

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

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

NOTICE OF PROPOSED RULEMAKING

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

TABLE OF CONTENTS

Table with 2 columns: Heading and Paragraph #. Includes sections I-V and Appendix A-B.

I. INTRODUCTION

1. Submarine (or “undersea”) cables<sup>1</sup> provide the primary means of connectivity – voice, data and Internet – 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

<sup>1</sup> Throughout this Notice, “submarine cable” and “undersea cable” are used interchangeably.

connectivity between the United States and the rest of the world. Submarine cable infrastructure supports U.S.-based commerce overseas, and also ensures that American consumers have access to worldwide Internet content and American content-producers have access to worldwide markets for their content. In 2012, the Asia Pacific Economic Cooperation (APEC) estimated that submarine cables carry traffic associated with over \$10 trillion in transactional value globally per day.<sup>2</sup> And today's approximately 60 undersea cables<sup>3</sup> licensed in the United States carry the vast bulk of the Government's civilian and military communications traffic.<sup>4</sup>

2. Given the role of submarine cables to the nation's economic and national security, there is value to ensuring that infrastructure is reliable, resilient and diverse. Today, however, the ad hoc approach to outage reporting for undersea cables has resulted in a gap in the sufficiency of the information that the Federal Communications Commission ("Commission" or "FCC") staff receives from service providers. To effectuate our statutory obligations of promoting the public interest and our nation's economic and national security,<sup>5</sup> we need the ability to (1) be advised of undersea cable outages when they occur; (2) receive 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; and (3) enhance coordination and help facilitate restoration of service in outage events.

3. In this Notice of Proposed Rulemaking ("Notice" or "NPRM"), we take important steps toward assuring the reliability and resiliency of this critical piece of our communications infrastructure by proposing to require submarine cable licensees to report to the Commission when outages occur and communications are disrupted. Specifically, we propose to require submarine cable licensees to report outages involving either lost connectivity or degradation of 50 percent or more of an undersea cable's capacity for periods of at least 30 minutes, regardless of whether the cable's traffic is re-routed. We also propose to amend the submarine cable landing license rules to require compliance with the outage reporting requirements.

4. By requiring undersea cable licensees to report outages, we propose to move from an ad hoc outage reporting by a few cable licensees, with occasional, often incomplete and untimely information, to a structured and reliable system of outage reporting that has demonstrated its value over time and that will cover *all* submarine cables serving our nation's communications needs. The benefits of this approach include, for example, early identification of troubling system trends, notice of changes that significantly affect, or might affect, transmission speeds,<sup>6</sup> and increased early awareness of harmful activity.

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<sup>2</sup> APEC Policy Support Unit, *Economic Impact of Submarine Cable Disruptions* at 9 (Dec. 2012), [http://publications.apec.org/publication-detail.php?pub\\_id=1382](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).

<sup>3</sup> As of December 1, 2014, 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/scell.html> (last visited Sept. 18, 2015).

<sup>4</sup> Communications, Security, Reliability, and Interoperability Council (CSRIC) IV, *Final Report – Protection of Submarine Cables Through Spatial Separation* at 1 (2014), [http://transition.fcc.gov/pshs/advisory/csric4/CSRIC\\_IV\\_WG8\\_Report1\\_3Dec2014.pdf](http://transition.fcc.gov/pshs/advisory/csric4/CSRIC_IV_WG8_Report1_3Dec2014.pdf) ("CSRIC IV Report").

<sup>5</sup> Two of the fundamental purposes of the Communications Act of 1934, as amended, are to enable "national defense" and "promot[e] safety of life and property through the use of wire and radio communication." 47 U.S.C. § 151.

<sup>6</sup> *See, e.g.*, Christopher Williams, *The \$300M Cable that Will Save Traders Milliseconds*, *The Telegraph* (Sep. 11, 2011), <http://www.telegraph.co.uk/technology/news/8753784/The-300m-cable-that-will-save-traders-milliseconds.html> (describing the multi-million dollar impact submarine cable transmission speeds have on financial markets).

## II. BACKGROUND

5. Presently, parts 1 and 43 of our rules require submarine cable applicants and licensees to provide cable capacity information to the Commission.<sup>7</sup> Licensees are not required, however, to report on their cables' operational status. Rather, licensees provide such operational information to the Commission on an ad hoc basis through the Commission's Undersea Cable Information System (UCIS). UCIS, launched in coordination with other Federal agencies in 2008,<sup>8</sup> provides a web portal for licensees to provide terrestrial route maps, location spreadsheets, general information on post-incident restoration plans, and system restoration messages concerning outages involving submarine cables landing in the United States.<sup>9</sup> This ad hoc approach contrasts significantly with the Commission's Part 4 outage reporting requirements, which require more targeted information on the causes and effects of communications outages,<sup>10</sup> establish specific reporting triggers and thresholds,<sup>11</sup> and provide specific deadlines for those reports to be made.<sup>12</sup>

6. The Commission's seven years of experience with this ad hoc reporting approach has raised two significant concerns: (1) because licensees only file UCIS reports for only approximately one-fourth of current submarine cables, the Commission has no visibility, real-time or otherwise, into outages and disruptions affecting the vast bulk of undersea cable infrastructure; and (2) because the information that is submitted is not standardized or uniform, and because there are no established triggers for reporting, the Commission has no reliable, probative, and consistent information for analysis of these critically important outage events and restoration activities. UCIS has not delivered sufficient information about submarine cable outages to provide the Commission with adequate, timely awareness of communications disruptions and related restoration efforts involving undersea cable infrastructure.

## III. DISCUSSION

7. In this NPRM we propose rules to improve the Commission's present lack of visibility on undersea cable operational status by requiring undersea cable licensees to provide outage information to the Commission through a reliable Part 4 template in accordance with logical standards and triggers. We also propose to revise Part 1 of the rules governing submarine cable licenses to ensure compliance with the outage reporting requirements. We seek comment on all aspects of this proposal, including the definitions, degradation thresholds, and reporting structure for these requirements.

### A. Extending Mandatory Outage Reporting to Submarine Cables

8. Submarine cables "provide the principal domestic connectivity between the contiguous United States and Alaska, Hawaii, American Samoa, Guam, the Northern Marianas, Puerto Rico, and the U.S. Virgin Islands" as well as substantial intrastate and intra-territorial connectivity in those areas.<sup>13</sup> Further, submarine cables carry over 95 percent of all U.S.-international voice and data traffic.<sup>14</sup> A recent

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<sup>7</sup> 47 C.F.R. §§ 1.767(a)(4), 43.62(a)(2).

<sup>8</sup> See 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).

<sup>9</sup> See *id.*

<sup>10</sup> 47 C.F.R. § 4.11.

<sup>11</sup> *Id.* § 4.9.

<sup>12</sup> *Id.* § 4.7.

<sup>13</sup> CSRIC IV Report at 1.

<sup>14</sup> *Id.* See also FCC, International Bureau Report, 2013 Section 43.82 Circuit Status Report, Tables 2, 3 (2015), [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-334397A2.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-334397A2.pdf) (last visited Sept. 17, 2015).

APEC Report concluded that “[m]ember economies [including the United States] should be aware of the importance of submarine cables and the risk to trade in goods and services, international financial markets, social welfare, political stability, and domestic security posed by submarine cable disruptions.”<sup>15</sup> For this reason, the Commission should have consistent, standardized, and timely access to undersea cable outage information needed to monitor and protect submarine cable infrastructure and safeguard communications over it.

9. *National Security.* The nation’s security depends on operational undersea cable infrastructure. Indeed, for international traffic, submarine cables owned by cable licensees “carry the vast majority of civilian and military U.S. Government traffic, as the U.S. Government does not own and operate its own submarine cables.”<sup>16</sup> Moreover, cable landing sites for U.S. licensed submarine cables providing connectivity for communications to and from the United States<sup>17</sup> are concentrated in a limited set of stations on the U.S. east and west coasts. As a result, multiple cables can be affected by natural and non-natural events.<sup>18</sup> 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 important to the nation’s communications security and useful outage information concerning undersea cables will assist the Commission in effectuating its role in protecting that infrastructure.<sup>19</sup>

10. The Commission has a major role to play in addressing operational threats to undersea cable infrastructure and, thereby, promoting national security. The Cable Landing License Act and Executive Order 10530 authorize the Commission to grant, withhold, or revoke licenses to land submarine cables in the United States and to condition them upon such terms as are necessary to “promote the security of the United States” and “assure just and reasonable . . . service in the operation and use of the cables so licensed.”<sup>20</sup> More generally, the Commission has fulfilled its statutory mandate to promote the safety of life and property by actively ensuring the resiliency and reliability of the nation’s

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<sup>15</sup> APEC Report at iii. *See also* CSRIC Report at 2 (“Submarine cables play a critical role both in ensuring that the United States can communicate domestically and with the rest of the world, and in supporting the critical economic and national security endeavors of the United States and its citizens. Submarine cables support U.S.-based commerce abroad and provide access to Internet-based content, a substantial proportion of which is located in the United States.”).

<sup>16</sup> *See* CSRIC Report at 2.

<sup>17</sup> *See* FCC, Submarine Cable Landing Licenses, <https://transition.fcc.gov/ib/pd/pf/scell.html> (last visited September 17, 2015).

<sup>18</sup> *See* Nicole Starosielski, *The Undersea Network*, 139 (2015) (“[L]anding points are . . . few in number due to the cost of establishing them, connecting them with domestic infrastructure, and setting up strategies of insulation. Fewer than ten cable landing points on the west coast of the United States collectively make up the gateway for almost all international data traffic to Asia.”).

<sup>19</sup> *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.”).

<sup>20</sup> Cable Landing License Act of 1921, Pub Law No. 8, 67th Congress, 42 Stat. 8 (1921); 47 U.S.C. §§ 34-39, at § 34, (“Cable Landing License Act of 1921”) delegated by Executive Order No. 10530, § 5(a) (May 10, 1954), reprinted and amended in 3 U.S.C. § 301 (“Executive Order No. 10530”). *See also infra* Section III.E.

commercial and public safety communications infrastructure.<sup>21</sup> Several Presidential Directives and Executive Orders have expressly emphasized this vital Commission role as the nation has adapted to constantly evolving threats to the security of the nation's communications infrastructure. For example, Presidential Policy Directive 21 directs the FCC to identify critical communications infrastructure, identify potential vulnerabilities in that infrastructure, and work with stakeholders to promote its security and resiliency.<sup>22</sup> Consistent with that framework, the Commission is responsible for ensuring continuous communications operations, and for the reconstitution of critical communications and services when needed.<sup>23</sup> The Commission also plays an active role in Emergency Support Function 2 (ESF2),<sup>24</sup> the communications element of the National Response Framework,<sup>25</sup> which guides the Nation's conduct during an 'all-hazards' response.

11. *Economic Impacts.* Operational undersea cables are also important to our economy.<sup>26</sup> As noted above, APEC has estimated that transactions over submarine cables account for \$10 trillion per day.<sup>27</sup> The U.S. Clearing House Interbank Payment System processes over \$1 trillion per day in transactions with more than 22 economies via submarine cables.<sup>28</sup> Multi-currency cash settlement

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<sup>21</sup> See, e.g., *New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, Report and Order and Further Notice of Proposed Rule Making, 19 FCC Rcd 16830 (2004) (establishing the Commission's outage reporting requirements) ("2004 Part 4 Report and Order"); *Improving 911 Reliability; Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket Nos. 13-75, 11-60, Report and Order, 28 FCC Rcd 17476 (2013) (requiring Covered 911 Service Providers to take reasonable measures to provide reliable service with respect to 911 circuit diversity, central office backup power, and diverse network monitoring, as evidenced by an annual certification of compliance with specified best practices or reasonable alternative measures).

<sup>22</sup> Presidential Policy Directive 21 (Feb. 12, 2013), available at <https://www.whitehouse.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil> (last visited Sept. 18, 2015). ("The Federal Communications Commission, to the extent permitted by law, is to exercise its authority and expertise to partner with DHS and the Department of State, as well as other Federal departments and agencies and SSAs as appropriate, on: (1) identifying and prioritizing communications infrastructure; (2) identifying communications sector vulnerabilities and working with industry and other stakeholders to address those vulnerabilities; and (3) working with stakeholders, including industry, and engaging foreign governments and international organizations to increase the security and resilience of critical infrastructure within the communications sector and facilitating the development and implementation of best practices promoting the security and resilience of critical communications infrastructure on which the Nation depends.).

<sup>23</sup> See FCC, Emergency Communications, <http://www.fcc.gov/topic/emergency-communications> (last visited Sept. 17, 2015) (describing the Commission's work with respect to emergency communications).

<sup>24</sup> ESF2 supports the restoration of communications infrastructure and facilities and also coordinates Federal communications support to response efforts during incidents requiring a Federal response. See Emergency Support Function #2—Communications Annex, <http://www.fema.gov/pdf/emergency/nrf/nrf-esf-02.pdf> (last visited September 17, 2015).

<sup>25</sup> See FEMA, *National Response Framework*, <http://www.fema.gov/media-library/assets/documents/32230?id=7371> (last visited Sept. 17, 2015) ("The National Response Framework is a guide to how the Nation responds to all types of disasters and emergencies.").

<sup>26</sup> As the former Chief of Staff to Federal Reserve Chairman Ben Bernanke stated, "[w]hen communications networks go down, the financial services sector does not grind to a halt, rather it snaps to a halt." Stephen Malphrus, Keynote Address, Reliability of Global Undersea Communication Cables Infrastructure (ROGUCCI) Summit, Dubai, United Arab Emirate, Oct. 19, 2009; see also Steve Malphrus, Board of Governors of the Federal Reserve System, "Undersea Cables and International Telecommunications Resiliency: Important to the Evolution of Global Financial Services," May 20, 2010, available at <http://www.virginia.edu/colp/pdf/Malphrus-Presentation.pdf> (discussing, *inter alia*, examples of international financial transactions conducted via submarine cables).

<sup>27</sup> See *supra* para. 1, n. 2.

<sup>28</sup> APEC Report at 9.

systems, such as the Continuous Link Settlement (CLS) initiative that facilitates the exchange of currencies of various members through simultaneous transactions, are an essential component in the foreign exchange market and rely on submarine cables to conduct trade.<sup>29</sup> In February 2015, for example, the largest multi-currency cash settlement system, CLS Bank, made nearly 1.2 million transactions and traded over \$4.8 trillion a day via submarine cables.<sup>30</sup> And, while submarine cables facilitate the global economy, the financial impact can become individualized when a part of the United States that depends on submarine cable connectivity loses it as described below.<sup>31</sup> The connectivity of a single submarine cable can determine whether Americans have access to ATMs and credit cards, affecting personal financial decisions.<sup>32</sup>

12. *UCIS*. In 2008, in cooperation with other Federal agencies, and in support of Federal national security and emergency preparedness communications programs,<sup>33</sup> the Commission began UCIS.<sup>34</sup> Licensees that elect to use UCIS are asked 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. 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 category is dynamic, insofar as such messages should be updated after an incident and during the repair process.

13. The Commission's experience with UCIS has revealed that the program is insufficient for providing awareness of specific disruptions and restoration efforts with undersea cables necessary to achieve the Commission's goals of enhancing communications resiliency and maintaining continuity of communications. Our experience with the ad hoc nature of this reporting approach highlights two significant concerns: (1) the Commission only receives information on about one-fourth of the cables; and (2) the information submitted is neither uniform, complete, nor consistent with respect to reporting triggers, form, or substance.

14. Since UCIS' inception, program participation and, thus, its utility as a submarine cable situational awareness tool, has been inadequate. The Commission receives nothing in UCIS on the vast majority of undersea cables, resulting in an incomplete and skewed undersea cable data picture.<sup>35</sup> In addition, the entities that do report sometimes do so in error, resulting in the Commission receiving information to which no use can be put. For example, in a one-year period starting in July 2014, UCIS received reports on seven cables, three of which had no United States end points. Moreover, UCIS reporting apparently has not become integral to the submarine cable outage action plans of those licensees that have used the tool. Indeed, after filing initial test messages when UCIS was introduced, the majority of licensees have either never reported again after that test or stopped reporting in the intervening time since. In many cases, licensees have chosen not to file even the requested static information (*e.g.*,

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<sup>29</sup> Douglas R. Burnett, Robert C. Beckman & Tara M. Davenport, *Submarine Cables: The Handbook of Law and Policy*, 1 (2014).

<sup>30</sup> CLS, CLS Monthly Data - February 2015 (Mar. 23, 2015) <http://www.cls-group.com/MC/Pages/NewsArticle.aspx?nid=160>.

<sup>31</sup> *See infra* paras. 20-22 (describing the effect of a recent outage in the Northern Mariana Islands on local financial transactions).

<sup>32</sup> *See infra* n. 43.

<sup>33</sup> *See* OMB Control Number 3060-1116 and Supporting Statement at 1.

<sup>34</sup> *Id.*

<sup>35</sup> Messages related to one cable, including messages where the Commission was "cc'd" on an email exchange or received duplicate notifications, constitute 75% of the UCIS transmissions received by the Commission.

terrestrial route map).<sup>36</sup> We seek comment on licensees' evaluation of their participation in the UCIS program. To what extent and under what circumstances do submarine cable licensees make use of this tool? How many outages, planned or unplanned, does a licensee experience per year? Are there discernable patterns to submarine cable outages?

15. Overall, the Commission has received information on 14 out of approximately 60 U.S.-licensed cables since 2010. Several licensees have informally indicated to the Commission that they will not participate in the voluntary UCIS program.<sup>37</sup> Comparing UCIS and Network Outage Reporting System (NORS) reports<sup>38</sup> over a recent one-year span indicates that at least 16 submarine cable issues affected service significantly enough to require a NORS report but were not reported in UCIS, including an outage that affected United States domestic connections. For two events, the FCC did receive information in UCIS that may be linked to a NORS report but the information provided was not at a sufficient level of detail to make a direct correlation.

16. UCIS does not appear to be a suitable model for expansion to meet Commission objectives for undersea cable outage awareness. During UCIS' development, licensees informally indicated that they would be willing to participate in the UCIS system if they were able to provide information about a disruption to the Commission in the same manner that they provide it to customers and other relevant private parties – generally, via email. Further, licensees indicated that they would not be willing to participate in the system if the filing requirements and required fields differed drastically from their practices at the time. Accordingly, UCIS was designed as a “file depository,” not a systematic data collection effort or database; each restoration message is delivered as either a file with text statements or as an email. The file-depository nature of these reports makes them difficult to categorize and index and, therefore, time-consuming to review and difficult to analyze – either individually or collectively –to identify trends.

17. An additional problem with UCIS is a lack of consistency in the information that is provided to the Commission, both in form and substance. The current information requested does not specify what conditions or minimum disruption thresholds trigger the reporting requirements. In fact, by design, triggers are entirely subjective: “if the company feels it is important enough that it generates the [notification] information for itself or for another owner/operator, then that threshold is acceptable.”<sup>39</sup> The lack of consistent reporting thresholds complicates the Commission's analysis of UCIS reports because the reports vary in importance. We seek comment on the standard that licensees currently use to trigger a reporting requirement in UCIS. Further, the Commission must spend a far greater amount of time than should be necessary to understand the information conveyed because the notifications are

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<sup>36</sup> Since the program'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% of cables.

<sup>37</sup> The lack of participation in the voluntary UCIS program stands in contrast to the Commission's voluntary Disaster Information Reporting System (DIRS), which has been largely embraced by service providers and has been successful in providing the Commission with critical situational awareness of service outages in disaster situations. DIRS is a voluntary, web-based system that communications companies -- including wireless, wireline, broadcast, and cable providers-- can use to report communications infrastructure status and situational awareness information during times of crisis. While submarine cable operators can use DIRS it is not designed for their use. *See* FCC, Disaster Information Reporting System, <https://transition.fcc.gov/pshs/services/cip/dirs/dirs.html> (last visited Sept. 17, 2015).

<sup>38</sup> The Commission requires communications providers, including wireline, wireless, paging, cable, satellite and Signaling System 7 service providers, electronically to report information in our Network Outage Reporting System (NORS) about significant disruptions or outages to their communications systems that meet specified Part 4 thresholds. *See generally* 47 C.F.R. pt 4; *see also* FCC, *Network Outage Reporting System*, <http://transition.fcc.gov/pshs/services/cip/nors/nors.html> (last visited Sept. 17, 2015).

<sup>39</sup> OMB Control Number 3060-1116 and Supporting Statement at 2.

frequently the same updates given to customers and other private parties. Accordingly, the updates generally do not contain information relevant to the Commission's objectives, and if they do it is not presented in a concise manner that allows for rapid analysis because the Commission is not the intended audience. Even with modern 'meshed' networks, where service can remain active during an outage by rerouting the traffic around a fault,<sup>40</sup> the failure of a single cable can have a "ripple" effect on services provided on other cables, causing congestion on other cables that ultimately affects the flow of communications and data traffic globally.<sup>41</sup> Not knowing that one is down means diminished ability to anticipate others that may have problems, a cascading lack of visibility that impairs awareness and preparedness.

18. Based on our experience, we believe that the Commission needs access to more timely and consistent reporting and information to assess the operational status of submarine cables, including any outages and the associated restoration status of these cables. We seek comment on whether the approach we propose in this item achieves our policy goals, and whether there are other approaches that may also achieve our policy goals. Is there a manner in which the Commission could maintain the UCIS model, either in format or in substance, and ensure it receives the necessary data on submarine cable operational status? What changes would need to be made to the current system?

19. *NORS*. Although the Commission occasionally receives information on certain submarine cable outages via NORS, and NORS is available to some cable licensees for outage reporting, it, too, presently is an inadequate tool for submarine cable operational status monitoring. Primarily, this is because that system was designed for different types of outage reporting, not submarine cable reporting. Moreover, there are significant differences in the two environments, such as the uncertainty surrounding repair schedules, that negate NORS' value for submarine cable reporting. We think that in order for NORS to be an effective mechanism for submarine cable outage reporting, undersea cable-specific provisions, such as those proposed in this *Notice*, are necessary.

20. *The July 8, 2015 Northern Mariana Island Outage*. A recent submarine cable outage brings the limitations of the UCIS outage reporting approach into stark relief, and provides an instructive example both of the limitations of the present system and the need for the changes proposed in this Notice. On July 8, 2015, a tropical storm damaged a submarine cable between the Commonwealth of the Northern Mariana Islands (CNMI) and Guam, both U.S. Territories.<sup>42</sup> The damage to the cable severed off-island wireless and wireline voice and data services for thousands of CNMI residents and businesses, including elements of the financial system, for nearly three weeks.<sup>43</sup>

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<sup>40</sup> A 'mesh' network is a "decentralized network design in which each node on the network connects to at least two other nodes on the network and in which the network permits reconfiguration and routing around broken or unreliable nodes, ensuring a self-healing capability." CSRIC Report at 1.

<sup>41</sup> An example "ripple effect" occurred after a February 2015 cable cut between India and Singapore caused increased network congestion worldwide. "Many services with data centers in East Asia and the western United States were affected by the Tata cable cut, given the importance of Tata as a transit provider between India and Singapore." The results were increased latency and packet loss, meaning that access to data stored in the U.S. was impeded; even routes from the eastern United States to Europe and peering points in Chicago and San Jose, experienced increased congestion. While this event would not have been reportable in UCIS or under the proposed rules, it demonstrates the importance of cable outages on worldwide communications. The direct effects on U.S. traffic could be even greater if a U.S. submarine cable licensee is directly affected. Nick Kephart, *Tata Cable Cut Affects SaaS Services Worldwide* (Feb. 25, 2015) <https://blog.thousandeyes.com/tata-cable-cut/>.

<sup>42</sup> Press Release, IT&E, *IT&E Fiber Cable Damaged Between Guam and CNMI* (Jul. 8, 2015), <http://www.kuam.com/story/29496650/2015/07/07/ite-fiber-cable-damaged-between-guam-and-cnmi>.

<sup>43</sup> Gaynor Dumat-ol Daleno, *CNMI Disconnected: Cable Shuts Down Phones, Banking*, Pacific Daily News, Jul. 9, 2015 <http://www.guampdn.com/story/news/2015/07/07/thousands-ite-telecommunications-cnmi-guam-customers-lose-service/29844973/> ("The outage also means credit-card purchases, withdrawing money from ATMs, teleconferencing for health care, and all other communications that go through the CNMI's only fiber-optic cable

(continued....)

21. Despite the extensive outage and impact, IT&E, the primary cable licensee, chose not to report this outage in UCIS, nor was it required to. The Commission learned of the outage only indirectly, including through reports of other service outages as required by our Part 4 rules.<sup>44</sup> However, the information that the Commission did receive lacked the detail necessary for the Commission to understand the circumstances of the outage. Indeed, the first report did not even provide reliable owner and operator contact information, which frustrated the Commission's ability to identify and talk with the licensee's restoration team and stay apprised of those efforts.

22. Overall, the Commission was hampered in its ability to assess or monitor the CNMI outage impact, restoration developments and other critical issues, in real time or otherwise. In addition to working with the provider experiencing the outage, the Commission's restoration actions include coordinating with other submarine cable providers and other communications sectors (i.e., satellite, wireless and broadcast) to lessen the impact on the community while the provider works to restore service.

23. The inadequacies of the Commission's current approach to submarine cable outage reporting are significant, and particularly so when contrasted with the detailed, usable, and streamlined mandatory outage information that the Commission receives from other service providers pursuant to Part 4.<sup>45</sup> Our ability to reliably and systematically receive and analyze Part 4 outage data from other service providers has resulted in demonstrable efforts to improve overall network reliability and provided an important window into service availability.<sup>46</sup> We attribute that success, in large part, to the objective and consistent nature of the Part 4 reporting regime, which permits more timely and cohesive analysis, well-defined reporting requirements capable of ready implementation by providers, and a practice of cooperation between reporting providers and the Commission that puts situational awareness and restoration first. We would expect that kind of regime to produce similar results for undersea cables, particularly if crafted to fit that environment as proposed in this NPRM. This would constitute a dramatic improvement over the *status quo*.<sup>47</sup>

(Continued from previous page) \_\_\_\_\_  
connection to the outside world have gone dark, telecommunication company IT&E confirmed Wednesday afternoon.”). Limited communications were restored during this time using a microwave system. Gaynor Dumat-ol Daleno, Undersea Cable Break Offers Lessons for Guam, World, Pacific Daily News, Jul. 11, 2015 <http://www.guampdn.com/story/news/2015/07/10/undersea-cable-break-offers-lessons-guam-world/29950811/>. The submarine cable was repaired on July 26, 2015, though disruptions continued while the communications provider transitioned the circuits. Gaynor Dumat-ol Daleno, IT&E's Undersea Cable Operational, World, Pacific Daily News, Aug. 1, 2015 <http://www.guampdn.com/story/news/2015/07/31/ites-undersea-cable-restored/30923701/>.

<sup>44</sup> 47 C.F.R. § 4.9.

<sup>45</sup> See generally 47 C.F.R. pt 4.

<sup>46</sup> See, e.g., *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. 11-82, Notice of Proposed Rulemaking, 26 FCC Rcd 7166, 7171-73, paras. 16-17 (2011) (describing, among other improvements, a 50% reduction in lost wireline calls to 911 as a result of the Commission's systematic analysis of network outages).

<sup>47</sup> See *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. 11-82, Report and Order, 27 FCC Rcd 2650 (2012). In this Report and Order we stated that “. . . competitive friction frequently makes service providers reluctant to voluntarily disclose detailed information about their own service outages” and observed that a voluntary outage reporting trial was attempted, without success, prior to the adoption of the Part 4 rules. The Commission found that there was “a history of several years of unsuccessful voluntary outage reporting trials conducted by groups working under the auspices of Network Reliability and Interoperability Council (NRI)” and found that “participation was spotty and . . . the quality of information obtained was very poor.” *Id.* at 2667, para. 40.

## B. Proposed Submarine Cable Reporting System

24. In light of the foregoing, we propose to replace UCIS in its entirety by extending modified outage reporting requirements in Part 4 of our rules to submarine cable licensees. We expect that moving submarine cable reporting from UCIS to NORS will result in significant improvements in the Commission's ability to monitor and analyze the reliability and resiliency of undersea cable. We seek comment on this view.

### 1. Covered Providers

25. Pursuant to the Cable Landing License Act and Executive Order 10530,<sup>48</sup> the Commission has promulgated 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).<sup>49</sup> The following entities are required to be licensees on a cable landing 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 U.S. points of the cable system.<sup>50</sup>

26. In order to ensure resiliency of these critically important undersea cables, regardless of whether they are used for domestic or international voice and data traffic, we propose to require that all submarine cable licensees will be subject to Part 4's reporting requirements as further described in this Notice.<sup>51</sup> Specifically, we propose to amend section 1.767 to make outage reporting a condition of each cable landing license.<sup>52</sup> We seek comment on this proposal. Are there any categories of licensees that should be exempted from mandatory outage reporting? If so, why? Are there any entities subject to the Commission's jurisdiction (e.g., international communications service providers) that are not licensees that should be covered by these rules? How would applying these rules to such providers affect our legal analysis of our authority?<sup>53</sup>

27. Many submarine cables are jointly owned and operated by multiple licensees in a consortium. We seek comment on the assumption that, should an outage occur, it will generally cause a disruption for all licensees of that submarine cable. Based on that premise, and in an effort to minimize the burden both on licensees and the Commission, we propose that where there are multiple licensees of the same cable, only one licensee per cable will be required to file an outage report. In particular, we propose an approach whereby all licensees sharing a submarine cable would acknowledge and provide consent for a designated licensee to file on behalf of the cable should an outage occur. We seek comment on this approach.

28. We observe that using a single licensee to coordinate filing is consistent with our treatment of submarine cables in other contexts. For example, with respect to annual regulatory fees, the

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<sup>48</sup> Cable Landing License Act of 1921, 47 U.S.C. §§ 34-39; Executive Order No. 10530.

<sup>49</sup> 47 C.F.R. §§ 1.767, 1.768.

<sup>50</sup> *Id.* § 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).

<sup>51</sup> *Id.* pt. 4 (Disruptions to Communications).

<sup>52</sup> In section 1.767(g), we propose to include outage reporting in the list of routine conditions for cable landing licenses granted on or after March 15, 2002. We also propose to add a new paragraph to section 1.767 requiring outage reporting for cable landing licenses issued prior to March 15, 2002. See *infra*, Appendix A.

<sup>53</sup> See *infra* section III.E.

Commission will only accept a single payment per cable so multiple licensees of a cable must determine among themselves who will pay the fees.<sup>54</sup> Similarly, submarine cable capacity reporting rules state that “[o]nly one cable landing licensee shall file the capacity data for each submarine cable. For cables with more than one licensee, the licensees shall determine which licensee will file the reports.”<sup>55</sup> We seek comment on whether, consistent with these precedents, requiring only one licensee to file outage data on cables with multiple licensees would be efficacious. Does such an approach present a risk that the Commission will receive insufficient or otherwise incomplete information? Will the “Responsible Licensee” always have sufficient information to timely file and provide a full and accurate report? Should we require licensees to formally designate with the Commission one “Responsible Licensee” per submarine cable to bear the reporting obligation where there are multiple licensees? Does designating a “Responsible Licensee” place that licensee in the position of having to get information from a different licensee who caused or experienced the outage in order to comply with full and accurate reporting requirements?

29. If we adopt a “Responsible Licensee” reporting paradigm to enhance administrative efficiency and convenience, we believe that every submarine cable licensee has a duty to ensure that outages are properly and adequately reported. We seek comment on this approach. Is such an approach equitable and capable of efficient implementation? Would such an approach create the right incentives for co-licensees to work together to quickly and accurately identify and report on outages? If reports are not timely-filed or accurate due to inability of the “Responsible Licensee” to obtain necessary information from the licensee who caused the outage, would enforcement action be appropriate against the “Responsible Licensee” only, or against co-licensees? Should each licensee be jointly and severally liable for any forfeiture?<sup>56</sup> Are the administrative efficiencies of the Responsible Licensee system beneficial to reporting entities? Would the Responsible Licensee system complicate the Commission’s ability to ensure proper reporting?

## 2. Defining a Reportable Outage or Disruption

30. Under Part 4 of our rules, we define an “outage” as “a significant degradation in the ability of an end user to establish and maintain a channel of communications as a result of failure or degradation in the performance of a communications provider’s network,”<sup>57</sup> and then we define specific reporting thresholds for various technologies that roughly correlate to the definition of “outage.”<sup>58</sup> We propose to build on this definition for submarine cables. Specifically, we propose that an outage sufficient to trigger Part 4 reporting exists for submarine cables if there is a failure or significant degradation in the performance of a submarine cable, regardless of whether traffic traversing that cable can be re-routed to an alternate cable. This proposal, analogous to Part 4 reporting for simplex outages,<sup>59</sup>

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<sup>54</sup> See *FY 2014 Regulatory Fees: Submarine Cable Systems* at 2 (rel. Sept. 16, 2014), citing *Assessment and Collection of Regulatory Fees for Fiscal Year 2008*, Report and Order, 24 FCC Rcd 4208, 4212, 4215, paras. 6, 17 (2009).

<sup>55</sup> 47 C.F.R. § 43.62(a)(2)(i).

<sup>56</sup> We observe that the Commission requires joint and several liability for forfeitures in a similar context. Specifically, in a forfeiture proceeding in which the operators of multiple transmitters at a single site exceed the applicable radiofrequency (RF) radiation limit, the Commission holds each such operator liable for a violation of the rule. The Commission does not apportion forfeiture liability among the operators at that site. See Section 1.1307 of the Commission’s rules, 47 C.F.R. § 1.1307 (RF radiation limits); *Radio One Licenses, LLC, Licensee of FM Radio Station KKBT, Los Angeles, California*, Forfeiture Order, 19 FCC Rcd 23922, 23931, para. 20 (2004), *aff’d* 21 FCC Rcd 14271, 14278, para. 17 (2006) (considering and rejecting a proposal to apportion forfeiture liability among the transmitter operators at a particular site).

<sup>57</sup> 47 C.F.R. § 4.5(a).

<sup>58</sup> *Id.* § 4.9.

<sup>59</sup> See *Amendments to Part 4 of the Commission’s Rules Concerning Disruptions to Communications; New Part 4 of* (continued....)

seems appropriate given the possibility of damage to multiple cables due to one or multiple related or unrelated events and the relatively small number of undersea cables available for re-routing generally. We seek comment on this proposal. How do licensees generally provide redundancy, and what are the notable effects on other services, if any?

31. Further, we propose reporting of a submarine cable disruption when either: (i) an event occurs in which connectivity in either the transmit mode or the receive mode is lost for at least 30 minutes; or (ii) an event occurs in which 50 percent or more of a cable's capacity in either the transmit mode or the receive mode is lost for at least 30 minutes, regardless of whether the traffic is re-routed. In this proposal we distinguish connectivity, which is the fundamental ability to transmit a signal, from capacity, which speaks to the cable's bandwidth or throughput that it is capable of transmitting at any one time. We seek comment on all aspects of this proposal.

32. We believe that 30 minutes is an appropriate threshold for an outage report given the importance of submarine cables as high-volume carriers of traffic affecting global communications used in national security and commerce. In fact, we believe that it is likely that an unplanned submarine cable outage of greater than 30 minutes will typically indicate problems that will require substantially longer restoration interval given the difficulties in repairing submarine cables.<sup>60</sup> We seek comment on this analysis and this threshold.

33. We seek comment on our proposal that 50 percent is an appropriate threshold for "a significant degradation" of capacity as established in the definition of "outage." We consider the loss of 50 percent capacity a serious degradation in the performance of the submarine cable. We seek comment on the use of the 50 percent capacity loss trigger in this reporting standard as a suitable metric for determining an "outage."<sup>61</sup> Would, for example, a different percentage be more appropriate, such as the loss of 40 percent or even 60 percent of the capacity of the cable, and why? Further, we seek comment on the applicability of the capacity standard generally. The Commission receives annual reports pursuant to section 43.62 of the Commission's rules on the capacity of submarine cables.<sup>62</sup> Would it be appropriate, in the cable outage context, to use the same capacity definitions that the submarine cable licensees are using to comply with cable capacity reports under Part 43 of our rules? If we adopt a "Responsible Licensee" reporting paradigm, how would licensees in a submarine cable consortium know of another licensee's capacity loss? Should the 50 percent threshold be defined only as active capacity, or should

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*the Commission's Rules Concerning Disruptions to Communications*, PS Docket No. 15-80, ET Docket No. 04-35, Notice of Proposed Rulemaking, Second Report and Order and Order on Reconsideration, 30 FCC Rcd 3206, 3214, para. 24 (2015). ("A simplex event occurs when circuits that are configured with built-in path protection, as when arranged in a protection scheme such as a Synchronous Optical Network (SONET) ring, lose one of the paths. Under such configurations, when one of the circuits fails, traffic is diverted to a back-up circuit or "protect path," and a "simplex event" has occurred."). We currently require reporting for simplex outages after five days but have proposed to shorten the reporting requirement to 48 hours. *See id.* at 3206, 3214-16, paras. 24-30.

<sup>60</sup> Repairs typically take one to four weeks, depending upon the availability and placement of cable repair ships. *See* Valerie C. Coffey, *Sea Change: The Challenges Facing Submarine Optical Communications*, Optics and Photonics (Mar. 2014) [http://www.osa-opn.org/home/articles/volume\\_25/march\\_2014/features/sea\\_change\\_the\\_challenges\\_facing\\_submarine\\_optical/#.VcIYUfmUKDk](http://www.osa-opn.org/home/articles/volume_25/march_2014/features/sea_change_the_challenges_facing_submarine_optical/#.VcIYUfmUKDk) ("*Sea Change: The Challenges Facing Submarine Optical Communications*").

<sup>61</sup> In traditional telephony, trunks were designed to have no more than a signal loss of 3 dB, which is equivalent to a 50 percent loss of signal strength. *See* AT&T Bell Laboratories, *Engineering and Operations in the Bell System* 225-226 (2d ed. 1983).

<sup>62</sup> 47 C.F.R. § 43.62(a)(2)(i). *See also* 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>.

non-activated capacity also be included in the calculation?<sup>63</sup> Should the 50 percent threshold apply to the capacity of an entire cable or should it apply separately to encompass the smaller links that can comprise a total route? How should such a system be considered for purposes of determining an appropriate threshold? With respect to cables with a U.S. endpoint and multiple links, should all segments of the cable be reportable?

34. We seek comment on whether there are more specific technical aspects of submarine cable performance or operation that, if reported, would enable the Commission to perform more sophisticated and useful outage reporting analysis. UCIS, for example, seeks outage information regarding:

- (i) Indications of potential problems (alarms, safety and security concerns, changes in latency, fiber degradation and any other concerns you may have);
- (ii) Potential traffic-impacting/hazardous conditions/impairments (electrical and optical faults such as shunt and power conductor faults, fiber break, undersea and terrestrial component failures, terminal equipment failures, card failures, circuit pack problems, faulty switches, planned maintenance or construction, other maritime hazards).<sup>64</sup>

Are there any elements of the UCIS reporting structure that should remain if we adopt our proposal to require submarine cable outages under Part 4 of our rules? If we were to retain UCIS, are these reporting elements still applicable? Are there other technical specifications or aspects of submarine cable performance that should trigger a reporting requirement?

### 3. Report Information, Format and Timing

35. The Commission's Part 4 reporting system compiles outage reports involving multiple modes and types of service, including wireline, wireless, satellite and others. We propose to integrate submarine cable outage reporting into the existing NORS platform because it has proven to be an efficient mechanism for both reporting entities and Commission analysis.<sup>65</sup> We believe that many providers who would be subject to the requirements proposed in this NPRM are already familiar with the rubric due to cross-experience with NORS. For licensees unfamiliar with NORS, we believe, based on our experience that the system does not present a daunting challenge to users. Indeed, we would expect the integrated submarine cable reporting component to match NORS' degree of user success.<sup>66</sup> Furthermore, information from NORS has enabled Commission staff to work with communications providers in a data-driven fashion on collaborative reliability improvement initiatives that have produced measurable results,<sup>67</sup> and we anticipate a similar experience with the inclusion of submarine cable data.

36. Our proposed system is similar, but not identical, to other Part 4 outage reporting requirements. The most significant difference is found in requiring an Interim Report rather than an Initial Report. We recognize that for unplanned outages submarine cable licensees are unlikely to have additional, useful information on a submarine cable outage until repairs are scheduled. The scheduling of a repair, however, should provide significant additional information as to the cable's expected timeframe

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<sup>63</sup> Commission rules now require submarine cable licensees to report available capacity as "activated" or "non-activated." *Reporting Requirements for U.S. Providers of International Telecommunications Services; Amendment of Part 43 of the Commission's Rules*, IB Docket No. 04-112, Second Report and Order, 28 FCC Rcd 575, 605 para. 101 (2013) (*Part 43 Second Report and Order*).

<sup>64</sup> OMB Control Number 3060-1116 and Supporting Statement at 1.

<sup>65</sup> See, e.g., ATIS, Network Steering Committee 2010-2012 Operational Report 13-14 (2013), [http://www.atis.org/legal/Docs/NRSC/NRSC\\_Operational\\_Report071113.pdf](http://www.atis.org/legal/Docs/NRSC/NRSC_Operational_Report071113.pdf) (describing how industry worked with the FCC to maximize the efficiency and usefulness of NORS).

<sup>66</sup> See *id.* (describing how industry worked with the FCC to maximize the efficiency and usefulness of NORS).

<sup>67</sup> See, e.g., *supra* n. 46.

for restoration.<sup>68</sup> Here, we propose a three-report system that requires a Notification, an Interim Report to inform the Commission when repairs have been scheduled, and a Final Report for each outage event. NORS reports require a Notification within 120 minutes of discovering an outage, an Initial Report no more than 72 hours later, and a Final Report no more than 30 days after the event became reportable;<sup>69</sup> our proposed timeframe is less rigid on the Interim Report due to potential complications associated with scheduling a cable's repair. We seek comment on this analysis. Are there better points on the timeline for identifying a submarine cable outage, repairing facilities, and restoring service? We propose that in the event of a planned outage, licensees would not be required to file an Interim Report if the planned nature of the event was appropriately signaled in the Notification.

37. Under our proposal, a licensee would be required to file a Notification in NORS within 120 minutes from the time that the licensee has determined that an event is reportable. We propose that the Notification 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 onset of the outage (for planned events, this is the estimated start time/date of the repair);
- 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 will be lost or 50 percent or more of the capacity will be lost);
- A contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity.

We seek comment on all aspects of our proposed Notification. Should we require reporting of additional technical elements of submarine cable performance that would enable the Commission to perform more thorough and systematic outage reporting analysis? What technical elements would be appropriate to include in the Notification and do they differ from those that should be included in the Interim Report and Final Report? Are all of the reporting elements proposed generally known, or knowable with due diligence, to the licensees at the time the Notification would be due? If not, what elements are generally unknown at this stage and when do licensees receive such information? If the outage is a planned outage, should we require advance notification of the planned outage?

38. Following the Notification, we propose to require licensees to file an Interim Report, if applicable (*i.e.*, for an unplanned outage), when the repair has been scheduled. There are a limited number of cable repair ships operating globally and they may be stationed far from the cause of the outage. We believe that a licensee will have significantly more information about expected repair times after it has scheduled its undersea repair. Accordingly, we propose to require an Interim Report within 120 minutes of scheduling the repair. We propose that the Interim Report would include:

- The name of the reporting entity;
- The name of the cable;

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<sup>68</sup> Repairs typically take one to four weeks, depending upon the availability and placement of cable repair ships. *See Sea Change: The Challenges Facing Submarine Optical Communications.*

<sup>69</sup> *See* 47 C.F.R. § 4.9. The timeline for the Notification differs slightly for providers of interconnected VoIP service, requiring a Notification within 240 minutes of discovering an outage affecting a 911 special facility or 24 hours of service generally. There is no Initial Report required for interconnected VoIP service. *Id.* § 4.9(g).

- A brief description of the event, including root cause;
- The date and time of onset of the outage;
- 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 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.

We seek comment on all aspects of our proposed Interim Report. We note that the NORS interface automatically populates the fields where information required duplicates that of the Notification, so the reporting licensee will not have to reenter data unless it is to amend or edit a previously-supplied response. Should we require reporting of additional technical elements of submarine cable performance that would enable the Commission to perform more thorough and systematic outage reporting analysis? What technical elements would be appropriate to include in the Interim Report and do they differ from those that should be included in the Notification and Final Report? Are all of the reporting elements proposed generally known, or knowable with due diligence, to the licensees at the time the Interim Report would be due? If not, what elements are generally unknown at this stage and when do licensees receive such information?

39. After the Interim Report (if applicable), we propose to require licensees to file a Final Report seven days after the repair is completed. We propose that the Final Report would include:

- 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 (total amount of time connectivity was lost or 50 percent or more of the capacity is lost);
- 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.

We seek comment on all aspects of our proposed Final Report. We note that the NORS interface automatically populates the fields where information required duplicates that of the Notification and Interim Report, so the reporting licensee will not have to reenter data unless it is to amend or edit a previously-supplied response. Should we require reporting of additional technical elements of submarine cable performance that would enable the Commission to perform more thorough and systematic outage reporting analysis? What technical elements would be appropriate to include in the Final Report and do they differ from those that should be included in the Notification and Interim Report? Are all of the reporting elements proposed generally known, or knowable with due diligence, to the licensees at the time the Final Report would be due? If not, what elements are generally unknown at this stage and when do licensees receive such information?

40. We propose to adopt substantially the same wording codified in section 4.11 of our rules for the submarine cable outage reporting system 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.<sup>70</sup> We seek comment on applying the concepts of this rule to submarine cable reporting. Are there any circumstances which make the rule, as we propose to apply it, inappropriate for this usage? Are there any problems with applying this rule for which the Commission should account when devising these rules?

#### 4. Confidentiality

41. Information provided by submarine cable licensees under the current UCIS system is treated as presumptively confidential “because the submissions would reflect voluntary reports on weaknesses in or damage to national communications infrastructure, and the release of this sensitive information to the public could potentially facilitate terrorist targeting of critical infrastructure and key resources.”<sup>71</sup> While we make every effort to proceed in a transparent fashion where appropriate,<sup>72</sup> the Commission has long-considered the communications outage information it receives in other contexts as presumptively confidential. 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.”<sup>73</sup> We propose to continue treating this information as presumptively confidential. We seek comment on this proposal. We observe that NORS data is routinely shared with the U.S. Department of Homeland Security (DHS).<sup>74</sup> The Commission is currently seeking comment on whether to share its Part 4 NORS outage reporting data with other federal agencies and/or state governments.<sup>75</sup> We seek comment on whether the decision the Commission adopts regarding sharing outage reporting in the current NORS context should be applicable to information the Commission would receive if it were to extend the outage reporting requirements to submarine cables. What types of federal agencies and/or state and territorial governments would need to access information on submarine cable outage reports? Should such sharing be limited to cases where there is a direct effect on the government entity?

#### C. Costs and Benefits of Outage Reporting Requirements

42. We tentatively conclude that the benefits to be gained from this new reporting regime will substantially outweigh any costs to providers. When the Commission adopted its original Part 4 rules it noted that previous outage reports required of wireline carriers enabled it to initiate investigations and, when appropriate, take corrective action with respect to certain carriers.<sup>76</sup> The Commission also observed that the wireline outage reports assisted the NRIC in developing industry best practices.<sup>77</sup> The Commission further 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

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<sup>70</sup> *Id.* § 4.11.

<sup>71</sup> OMB Control Number 3060-1116 and Supporting Statement at 6.

<sup>72</sup> *See, e.g.*, Tom Wheeler, Chairman, FCC, FCC Reauthorization: Improving Commission Transparency: Hearing Before the Subcom. on Comm. and Tech., (Apr. 30, 2015) [https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-333277A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-333277A1.pdf) (describing “efforts to create a leaner, more efficient, and more transparent organization.”).

<sup>73</sup> 47 C.F.R. § 4.2.

<sup>74</sup> *2004 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.”).

<sup>75</sup> *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*, Notice of Proposed Rulemaking, 30 FCC Rcd 3206, 3222-25, paras. 48-55 (2015).

<sup>76</sup> *2004 Part 4 Report and Order*, 19 FCC Rcd at 16837, para. 12.

<sup>77</sup> *Id.*

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.”<sup>78</sup> The benefit of the Commission’s situational awareness and ability to facilitate communications alternatives, which would come as a result of promulgating these rules, is particularly amplified with submarine cables due to the relatively small number of submarine cable serving as conduits for traffic to and from the United States. 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.<sup>79</sup>

43. We are proposing a submarine cable outage reporting regime that we believe will have minimal cost to the entities reporting those outages. Our proposal narrowly tailors the information required and further proposes limiting the reporting requirement so that only one licensee per submarine cable would report on behalf of other licensees on that cable in the event of an outage. We seek comment on the tentative conclusion that our proposal’s expected benefits will far exceed the minimal costs imposed on reporting entities. In our UCIS OMB Supporting Statement we estimated that the reporting required would cost \$265,000 for 5,300 total hours spent on annual reporting (*i.e.*, developing the initial reporting on terrestrial route maps, undersea cable location spreadsheet and restoration capabilities, updating the initial reports as necessary and reporting outages as they occur); we believe that the reporting system we propose in this NPRM would have substantially lower costs of compliance because we have eliminated many of the elements requested in UCIS. We estimated that there would be 40 annual restoration or trouble reports. Is this figure still accurate? As noted previously, there are roughly 100-200 incidents requiring repair each year globally,<sup>80</sup> and the majority of these incidents appear to have occurred on cables not directly connected to the United States.<sup>81</sup> In light of the relatively small number of submarine cable incidents that appear to have affected FCC-licensed cables directly, and depending on how we define a reportable incident, we seek input on the burden of such reporting on filing parties. Do licensees already collect the information we are seeking? If so, how much extra effort would be required to input that information into the proposed database?

44. We conservatively estimate that the total annual burden will be \$8,000 for the entire industry once the licensees have set up adequate reporting processes. For the annual burden, we conservatively estimate that there will be 50 reportable events. We conservatively estimate based on our experience with NORS reporting that 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. We seek comment on this analysis. We recognize that there are costs associated with implementing any new reporting system. What are the incremental costs of implementing the proposed NORS reporting system, recognizing a reporting system may already be in place for filing UCIS reports? To what extent are we proposing to require information that is not readily available as part of the normal course of business in the event of an outage? Are there costs associated with initiating the Responsible Licensee system, such as inter-licensee negotiations, that would add to the burdens associated with our proposal? Does the Responsible Licensee system alleviate

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<sup>78</sup> *Id.*

<sup>79</sup> See *supra* paras. 9-10 (discussing importance of submarine cables to the nation’s national security and economy).

<sup>80</sup> The range of this estimate is based on two sources from 2011: Douglas R. Burnett, *Cable Vision*, PROCEEDINGS, US Naval Institute, Aug. 2011, at 67; and Mick Green & Keith Brooks, *The Threat of Damage to Submarine Cables by the Anchors of Ships Underway*, <http://cil.nus.edu.sg/wp/wp-content/uploads/2011/04/Mick-Green-and-Keith-Brooks-The-Threat-of-Damage-to-Submarine-Cables-by-the-Anchors-of-Cables-Underway.pdf>. There is no central repository for the number of submarine cable outages worldwide.

<sup>81</sup> Telegeography, 2014 Submarine Cable Map, <http://submarine-cable-map-2014.telegeography.com/> (last visited Sept. 17, 2015).

the need for many licensees to establish an internal reporting system if they previously lacked one? We seek comment on all aspects of our analysis.

#### **D. Improving Submarine Cable Deployment Processes and Interagency Coordination**

45. The installation of submarine cable systems involves authorizations or permits from a number of federal and state agencies.<sup>82</sup> For example, the U.S. Army Corps of Engineers (“Army Corps”) grants permits for submarine cables as structures located in the navigable waters pursuant to the Rivers and Harbors Act of 1899 and also under the Clean Water Act, to the extent the cables traverse coastal wetlands or involve certain discharges. The Army Corps typically completes an environmental review under the National Environmental Policy Act before issuing the permit and consults with other agencies, including the U.S. Fish and Wildlife Service and the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration (“NOAA”). If a cable system will traverse a national marine sanctuary, the cable owner must also obtain a permit from NOAA’s National Ocean Service under the National Marine Sanctuaries Act. CSRIC recommends that the Commission and cable licensees work with other U.S. Government agencies and stakeholders to facilitate coordination of various permits, interagency consultation, and information sharing.<sup>83</sup>

46. We seek comment on the submarine cable deployment processes generally, and request any information concerning, for example, burdensome regulations or other issues that may impede rapid deployment and maintenance of undersea cables. CSRIC noted 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.”<sup>84</sup> We also seek comment on whether there are any actions we can take or steps we can encourage other agencies to take.

47. With respect to interagency coordination, the International Bureau, which is responsible for administering submarine cable licenses, in coordination with the Public Safety and Homeland Security Bureau, will reach out to relevant government agencies, under its existing delegated authority,<sup>85</sup> 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. The Bureaus will report their progress to the Commissioners. Are there additional means in which we may take actions to facilitate investments in and the rapid construction of reliable submarine cable network infrastructure?

#### **E. Legal Authority**

48. The Cable Landing License Act<sup>86</sup> and Executive Order 10530<sup>87</sup> provide the Commission with authority to grant, withhold, condition and revoke submarine cable landing licenses.<sup>88</sup> These provisions provide that the Commission, in granting a submarine cable landing license, may adopt

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<sup>82</sup> See CSRIC IV Report at 21-22 (2014).

<sup>83</sup> *Id.* at 22, 57.

<sup>84</sup> *Id.* at 57 (2014).

<sup>85</sup> 47 C.F.R. § 0.51(c), (f).

<sup>86</sup> Cable Landing License Act of 1921, 47 U.S.C. §§ 34-39.

<sup>87</sup> Executive Order No. 10530.

<sup>88</sup> In acting upon applications for such licenses, the Commission seeks the approval of the U.S. Department of State. Executive Order No. 10530, § 5(a). Pursuant to its authority, the Commission has adopted rules governing submarine cable service. Sections 1.767 and 1.768 of the Commission’s rules, 47 C.F.R. §§ 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.

conditions that “assure just and reasonable rates and service in the operation and use of cables so licensed.”<sup>89</sup> “Just and reasonable service” entails assurance that the cable infrastructure will be reasonably available. 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.<sup>90</sup> In this manner submarine cable connectivity plays a vital role in the nation’s security and economy. In addition, the provisions provide the Commission authority to withhold or revoke a cable landing license if to do so will promote the security of the United States.<sup>91</sup> Our proposals are designed to promote the security of the United States by filling significant gaps in the current system of submarine cable outage reporting, thereby ensuring that the goals of the Cable Landing License Act will be achieved. Accordingly, we tentatively conclude that that the Cable Landing License Act and Executive Order 10530 provide the Commission authority to adopt the outage reporting rules proposed in this NPRM and to impose compliance obligations with the proposed outage reporting requirements.<sup>92</sup> The Commission most recently used this authority as the basis for adopting international circuit data reporting requirements for submarine cable landing licensees.<sup>93</sup> We seek comment on the Commission’s authority under the Cable Landing License Act and Executive Order 10530 to adopt the Part 1 and Part 4 rules on outage reporting obligations proposed in the NPRM.

#### IV. PROCEDURAL MATTERS

##### A. Regulatory Flexibility Act

49. As required by the Regulatory Flexibility Act of 1980 (RFA),<sup>94</sup> the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the proposals addressed in the NPRM. The IRFA is set forth as Appendix C. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed on or before the dates indicated on the first page of this NPRM. The Commission’s Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of this NPRM, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).<sup>95</sup> In addition, the NPRM and IRFA (or summaries thereof) will be published in the Federal Register.<sup>96</sup>

##### B. Paperwork Reduction Act of 1995

50. The NPRM contains proposed new information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and OMB to comment on the information collection requirements contained in the NPRM, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4), we seek specific comment on how we might further reduce the information collection burden for small business concerns with fewer than 25 employees.

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<sup>89</sup> 47 U.S.C. § 35.

<sup>90</sup> See discussion *supra* paras. 1-2.

<sup>91</sup> 47 U.S.C. § 35.

<sup>92</sup> *Id.*, 47 C.F.R. § 1.767(g)(1)(i).

<sup>93</sup> *Part 43 Second Report and Order*, 28 FCC Rcd at 606, para. 104.

<sup>94</sup> See 5 U.S.C. § 603.

<sup>95</sup> See *id.* § 603(a).

<sup>96</sup> See *id.*

### C. Ex Parte Rules

51. The proceeding is a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.<sup>97</sup> Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made; and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (*e.g.*, .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules.

### D. Comment Filing Procedures

52. Pursuant to sections 1.415 and 1.419 of the Commission’s rules, 47 CFR §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of the NPRM. Comments should be filed in GN Docket No. 15-206. Comments may be filed using the Commission’s Electronic Comment Filing System (ECFS). *See Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission’s Secretary must be delivered to FCC Headquarters at 445 12<sup>th</sup> St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12<sup>th</sup> Street, SW, Washington DC 20554.

*People with Disabilities:* To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

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<sup>97</sup> 47 C.F.R. §§ 1.1200, 1.1202 *et seq.*

*Confidential Materials:* Parties wishing to file materials with a claim of confidentiality should follow the procedures set forth in section 0.459 of the Commission's rules. Confidential submissions may not be filed via ECFS but rather should be filed with the Secretary's Office following the procedures set forth in 47 C.F.R. Section 0.459. Redacted versions of confidential submissions may be filed via ECFS.

**V. ORDERING CLAUSES**

53. 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 *Notice of Proposed Rulemaking* in GN Docket No. 15-206 IS ADOPTED.

54. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this *Notice of Proposed Rulemaking*, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

**Appendix A**  
**Proposed Rules**

Parts 1 and 4 of the Commission's Rules, 47 C.F.R. parts 1 and 4, are proposed to be 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, 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 providers of submarine cable licensees 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 degradation in the performance of that communications provider’s cable regardless of whether the traffic can be rerouted to an alternate cable.

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

(i) An event occurs in which connectivity in either the transmit mode or the receive mode is lost for at least 30 minutes; or

(ii) Fifty percent or more of the capacity of the submarine cable, in either the transmit mode or the receive mode, is lost for at least 30 minutes.

(b) *Outage Reporting*

(1) For each outage that requires reporting under this section, the licensee (or Responsible Licensee as noted herein) shall provide the Commission with a Notification, and 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; 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 120 minutes of the time of determining that an event is reportable. The Notification shall be submitted in good faith. Licensees shall provide: The 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 (for planned events, this is the estimated start time/date of the repair); 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); 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 120 minutes of scheduling a repair to a submarine cable. The Interim Report shall be submitted in good faith. Licensees shall provide: The name of the reporting licensee; the name of the cable; a brief description of the event, including root cause; the date and time of onset of the outage; 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 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 days after the repair is completed. The Final Outage Report shall contain: The name of the reporting licensee; the name of the cable, 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 (total amount of time connectivity is lost or 50 percent or more of the capacity is lost); whether the event was planned or unplanned; 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. The Final Report must also contain an attestation as described in Section 4.15(b)(2)(i).

(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 B****Initial Regulatory Flexibility Analysis**

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>1</sup> the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the recommendations in this Notice of Proposed Rule Making (NPRM). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments provided in “Comment Period and Procedures” of this NPRM. The Commission will send a copy of this NPRM, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).<sup>2</sup> In addition, the NPRM and IRFA (or summaries thereof) will be published in the Federal Register.<sup>3</sup>

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

2. We propose 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 undertake this proceeding 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. Legal Basis**

4. The NPRM is adopted pursuant to sections 1, 4(i), 4(j), and 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.

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

5. 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.<sup>4</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>5</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>6</sup> A small business

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<sup>1</sup> 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.

<sup>2</sup> See *id.* § 603(a).

<sup>3</sup> See *id.*

<sup>4</sup> *Id.* § 603(b)(3).

<sup>5</sup> *Id.* § 601(6).

<sup>6</sup> *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

(continued....)

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).<sup>7</sup>

6. The proposals in the NPRM apply only to entities licensed to construct and operate submarine cables under the Cable Landing License Act. The NPRM proposes to have submarine cable licensees affected by a service outage file outage reports with the Commission describing the outage and restoration.

7. The entities that the NPRM proposes to require 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. Under that size standard, such a business is small if it has 1,500 or fewer employees.<sup>8</sup> Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer and 44 firms had had employment of 1,000 employees or more. Thus under this category and the associated small business size standard, the majority of these Interexchange carriers can be considered small entities.<sup>9</sup> According to Commission data, 359 companies reported that their primary telecommunications service activity was the provision of interexchange services.<sup>10</sup> Of these 359 companies, an estimated 317 have 1,500 or fewer employees and 42 have more than 1,500 employees.<sup>11</sup> Consequently, the Commission estimates that the majority of interexchange service providers are small entities that may be affected by rules adopted pursuant to the NPRM.

9. 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 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.<sup>12</sup>

10. 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

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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.”

<sup>7</sup> 15 U.S.C. § 632.

<sup>8</sup> 13 C.F.R. § 121.201, NAICS code 517110.

<sup>9</sup> U.S. Census Bureau, American FactFinder, 2007 Economic Census, [http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN\\_2007\\_US\\_51SSSZ2&prodTpe=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodTpe=table).

<sup>10</sup> See Trends in Telephone Service at Table 5.3.

<sup>11</sup> See *id.*

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

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.

11. 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.

12. **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.<sup>13</sup> 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 not. 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. Under that size standard, such a business is small if it has 1,500 or fewer employees.<sup>14</sup> Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer and 44 firms had had employment of 1,000 employees or more. Thus under this category and the associated small business size standard, the majority of these Interexchange carriers can be considered small entities.<sup>15</sup> According to Commission data, 359 companies reported that their primary telecommunications service activity was the provision of interexchange services.<sup>16</sup> Of these 359 companies, an estimated 317 have 1,500 or fewer employees and 42 have more than 1,500 employees.<sup>17</sup> The circuit-status report does not include employee or revenue statistics, so we are unable to determine how many carriers could be considered small entities under the SBA standard. Although it is quite possible that a carrier could report a small amount of capacity and have significant revenues, we will consider those 61 carriers to be small entities at this time. In addition, of the 79 carriers that filed an annual circuit-status report for 2009, there were at least four carriers that reported no circuits owned or in use at the end of 2009.<sup>18</sup>

13. **Operators of Undersea Cable Systems.** The NPRM seeks comment on whether submarine cable facilities should be subject to reporting requirements 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. The size standard under SBA rules for that category is that such a business is small if it has 1,500 or fewer

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<sup>13</sup> 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>.

<sup>14</sup> 13 C.F.R. § 121.201, NAICS code 517110.

<sup>15</sup> U.S. Census Bureau, American FactFinder, 2007 Economic Census, [http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN\\_2007\\_US\\_51SSSZ2&prodTtype=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodTtype=table).

<sup>16</sup> See Trends in Telephone Service at Table 5.3.

<sup>17</sup> See *id.*

<sup>18</sup> *Id.*

employees.<sup>19</sup> Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer, and 44 firms had had employment of 1,000 employees or more. Thus under this category and the associated small business size standard, the majority of these carriers can be considered small entities.<sup>20</sup> We do not have data on the number of employees or revenues of operators of undersea cables. Because we do not have information on the number of employees or their annual revenues, we shall consider all such providers to be small entities for purposes of this IRFA.

14. **Operators of Non-Common Carrier International Transmission Facilities.** At present, carriers that provide common carrier international transmission facilities over submarine cables are not required to report on outages, though the NPRM 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. The appropriate size standard under SBA rules for the Wired Telecommunications Carriers category is that such a business is small if it has 1,500 or fewer employees.<sup>21</sup> Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer and 44 firms had had employment of 1000 or more.

15. **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. Under that size standard, such a business is small if it has 1,500 or fewer employees.<sup>22</sup> Census Bureau data for 2007, which now supersede data from the 2002 Census, show that there were 3,188 firms in this category that operated for the entire year. Of this total, 3,144 had employment of 999 or fewer and 44 firms had had employment of 1000 or more. According to Commission data, 1,307 carriers reported that they were incumbent local exchange service providers.<sup>23</sup> Of these 1,307 carriers, an estimated 1,006 have 1,500 or fewer employees and 301 have more than 1,500 employees.<sup>24</sup> 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.”<sup>25</sup> The SBA’s Office of Advocacy contends that, for RFA purposes, small incumbent local exchange carriers are not dominant in their field of

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<sup>19</sup> 13 C.F.R. § 121.201, NAICS code 517110.

<sup>20</sup> 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](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodType=table).

<sup>21</sup> 13 C.F.R. § 121.201, NAICS code 517110.

<sup>22</sup> *Id.*

<sup>23</sup> See Trends in Telephone Service, Federal Communications Commission, Wireline Competition Bureau, Industry Analysis and Technology Division at Table 5.3 (Sept. 2010) (Trends in Telephone Service).

<sup>24</sup> See *id.*

<sup>25</sup> 15 U.S.C. § 632.

operation because any such dominance is not “national” in scope.<sup>26</sup> Consequently, the Commission estimates that most providers of local exchange service are small entities that may be affected by the rules and policies proposed in the NPRM. 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.<sup>27</sup>

**D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements**

16. The NPRM seeks comment on a proposal to mandate outage reporting requirements to all submarine cable licensees. An outage occurs when a licensee experiences an event in which (1) connectivity in either the transmit mode or receive mode is lost for at least 30 minutes; or (2) 50 percent or more of the capacity of the submarine cable, in either transmit or receive mode, is lost for at least 30 minutes. 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. We expect the filed reports will be based on information already within the reporting entity’s possession, therefore these should be considered routine reports, though we seek comment on this assumption.

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

17. 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.”<sup>28</sup>

18. The NPRM seeks comment on its cost-benefit analysis of imposing this new reporting requirement, including information on the extent to which submarine cable licensees already possess the outage information that we propose to require. The Commission takes the position that the national security and economic benefits of providing the Commission with situational awareness of the operating status submarine cables outweighs the minimal cost of reporting proposed. We seek comment on that view. The Commission proposes these rules only after its existing ad hoc and voluntary system of reporting submarine cable outages has failed to provide the Commission with the information it requires. In addition, the Commission proposes that where there are multiple licensees of a single submarine cable that experiences an outage, the licensees of that cable can designate a Responsible Licensee to report on

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<sup>26</sup> 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).

<sup>27</sup> 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](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ECN_2007_US_51SSSZ2&prodType=table).

<sup>28</sup> 5 U.S.C. § 603(c)(1)-(c)(4).

the outage on behalf of all affected licensees. While each licensee maintains the responsibility of ensuring that the proper reports are filed, this process can cut down on the individual reporting requirements for many licensees, possibly including small businesses. The Commission seeks comment on how it can create the most efficient and least burdensome process possible while still meeting its goals.

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

19. None.

**STATEMENT OF  
CHAIRMAN TOM WHEELER**

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

Today's communications networks are the foundation of our modern economy and vital platforms for innovation, free expression, and civic engagement. Every day, we rely on these networks, and that's why these networks must be reliable. Today, the Commission moves to enhance the security and reliability of a key piece of the Internet's physical infrastructure: undersea cables.

There are approximately 60 submarine -- or "undersea" -- cables that provide connectivity between the mainland U.S. and the people of Alaska, Hawaii, Guam, American Samoa, the Northern Marianas Islands, Puerto Rico, and the U.S. Virgin Islands. In addition, these cables carry more than 95 percent of all U.S. international voice, data, and Internet traffic. Without undersea cables, the U.S. would be practically cut off from the global digital economy.

Although damage to these cables is rare, it does happen, and it can have serious consequences. This summer, there was a break in an undersea cable near the Northern Marianas, which left tens of thousands of residents suffering a communications blackout for more than 48 hours. Not only were residents unable to send emails or make phone calls, their banking system shut down, leaving people unable to make credit card transactions or withdraw money from an ATM.

Modern communications networks are increasingly interconnected. The failure of a single cable can have a ripple effect on multiple networks, which could adversely impact our economy and national security.

Like the overwhelming majority of the nation's broadband infrastructure, these cables are privately owned. Unlike other communications providers, the owners and operators of undersea cables are *not* required to report outages to the FCC's Network Outage Reporting System (NORS). Licensees currently only report outages on an ad hoc basis, and the information that we receive is too limited to be of use.

The data we collect from NORS gives us situational awareness that has allowed us to analyze outage trends and recommend solutions to make these networks more resilient and reliable. We should do the same for these undersea cables.

Today's, NPRM proposes that we require submarine cable licensees to report significant outages in appropriate detail through NORS. Robust reporting on submarine cable outages will improve the FCC's ability to understand the nature and impact of any damage and disruption to communications, help mitigate any impact on emergency services and consumers, and assist in service restoration. Long-term, better reporting about the status of undersea cables will help us better anticipate and prevent disruptions to service.

This is just the latest effort by the Commission to improve the resiliency and reliability of our networks. Just last month, we adopted rules to give consumers the tools and information necessary to access backup power and maintain home landline service during electric outages. Previously we moved to address the recent trend of "sunny day" 911 outages, which stem from the increasingly complex nature of the nation's 911 infrastructure and respond.

Assuring the reliability of our networks is one of the Commission's most important responsibilities. Thank you to the staff of the Public Safety Bureau for their work on this item and all they do to maintain reliable communications.

**STATEMENT OF  
COMMISSIONER MIGNON L. CLYBURN**

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

Imagine being on an island in the South Pacific, surrounded by two other inhabited islands, with just over 52,000 family, friends and neighbors during the week following July 4<sup>th</sup>. Sounds almost tranquil, until you learn that tropical storm damage and a severed cable would, for nearly three weeks, leave residents with no or limited off-island wireless, wireline, voice and data communications, and commercial services.

To add insult to injury, for those of the Commonwealth of Northern Mariana Islands, is the fact that the agency responsible for “ensuring continuous communications operations”... the agency mandated to “ensure the resiliency and reliability of the nation’s commercial and public communications infrastructure...” only learned of their plight through indirect channels.

Even if we had directly learned about the outage, the Commission soon realized that it faced another stumbling block. It had no reliable owner and operator contact numbers, no information about the outage impact or restoration developments, leaving staff at a severe disadvantage in any effort to help restore critical services.

Most Americans are unaware that more than 95 percent of all U.S. international voice, data, and Internet traffic, travels over submarine cables. Not only do they provide critical communications services, these cables also carry the vast majority of U.S. Government traffic from civilian and military personnel stationed overseas, because our government does not own and operate its own submarine cables.

Given their importance to international communications, one might expect that our rules require licensees to report when outages occur. They do not. Since 2008, licensees have only provided operational information on a voluntary, ad hoc basis, through something called the Undersea Cable Information System.

Now I will be among the first to push for light touch, regulatory approaches when they work well and where licensees act responsibly. But what happened on Northern Mariana shows, the current voluntary, ad hoc framework, has not served the public interest well. The majority of the undersea cable licensees, that is 62, have not cooperated by providing useful information. And since 2010, the FCC has received information on only 14 of them. Informally, several licensees have made it clear to staff that they will not participate in the voluntary UCIS system and after filing initial test messages when it was first introduced, the majority of licensees have stopped reporting into the system.

So I commend Chairman Wheeler, Admiral Simpson, the Public Safety and Homeland Security Bureau and the International Bureau for their leadership on this issue and specially thank Theo Marcus and Mike Saperstein for this excellent presentation.

The Commission needs timely and consistent reporting of outages of submarine cables to address systemic issues and ensure that consumers get the services they need. This item promises to get us closer in realizing this important objective.

**STATEMENT OF  
COMMISSIONER JESSICA ROSENWORCEL**

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

There are nearly 300 submarine cables that crisscross the globe, buried in the coldest depths of our oceans. Roughly 60 of these cables are licensed in the United States. Every one of them plays an essential role in the global economy. Together they are responsible for \$10 trillion worth of transactional value every day. On top of that, they are indispensable for national security because they carry the vast bulk of our military communications traffic. In fact, life as we know it would not be the same without these facilities laid across the ocean floor. And yet undersea cables are surprisingly vulnerable to damage and attack—from natural disasters, accidents, aquatic vessels, sea life, and those who would do us harm.

Up until now, the Commission has monitored submarine cable outages through the Undersea Cable Information System. But this system is not only dated, it has real limitations. The information is not standardized nor uniform and most outages and disruptions go unreported. I think we can do better than an ad hoc system for these essential facilities. I think we need to do better—because our economic and national security depends on it.

I support this rulemaking and thank the Public Safety and Homeland Security Bureau and International Bureau for their efforts.

**STATEMENT OF  
COMMISSIONER AJIT PAI**

Re: *Improving Outage Reporting for Submarine Cable Outages*, GN Docket No. 15-206.

Long before anyone talked about fiber to the home, the gold standard in communication was ship to the port. Messages between the United States and the Old World traveled by boat, and transmission speeds were measured in weeks, not milliseconds. That all started to change back in the 1850s when the first transatlantic cable was deployed. It was a daunting task, to say the least.

In 1857, on the first day of the first attempt, the cable snapped and had to be grappled from the sea floor. After repairing the damage, the engineers pressed on. But the line broke again after only 400 miles had been laid. After many more setbacks and challenges, the American businessman Cyrus West Field succeeded in completing the first transatlantic cable on August 5, 1858. And the first official telegram to pass between the two continents was a letter of congratulations from Queen Victoria to President Buchanan. Unfortunately, that first undersea cable proved unreliable, as it malfunctioned after only three weeks. It wasn't until September 1866—nearly a decade hence—that transatlantic telegraph communication resumed.

Almost 150 years later, much has changed. Those old copper lines have been replaced by fiber. And transmission speeds across a cable have increased from a single character every two minutes to more than 84 billion words per second. Vital communications now depend on the undersea cables that link every continent but Antarctica—everything from trillions of dollars in global economic activity to the YouTube clips of my children that have become must-see videos for my extended family back in India.

But despite all of the progress, some things stay the same. Constructing, maintaining, and repairing undersea cables, which can be broken by anything from an errant anchor to a wayward whale, continue to be costly and time-consuming processes. Moreover, an alphabet soup of agencies may (try to) play a role in the process. So I am pleased that my colleagues agreed to seek comment in this Notice of Proposed Rulemaking (NPRM) on how we can streamline the regulatory framework, remove any unnecessary rules, and expedite the construction and maintenance of undersea cables. I am also glad that the NPRM now solicits input on the actual costs our proposed rules might impose and on alternatives that might ease regulatory burdens while also giving us the information we need to fulfill our specific statutory responsibilities. As a result, the NPRM has my support, and I look forward to reviewing the record as it develops in this proceeding.

Last but not least, I would like to thank Denise Coca, Kathleen Collins, Lisa Fowlkes, Jeffery Goldthorp, John Healy, David Krech, Theodore Marcus, and Michael Saperstein for their work on the item.

**STATEMENT OF  
COMMISSIONER MICHAEL O'RIELLY**

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

With this notice, we commence a proceeding to transition submarine cable licensees from the current voluntary structure to required outage reporting using the Commission's NORS database. While I understand that we have not collected much information under the voluntary reporting mechanism, there are concerns that we are making proposals and moving in a more regulatory direction with very limited facts. As a basis for regulatory burdens, the cost of which will ultimately be passed on to the American consumer, we are relying on a lack of voluntary filings and one outage that affected the Northern Mariana Islands. I would have preferred to have more information about the breadth of outages before going to the Notice of Proposed Rulemaking stage, so that our proposals would be based on bona fide data.

Although many may think that reporting requirements are not burdensome, they can be. Reports tend to open the door for further regulation, fees and enforcement actions. In fact, this item suggests that one licensee, known as the "Responsible Licensee," would file the outage report, but, if it fails to do so, all licensees using the cable would be accountable and potentially liable. This would apply even if a licensee's actual traffic is not affected. If our goal is that outages get reported, we should have sought neutral comment on the best way to ensure that the information is actually filed.

I am also concerned about the information that the licensees may be required to file. Submarine cables are not like copper, fiber or wireless networks. To diagnose problems, licensees may need to hire one of the limited ships specializing in undersea cables to sail out, haul the cable from the ocean floor and inspect it. Information such as what caused the outage, the location and duration of the outage, and estimated repair time may not be readily available until the ship reaches the cable. The Commission, however, proposes to require such information within two hours of the outage being discovered or when the repair is scheduled. I thank the Chairman for adding questions to elicit when such information tends to be available, but, if this proposal is adopted as is and licensees fail to provide information they cannot reasonably get in such a limited timeframe, the Enforcement Bureau and its quick trigger finger may be knocking on their doors.

This brings me to the cost-benefit analysis. I appreciate the Chairman's willingness to add questions about the start-up costs to implement this reporting requirement, but the Commission needs to do a better job at accounting for contractual negotiations and review processes. While more information is provided than normal, the analysis is woeful and lacks credibility. Hopefully, commenters will set the record straight. For instance, in preparation to file, all licensees may have to confer about whether they have legally met the threshold for a reportable event and, because there is potential liability, each licensee may want to review submissions. This will take a lot more than two hours total per reportable event, and I don't know too many lawyers who charge only \$80 an hour.

Not surprisingly, I also have some concerns about the delegation to staff to develop and improve interagency coordination and best practices applicable to submarine cable permits and authorizations. Although staff will report their progress to the Commission, staff must remain within the bounds of their authority and not make any new or novel changes in policies or procedures without Commission approval.

Finally, although I have some skepticism about this proceeding, I will keep an open mind and look forward to engaging with interested parties. But, if we move forward to adopt rules, I hope to see far more data demonstrating the need for regulation. I thank the Chairman for incorporating other edits and for the efforts of the Public Safety and International Bureaus.