submarine cable outage reports, and subject to the availability of electronic forms, all applications and notifications described in this section must be filed electronically through the International Bureau Filing System (IBFS). A list of forms that are available for electronic filing can be found on the IBFS homepage. For information on electronic filing requirements, see Part 1, subpart Y, and the IBFS homepage at <http://www.fcc.gov/ibfs>. See also §§ 63.20 and 63.53 of this chapter.

(2) Submarine cable outage reports must be filed as set forth in part 4 of this Title.

(o) *Outage Reporting.* Licensees of a cable landing license granted prior to March 15, 2002 shall file submarine cable outage reports as required in part 4 of this Title.

PART 4 – DISRUPTIONS TO COMMUNICATIONS

3. The authority for part 4 is revised to read as follows:

Authority: 47 U.S.C. 34-39, 151, 154, 155, 157, 201, 251, 307, 316, 615a-1, 1302(a), and 1302(b); 5 U.S.C. 301, and Executive Order no. 10530.

4. Section 4.1 is amended by designating the current Section 4.1 as paragraph (a), and adding paragraphs (b) and (c) to read as follows:

§ 4.1 Scope, basis, and purpose.

(a) * * *

(b) The definitions, criteria, and reporting requirements set forth in Sections 4.2 through 4.13 of this part are applicable to the communications providers defined in Section 4.3 of this part.

(c) The definitions, criteria, and reporting requirements set forth in Section 4.15 of this part are applicable to submarine cable providers who have been licensed pursuant to 47 U.S.C. 34-39.

5. Revise part 4 by adding Section 4.15, to read as follows:

§ 4.15 Submarine Cable Outage Reporting

(a) *Definitions*

(1) For purposes of this section, “outage” is defined as a failure or significant degradation in the performance of a licensee’s cable service regardless of whether the traffic can be re-routed to an alternate path.

(2) An “outage” requires reporting under this section when there is:

(i) An outage, including those caused by planned maintenance, of a portion of submarine cable system between submarine line terminal equipment (SLTE) at one end of the system and SLTE at another end of the system for more than 30 minutes; or

(ii) The loss of any fiber pair, including losses due to terminal equipment, on a cable segment for four hours or more, regardless of the number of fiber pairs that comprise the total capacity of the cable segment.

(b) *Outage Reporting*

(1) For each outage that requires reporting under this section, the licensee (or Responsible Licensee as designated by a Consortium) shall provide the Commission with a Notification, Interim Report (subject to the limitations on planned outages in Section 4.15(b)(2)(iii)), and a Final Outage Report.

(i) For a submarine cable that is jointly owned and operated by multiple licensees, the licensees of that cable may designate a Responsible Licensee that files outage reports under this rule on behalf of all licensees on the affected cable.

(ii) Licensees opting to designate a Responsible Licensee must jointly notify the Chief of the Public Safety and Homeland Security Bureau’s Cybersecurity and Communications Reliability Division of this decision in writing. Such notification shall include the name of the submarine cable at issue; and contact information for all licensees on the submarine cable at issue, including the Responsible Licensee.

(2) Notification, Interim, and Final Outage Reports shall be submitted by a person authorized by the licensee to submit such reports to the Commission.

(i) The person submitting the Final Outage Report to the Commission shall also be authorized by the licensee to legally bind the provider to the truth, completeness, and accuracy of the information contained in the report. Each Final report shall be attested by the person submitting the report that he/she has read the report prior to submitting it and on oath deposes and states that the information contained therein is true, correct, and accurate to the best of his/her knowledge and belief and that the licensee on oath deposes and states that this information is true, complete, and accurate.

(ii) The Notification is due within 480 minutes (8 hours) of the time of determining that an event is reportable for the first three years from the effective date of these rules. After

three years from the effective date of the rules, Notifications shall be due within 240 minutes (4 hours). The Notification shall be submitted in good faith. Licensees shall provide: the name of the reporting entity; the name of the cable and a list of all licensees for that cable; the date and time of onset of the outage, if known (for planned events, this is the estimated start time/date of the repair); a brief description of the event, including root cause if known; nearest cable landing station; best estimate of approximate location of the event, if known (expressed in either nautical miles and the direction from the nearest cable landing station or in latitude and longitude coordinates); best estimate of the duration of the event, if known; whether the event is planned or unplanned; and a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity.

(iii) The Interim Report is due within 24 hours of receiving the Plan of Work. The Interim Report shall be submitted in good faith. Licensees shall provide: the name of the reporting entity; the name of the cable; a brief description of the event, including root cause, if known; the date and time of onset of the outage; nearest cable landing station; approximate location of the event (expressed in either nautical miles and the direction from the nearest cable landing station or in latitude and longitude); best estimate of when the cable is scheduled to be repaired, including approximate arrival time and date of the repair ship, if applicable; a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity. The Interim report is not required where the licensee has reported in the Notification that the outage at issue is a planned outage.

(iv) The Final Outage Report is due seven (7) days after the repair is completed. The Final Outage Report shall be submitted in good faith. Licensees shall provide: the name of the reporting entity; the name of the cable; whether the outage was planned or unplanned; the date and time of onset of the outage (for planned events, this is the start date and time of the repair); a brief description of the event, including the root cause if known; nearest cable landing station; approximate location of the event (expressed either expressed in either nautical miles and the direction from the nearest cable landing station or in latitude and longitude coordinates); duration of the event, as defined in paragraph 4.15(a)(2) of this section; the restoration method; and a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity. If any required information is unknown at the time of submission of the Final Report but later becomes known, licensees should amend their report to reflect this knowledge. The Final Report must also contain an attestation as described in paragraph 4.15(b)(2)(i) of this section.

(v) The Notification, Interim Report, and Final Outage Reports are to be submitted electronically to the Commission. "Submitted electronically" refers to submission of the information using Commission-approved Web-based outage report templates. If there are technical impediments to using the Web-based system during the Notification stage, then a written Notification to the Commission by e-mail to the Chief, Public Safety and Homeland Security Bureau is permitted; such Notification shall contain the information required. Electronic filing shall be effectuated in accordance with procedures that are specified by the Commission by public notice.

(c) *Confidentiality.* Reports filed under this part will be presumed to be confidential. Public access to reports filed under this part may be sought only pursuant to the procedures set forth in 47 C.F.R. §0.461. Notice of any requests for inspection of outage reports will be provided pursuant to 47 C.F.R. 0.461(d)(3).

APPENDIX C

Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ the Commission has prepared this Final Regulatory Flexibility Analysis (FRFA) of the possible significant economic impact on a substantial number of small entities by the requirements adopted in Report and Order. Written public comments are requested on this FRFA. Comments must be identified as responses to the FRFA and must be filed by the deadlines for comments set forth in the Federal Register upon publication of the Report and Order. The Commission will send a copy of this Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).² In addition, the Report and Order and FRFA (or summaries thereof) will be published in the Federal Register.³

A. Need for, and Objectives of, the Proposed Rules

2. We adopt measures to improve the utility and effectiveness of the current scheme for receiving information on submarine cable outages, with the ultimate goal of enhancing both our overall understanding of submarine cable system status and our knowledge regarding specific outages disruptions and restoration efforts. At present, the Commission receives information regarding the operational status of submarine cables on an ad hoc and voluntary basis. We adopt the rules herein with the goal of improving the efficiency and utility of the reporting process for outages and repairs of the submarine cable network, which is a vital feature of the national and international communications infrastructure.

3. The operational status of submarine cables carries commercial, economic, social, financial, and national security implications. It is vital that the United States maintain a robust and secure communications network that can continue to provide service in spite of significant equipment or system failure, and submarine cables are an integral part of that network.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

4. There were no comments regarding the IRFA.

C. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration.

5. The SBA Chief Counsel did not file comments on the IRFA.

D. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

6. The RFA directs agencies to provide a description of, and, where feasible, an estimate of the number of small entities that may be affected by the proposals, if adopted.⁴ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”⁵ In addition, the term “small business” has the

¹ See 5 U.S.C. § 603. The RFA, 5 U.S.C. § 601-12., has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121. tit. II, 110 Stat. 857.

² See *id.* § 603(a).

³ See *id.*

⁴ *Id.* § 603(b)(3).

⁵ *Id.* § 601(6).

same meaning as the term “small business concern” under the Small Business Act.⁶ A small business concern is one that: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).⁷

7. The rules adopted in the Report and Order apply only to entities licensed to construct and operate submarine cables under the Cable Landing License Act. The Report and Order requires only submarine cable licensees affected by a service outage to file outage reports with the Commission describing the outage and restoration. The entities that the Report and Order requires to file reports are a mixture of both large and small entities. The Commission has not developed a small business size standard directed specifically toward these entities. However, as described below, these entities fit into larger categories for which the SBA has developed size standards that provide these facilities or services.

8. *Facilities-based Carriers.* Facilities-based providers of international telecommunications services would fall into the larger category of interexchange carriers. Neither the Commission nor the SBA has developed a small business size standard specifically for providers of interexchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers.

9. *Wired Telecommunications Carriers.* This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services. By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry.⁸ In this category, the SBA deems a wired telecommunications carrier to be small if it has 1,500 or fewer employees.⁹ Census data for 2007 shows 3,188 firms in this category.¹⁰ Of these, 3,144 had fewer than 1,000 employees. On this basis, the Commission estimates that a substantial majority of the providers of wired telecommunications carriers are small.¹¹

10. In the 2009 annual traffic and revenue report, 38 facilities-based and facilities-resale carriers reported approximately \$5.8 billion in revenues from international message telephone service (IMTS). Of these, three reported IMTS revenues of more than \$1 billion, eight reported IMTS revenues of more than \$100 million, 10 reported IMTS revenues of more than \$50 million, 20 reported IMTS revenues of more than \$10 million, 25 reported IMTS revenues of more than \$5 million, and 30 reported

⁶ *Id.* § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

⁷ 15 U.S.C. § 632.

⁸ U.S. Census Bureau, *2007 NAICS Definitions*, 517110 Wired Telecommunications Carriers, <http://www.census.gov/cgi-bin/sssd/naics/naicsrch> (last visited Jun. 2, 2016).

⁹ 13 C.F.R. § 121.201, NAICS Code 517110.

¹⁰ U.S. Census Bureau, *American Fact Finder* (2007), http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ5&prodTtype=table.

¹¹ *Id.*

IMTS revenues of more than \$1 million. Based solely on their IMTS revenues the majority of these carriers would be considered non-small entities under the SBA definition.¹²

11. The 2009 traffic and revenue report also shows that 45 facilities-based and facilities-resale carriers (including 14 who also reported IMTS revenues) reported \$683 million for international private line services; of which four reported private line revenues of more than \$50 million, 12 reported private line revenues of more than \$10 million, 30 reported revenues of more than \$1 million, 34 reported private line revenues of more than \$500,000; 41 reported revenues of more than \$100,000, while 2 reported revenues of less than \$10,000.

12. The 2009 traffic and revenue report also shows that seven carriers (including one that reported both IMTS and private line revenues, one that reported IMTS revenues and three that reported private line revenues) reported \$50 million for international miscellaneous services, of which two reported miscellaneous services revenues of more than \$1 million, one reported revenues of more than \$500,000, two reported revenues of more than \$200,000, one reported revenues of more than \$50,000, while one reported revenues of less than \$20,000. Based on its miscellaneous services revenue, this one carrier with revenues of less than \$20,000 would be considered a small business under the SBA definition. Based on their private line revenues, most of these entities would be considered non-small entities under the SBA definition.

13. *Providers of International Telecommunications Transmission Facilities.* According to the 2012 Circuit-Status Report, 61 U.S. international facility-based carriers filed information pursuant to section 43.82.¹³ Some of these providers would fall within the category of Inter-exchange Carriers, some would fall within the category of Wired Telecommunications Carriers, while others may fall into the category of All Other Telecommunications.

14. *All Other Telecommunications.* This industry comprises establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, and radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems. Establishments providing Internet services or voice over Internet protocol (VoIP) services via client-supplied telecommunications connections are also included in this industry.¹⁴ The SBA has developed a small business size standard for All Other Telecommunications, which consists of all such firms with annual receipts of \$ 32.5 million or less.¹⁵ For this category, Census Bureau data for 2007 show that there were 2,383 firms that operated for the entire year, and of those firms, a total of 2,346 had annual receipts less than \$25 million.¹⁶ Consequently, we conclude that the majority of All Other Telecommunications firms can be considered small.

¹² See 13 C.F.R. § 121.201, NAICS Code at Subsector 517 – Telecommunications.

¹³ See International Bureau Releases 2013 Circuit Status Report for U.S. Facilities-Based International Carriers, (rel. July 16, 2015). The report is available on the FCC website at <http://www.fcc.gov/ib/pd/pf/csmanual.html>.

¹⁴ U.S. Census Bureau, North American Industry Classification System: 2012 NAISC Definition 517919 All Other Telecommunications, <http://www.census.gov/cgi-bin/sssd/naics/naicsrch> (last visited Jun. 16, 2016).

¹⁵ See 13 C.F.R. § 121.201, NAICS code 517919.

¹⁶ U.S. Census Bureau, *2007 Economic Census of the United States*, Table EC0751SSSZ4, Information: Subject Series - Establishment and Firm Size: Receipts Size of Firms for the United States: 2007 NAICS Code 517919, http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ1&prodT ype=table (last visited Jun. 16, 2016).

15. The Commission has not developed a small business size standard specifically for providers of interexchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers.

16. *Wired Telecommunications Carriers.* This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services. By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry.¹⁷ In this category, the SBA deems a wired telecommunications carrier to be small if it has 1,500 or fewer employees.¹⁸ Census data for 2007 shows 3,188 firms in this category.¹⁹ Of these, 3,144 had fewer than 1,000 employees. On this basis, the Commission estimates that a substantial majority of the providers of wired telecommunications carriers are small.²⁰

17. *Operators of Undersea Cable Systems.* The Report and Order adopts reporting requirements for submarine cable facilities in the event of an outage. Neither the Commission nor the SBA has developed a size standard specifically for operators of undersea cables. Such entities would fall within the large category of Wired Telecommunications Carriers.

18. *Wired Telecommunications Carriers.* This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services. By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry.²¹ In this category, the SBA deems a wired telecommunications carrier to be small if it has 1,500 or fewer employees.²² Census data for 2007 shows 3,188 firms in this category.²³ Of these, 3,144 had fewer than 1,000 employees. On this basis, the

¹⁷ U.S. Census Bureau, *2007 NAICS Definitions*, 517110 Wired Telecommunications Carriers, <http://www.census.gov/cgi-bin/sssd/naics/naicsrch> (last visited Jun. 2, 2016).

¹⁸ 13 C.F.R. § 121.201, NAICS Code 517110.

¹⁹ U.S. Census Bureau, *American Fact Finder* (2007), http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ5&prodType=table.

²⁰ *Id.*

²¹ U.S. Census Bureau, *2007 NAICS Definitions*, 517110 Wired Telecommunications Carriers, <http://www.census.gov/cgi-bin/sssd/naics/naicsrch> (last visited Jun. 2, 2016).

²² 13 C.F.R. § 121.201, NAICS Code 517110.

²³ U.S. Census Bureau, *American Fact Finder* (2007), http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ5&prodType=table.

Commission estimates that a substantial majority of the providers of wired telecommunications carriers are small.²⁴

19. *Operators of Non-Common Carrier International Transmission Facilities.* Carriers that provide common carrier international transmission facilities over submarine cables are not required to report on outages, though the Report and Order seeks comment on whether such carriers should be required to provide outage reports. Neither the Commission nor the SBA has developed a small business size standard specifically for providers of non-common carrier terrestrial facilities. The operators of such terrestrial facilities would fall within the larger category of Wired Telecommunications Carriers.

20. *Wired Telecommunications Carriers.* This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services. By exception, establishments providing satellite television distribution services using facilities and infrastructure that they operate are included in this industry.²⁵ In this category, the SBA deems a wired telecommunications carrier to be small if it has 1,500 or fewer employees.²⁶ Census data for 2007 shows 3,188 firms in this category.²⁷ Of these, 3,144 had fewer than 1,000 employees. On this basis, the Commission estimates that a substantial majority of the providers of wired telecommunications carriers are small.²⁸

21. *Incumbent Local Exchange Carriers.* Because some of the international terrestrial facilities that are used to provide international telecommunications services may be owned by incumbent local exchange carriers, we have included small incumbent local exchange carriers in this present RFA analysis, to the extent that such local exchange carriers may operate such international facilities. (Local exchange carriers along the U.S.-border with Mexico or Canada may have local facilities that cross the border.) Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent local exchange carriers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers.

22. *Wired Telecommunications Carriers.* This industry comprises establishments primarily engaged in operating and/or providing access to transmission facilities and infrastructure that they own and/or lease for the transmission of voice, data, text, sound, and video using wired telecommunications networks. Transmission facilities may be based on a single technology or a combination of technologies. Establishments in this industry use the wired telecommunications network facilities that they operate to provide a variety of services, such as wired telephony services, including VoIP services; wired (cable) audio and video programming distribution; and wired broadband Internet services. By exception, establishments providing satellite television distribution services using facilities and infrastructure that

²⁴ *Id.*

²⁵ U.S. Census Bureau, *2007 NAICS Definitions*, 517110 Wired Telecommunications Carriers, <http://www.census.gov/cgi-bin/sssd/naics/naicsrch> (last visited Jun. 2, 2016).

²⁶ 13 C.F.R. § 121.201, NAICS Code 517110.

²⁷ U.S. Census Bureau, *American Fact Finder* (2007), http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ5&prodTpe=table.

²⁸ *Id.*

they operate are included in this industry.”²⁹ In this category, the SBA deems a wired telecommunications carrier to be small if it has 1,500 or fewer employees.³⁰ Census data for 2007 shows 3,188 firms in this category.³¹ Of these, 3,144 had fewer than 1,000 employees. On this basis, the Commission estimates that a substantial majority of the providers of wired telecommunications carriers are small.³²

23. As noted above, a “small business” under the RFA is one that, *inter alia*, meets the pertinent small business size standard (e.g., a telephone communications business having 1,500 or fewer employees), and “is not dominant in its field of operation.”³³ The SBA’s Office of Advocacy contends that, for RFA purposes, small incumbent local exchange carriers are not dominant in their field of operation because any such dominance is not “national” in scope.³⁴ Consequently, the Commission estimates that most providers of local exchange service are small entities that may be affected by the rules and policies adopted in the Report and Order. We have therefore included small incumbent local exchange carriers in this RFA analysis, although we emphasize that this RFA action has no effect on Commission analysis and determinations in other, non-RFA contexts. Thus under this category and the associated small business size standard, the majority of these incumbent local exchange service providers can be considered small providers.³⁵

E. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

24. The Report and Order adopts outage reporting requirements for all submarine cable licensees. An outage occurs when a licensee experiences an event in which (1) An outage related to damages or replacements of a portion of submarine cable system between the submarine line terminal equipment (SLTE) at one end of the system and the SLTE at another end of the system for more than 30 minutes; or (2) there is a loss of any fiber pair, including losses due to terminal equipment, on a cable segment for four hours or more, regardless of the number of fiber pairs that comprise the total capacity of the cable segment. After a triggering event, the reporting requirement consists of three filings, the Notification, an Interim Report for unplanned outages, and the Final Report, which provide the Commission important data to improve the Commission’s situational awareness on the operational status of submarine cables. The production and transmission of these reports to the Commission may require the use of professionals such as attorneys, engineers, or accountants. However, we conclude that such

²⁹ U.S. Census Bureau, *2007 NAICS Definitions*, 517110 Wired Telecommunications Carriers, <http://www.census.gov/cgi-bin/sssd/naics/naicsrch> (last visited Jun. 2, 2016).

³⁰ 13 C.F.R. § 121.201, NAICS Code 517110.

³¹ U.S. Census Bureau, *American Fact Finder* (2007), http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ5&prodType=table.

³² *Id.*

³³ 15 U.S.C. § 632.

³⁴ Letter from Jere W. Glover, Chief Counsel for Advocacy, SBA, to William E. Kennard, Chairman, FCC (May 27, 1999). The Small Business Act contains a definition of “small-business concern,” which the RFA incorporates into its own definition of “small business.” See 15 U.S.C. § 632(a) (Small Business Act); 5 U.S.C. § 601(3) (RFA). SBA regulations interpret “small business concern” to include the concept of dominance on a national basis. 13 C.F.R. § 121.102(b).

³⁵ U.S. Census Bureau, *American FactFinder*, 2007 Economic Census, http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodType=table.

reports will be based on information already within the reporting entity's possession, and therefore these should be considered routine reports.

F. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

25. The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage or the rule, or any part thereof, for small entities.”³⁶

G. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

26. None.

³⁶ 5 U.S.C. § 603 (c)(1)-(c)(4).

**STATEMENT OF
CHAIRMAN TOM WHEELER**

Re: Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data, GN Docket No. 15-206, Report and Order.

Our ability to serve the public and fulfill our responsibilities begins with being informed. To do our job right, we need the facts. While it's our responsibility to promote the resiliency and reliability of our communications networks, when it comes to a key piece of those networks – submarine cables -- we have unacceptable gaps in understanding of outages and disruptions. With today's order, we fix that.

Let's start with a few baseline facts.

First, submarine cables are a vital part of our communications infrastructure – carrying virtually all voice and data traffic between the United States and the rest of the world. As a result, these cables are essential to America's economic stability and national security.

Second, outage reporting systems are a proven tool for promoting network reliability. Other communications providers have long reported outages to the FCC through our mandatory Network Outage Reporting System (NORS). The data have enabled us to detect adverse outage trends and work with industry on solutions, monitor and assist restoration efforts, and coordinate with public safety officials and other affected third parties during crises.

Third, the information we receive regarding undersea cable disruptions is too limited and inconsistent to be useful. The record in this proceeding identified a series of flaws with the current reporting system. For starters, it's voluntary, which means we only receive information on about 25 percent of undersea cables. It's also ad hoc with no standardized guidelines, which means the information we receive is inconsistent and not necessarily revelatory about the root causes of problems.

To understand the problem, look at one recent example of how things currently work – or more appropriately – don't work.

In July 2015, a damaged submarine cable severed communications for thousands of residents and businesses on the Commonwealth of the Northern Mariana Islands for three weeks. The outage affected phone, Internet, banking, credit card transactions, ATM withdrawals, and health care. The Commission did not receive information about the outage through the current voluntary reporting system, and the information we received through NORS was inadequate. The reports from terrestrial providers did not convey the very significant impact that “total communications isolation” had on consumers or the impacted communities, subsequent terrestrial reports did not convey accurate status of the submarine cable outage nor projected restoration and repair times. It took open press news reports to allow staff to piece together what was happening, spurring FCC initiated calls to parties to gather information on what had occurred and organize mitigation options. Lack of timely situational awareness certainly hampered Commission efforts to monitor the outage, support restoration and development of interim options to mitigate consumer suffering.

In the few months since we launched this proceeding, through media reports we learned of a Florida lightning strike hitting the U.S. terminus of a submarine cable disrupting communications between Florida and multiple locations in the Caribbean and an incident where cable connectivity between the U.S. territory of Guam and Australia was severed. These outages were not reported to the FCC through the existing voluntary system.

Submarine cables are a key piece of our broader communications infrastructure. It simply doesn't make sense that other providers must report network outages, while submarine cable operators do not. Today, we bring some common sense and regulatory parity to our outage reporting rules.

The new rules will require submarine cable licensees to report major communications outages to the FCC, which other communications providers have done for more than a decade. Licensees will report service failures or the significant degradation of service, regardless whether the traffic can be re-routed. In situations where traffic is rerouted over another cable or fiber pair, that doesn't mean that the outage didn't occur. It should be reported. If disruptions prevent a category of service like voice, that too is an outage to voice customers even if internet traffic is still up. Collecting information regarding the mode of failure is valuable, and maintaining an understanding of decrements to overall submarine cable capacity is an important National Security function which the FCC is uniquely suited to fulfill.

The Commission staff has made significant progress in improving interagency coordination processes to facilitate rapid maintenance and deployment of cables, identify non-cable seabed activity that may place submarine cables at risk. By promoting a diversity of submarine cable routes and providers, we can add resiliency and reliability to our communications systems.

The rules we are adopting today will close reporting gaps, enable the Commission to keep apprised of the operating status of submarine cables, and help ensure that this vital communications infrastructure remains reliable.

**STATEMENT OF
COMMISSIONER MIGNON L. CLYBURN**

Re: *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order.

Few people realize just how vital submarine cables are when it comes to our nation's communications infrastructure. There are approximately 60 licensed undersea cables that connect the U.S. mainland to rest of the world, and today, these cables carry over 95% of all U.S.-international voice and data traffic. Assuring the reliability and resiliency of this critical piece of our communications infrastructure is crucial to our nation's security and economic well-being.

Paramount to that task is putting in place rules that will improve the Commission's situational awareness of the operating status of submarine cables by requiring licensees to report service outages. The reporting structure codified by today's *Order* will enable the Commission to quickly identify troubling system trends and facilitate awareness of possible harmful activity early.

But the rules adopted in the *Order* differ in important respects from those proposed in the underlying NPRM. The Commission, in crafting the final rules, was mindful of the unique attributes of the submarine cable industry, as reflected in the record, and endeavored to provide more flexibility to licensees and reduce reporting burdens.

One important refinement that I thank the Chairman for accepting is an extension of the notification timeline. This *Order* requires the filing of a notification of an outage eight hours from the time a licensee determines that an outage is reportable, as opposed to the two hours proposed in the NPRM, and after a three year period, notifications will be required within four hours of that determination.

These refinements address industry concerns that staffing, time zone considerations, and language barriers would have made the originally proposed timeframe difficult to meet. Nevertheless, it is imperative that the Commission receive notice about outages as soon as practicable, so to the extent licensees are able to provide notifications sooner than eight hours, I encourage them to do so.

Ensuring the reliability and resiliency of submarine cables is fundamental to the Commission's statutory obligation to protect the nation's communications networks, and we all appreciate the important role that the staff of the Public Safety and Homeland Security Bureau and International Bureau play in fulfilling that mission.

**STATEMENT OF
COMMISSIONER JESSICA ROSENWORCEL**

Re: *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order.

There are roughly 300 submarine cables buried in the coldest and darkest depths of our oceans. We may not see them but we rely on them daily.

Submarine cables are an essential part of the global economy. They are responsible for \$10 trillion worth of transactional value every day. That is more than triple what the United States spends on healthcare annually. It's greater than the Gross Domestic Product of Japan, Germany, and Australia—combined. It's a big deal.

Submarine cables are also critical for our national security. They support military communication both at home and abroad. Our troops depend on them and they help keep us safe.

But these cables are vulnerable to damage and attack—from natural disasters, aquatic vessels, sea life, and those who want to do us harm. So we need to know when communications over these indispensable facilities are compromised.

In the past, the Commission monitored submarine cable outages through voluntary reporting. But this was an ad hoc system. It had serious limitations. The information we received was not standardized, not uniform, and not particularly useful. Outages and disruptions went unreported—leaving us unable to identify how to prevent them.

Today, we replace the makeshift practices of the past with a process to ensure that the Commission receives timely and consistent outage information. I support this effort. I believe it is consistent with the Cable Landing License Act. I also believe we need to be open to recalibrating these policies over time—so we develop the information we need to protect these facilities—because modern life depends on them.

**DISSENTING STATEMENT OF
COMMISSIONER AJIT PAI**

Re: *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order.

On July 8, 2015, the undersea cable that served the Commonwealth of the Northern Mariana Islands failed. It was damaged when a typhoon blew past the U.S. territory. The outage left tens of thousands of residents in a communications blackout. It prevented them from accessing the Internet, making credit card purchases, withdrawing money from ATMs, or even placing phone calls, including calls to 911.

Consumers suffered because the cable licensee had no backup plan. It did not have a redundant pathway. It did not automatically re-route the traffic. And it did not even notify the FCC that it suffered a complete loss of communications.

Cable failures like this may be rare, but they are precisely the types of outages that the FCC should target in this proceeding. We should focus on outages that impact consumers. We should incentivize providers to set up and maintain redundant pathways. And we should cut through the regulatory red tape that only makes it harder for providers to deploy, maintain, and repair undersea cables. These measures would help people stay connected and promote our economic and national security interests.

Unfortunately, today the FCC does none of this. It simply stumbles down the same misguided trail it blazed last month when it revised another portion of our outage reporting rules. Once again, the Commission refuses to focus on outages that actually affect consumers. Instead, it mandates that companies file reports when there is no loss in communications. Once again, it declines to request targeted outage information that would help us identify trends and threats. Instead, it demands a haystack of paperwork that will only make it more difficult for us to find any needles. Once again, the Commission decides not to encourage providers to construct facilities with automatic and built-in redundancies. Instead, it penalizes those investments by requiring providers to file multiple reports every time they use a redundant pathway. And once again, the Commission decides to divert resources away from critical repair and restoration efforts and toward needless paperwork.

Meanwhile, there are genuine problems with the undersea cable regime that we can and should solve. Indeed, when we launched this rulemaking, I suggested that the *NPRM* seek input on how we can make it easier to deploy, restore, and maintain undersea cables. Commenters responded in spades, identifying very specific and necessary reforms. They identified the need for coordination among the many agencies that play a role in this space—including the Army Corps of Engineers, the Bureau of Ocean Energy Management, the Coast Guard, the Department of Defense, the Federal Energy Regulatory Commission, the National Marine Fisheries Service, and the National Oceanic and Atmospheric Administration. Commenters explained that the government's left hand often works at cross-purposes with its right: For instance, one agency might authorize a dredging or hydrokinetic project without recognizing that an undersea cable lies right under it. Commenters urged the FCC to operate as a point of contact—a clearinghouse for these efforts—and to enact other simple reforms plainly within our power. Indeed, the Commission's advisory committee on communications security and reliability—CSRIC—outlined these and a host of other steps the FCC should take to improve our undersea cable regime.¹ But having been confronted with actual problems and real solutions, the *Order* simply says . . . we will keep thinking deep thoughts about all this. But this promise is shallow.

¹ Report of the Submarine Cable Resiliency Working Group of CSRIC V (June 2016), <http://go.usa.gov/xqdF5>.

Another major problem is the agency's refusal to grapple in a serious way with the costs its regulatory wish list will impose.

What are those costs, which will ultimately be borne by consumers? The section of the *Order* titled "Cost-Benefit Analysis" makes it clear that the agency itself has no idea. Indeed, even in an era when the FCC regularly offers the textual equivalent of an eye-roll² to cost-benefit analysis, the discussion here is embarrassingly deficient.

The *Order* asserts that its new regulatory regime will cost the industry \$152,500 per year.³ But as the record and a rudimentary fact check show, the FCC gets both the math and the analysis wrong. The actual costs are going to be orders of magnitude higher.

First, the FCC uses the wrong number of licensees when calculating its industry-wide cost estimate. Its analysis assumes that there are 61 undersea cable licensees.⁴ So the *Order* multiplies \$2,500 (which it asserts is the annual burden per licensee) by 61 to arrive at the \$152,500 estimate.⁵ The problem is that there are up to 161 undersea cable licensees—not 61.⁶ So the FCC's estimate lowballs the actual cost by a significant margin.⁷

Second, even if the FCC corrected for this error, its analysis would fare no better because it uses an arbitrary number for the annual burden per licensee. The *Order* asserts that the new reporting

² Cf. Lucille Bluth, *Arrested Development*, <http://gph.is/28Vvaq8> (last visited June 24, 2016).

³ See *Order* at paras. 81–88.

⁴ See *Order* at para. 87. The *Order* pulls the 61 licensee number from a 2014 supporting statement the FCC provided to the Office of Management and Budget for the purpose of renewing the information collection associated with a mostly voluntary cable reporting regime the FCC first implemented in 2008. See OMB Control Number 3060-1116, ICR Ref. No. 201409-3060-017 (2014) (2014 Supporting Statement), available at <http://go.usa.gov/x3qsT>.

⁵ *Order* at para. 87.

⁶ See, e.g., Federal Communications Commission, Public Notice, FY 2015 Regulatory Fees Submarine Cable Systems (2015), available at <http://go.usa.gov/x3kKj>. The fact that the 2014 Supporting Statement indicates that there are 61 licensees makes no difference; the FCC's own data and the record in this proceeding show that 61 is neither the current nor correct number.

⁷ The *Order* does not claim that it uses the correct number of licensees. Instead, in a footnote, the *Order* says that it is multiplying its per-licensee figure by 61 because the FCC's 2014 Supporting Statement says that there were "61 cables licensed in 2014." *Order* at note 276. But this claim only underscores the arbitrary nature of the *Order*'s analysis. *First*, the FCC's 2014 Supporting Statement says no such thing: It uses a different figure for the number of cable systems. The number "61" is found in that document, but it is used in one place to refer to the number of "licensees" and in another place to the number of "respondents." *Second*, even if you assume that the 2014 document said that there were 61 cable systems, and if you further assume that this figure is the correct one today, the *Order*'s analysis would still miss the mark. This is because the *Order* does not adopt a per-cable-system regime. It adopts rules that apply on a per-licensee basis. See, e.g., *Order* at para. 37 ("We adopt a requirement that all licensees . . . must comply with license conditions, including the outage reporting rules we now adopt."). Indeed, that is why the *Order* is multiplying 61 by what it says is a "per licensee per year" figure, rather than a per cable system per year figure. To be sure, the *Order* allows multiple licensees on a single cable system to designate one entity that will file outage reports with the Commission. But this does not aid the Commission's analysis because the *Order* makes no showing that 100% of cable systems have or will have consortium agreements. Moreover, the *Order* does not analyze the costs of entering into such agreements or otherwise show that having a consortium agreement will mean that only a single entity will be expending hours compiling the information necessary for the FCC's required reports.

requirements will impose a 50-hour burden per licensee per year.⁸ But the FCC offers no rational basis for selecting this figure. It simply takes the 40 hour figure associated with the distinct reporting regime implemented by the FCC in 2008 and adds a 25% premium, yielding 50 hours.⁹

There are two independent problems with this. The first is that the 2008 regime is so drastically different from the one the *Order* adopts that any reliance on the former cost estimate as a baseline is bound to be arbitrary. This is so for a number of reasons. *For one*, the 2008 rules stated that licensees “would not be required to generate new information in order to comply.”¹⁰ The exact opposite is true here. Today’s *Order* expressly requires providers to generate new information that they would not otherwise produce in the normal course of business. *For another*, the 2008 regime did not require that even a single “formal report be produced.”¹¹ Here, the *Order* mandates that licensees produce not one, but three separate and formal reports for every single event. *For yet another*, the *Order* adopts a far more expansive definition of “outage” than the FCC used in 2008.¹² This alone will significantly increase the number of reportable events.

The other problem is that the *Order* offers no basis for adding 25% (or, more accurately, only 25%) to the burden hours associated with that regime. It’s a wholly arbitrary adjustment that “suggest[s] the agency is either uncertain about why it made its decision, or else is simply making it up as it goes along.”¹³

Third, the FCC drives down the cost estimate by waving a magic wand and making some costs

⁸ *Order* at para. 87.

⁹ *See Order* at para. 87 (arriving at the 50 hour figure by adding 25% to the 40 hour estimate contained in the 2014 Supporting Statement, which sought to extend the information collection authorization for the 2008 reporting regime).

¹⁰ 2014 Supporting Statement at 1.

¹¹ *Id.* at 2.

¹² As discussed below, the *Order* requires licensees to report incidents that do not involve any loss of communications.

¹³ *Resolute Forest Products, Inc. v. U.S. Dep’t of Agriculture*, ___ F.Supp.2d ___, Civil Action No. 14-2103 (JEB) at 38 (D.D.C. May 17, 2016). Indeed, the most that the *Order* says on this score is that the cost estimate associated with the earlier reporting regime—the one to which the FCC adds 25% today—contained “two conservative assumptions.” *Order* at note 276. But the *Order* only reaches this conclusion by misreading the agency’s earlier analysis. According to the *Order*, the 2014 cost estimate associated with that prior regime was “conservative” because it assumed “that a single set of outage reports would involve as many as 40 hours, rather than only the two hours that we estimate above.” *Order* at note 276. But the FCC’s 2014 cost estimate says no such thing. Indeed, it does not contain *any* estimate of the number of hours that it will take to prepare a report or set of reports. The “40 hours” figure contained therein is the estimate of the annual burden hours per licensee; it does not correlate that figure in any way to a number of reports or set of reports. *See, e.g.*, 2014 Supporting Statement at 8. Additionally, the *Order* asserts that the agency’s earlier cost estimate was “conservative” because it assumed that “all 61 cables licensed in 2014 would experience an outage every year.” *Order* at note 276. Once again, the FCC misreads the 2014 document. As previously noted, it does not say that “61” is the number of cable systems, nor does the document contain any estimate about the number of outages per system per year. But perhaps most fundamentally, whatever the assumptions—conservative or otherwise—that serve as the foundation of the FCC’s 2014 cost estimate, those assumptions simply are not relevant to determining whether the FCC acted reasonably in adding 25% to that estimate when purporting to determine the costs associated with this very different and far more onerous reporting regime.

arbitrarily shrink or disappear altogether. For instance, the *Order* assumes a labor cost of \$80 per hour.¹⁴ Now, many commenters told us that this figure is far too low given the personnel who will be responsible for complying with the FCC's new rules. But putting that to the side, one would at least expect the FCC to use its own \$80 figure when it turns to crunch the numbers. It doesn't. Without providing any justification or notice, the FCC uses a substantially lower, \$50 per hour figure.¹⁵

Likewise, the *Order* determines that there will be a whole host of one-time "implementation costs" associated with this new regulatory regime—those are the up-front costs providers must bear that are in addition to all of the recurring, annual expenses.¹⁶ But when it comes time to put pen to paper, the *Order* assigns a value of exactly \$0 to those actual and recognized costs. It doesn't even make a passing effort to justify this glaring omission.

Similarly, the *Order* recognizes that there may be a whole range of additional costs that it simply does not analyze.¹⁷ It dismisses those by saying that the FCC will consider them when it seeks approval from the Office of Management and Budget for this information collection. But kicking this can down the road makes no sense. If there are additional costs associated with the rules we are adopting today, shouldn't we figure those out before we adopt the rule? Carts shouldn't pull horses.

The errors simply *compound* from there. For instance, the FCC estimated that there will be 50 reportable events a year.¹⁸ But the *Order's* analysis (or lack thereof) makes it clear that the agency has no idea how many events will qualify as "reportable events" under its new regime, and thus what the compliance costs will be. The *Order* says that the 50-reportable-events figure was a "conservative estimate based upon" documents that indicate that there were between 100 and 200 cable faults per year.¹⁹ But there's a fundamental problem with this: The 100-to-200 estimate is one of *actual* "faults," and the *Order's* new rules don't limit themselves in the least in this regard. Indeed, the *Order* treats as reportable incidents all sorts of ordinary network events that are not and have never been treated as "faults." So if the *Order* were to estimate the number of reportable events, it should be starting with a figure that is significantly higher than the number of actual faults, not a fraction of it.

There are other mistakes—both large and small—but you get the point.

The bottom line is this: The FCC simply does not care about cost-benefit analysis, let alone getting it right. That is how you end up with a section blithely asserting that compliance costs for the entire undersea cable industry and its 161 licensees will be no more than the price of a tiny studio apartment in Arlington, Virginia.

This is not the way it should be. Whether you view it as a requirement of reasoned decision-

¹⁴ See, e.g., *Order* at para 81; see also *Improving Outage Reporting for Submarine Cables and Enhancing Submarine Cable Outage Data*, GN Docket No. 15-206, Notice of Proposed Rulemaking, 30 FCC Rcd 10492, 10508, para. 44 (2015) (*NPRM*).

¹⁵ Compare *Order* at paras. 81-82 (discussing an "assumed \$80/hour labor rate"), and *NPRM*, 30 FCC Rcd at 10508, para. 44 (using "an assumed labor cost of \$80/hour"), with *Order* at para. 87 (calculating the \$152,500 cost estimate based on the \$50 per hour labor rate the FCC used when it estimated the costs for the 2008 regime).

¹⁶ *Order* at para. 86.

¹⁷ *Order* at para. 88.

¹⁸ See *Order* at para. 81 (citing *NPRM*, 30 FCC Rcd at 10508, para. 43 & nn.80-81).

¹⁹ See *Id.*

making under the Administrative Procedure Act, as the courts do,²⁰ or simply as a matter of good government, as we all should, a federal agency has an obligation to ensure in advance that its decisions will be beneficial on net to the American public. The benefits of a regulation may well outweigh its costs, but with the mailed-in analysis that this agency routinely conducts, we will never know.

For all of these reasons, I dissent.

²⁰ See, e.g., *National Ass'n of Home Builders v. EPA*, 682 F.3d 1032, 1040 (D.C. Cir. 2012) (“[W]hen an agency decides to rely on a cost-benefit analysis as part of its rulemaking, a serious flaw undermining that analysis can render the rule unreasonable.”); see also *City of Portland v. EPA*, 507 F.3d 706, 713 (D.C. Cir. 2007) (noting that “we will [not] tolerate rules based on arbitrary and capricious cost-benefit analyses”).

**DISSENTING STATEMENT OF
COMMISSIONER MICHAEL O'RIELLY**

Re: *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order.

This item is basically a sequel to last month's meeting, so many of the concerns I raised then about the Commission's reporting requirements are equally applicable – if not more so – here. I was able to concur to the order portion of May's item because it provided some relief and clarity for the entities subject to the reporting regime and because edits were made to the final draft to reduce implementation burdens.¹ The same is not true today. Additionally, as I said when we considered the notice, if we were to move forward and implement rules, I would expect to see far more data demonstrating the need for regulation.² However, today's item provides little justification for these new burdens.

The primary incident generating this proceeding was an outage caused by a typhoon in the Commonwealth of the Northern Mariana Islands (CNMI). The CNMI situation is unique because there was only one submarine cable servicing this area. In fact, one article referred to Saipan as “one of the least connected places on Earth.”³ I thought it would be helpful to provide an update on the CNMI situation. As a result of this very outage, there are press reports that a cable operator, who saw a need and business opportunity, has agreed to lay a new undersea cable to connect the three islands of the CNMI to Guam.⁴ In fact, when deploying the cable, redundancy will be a focus and the entity will ensure diverse landing points, equipment and routes.⁵ In sum, the free market has resolved a problem by promoting redundancy and re-routing – which should be the ultimate goal – all without any Commission action.

Today's item, however, requires reporting in cases of outages or degradations in service *even if the traffic is re-routed*. I suggested an edit that would make reporting required only in those cases where there was an outage and re-routing was not available for the traffic. This common sense approach, which would draw industry's attention to where redundancy was a problem, was rejected. Limiting the reporting requirement in such a way would still have addressed the root issue while greatly minimizing burdens on affected industry.

Let's face reality: reporting requirements are a first step to imposing rules, such as reliability and resiliency requirements, on operators and inserting the Commission into industry network management and operations. In fact, at last month's meeting, a couple of my colleagues went so far as to state that “we

¹ *Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications; New Part 4 of the Commission's Rules Concerning Disruptions to Communications; The Proposed Extension of Part 4 of the Commission's Rules Regarding Outage Reporting to Interconnected Voice Over Internet Protocol Service Providers and Broadband Internet Service Providers*, PS Docket No. 15-80, ET Docket No. 04-35, PS Docket No. 11-82, Report and Order, Further Notice of Proposed Rulemaking, and Order on Reconsideration, FCC 16-63, at 131-132 (rel. May 26, 2016).

² *Improving Outage Reporting for Submarine Cables and Enhancing Submarine Cable Outage Data*, GN Docket No. 15-206, Notice of Proposed Rulemaking, 30 FCC Rcd 10492, 10526 (2015).

³ Gaynor Dumat-ol Daleno, *DOCOMO will Lay Cable*, PACIFIC DAILY NEWS, Sept. 3, 2015, <http://www.guampdn.com/story/news/2015/09/03/docomo-lay-cable/71621434/>; *Docomo Plans Next Steps for Possible Undersea Fiber Build*, SAIPANTRIBUNE.COM, Sept. 3, 2015, <http://www.saipantribune.com/index.php/docomo-plans-next-steps-for-possible-undersea-fiber-build/>.

⁴ Dumat-ol Daleno, *supra* note 2.

⁵ Frauline S. Villanueva-Dizon, *Docomo to Lay Down New Undersea Fiber Optic Cable*, SAIPANTRIBUNE.COM, Mar. 11, 2016, <http://www.saipantribune.com/index.php/docomo-lay-new-undersea-fiber-optic-cable/>.

cannot manage problems that we do not measure.” But, it is not the Commission’s role to manage, fix, restore, operate, maintain or suggest improvements or repairs to any submarine cable network. Thankfully, this item does not attempt to do so, and I will vehemently oppose any efforts going forward to meddle in industry’s network decisions. But it raises the question, if the only purpose is to know about a problem, what good does that do?

I also have serious concerns about the timeframes provided for triggering the reporting requirements and submitting the various required reports. In many instances, the Commission disregards industry comments in their entirety and chooses its own timeframe with little analysis for why it is more appropriate than what is in the record.⁶ Similarly, the Commission arbitrarily decides that this reporting requirement should be implemented in six months, when every commenter suggests 12 to 15 months. I also would have preferred for submarine cable to have a two-phase reporting requirement instead of three, because additional information is highly unlikely to be available when the interim report is filed. I recognize, however, that the Commission sought comment on reducing the number of outage reports from three to two in last month’s Part 4 further notice. I want to ensure that submarine cable licensees are aware that a decision in the general Part 4 docket will apply to submarine cables and that all interested parties should participate in that proceeding.

Further, the discussion about streamlining the processes to lay submarine cables is more than disappointing. Here is one place the Commission actually could be helpful. Interestingly enough, press articles report that the new cable between Guam and the CNMI will not be operational until May 2017. Why? The reason for the delay is that, while it only takes two to three weeks to lay the cable, the permitting process takes *a long time*.⁷ The Commission should address this need, but instead the item directs staff to use its “existing delegated authority” to improve the permitting and coordination process with little discussion of what was suggested in the record and no guidance from the Commission, even though it appears that discussions are underway. Good luck with that.

Finally, the cost-benefit analysis in this order is awful. Once again, the Commission underestimates the burden of filing these reports and ignores the input of commenters. Instead of breaking down the various costs and doing a true analysis, the calculation is based on a portion of the cost analysis, provided to OMB as part of a Paperwork Reduction Act filing, for the old submarine cable voluntary reporting system. Why a voluntary system that did not have to take into account such things as the cost of coordination between consortia members, the possible appointment of responsible parties, potential liability issues, and multiple rounds of legal review is a good starting point for the cost-benefit analysis is beyond me. Moreover, starting off such an analysis by suggesting that, at least, the burdens are not as bad as those proposed in notice is insulting. The fact that it could have been worse does not excuse the Commission from doing a thoughtful review of the costs.

Additionally, the item states that the costs raised in the record may inform the Paperwork Reduction Act filing, but as I have said before, complete information about the costs should be provided in the item when Commissioners vote. Further, a thorough analysis should be done regarding what information is reported to the Department of Homeland Security’s National Coordinating Center for

⁶ For example, the item finds that the reporting requirement is triggered for any outage exceeding 30 minutes, whereas commenters requested three hours. Further, the timeframe for filing the initial notification is four hours from determining that an event is reportable even though the majority of commenters state that should have 48 hours. What is even more perplexing though is that for the first three years, entities will have eight hours to report.

⁷ Villanueva-Dizon, *supra* note 5 (quoting the Docomo Pacific President and CEO who stated that: “Permitting is the part of the process that takes the absolute longest,” . . . adding that it takes about 12 months to do the permitting because they would have to coordinate with the CNMI, Guam, and federal governments. . . . He added that the actual laying of the cable will only take less than three weeks.”)

Communications. Industry should not bear the burden of filing duplicative information.

Even worse, there is no quantitative analysis of the benefits. The item just summarily concludes that the potential benefits from improved monitoring outweigh the costs. There is no proof, however, that a reporting requirement or the Commission knowing of an outage leads to any benefit. There isn't even evidence of a systemic problem of submarine cable outages that needs to be fixed. Instead, once again, the Order returns to the CNMI outage, stating that the Commission was hampered in its ability to respond because of the delayed situational awareness. Operators in an outage situation should be spending their time trying to fix the problem, not focusing on a report requirement, and I am sure they are not seeking help, advice or any response from the Commission.

For these reasons, I am unable to support the reporting requirement detailed in today's item and, therefore, I must dissent.