**Before the**
**Federal Communications Commission**
**Washington, DC 20554**

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| In the Matter of | ) | |
| | ) | |
| Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications | ) | PS Docket No. 15-80 |
| | ) | |
| New Part 4 of the Commission's Rules Concerning Disruptions to Communications | ) | ET Docket No. 04-35 |
| | ) | |
| 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 |

To: The Commission

# COMMENTS OF THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION


Alex Phillips, President
Mark Radabaugh, FCC Committee Chair
Fred Goldstein, Technical Consultant

Stephen E. Coran
Lerman Senter PLLC
2001 L Street, NW, Suite 400
Washington, DC 20036
(202) 416-6744
*Counsel to the Wireless Internet Service Providers Association*


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## SUMMARY

The Wireless Internet Service Providers Association ("WISPA") submits the accompanying Comments regarding the Commission's proposal to subject broadband Internet access service providers to outage monitoring and reporting obligations.

The Commission's complete failure to consider alternatives for small providers cannot mask the unique costs and burdens that small providers will face if they are forced to comply with the proposed heavy-handed outage obligations. To the contrary, small providers – including many standalone broadband providers that have never filed an outage report for voice service – lack the resources and the time to file reports when their efforts should focus on restoring service. For WISPs, that often means that the owner drives to a distant tower location, climbs a tower, replaces equipment that was damaged by lightning and restores service, activities that would preclude logging into the Commission's notification system (assuming there is electrical power and an available network). The Commission's estimate that outage reporting is a two-hour task is refuted by AT&T's comments below, which provided an estimate of 12 hours. And, with small standalone providers needing to hire attorneys, learn the rules and file reports for the first time, even this estimate is likely conservative.

To best address the burdens and costs that would be imposed on small providers, the Commission should exempt small broadband providers from any outage rules it may adopt. Language in the Further Notice of Proposed Rulemaking makes clear that the Commission intends to address "larger, more impactful outages," not those that affect small providers with a small number of customers. The utility of the reports is also questionable – there is no apparent nexus between a burdensome data collection exercise and making broadband networks more reliable and resilient. The Commission has exempted small businesses from other rules, and doing so here would be consistent with the Commission's prior acknowledgment that small

businesses should not be subject to a “one size fits all” regulatory approach. An exemption also would support the deployment objectives of Section 706 of the Telecommunications Act by reducing regulatory barriers.

WISPA questions whether there is a legitimate need for the Commission to require outage reporting. As an alternative, there are several publicly available resources recommending “best practices” on network reliability and security, which – unlike Commission rules – continually evolve over time.

The Commission proposes to measure a “hard down” outage with a formula that is based on the misconception that the value of a broadband connection is linearly proportional to its speed and assumes parity between one customer losing its 1 Gbps download service with 100 customers losing 10 Mbps download service or 40 customers losing 25 Mbps download service. Factoring in speed would require the provider to solve a math problem – calculating the speed packages for all affected customers, requiring the provider to determine on an individual subscriber basis the speed package, the throughput loss and downtime, and then adding the individualized data to calculate whether the event would be reportable. Small providers in particular are ill-equipped to perform these tasks.

WISPA strongly disagrees with the Commission’s proposal that would require service “degradation” to be a reportable event report. In many cases, broadband customers retain functional use of networks when service is degraded from congestion, oversubscription or interference. In fact, broadband networks are designed to adapt and tolerate loss, damage and significant impairment while retaining functionality in ways that voice networks are not. Even so, the metrics the Commission proposes to use are problematic because user minutes and throughput simply do not correlate. These metrics do not give any consideration for the

statistical multiplexing and oversubscription that takes place across the backbones and last-mile connections of current broadband networks.

To the extent the Commission adopts outage reporting rules, it should ensure that reports are confidential.

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To: The Commission

**COMMENTS OF**
**THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

The Wireless Internet Service Providers Association ("WISPA"), pursuant to Sections 1.415 and 1.419 of the Commission's Rules, hereby comments on outage reporting rules proposed in the *Further Notice of Proposed Rulemaking* ("*FNPRM*") in the above-captioned proceedings.[1] If adopted, the rules proposed for broadband Internet access service providers would impose costly and unnecessary burdens on small broadband providers, which lack the time, equipment and resources to comply.[2] Accordingly, small providers should be permanently

[1] *See Amendments to Part 4 of the Commission's Rules Concerning Disruptions to Communications, et al.*, Report and Order, Further Notice of Proposed Rulemaking, and Order on Reconsideration, FCC 16-63, PS Docket No. 15-80, ET Docket No. 04-35 and PS Docket No. 11-82 (rel. May 26, 2016) ("*FNPRM*"). A synopsis of the *FNPRM* published in the Federal Register on July 12, 2016 established deadlines of August 26, 2016 for the filing of Comments and September 12, 2016 for the filing of Reply Comments. *See* 81 Fed. Reg. 45095 (July 12, 2016). *See also Public Notice*, DA 16-824 (rel. July 19, 2016).

[2] Concurrently herewith, WISPA also is filing Comments regarding the Initial Regulatory Flexibility Analysis ("*IRFA*") that was appended to the *FNPRM* ("WISPA IRFA Comments"). As demonstrated in therein, the Commission plainly violated the requirements of the Regulatory Flexibility Act by failing to even mention small providers that use unlicensed spectrum to deliver broadband service or to suggest alternatives to its proposed rules that would reduce the impact on small businesses. These defects in the Commission's processes are not new. *See*,

exempt from whatever rules the Commission may adopt. If the Commission does not exempt small providers, it should narrow the circumstances for which reporting should be required and adopt reasonable reporting obligations that will reduce the costs and burdens on small businesses.

The *FNPRM* is just the latest in a series of Commission initiatives that, taken together, threaten to "regulate to death" small broadband providers. As a practical matter, the "grand slam" of Title II rules, expiration of the small provider exemption from enhanced broadband disclosure rules, the proposed privacy and data security regulatory regime and, now, new outage reporting requirements combine to make a challenging deployment and competitive environment even more difficult. As a policy matter, these new regulatory and compliance obligations will discourage, not encourage, deployment of advanced telecommunications capability to those rural consumers that lack broadband or lack choice.

## Introduction

WISPA is the trade association that represents the interests of WISPs that provide IP-based fixed wireless broadband services to consumers, businesses and anchor institutions across the country. WISPA's members include more than 800 WISPs, equipment manufacturers, distributors and other entities committed to providing affordable and competitive fixed broadband services. WISPs use unlicensed spectrum in the 600 MHz (unlicensed TV white space), 900 MHz, 2.4 GHz and 5 GHz unlicensed bands and the 3650-3700 MHz "lightly licensed" band which, because the spectrum is not exclusively licensed, can lower barriers to entry so that WISPs can expeditiously deploy high-quality and affordable service in unserved, underserved and competitive areas.

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*e.g.*, Comments of WISPA on the Initial Regulatory Flexibility Analysis, GN Docket No. 14-28 (filed July 16, 2014) (commenting on defects of the IRFA adopted in connection with proposed Open Internet rules).

WISPA estimates that WISPs serve more than 3,000,000 people, many of whom reside in rural areas where wired technologies like FTTH, DSL and cable Internet access services are not available. In many of these areas, WISPs provide the only terrestrial source of fixed broadband access. In areas where other broadband options are available, WISPs provide a local-access alternative that benefits customers by fostering competition, lowering costs and improving features. Nearly all of WISPA's members are considered to be "small entities" under the Small Business Act and the U.S. Small Business Administration's size standards as applied to the North American Industry Classification system ("NAICS") codes for Wireless Telecommunications Carriers (except Satellite), Code 517210,[3] and/or under All Other Telecommunications, Code 517919.[4] In addition, all of WISPA's members currently would be eligible for the exemption from the enhanced Open Internet disclosure obligations passed by a 411-0 vote in the U.S. House of Representatives.[5] Under any definition, the overwhelming majority of WISPs are small businesses.

As these Comments emphasize, WISPA is very concerned that the Commission has not adequately considered the adverse impact its proposed new rules would have on small businesses that provide fixed broadband Internet access service. For many WISPs, the same persons

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[3] *FNPRM*, Appendix E, Initial Regulatory Flexibility Analysis ("*IRFA*") at ¶ 17 and n.44 (*citing* 13 CFR § 121.201).
[4] *Id.* at ¶ 11 and n.26 (*citing* 13 CFR § 121.201). Neither the NAICS nor Economic Census have been updated to adequately reflect changes in technology or to recognize the increasing number of unlicensed fixed wireless providers of broadband services over the provider's own telecommunications facilities. Nonetheless, these two NAICS codes are the closest in application.
[5] H.R. 4596, 114TH Cong. (2016). The "Small Business Broadband Deployment Act" passed in the House of Representatives on March 16, 2016. A similar bill is pending in the Senate. WISPA does not object to a larger number to define "small provider," such as the 500,000 customer metric that the Small Business Administration uses. *See Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Phase II Compliance Deadlines for Non-Nationwide CMRS Carriers*, Order to Stay, 17 FCC Rcd 14841, 14847-48 ¶¶ 22-24 (2002) (classifying commercial mobile radio service carriers with 500,000 subscribers or fewer as of the end of 2001 as "Tier III" wireless carriers approval from the SBA); Letter from Hector V. Barreto, Administrator, SBA, to Blaise Scinto, Acting Chief, Policy Division, Wireless Telecommunications Bureau, FCC (dated Jan. 21, 2003) (approving the "Tier III" wireless classification as a small business size standard).

responsible for reporting an outage would also bear responsibility for fixing that outage and restoring broadband service. It is impractical for small broadband providers with a handful of staff to be expected to comply with a 120-minute mandatory notice requirement when they could – and should – be in the field resolving the outage. Beyond this example, and many other practical reasons why notice would be impossible to provide in a timely manner, the *FNPRM* fails to adequately consider the burdens and costs its proposed rules would impose, and fails to appreciate the means required for small providers to install, deploy and maintain equipment identifying an outage or service degradation requiring notice.

Small broadband providers should not be deemed "covered" providers subject to new outage reporting rules and should instead be permanently exempt from such requirements. The burdens for small providers to comply with notice obligations would be substantial, even assuming that providers can meet the obligations the Commission seeks to impose, which is by no means certain. Any broadband outage reporting rules the Commission adopts should be more narrowly tailored to reflect the manner in which broadband networks work and, in any event, should not be required for a degradation of service that does not result in a total loss of functionality.

## Discussion

### I. THE COMMISSION SHOULD EXEMPT SMALL PROVIDERS FROM BROADBAND OUTAGE REPORTING RULES.

A significant flaw in the *FNPRM* is its failure to seek comment on the effects its proposed reporting rules would have on small broadband providers. To the contrary, and without discussion of the record pre-dating adoption of the *FNPRM*,[6] the *FNPRM* is mysteriously silent, creating the impression that the Commission intends to impose a "one size fits all" approach.

[6] *See FNPRM*, Statement of Commissioner Ajit Pai ("Pai Statement"), at 2 n.4.

Try as it might, the Commission cannot ignore the interests and challenges of small providers and rely on misconceptions of broadband network realities to support application of its proposed rules across the board.

Instead of adopting its proposed rules without concern for the plight of small providers, WISPA urges the Commission to exempt small providers from whatever broadband outage reporting rules it may adopt in this proceeding. The Commission should not deem small broadband providers to be "covered" providers subject to outage reporting rules because the burdens and costs associated with network monitoring and reporting will be disproportionately higher, will delay service restoration and will divert limited resources away from broadband deployment. By exempting small providers, the Commission would, consistent with past decisions, recognize the unique circumstances that small entities face in complying with regulatory obligations.

### A. <u>There Is No Need for The Commission To Mandate Outage Reporting</u>.

The Commission attempts to justify the need for mandatory outage reporting by suggesting that networks that are "not engineered well . . . can harm resiliency objectives."[7] The Commission further concludes that "[t]his new paradigm of *larger, more impactful outages* suggests that there would be significant value in collecting data on outages and disruptions to commercial broadband service providers."[8] This information "would likely provide the Commission with more consistent and reliable data on critical communication outages and enable it to perform its mission more effectively in light of evolving technologies and service offerings."[9]

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[7] *FNPRM* at ¶ 103.
[8] *Id.* (emphasis added).
[9] *Id.* at ¶ 104.

As a threshold matter, the Commission appears to be concerned about large broadband network outages affecting a large number of customers, not outages that affect small networks such as those that WISPs operate. Moreover, the Commission makes no effort to correlate governmental data collection with any specific "problem" that needs to be "fixed." Rather, the Commission apparently plans to collect data and, at some future point in time, decide what additional (and perhaps expensive) measures it wants to impose on providers if there is a reliability "problem" that it seeks to subsequently define.

Instead of mandating outage reporting by small providers, the Commission should consider industry best practices as a less burdensome ways in which network operators can respond to, anticipate and prevent outages. For example, the Internet Engineering Task Force, the standards body for the Internet, has an extensive collection of recommended standards and best current practices documents, many of which address reliability. The North American Network Operators Group presents conferences, mailing lists and forums where information is shared on standards, outages, peering and relevant topics.[10] The MEF Forum has extensive documentation and standards on network performance metrics.[11] BITAG, the Broadband Infrastructure Technology Advisory Group, a technical advisory group that discusses technical issues pertaining to the operation of the Internet, offers other means of bringing transparency and clarity to network management processes as well as the interaction among networks, applications, devices and content.[12]

In sum, there is no shortage of constantly updated informational sources to inform broadband providers on how to design and improve networks to make them more reliable and to

[10] *See* https://www.nanog.org/about/home (last visited Aug. 23, 2016).
[11] *See* http://www.mef.net/ (last visited Aug. 23, 2006).
[12] *See* https://www.bitag.org/ (last visited Aug. 23, 2006).

decrease the number of outages. Broadband providers, especially small providers that do not appear to be the Commission's focus, should be permitted to rely on these "best practices," or others that industry may develop over time, to make networks more reliable, instead of being subject to mandatory obligations that may not conform to what industry can do.

### B. <u>The Proposed Rules Are Predicated On Marketplace Misconceptions</u>.

The *FNPRM* reflects a misunderstanding of, if not a total disregard for, small broadband providers. In discussing call failures in wireless radio and local access networks, the Commission specifically asks if it should delay implementation or exempt small and/or rural providers,[13] but it oddly lacks interest in seeking comment on whether small providers should be relieved from its proposed broadband outage reporting rules. As Commissioner Pai pointed out, "there is virtually no consideration given to the thousands of small and mid-sized providers who are critical to competition in these markets."[14] Coupled with the defects in the *IRFA*, the Commission apparently believes that all broadband providers should be treated the same.[15]

This view is bolstered by the Commission's bare and unsupportable conclusion that "[b]ecause providers already routinely collect much of this data, we believe that the cost of compliance of additional rules would be only the cost of filing additional reports."[16] With respect to many small providers, however, this is a false premise because they do not "routinely" collect "much" of the data the Commission seeks to collect. Here again, the Commission disregards the thousands of small providers with small staff that do not track outage or "degradation" data. Further, in estimating compliance costs, the Commission miscalculates what those costs would be, fabricating an internal estimate "based on the likely correlation of

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[13] *See FNPRM* at ¶ 183.
[14] Pai Statement at 2.
[15] *See generally* WISPA IRFA Comments.
[16] *FNPRM* at ¶ 153.

broadband Internet access service outages with interconnected VoIP outages" rather than an industry-backed projection that it finds inconvenient.[17] But even that projection lacks discussion of the disproportionate burdens on small providers.

Against this backdrop are the facts. First, small providers lack the resources to comply with 120-minute, 72-hour and 30-day reporting obligations. In many cases, "mom and pop" small providers may serve only a few hundred customers with a few staff that handle marketing, sales, installation, maintenance, network operations and customer service, with even fewer customers during their startup stages, and do not have internal regulatory or compliance departments. What WISPA stated in its Comments in the broadband privacy proceeding applies here as well:

> Small providers, especially those with a handful of employees that serve a few hundred customers, cannot be expected to simply tackle these new obligations as a part of their jobs, or find the money to pay for the expertise and documentation that would be required. These additional compliance costs cannot be absorbed by small businesses and will likely be passed on to consumers in the form of higher prices.[18]

This lack of resources is compounded for fixed wireless broadband networks that WISPA's members operate. It is not uncommon for outages to result from lightning strikes or other natural events that disable antennas located on tall towers or other vertical infrastructure. Following a midnight storm, the WISP owner would, as quickly and as safely as possible, drive to the location, climb the tower, replace the broken antenna, connect the new antenna to a power supply and restore service to customers. This process would likely take more than 120 minutes (especially if there are multiple sectors or towers where repairs must be made or if the locations are distant) and, in the middle of the night, there may be no other employees available to log into

[17] *Id.* at ¶ 157.
[18] Comments of WISPA, WC Docket No. 16-106 (filed May 27, 2016) at 27.

the outage reporting system to fill out the report. All of this assumes, of course, that there is electrical power and an Internet connection available to make reporting possible, which may not be the case. And it goes without saying that interrupting the service restoration process so that the WISP can drive to a location where the Internet is available so he can accurately complete and submit an outage notice will necessarily delay the ability of consumers to get back online. In short, if imposed on small providers, the 120-minute notice requirement will contravene the objectives of the Commission, the provider and consumers, all of which desire the shortest and safest downtime as possible. The 72-hour and 30-day notice requirements exacerbate the problem by substantially increasing the paperwork burdens at a time when post-outage improvements and repairs must still be completed and customer service calls are likely to remain above normal.

As another example, and contrary to the Commission's view that providers "already routinely collect" outage information,[19] a small provider may not have the equipment or personnel to continuously monitor network performance to determine whether an outage (however defined) has occurred. This is especially true with respect to backhaul or connectivity facilities that the provider operates or leases. While larger broadband providers with millions of customers may devote significant resources to network diagnostics and performance monitoring, smaller providers often deploy to areas using inexpensive equipment that does not have the same level of diagnostic and reporting capabilities as the systems that larger providers use. Simply put, the installation, maintenance and operational costs of a "carrier-grade" network diagnostics and reporting system are high enough to make the difference between profitability and bankruptcy for a small provider.

[19] *FNPRM* at ¶ 153.

Second, as the basis for its outage reporting rules, the Commission notes "the potential for broad-scale, highly-disruptive outages in the broadband environment – and particularly those impacting 911 service."[20] But many small providers, including WISPA members, do not offer any form of voice service, and thus are not currently subject to 911 requirements or existing Part 4 reporting obligations. As such, standalone broadband providers would incur new, first-time compliance costs, not the lower, incremental costs that providers of bundled voice and broadband services would incur.

Third, the Commission appears to justify its proposed rules as fair consideration for the receipt of Connect America Fund ("CAF") support, stating that "[t]o the extent that covered broadband providers receive (or have received) such funding, it is logical to require a certain level of assurance in behalf of the end users who fund it."[21] Until the Commission conducts the CAF Phase II auction, however, WISPs are ineligible to receive CAF support, and only a few have received subsidies through the rural broadband experiment program. If the Commission wants to establish receipt of USF and CAF support as the basis for rules requiring broadband providers to report outages, then logically it must exempt from reporting those small providers – the vast majority of WISPA members – that do not and will never draw a penny from the CAF and USF funding mechanisms.

Taken together, the Commission's general characterization of broadband providers appears to be grounded on a series of misconceptions – that all providers are large companies with vast financial and human resources that offer voice services and accept USF support. Given that the Commission already requires all broadband providers to file detailed Form 477

[20] *Id.* at ¶ 104.
[21] *Id.* at ¶ 210. WISPA notes that the Form 481 that USF high-cost recipients are required to file includes an annual reporting of voice service outages.

Broadband Deployment Reporting data every six months and its conclusion in the *IRFA* that there are thousands of small broadband providers, it is astonishing that the *FNPRM* does not acknowledge the existence or the unique burdens of small broadband providers. The Commission's reliance on its misconceptions cannot serve as a predicate to applying outage reporting rules to small providers.

### C. **The Proposed Rules Would Impose Disproportionate Costs And Burdens On Small Broadband Providers.**

To its credit, the Commission takes the rare step of projecting the costs of filing outage reports under its proposed rules.[22] However, the Commission vastly underestimates these costs and, more importantly, fails to assess the *relative* impact of its proposed rules on small providers. Fairly considered, the actual costs will be considerably higher than the Commission's estimates and will have a higher relative adverse impact on small providers.

The Commission estimates that the filing of each three-stage report would cost each provider two hours of time at a rate of $80.00 per hour, or $160.00 total.[23] These estimates are based on "the likely correlation of broadband Internet access service outages with interconnected VoIP outages, in which there were 750 reports in 2015, and of broadband backbone outages with interoffice blocking outages, in which there were 330 reports in 2015. Accordingly, we estimate that adoption of the rules proposed in this Further Notice would create $173,280 in reporting costs."[24]

There are at least three major flaws with this analysis. First, many small broadband providers that are WISPs do not currently offer interconnected VoIP service, so there will be a much larger pool of potential filers and, in turn, a much larger number of outage reports that are

[22] *Id.* at ¶ 157.
[23] *See id.*
[24] *Id.* (footnotes omitted).

actually filed. Statistically, many small broadband providers will be filing outage reports for the first time, increasing reporting time. Second, and perhaps more significantly, the broad definition of "outage" that includes not just "hard-downs" but also "degradation" of service will very likely increase the number of reports that broadband providers will be forced to file. Third, despite its acknowledgement in the *IRFA* that "occasionally, the proposed outage reporting requirements could require the use of professional skills, including legal and engineering expertise,"[25] the Commission has not factored in the time it will take for small providers to retain such services and to learn the outage reporting rules and the NORS interface. Rather than accounting for these facts, the Commission appears to have used a convenient cursory analysis – and a defective *IRFA* – to bolster the outcome it desires.

In so doing, the Commission also ignored the record below, specifically the comments of AT&T demonstrating that the Commission's two-hour estimate grossly underestimates the reporting time by a factor of at least five.[26] In estimating reporting time at 12 hours, AT&T stated that "[w]ith its specialized workforce, about a dozen employees, spread across multiple organizations, contribute to the average outage report. With such specialization, it is reasonable to conclude that AT&T's reporting processes are more efficient – and thus require less time – than other carriers, who may not have the same amount of dedicated resources and level of expertise."[27] With no explanation, the Commission simply rejects this analysis out of hand.[28]

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[25] *IRFA* at ¶ 47.

[26] *See* Comments of AT&T, PS Docket No. 15-80 (filed July 16, 2015) at 3, 5-9. *See also FNPRM*, Statement of Commissioner Michael O'Rielly, Concurring in Part, Dissenting in Part, at 2 ("Frankly, I am more likely to believe the detailed analysis of those who actually file these reports as opposed to the Commission's ethereal analysis that this only takes two hours…. Is there anyone who believes that it only takes two hours to compile and analyze data, prepare the reports and engage in multiple layers of review to ensure that a report is even required and that it is accurate?").

[27] *Id.* at 6.

[28] *See* Pai Statement at 2 ("At least one provider submitted a detailed, quantitative analysis of the costs associated with our reporting regime. . . . So how does the agency respond to this data? How does it modify its cost-benefit

Small providers most assuredly do not possess the internal resources or specialization of AT&T and have little if no experience in filing outage reports, and thus cannot be expected to be as efficient as AT&T. As such, the 12-hour estimate for small providers would appear to be a conservative projection that, despite its shortcomings that underestimate the time and resources small providers will incur, is certainly more fact-based and reliable than the Commission's simplistic guesstimate. What's more, the Commission's proposed definition of outage, based upon degradation that may not even be perceptible to the typical end user, will require considerable data analysis that is not part of the typical small provider's operations.

Another cost is the increased enforcement risk that broadband providers will face if they do not meet the Commission's rules by, say, missing a deadline or not filing a report because they did not properly measure a reportable service "degradation." Though it is impossible at this juncture to precisely estimate the actual monetary cost, there is certainly an opportunity cost imposed on small providers that will preserve scarce financial resources to fund potential forfeitures instead of investing in network upgrades or expansion.

The real costs and opportunity costs are exacerbated when considered alongside other new rules that the Commission has or may apply to broadband providers. As WISPA stated in the broadband privacy proceeding:

> This proceeding cannot be viewed in a vacuum. The proposed privacy rules would be cumulative with the Commission's imposition of Title II regulations and enforcement under its *2015 Open Internet Order*, with additional transparency obligations if the small business exemption is not made permanent, and any additional requirements imposed by the Commission's new rulemaking regarding outage reporting. This grand slam of regulations within a short amount of time compounds the significant economic impact imposed on a substantial number of small broadband providers.[29]

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analysis? It doesn't. It simply asserts 'we are not convinced that twelve hours are necessary.' Why is that exactly? What is the basis for this assertion? The agency offers no insight").

[29] Reply Comments of WISPA, WC Docket No. 16-106 (filed July 6, 2016) at vi.

Simply put, the onslaught of a host of new regulations on small broadband providers threatens their very existence. As an important step to maintaining the viability of small providers that may offer the only terrestrial source of broadband access or competition to larger providers, the Commission should exempt small providers from outage reporting obligations.

### D. Exempting Small Providers From New Outage Reporting Rules Would Be Consistent With The Law, Precedent and Policy.

#### 1. The Proposed Rules Contravene Section 706.

Section 706 of the Telecommunications Act mandates the Commission to "take immediate action to accelerate deployment of such capability by *removing barriers to infrastructure investment and by promoting competition in the telecommunications market.*"[30] Although the Commission proposes to rely on this provision as a resource for authority to adopt its rules,[31] Section 706 stands for the proposition that the Commission should refrain from adopting outage reporting rules, especially with respect to small providers. Imposing new regulatory burdens will discourage, not encourage broadband deployment, by driving up compliance costs, increasing opportunity costs and chilling investment in network upgrades and expansion.

The Commission speculates that "[m]andatory outage reporting could provide the Commission with a dependable stream of objective data to further inform its annual inquiry under section 706."[32] But, there is no correlation between the confidential reporting of broadband *outages* on one hand, and broadband *deployment* on the other hand. One has to do with notifying the Commission about past outage events and the other addresses future

[30] 47 U.S.C. § 1302.
[31] *See FNPRM* at ¶¶ 206-209.
[32] *Id.* at ¶ 207.

broadband deployment. If anything, and as the discussion above emphasizes, a reporting obligation with the attendant costs and risks, would erect a barrier to investment and thereby discourage competition, defeating the goals of Section 706.

### 2. **Exempting Small Providers Would Be Consistent With Commission Practice.**

It is common practice for the Commission to afford relief to small businesses. For example, in adopting the *2015 Open Internet Order*, the Commission granted small providers a short-term exemption from enhanced transparency rules.[33] In 2007, small telecommunications providers were given a six-month extension to comply with new CPNI authentication rules.[34] Other examples of small business exemptions and relief also can be found in the broadcast and MVPD equal opportunity requirements;[35] the 1992 Cable Act rate regulations[36] and abbreviated Cost of Service filings;[37] Commercial Advertisement Loudness Mitigation Act waiver request process;[38] the Twenty-first Century Communications and Video Accessibility Act implementation requirements;[39] and the Hearing Aid Compatibility Act *de minimis* exception for small businesses.[40]

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[33] *See Protecting and Promoting the Open Internet*, GN Docket No. 14-28, DA 15-1425 (rel. Dec. 15, 2015).
[34] *Implementation of the Telecommunications Act of 1996: Telecommunications Carriers' Use of Customer Proprietary Network Information and Other Customer Information; IP-Enabled Services*, 22 FCC Rcd 6927, 6980 (2007).
[35] *See* 47 C.F.R. § 73.2080(c)(2). *See also Review of the Commission's Broadcast and Equal Opportunity Rules and Policies*, Second Report and Order and Third Notice of Proposed Rulemaking, 17 FCC Rcd 24018, 24069 (2002).
[36] *See Implementation of Sections of the Cable Television Consumer Protection and Competition Act of 1992: Rate Regulation*, 9 FCC Rcd 4119, 4221-26 (1994).
[37] *See Implementation of Sections of the Cable Television Consumer Protection and Competition Act of 1992: Rate Regulation*, Report and Order and Further Notice of Proposed Rulemaking, 9 FCC Rcd 4527, 4671 (1994).
[38] *See Implementation of Commercial Advertisement Loudness Mitigation (CALM) Act*, 26 FCC Rcd 17222, 17244-45, 17253-54 (2011) ("*CALM Act Report and Order*"). *See also* 47 C.F.R. §§ 73.682(e)(3)(iii) and 76.607(a)(3)(iii).
[39] *See Accessibility of User Interfaces, and Video Programming Guides and Menus*, Report and Order and Further Notice of Proposed Rulemaking, 28 FCC Rcd 17330, 17334, 17401-2 (2013).
[40] *See* 47 CFR § 20.19(e). Manufacturers or service providers that offer two or fewer digital wireless handsets in an air interface in the United States are exempt from the hearing-aid compatibility requirements in connection with that air interface, except for the reporting requirements.

These examples illustrate the Commission's acknowledgement that small businesses may not be able to meet more stringent requirements that the Commission may impose on larger providers. Exempting small providers from broadband outage reporting would be consistent with prior Commission decisions, and are justified by the costs and burdens described above.

## II. THE PROPOSED RULES ARE OVERBROAD AND SHOULD BE MORE NARROWLY TAILORED.

Assuming *arguendo* the Commission does not permanently exempt small providers from broadband reporting rules, it should substantially narrow the scope of the rules to require reporting of actual "hard-down" outages as measured by sensible metrics. By its flawed understanding of the design of the Internet, the Commission would declare service "degraded" even when it is working as intended. The proposed rules thus represent fundamental misunderstandings about the way information travels across the Internet in a manner that is naturally, acceptably and necessarily dynamic.

### 1. The Proposed Rules For "Hard Down" Reporting Do Not Reflect The Manner In Which Broadband Network Quality Is Measured.

Citing its Part 4 rules applicable to voice service, the Commission proposes to require broadband providers to report "hard down" outages "based on the number of Gbps minutes affected by the outage because Gb is a common denominator used throughout the communications industry as a measure of throughput for high bandwidth services."[41] The Commission then uses certain assumptions, including actual download speeds of 25 Mbps, to derive a formula that would define a reportable outage event as one that results in "1 Gbps of throughput affected in which the event exceeds 22,500 Gbps user minutes . . . which would establish a reporting threshold of an outage of 1 Gbps (gigabit per second) lasting 30 minutes or

[41] *FNPRM* at ¶ 130 (citation omitted).

more."[42] The measurement would be made at the facility taking into account its throughput capacity.[43]

For a number of reasons, accepting the Commission's formula would act as a disincentive for providers to offer faster broadband speeds. First, the formula is predicated on the misconception that the value of a broadband connection is linearly proportional to its speed[44]and assumes parity between one customer losing its 1 Gbps download service with 100 customers losing 10 Mbps download service or 40 customers losing 25 Mbps download service. Thus, using the Commission's metric would require a provider to report an outage affecting a single 1 Gbps subscriber but not an outage affecting 39 subscribers with 25 Mbps download service. That should not be the outcome the rules should promote

Second, because the advertised broadband speed would be the denominator, a provider offering 100 Mbps download speeds would be required to report a "hard down" outage before a provider offering 25 Mbps download speeds – that is, the faster the speed, the more likely it is that an outage would need to be reported. A broadband provider may think twice about increasing broadband speed if the threshold for reporting outages is lowered.

Third, factoring in speed would create the inevitable problem of calculating the speed packages for all affected customers, requiring the provider to determine on an individual subscriber basis the speed package, the throughput loss and downtime, and then adding the

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[42] *Id.*
[43] *See id.*
[44] A more accurate characterization of the value of Internet speed was made by Prof. Andrew Odlyzko, who stated that "value is proportional to the logarithm of volume." Odlyzko, Andrew, *The Volume and Value of Information*, International Journal of Communication 6 (2012), 920–935 1932–8036/20120920, *available at* http://ijoc.org/index.php/ijoc/article/view/1570/740 (last visited Aug. 23, 2016). He further noted that "[a]pplying this rule to Internet access, we find that the move from dial-access connectivity at 10 Kbps to an initial broadband capacity of 1 Mbps represents (taking decimal logarithms) a step from 4 to 6, an improvement by 50%. On the other hand, a move from the currently common 10 Mbps to 100 Mbps represents a step from 7 to 8, a far smaller gain of only 14%." *Id.*

individualized data to calculate whether the event would be reportable. Requiring a broadband provider to solve the math problem at a time when the provider should be restoring service is both unnecessary and counterproductive.

When applied to a broadband network, the only reasonable standard is the number of subscribers affected by a "hard down" outage over a specified time period. Not only is this method reflective of consumers' Internet experience, it will also be much easier for broadband providers to calculate and report. To the extent the Commission adopts outage reporting rules for small providers, it should employ a simpler metric that requires reporting for a loss of service to a defined number of subscribers over a specified time period.

Further, the Commission should reject its suggestion that it use "potentially-affected IP addresses as a proxy for the number of potentially affected users."[45] Like its proposed outage measurement methodology, this metric relies on a misunderstanding of the way broadband networks may be structured. Many broadband providers do not assign static (or "private") IP addresses to their customers, but instead allow customers to use temporary dynamic (or "public") IP addresses. Stated another way, the number of IP addresses a broadband provider assigns may understate the number of actual customers subscribed to the network. Conversely, the number of IP addresses may overstate the number of potentially affected customers because customers often have more than one device tethered to their accounts or, common among business users, have a block of IP addresses.

In sum, using IP addresses would likely yield wildly inaccurate results. A far better metric would be the number of subscriber accounts affected by the outage event. This number

[45] *FNPRM* at ¶ 132.

would be easier for broadband providers to measure and conforms to Form 477 data collection metrics, making statistical analysis more useable.

### 2. Broadband Providers Should Not Be Required To Report Service "Degradation."

In addition to proposing to require the filing of reports for "hard down" broadband outages, the Commission seeks comment on whether it should require reporting of "significant degradation of communications," which it defines as "a loss of 'generally useful availability and connectivity,' even if not a total loss of connectivity."[46] The Commission suggests that "the loss of generally useful availability and connectivity' in the broadband context would appear to be more akin to a legacy voice call during which users cannot hear or make themselves understood, tantamount to a complete loss of service."[47]

WISPA strongly disagrees with the Commission's proposal that would make degraded service a reportable event report. As a threshold matter, the Commission's comparisons of voice networks and broadband networks are misplaced. In many instances, broadband users retain functional use of networks when service is degraded from congestion, oversubscription or interference, albeit at slower speeds. Indeed, broadband networks are designed to adapt and tolerate loss, damage, and significant impairment while retaining functionality. Attempting to apply circuit switched methodologies to networks that are designed specifically to avoid the shortcomings of circuit switched networks makes little sense.

Degradation that causes only moderate loss is often imperceptible to end users and is impractical to monitor. The TCP/IP protocol stack used on the Internet, in fact, has no direct mechanism for speed-matching the data rates of the various hops in a connection. It nonetheless

[46] *Id.* at ¶ 133.
[47] *Id.* at ¶ 135.

adapts to available capacity: Speed matching is performed exclusively by end systems' observing packets being dropped in the normal course of operation, at which point the dropped packet, having not been acknowledged before a timer in the transmitting system expires, is retransmitted. This "end to end" operation is a key feature of the Internet and stands in marked contrast to the PSTN, where congestion in network elements results in blocked calls.

Attempts to reduce the packet drop rate or improve measured throughput by using larger packet buffers results in "bufferbloat," a condition in which jitter increases and actual usefulness of the network declines while most speed tests show improvement. Emphasis on degradation via such simplistic measurements could provide perverse incentives for broadband providers to reduce the utility of their networks in order to game the measurements.

Next, the Commission asserts that "throughput is widely regarded as a key metric."[48] While perhaps true in the abstract, the meaning of throughput must be defined before it can be measured. From a broadband provider's perspective, it cannot control the flow or disruption of upstream packets. From a consumer's perspective, measuring throughput at the provider's facility, as the Commission proposes, does not determine what impact, if any, a service degradation may have on a particular customer at a particular time.

The metrics the Commission proposes to use also are problematic. User minutes and throughput simply do not correlate. These metrics do not give any consideration for the statistical multiplexing and oversubscription that takes place across the backbones and last-mile connections of current broadband networks. Also troublesome is the Commission's suggestion that a 25 percent reduction in throughput should be considered a reportable event. Broadband networks are designed to tolerate congestion and throughput loss without customers suffering a

[48] *Id.* at ¶ 138.

loss of functionality. In fact, it would be contrary to the Commission's decision in the *Progeny LMS* case to find that a 25 percent loss of throughput constitutes reportable service "degradation."[49] In that decision, the Commission held that interference resulting in a 50 percent loss in throughput was not an "unacceptable level of interference."[50] In other words, the Commission would require outage reporting if throughput dropped by 25 percent, but has no problem authorizing twice as much throughput loss to a WISP network.

In practice, much larger reductions in throughput would not be noticed by most users, as Internet performance is *by design* inconsistent. To require consistent performance would require the rivalrous assignment of measurable capacity, as is done for telephone calls, but which is completely different from the flexible, non-rivalrous, adaptive nature of the Internet.

Further, while latency may be a useful metric to measure voice performance, the impact of latency on the usability of an end user connection varies widely depending on the application. Voice services can tolerate consistent latency up to 150 ms one-way (ITU-T G.114). Interactive video games prefer very low latency. Streaming media, and many other protocols, can accept very high latency with no discernable degradation. There is no industry standard that declares a connection unusable once latency exceeds a certain threshold, as that threshold varies by application. During periods when latency may increase, customers are still able to use their broadband connections without losing functionality. Latency seen by applications is also largely outside of the control of broadband providers, whose networks may provide one to a few hops out of an end-to-end connection that crosses many service providers.

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[49] *Request by Progeny LMS, LLC for Waiver of Certain Multilateration and Monitoring Service Rules*, 28 FCC Rcd 8555, 8556 (2013) ("*Progeny Order*") at 3. WISPA and others have sought reconsideration of the *Progeny Order*. *See* WISPA Petition for Reconsideration, WT Docket No. 11-49 (filed July 8, 2013).
[50] *See Progeny Order*.

The Commission's proposed rules assume that broadband providers typically monitor and can easily measure throughput variations, packet loss and latency, and have the time and know-how to constantly calculate whether a "degradation" in service is reportable or not. Small providers in particular do not possess the means to engage in such network monitoring, and likely lack the tools to comply with the proposed rules. Even large providers do not monitor throughput, packet loss, and latency to every subscriber. Rather, these measurements are typically performed on a sampling of the user base, and are often only used when troubleshooting specific incidents. Attempting to measure these metrics at a one-to-one sampling rate would create significant network traffic. In situations like this, where the costs and burdens of tracking, reporting and calculating "metrics that may have nothing to do with an outage or a consumer's ability to use their broadband service,"[51] the Commission should reject its plan to require reporting of service degradations that are not "hard down" outages.

## III. ANY BROADBAND OUTAGE REPORTING RULES THE COMMISSION ADOPTS SHOULD APPLY TO ALL CARRIERS OF INTERNET TRAFFIC.

The Commission asks whether "BIAS providers could be used as a central reporting point for all broadband network outages . . . in which only BIAS providers (as opposed to other entities providing networks or services would be required to report)."[52] Small providers in particular must rely on one or more third parties for the transport and backhaul of Internet traffic, and thus provide only the last-mile connection to the consumer. In many cases, providers have no way of determining if any particular service outside of their control is functioning properly or how to fix it. It may even take hours for the provider to contact the third-party carrier and understand the problem (*e.g.*, fiber cut, power outage). Without any ability to control the

[51] Pai Statement at 1.
[52] *FNPRM* at ¶ 112.

upstream carrier's activities or remediate the outage, the provider and certainly should not bear responsibility for being the Commission's sole source for data collection. If the Commission is truly concerned about gathering data on outages and believes it will assist in improving reliability and resiliency, it should subject third-party carriers of Internet traffic to outage reporting requirements.

## IV. OUTAGE REPORTS SHOULD BE CONFIDENTIAL.

WISPA agrees with the Commission that outage reports should be "withheld from routine public inspection and treated with a presumption of confidentiality."[53] The Commission rightfully appreciates that information about broadband outages should be subject to the same presumption of confidentiality as voice outages pursuant to Section 4.2. In the absence of this presumption, broadband providers may be reluctant to report complete information on the outage.

At this time, the Commission should not require sharing of information reported to NORS with any other state or federal agency other than the Department of Homeland Security.[54] The Commission rightfully directs the Public Safety and Homeland Security Bureau ("Bureau") to study inter-agency sharing issues.[55] WISPA suggests that the Bureau release a Public Notice inviting comment on issues involving the sharing of confidential outage reports.

## Conclusion

In light of market realities, there is a substantial basis for the Commission to permanently exempt small broadband providers from being "covered" providers under its proposed outage reporting rules. If the Commission does not grant an exemption, it should more narrowly tailor

[53] *Id.* at ¶ 145.
[54] *See id.* at ¶ 146.
[55] *See id.* at ¶ 147.

its definition of "outage" and use more sensible metrics to trigger reporting. The Commission should not require reporting of service "degradation."

Respectfully submitted,

**WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

August 26, 2016 By: */s/ Alex Phillips*, President
*/s/ Mark Radabaugh*, FCC Committee Chair
*/s/ Fred Goldstein*, Technical Consultant

Stephen E. Coran
Lerman Senter PLLC
2001 L Street, NW, Suite 400
Washington, DC 20036
(202) 416-6744
*Counsel to the Wireless Internet Service Providers Association*