

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

In the Matter of)	
)	
Technology Transitions)	GN Docket No. 13-5
)	
)	
Policies and Rules Governing Retirement Of)	RM-11358
Copper Loops by Incumbent Local Exchange)	
Carriers)	
)	
Special Access for Price Cap Local Exchange)	WC Docket No. 05-25
Carriers)	
)	
AT&T Corporation Petition for Rulemaking to)	RM-10593
Reform Regulation of Incumbent Local Exchange)	
Carrier Rates for Interstate Special Access)	
Services)	

Comments of AARP

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Executive Summary

Telecommunications technologies play a growing role in the lives of Americans in age 50 and above households. The notice raises issues that are of substantial importance for older Americans, especially due to the continuing reliance of older Americans on legacy wireline TDM-based services. AARP is pleased that the Commission has adopted portions of the Public Knowledge technology transition criteria. These criteria provide a foundation for a reasonable roadmap for technology transition issues. However, AARP is concerned that the Further Notice of Proposed Rulemaking (FNPRM) has tentatively concluded to exclude key issues from consideration.

- AARP has previously explained the importance of an integrated approach to the resiliency of next generation networks,¹ and AARP has stressed that even with robust CPE backup power requirements, absent robust *network* backup power standards, networks will fail during grid power outages.² Thus, the FNPRM’s tentative conclusion to exclude any evaluation of network operability during emergencies, including power outages,³ places public safety at risk as networks transition to next-generation technologies. The Commission’s recently adopted CPE backup power requirements are not sufficient as backup power requirements for next generation networks have not been addressed. AARP encourages the Commission to reconsider the FNPRM’s tentative conclusion to exclude operability during emergencies, including power outages.
- AARP flatly disagrees with the FNPRM’s assertion that affordability need not be addressed in the context of the section 214 process. AARP is in full agreement with Public Knowledge’s statement on the importance of affordability as the Commission addresses the transition to all IP networks:

Finally, if the goal of “universal service” means anything, it must mean that the service offered is actually affordable enough for users to benefit from it. The Commission should therefore consider the cost of new services offered as replacements for existing basic services. Is the new service more expensive for the same functionality? Is the new service the same price as the existing service, but

¹ See, Comments of AARP *In the Matter of Improving the Resiliency of Mobile Wireless Communications Networks Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket No. 13-239, PS Docket No. 11-60, Comments of AARP, January 17, 2014, Comments of AARP, pp. 27-29; see also, *In the Matter of Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Comments of AARP, May 12, 2014, pp. 8-11; see also, *In the Matter of Technology Transitions Policy Task Force Seeks Comments on Potential Trials*, GN Docket No. 13-5, July 8, 2013, pp. 17-20.

² Comments of AARP *In the Matter of Ensuring Customer Premises Equipment Backup Power for Continuity of Communications, Technology Transitions, Policies and Rules Governing, Retirement Of Copper Loops by Incumbent Local Exchange Carriers, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, Petition for Declaratory Ruling to Clarify that Technology Transitions Do Not Alter the Obligation of Incumbent Local Exchange Carriers to Provide DS1 and DS3 Unbundled Loops Pursuant to 47 U.S.C. § 251(c)(3)*, PS Docket No. 14-174, GN Docket No. 13-5, RM-11358, WC Docket No. 05-25, RM-10593, WC Docket No. 15-1, February 5, 2015, pp. 4-5, 11-12.

³ FNPRM, ¶234.

offers less functionality or requires the user to spend considerable sums on new equipment or battery backup? For users across the spectrum—from individuals to schools to small businesses to government offices—the cost of upgrading to new technologies could be substantial.⁴

AARP urges the Commission to incorporate an assessment of affordability, including the impact on typical customer bills, of the technology transition. Specifically, the requesting carrier should be required to present data on existing service prices and representative customer bills, and identify service prices and projected customer bills under the alternative technology. Section 214 applications should not be approved by the Commission unless the proposed alternative services will not result in increases in customer bills.

With regard to other matters raised in the FNPRM, AARP offers the following recommendations:

- The FNPRM raises questions regarding conditions under which an automatic grant pursuant to section 63.71(d) may be appropriate. Under conditions when the requesting carrier provides the replacement service directly, the potential for automatic grants in cases of certification of compliance with all Commission requirements might be appropriate.⁵ However, given the lack of information regarding details of the overall rules that the Commission will adopt, including the problems identified above, AARP does not endorse automatic grants at this time.
- AARP is also not supportive of automatic grants in cases where the replacement or alternative service is provided by a third party. Proposals to replace the services identified in a section 214 discontinuance application by third-party services requires a higher degree of Commission scrutiny. Absent specific protocols that the Commission

⁴ *In the Matter of Ensuring Customer Premises Equipment Backup Power for Continuity of Communications, Technology Transitions, Policies and Rules Governing, Retirement Of Copper Loops by Incumbent Local Exchange Carriers, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, Petition for Declaratory Ruling to Clarify that Technology Transitions Do Not Alter the Obligation of Incumbent Local Exchange Carriers to Provide DS1 and DS3 Unbundled Loops Pursuant to 47 U.S.C. § 251(c)(3)*, PS Docket No. 14-174, GN Docket No. 13-5, RM-11358, WC Docket No. 05-25, RM-10593, WC Docket No. 15-1, Comments of Public Knowledge, Appalshop, Benton Foundation, Center for Media Justice, Center for Rural Strategies, Common Cause, The Greenlining Institute, Media Action Center, Media Literacy Project, National Consumer Law Center, On Behalf of Its Low-Income Clients, New America's Open Technology Institute, Rural Broadband Policy Group, and Turn (The Utility Reform Network), February 5, 2015, pp. 12-13, emphasis added.

⁵ As the FNPRM notes, automatic grants would be suspended if comments or objections call into question whether a substitute or alternative service satisfies the Commission's criteria. FNPRM, ¶210. Hereinafter "*Public Knowledge, et al. CPE Backup Power Comments.*"

AARP does not support automatic grant unless the foundational issues of operability during power outages, transmission capability, and affordability, as discussed in these comments, are addressed in the application.

would need to establish, AARP does not believe that it is reasonable for a requesting carrier to certify the performance of third-party services.

- AARP strongly believes that automatic grant should not be associated with any proposal that identifies multiple alternative services as being required to generate sufficient functionality to replace the legacy service.
- With regard to network capacity and reliability, AARP believes that FNPRM’s proposed criteria provide a reasonable starting point for the services to which it is proposed that consumers migrate. However, the FNPRM does not address the “five nines” of reliability (or another measure of reliability), and the Commission must specify a reliability standard that delivers network performance consistent with legacy networks.
- The FNPRM poses questions associated with packet loss, latency, and jitter associated with next generation networks that are used to replace legacy services. AARP proposes the following measures, based on a review of service level agreements for business VoIP services: Packet loss—no more than 0.01%; round-trip latency—no more than 50 ms; one-way jitter—no more than 3 ms.
- AARP also proposes that a qualitative measure of voice performance should be performed on proposed replacement services, using either Mean Opinion Scores or R Factor scores. Here the Commission should set performance levels no lower than 4.3 if the Mean Opinion Score is utilized, or 90 should the R Factor approach be utilized.
- AARP believes that the FNPRM’s emphasis on device and service interoperability is appropriate. AARP also applauds the FCC's tentative conclusion that “in development” replacement technologies should not be counted in section 214 discontinuance proceedings. With regard to measurement of interoperability levels, AARP believes that the Commission must play a role in device interoperability qualification by establishing a standardized test of a representative sample of devices. These devices should include, at a minimum, common connected devices that are currently interoperable with the PSTN, such as personal and medical alarm and monitoring systems, home and fire alarm systems, and fax and credit card processing machines.
- For individuals with disabilities, the FNPRM appropriately applies an “adequate substitute” test that will require carriers to demonstrate that replacement services allow the same accessibility, usability, and compatibility with assistive technologies. AARP believes that it is reasonable to require carriers seeking section 214 discontinuance to describe in their applications the specific alternative technologies that are available for individuals with disabilities, assuming that existing technologies will no longer function.

The section 214 application should also include, in the event that consumers will be required to purchase new technologies, the cost per consumer of alternative and compatible equipment.

- AARP notes that the Commission is separately considering the petition of AT&T regarding TTY rules and the potential to transition to RTT.⁶ AARP certainly supports the transition to new technologies, but is concerned that the transition not overlook basic issues, such as how much the alternative costs. AARP recommends that the Commission address the TTY rules outside of a waiver proceeding, and also to be careful to not impose mandatory industry-wide sunset dates for TTY services, as not all carriers are pursuing IP-transition plans at the same pace.
- AARP supports the tentative conclusion that any substitute service should comply with applicable state, Tribal, and federal regulations regarding the availability, reliability, and functionality of 911 service. However, there should be no compromise on 911 performance associated with a replacement service—911 functionality should be as good or better for any proposed replacement service. The FNPRM raises a question regarding the acceptability of using wireless 911 automatic location information as a substitute for traditional landline service.⁷ AARP does not believe that the Commission should allow the technology transition to result in wireless 911 automatic location information serving as a replacement for legacy 911 location service performance. With regard to next generation 911 network performance, such as trunks and selective routers, the Commission should look to the recommendations of the FCC's Public Safety and Homeland Security Bureau on these matters.
- With regard to cybersecurity, AARP believes that the NIST Framework could be utilized by the Commission to establish a standardized network security benchmark that would enable service providers to demonstrate that they have applied best practices and are devoting sufficient resources to network security issues. Certainly, the applicant should be required to provide detailed information regarding the provider's cyber risk management practices, its implementation of relevant industry best practices, and its engagement with fellow providers to address shared risks.

⁶ *In the Matter of Petition for Rulemaking to Update the Commission's Rules for Access to Support the Transition from TTY to Real-Time Text Technology, and Petition for Waiver of Rules Requiring Support of TTY Technology; Facilitating the Deployment of Text-to 911 and Other Next Generation 911 Applications Framework for Next Generation 911 Deployment; IP-Enabled Services; Telecommunications Relay Services and Speech-to-Speech Services for Individuals; Implementation of Sections 716 and 717 of the Communications Act of 1934, et al*, GN Docket No. 15-178, PS Docket No. 11-153, PS Docket No. 10-255, WC Docket No. 04-36, CG Docket No. 03-12, CG Docket No. 10-213, June 12, 2015.

⁷ FNPRM, ¶225.

- AARP agrees with the FNPRM’s tentative conclusion that coverage associated with replacement services should be the same as for the discontinued service. AARP urges the Commission to avoid *de minimis* tests, as these can easily become a slippery slope.
- With regard to the components of an education and outreach plan, notification materials should clearly address the following issues:
 - The changes to the network and the impact on existing services that are purchased by individual customers, including whether all existing services will be available following the transition.
 - If the technology transition has any impact on existing network functionality, a clear statement of those changes and the potential impact on customers.
 - Information regarding the installation and/or modification of CPE performance, including backup power, and notice should also address whether any technician access to the customer’s premise is required.
 - Should the technology transition result in any potential for incompatibility with legacy technologies/services that are provided by third parties (alarm systems, modems, etc.), a description of the types of affected technologies, and potential alternatives that are compatible with the new technology.
 - Information on any transitional or phase-in issues associated with the technology transition.
 - Any changes in service prices associated with the services that the customer currently purchases, or the anticipated replacement services.
- AARP has substantial concerns regarding the potential for customers to be required to utilize services from a third-party carrier they did not choose as a result of section 214 discontinuance. As a result, additional education/notification requirements should apply if the Commission permits third-party services to be considered during an application:
 - A description of the choices the consumer has among alternative providers, including a description of the services, and service prices, available from the alternative providers, and contact information for the alternative service providers.
 - An explanation as to whether the customer can expect to be contacted by the alternative provider, or whether the customer must proactively find another service provider.
- AARP also believes that part of any customer education plan should include additional support for individuals with disabilities and the elderly. All standard educational

materials should identify additional points of contact for these individuals. The additional information should address issues such as the impact of the transition on specialized systems that are more likely to be utilized by those with disabilities, such as health and personal monitoring, access to emergency services, and the potential need to replace legacy devices.

- With regard to customer notice, AARP believes that notice by email is appropriate as long as consumers have previously agreed to receive notice from the carrier via email. Express, verifiable, prior approval should be received from the customer regarding the acceptability of receiving notification via email. To the extent that customers have not agreed to receive notice via email, the notifying carrier should utilize postal mail, and postal mail should also be employed in cases where email messages are returned as non-deliverable. Absent specifics regarding the potential “other forms of electronic or other notice,” AARP does not support the use of alternative methods.
- The carrier should make notice available in all languages that the carrier normally uses to conduct its business, or as required by state law or state commission rule.

In the *Technology Transitions Order* the Commission noted that “Technology transitions mark progress and are a good thing – sometimes even a triumph.”⁸ For these aspirational objectives to be achieved, service functionality must not decline. This is true for both voice and data services that may be provided over legacy networks. As the Commission works on the details of the process that will ultimately enable the discontinuance of legacy services, the Commission must not lose sight of the larger issues associated with IP transition, especially those associated with the affordability and underlying reliability of broadband networks. The next generation public network must offer affordability and reliability similar to the legacy PSTN, otherwise, consumers, competition, and innovation will be harmed.

⁸ *Technology Transitions et al.*, GN Docket No. 13-5 et al., Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, 29 FCC Red at 1439, para. 15.

Introduction

AARP respectfully submits these Comments for the FCC's consideration, and thanks the Commission for the opportunity to participate in this important proceeding regarding the transition to all IP broadband networks. AARP is keenly interested in this technology transition. Telecommunications technologies play a growing role in the lives of older Americans, i.e., those in age 50 and above households. The notice raises issues that are of substantial importance for older Americans, especially due to the continuing reliance of older Americans on legacy wireline TDM-based services.

AARP is pleased that the Commission has adopted portions of the Public Knowledge technology transition criteria. These criteria contribute to a reasonable roadmap for technology transition issues. Specifically, the Further Notice of Proposed Rulemaking (FNPRM), proposes “that a carrier seeking to discontinue an existing retail service in favor of a retail service based on a newer technology must demonstrate that any substitute service offered by the carrier or alternative services available from other providers in the affected service area meet the following criteria in order for the section 214 application to be eligible for an automatic grant pursuant to section 63.71(d) of the Commission's rules:

- (1) network capacity and reliability;
- (2) service quality;
- (3) device and service interoperability, including interoperability with vital third-party services (through existing or new devices);
- (4) service for individuals with disabilities, including compatibility with assistive technologies;
- (5) PSAP and 9-1-1 service;
- (6) cybersecurity;
- (7) service functionality; and
- (8) coverage.”⁹

⁹ FNPRM, ¶208.

While AARP is not supportive of automatic grants, AARP agrees that these key issues must be addressed in cases where automatic grant is sought, and the criteria should also be fully evaluated in cases where automatic grant is either denied or not sought by the carrier. However, other aspects of the Further Notice of Proposed Rulemaking (FNPRM) raise significant concerns, and because of these and other concerns, AARP cannot endorse automatic grants.

The FNPRM Inappropriately Excludes Key Issues from Consideration

In a later section of the FNPRM titled “Other Issues,” the FNPRM proposes to exclude several key issues from consideration, and tentatively concludes that the Commission should not adopt certain criteria as part of section 214 proceedings (apparently under automatic grant or otherwise). Among the criteria the FNPRM proposes to exclude from consideration are:

- “(1) operability during emergencies, including power outages, because this issue is being addressed by the Commission through separate means;
- (2) adequate transmission capability, because end users and carriers should be free to reach agreement on services at a wide range of transmission capacities; and
- (3) affordability, because the evaluation process in this context should focus on the nature of the service and because cost is not part of the equation in determining whether an available alternative service constitutes an adequate substitute for the service sought to be discontinued.”¹⁰

AARP believes that the FNPRM is making a grave error by excluding these criteria from section 214 proceedings, and AARP believes that by excluding these issues from consideration, the Commission is establishing parameters for the technology transition that will lead to consumer harms.

¹⁰ FNPRM, ¶234.

Operability during Emergencies

The FNPRM points to the Commission's recent decision regarding CPE backup power as the reason for excluding operability of replacement services during emergencies.¹¹ In that decision the Commission determined that service providers have no responsibility to automatically provide CPE that is capable of operating during a power outage of any duration. Rather, service providers are only required to offer *optional* backup power solutions:

We require only that consumers who want service that will work during power outages and have not otherwise provided for such uninterrupted service have the option of obtaining that capability, and that they have sufficient information to make an informed decision.¹²

There are significant problems with this approach to network reliability. First, it ignores the issue of affordability of CPE backup power in a market where there is no price regulation of the backup power solutions offered.¹³ Service providers could set CPE backup power prices to establish a profit center, which would discourage adoption. Even if one were to assume that the market for next generation networks will be competitive, thus leading to cost-based prices for CPE backup power (which from this vantage point seems unlikely), the Commission's policy overlooks the impact of the battery backup decision on low-income households, who will be less likely to choose to back up CPE due to cost considerations. Beyond the low-income issue, the Commission's approach to battery backup also overlooks negative spillover effects that will arise when some consumers no longer have the ability to make voice calls during power outages. First responders, as well as the lives and property of neighbors, are placed at risk if power outages prevent timely calls for emergency services.

¹¹ FNPRM, ¶243, footnote 713.

¹² *In the Matter of Ensuring Continuity of 911 Communications*, PS Docket No. 14-174, Report and Order, August 7, 2015, ¶37.

¹³ *Id.*, ¶45. "A service provider can receive compensation for all aspects of implementing the rules we adopt today, including the backup power installation, and costs of equipment and labor, from the consumer that elects to have backup power installed." The rules, however, provide no assessment of the reasonableness of those costs.

AARP has previously explained the importance of an integrated approach to the resiliency of next generation networks,¹⁴ and stressed that even with robust CPE backup power requirements, absent robust *network* backup power standards, networks will fail during grid power outages.¹⁵ The FNPRM's exclusion of evaluation of network operability, combined with the weak CPE backup power requirements, and the lack of backup power requirements for next generation networks, place public safety at risk as networks transition away from line-powered TDM-based technology. With regard to elements of network reliability, the Commission developed a reasonable plan in 2007,¹⁶ however, that plan was never implemented.¹⁷ The Commission should promote networks that continue to function when commercial power fails. To that end, the Commission should apply the 2007 rules associated with wireline and wireless service backup power. These rules will address central office backup power requirements at the 72

¹⁴ See, *In the Matter of Improving the Resiliency of Mobile Wireless Communications Networks Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket No. 13-239, PS Docket No. 11-60, Comments of AARP, January 17, 2014, pp. 27-29; see also, *In the Matter of Wireless E911 Location Accuracy Requirements*, PS Docket No. 07-114, Comments of AARP, May 12, 2014, pp. 8-11; see also, *In the Matter of Technology Transitions Policy Task Force Seeks Comments on Potential Trials*, GN Docket No. 13-5, Comments of AARP, July 8, 2013, pp. 17-20.

¹⁵ Comments of AARP *In the Matter of Ensuring Customer Premises Equipment Backup Power for Continuity of Communications, Technology Transitions, Policies and Rules Governing, Retirement Of Copper Loops by Incumbent Local Exchange Carriers, Special Access for Price Cap Local Exchange Carriers, AT&T Corporation Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, Petition for Declaratory Ruling to Clarify that Technology Transitions Do Not Alter the Obligation of Incumbent Local Exchange Carriers to Provide DS1 and DS3 Unbundled Loops Pursuant to 47 U.S.C. § 251(c)(3)*, PS Docket No. 14-174, GN Docket No. 13-5, RM-11358, WC Docket No. 05-25, RM-10593, WC Docket No. 15-1, February 5, 2015, pp. 4-5, 11-12.

¹⁶ *In the Matter of Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, EB Docket No. 06-119, WC Docket No. 06-63, Order, June 8, 2007, Appendix B, §12.2.

¹⁷ “The Commission, in 2007, adopted—but never made effective—a requirement that CMRS providers supply each of their cell sites with a back-up power supply capable of providing eight hours of service in the event of commercial power loss. . . . The Commission renewed examination of this issue in the 2011 Notice of Inquiry, where it sought comment more broadly on the technical and logistical aspects of provisioning back-up power and on whether the Commission should consider forms of back-up power regulation that offer service providers greater flexibility than the eight hours-per-site requirement the Commission adopted previously.” *In the Matter of Improving the Resiliency of Mobile Wireless Communications Networks, Reliability and Continuity of Communications Networks, Including Broadband Technologies*, PS Docket No. 13-239, PS Docket No. 11-60, NOTICE OF PROPOSED RULEMAKING, September 27, 2013, ¶62, footnote 86.

percent of central offices that were excluded from consideration in the *911 Reliability Order*.¹⁸ Furthermore, as the 2007 rules addressed cell site backup power, the performance of wireless networks would also improve and contribute to wireless networks playing an important role in providing a fail-safe emergency communications network.

Transmission Capability

With regard to transmission capacity, the FNPRM indicates that this matter should be left to free negotiation between service providers and consumers. If markets for next generation services were competitive, the playing field between consumers and service providers would be level. However, competition today is lacking in broadband markets, and prospects for competition in the future appear no more promising, especially given the potential for requests for section 214 service discontinuance. This lack of competition requires assurances from the Commission that any section 214 discontinuance does not result in reduced transmission capability, or in increased rates to maintain existing transmission capability. With regard to next-generation services, the FNPRM also overlooks the issue of data caps, which may restrict data usage, and raise prices for broadband services. Where consumers face few choices, these important matters cannot be left to market forces.

Affordability

AARP flatly disagrees with the FNPRM's assertion that affordability need not be addressed in the context of the section 214 process. The FNPRM's logic is hard to follow: "the evaluation process in this context should focus on the nature of the service and because cost is not part of the equation in determining whether an available alternative service constitutes an adequate substitute for the service sought to be discontinued." This statement ignores the fundamental statutory mission of the Commission:

¹⁸ *911 Reliability Order*, ¶120, footnote 319.

For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nationwide, and world-wide wire and radio communication service with adequate facilities *at reasonable charges*. . .¹⁹

The FNPRM’s statement is also entirely inconsistent with other statements made by the Commission regarding the importance of the affordability of next generation services. The Commission need look no further than its *National Broadband Plan*:

The mission of this plan is to create a high-performance America—a more productive, creative, efficient America in which *affordable broadband is available everywhere* and everyone has the means and skills to use valuable broadband applications.²⁰

More recently, the Commission reiterated the importance of affordable broadband services:

Broadband that is more affordable is more likely to be adopted (and contribute to demand) than broadband that is not affordable. In the 2014 NTIA Digital Nation Report, NTIA found that the second highest reason for not subscribing to broadband was the Internet is “too expensive.” . . .²¹

AARP is in full agreement with Public Knowledge’s statement on the importance of affordability as the Commission addresses the transition to all IP networks:

Finally, if the goal of “universal service” means anything, *it must mean that the service offered is actually affordable enough for users to benefit from it. The Commission should therefore consider the cost of new services offered as replacements for existing basic services. Is the new service more expensive for the same functionality? Is the new service the same price as the existing service, but offers less functionality or requires the user to spend considerable sums on new equipment or battery backup?* For users across the spectrum—from individuals to schools to small businesses to government offices—the cost of upgrading to new technologies could be substantial. And especially for low-income communities, replacing the existing service with a newer, “better” service that users cannot afford to buy is not a step forward at all.²²

¹⁹ 47 U.S.C. 151.

²⁰ *National Broadband Plan*, p. 9, emphasis added.

²¹ *In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act*, GN Docket No. 14-126, 2015 Broadband Progress Report and Notice of Inquiry on Immediate Action to Accelerate Deployment, February 4, 2015, ¶147, emphasis added.

²² *Public Knowledge, et al. CPE Backup Power Comments*, February 5, 2015, pp. 12-13, emphasis added.

The Commission must recognize that cost alternative services proposed in a section 214 proceeding is a necessary part of the equation. High and unaffordable prices for the replacement services qualified by the Commission will have a detrimental impact on consumers, broadband deployment, and universal service objectives. Based on experience to date, the Commission has already observed that carriers may be disposed to use technology transition as a mechanism to increase revenues.²³ High and unaffordable prices for replacement services may lead some consumers to avoid the replacement services, leaving them to rely on alternatives that are less functional and less reliable than legacy services. Alternatively, for those who find that lower quality substitutes are unacceptable, high prices for replacement services will result in negative distributional outcomes—especially for lower income consumers who will be forced to cut back on the consumption of other necessities should essential service prices rise as part of the technology transition. Finally, the lack of competition, with a section 214 discontinuance request potentially indicating a further reduction in service availability, is not consistent with a policy that ignores the cost of replacement services and their affordability.

AARP urges the Commission to incorporate an assessment of affordability, including the impact on typical customer bills, of section 214 discontinuance requests. Specifically, the requesting carrier should be required to present data on existing service prices and representative customer bills associated with existing technologies, and identify service prices and projected customer bills under the alternative technology, including the projected impact of data caps, should data caps be associated with proposed alternative services. Section 214 applications should not be approved by the Commission unless the proposed alternative services will not result in increases

²³ See, for example, *In the Matter of Ameritech Operating Companies Tariff F.C.C. No. 2, BellSouth Telecommunications LLC Tariff F.C.C. No. 1, Nevada Bell Telephone Company Tariff F.C.C. No. 1, Pacific Bell Telephone Company Tariff F.C.C. No. 1, Southern New England Telephone Company Tariff F.C.C. No. 39, Southwestern Bell Telephone Company Tariff F.C.C. No. 73*. Transmittal Nos. 1803, 71, 254, 498, 1061, and 3383. Petition of Sprint Corporation to Reject and to Suspend and Investigate. December 2, 2013.

in customer bills. Affordability must enter into the Commission's evaluation of section 214 alternatives.

In conclusion on the "Other Criteria" that the FNPRM proposes to exclude from consideration, AARP strongly encourages the Commission to fully address, for any replacement services proposed in the section 214 process, the operability of the services during emergencies, including power outages, the transmission capability of replacement services, including both the speeds of the replacement services and the issue of data caps, and the affordability of the replacement services. If these matters are not considered, the transition to an all-IP environment will likely lead to degraded services and higher rates, outcomes that will threaten universal service objectives.

AARP now turns to the other matters raised in the FNPRM.

"Service Based on Newer Technology"

The FNPRM raises the issue of how to address the identification of technology transition, and proposes alternatives including discontinuance of "existing" or "legacy" services, whether "next-generation" technologies are associated with qualifying a transition as being subject to the rules, and whether the replacement services are "IP-based or wireless." The FNPRM asks a key question regarding the transition.

Rather than framing the draft rule in terms of discontinuance of an "existing" service in favor of a 'service based on a newer technology,' should we instead frame it in terms of discontinuance of 'legacy service,' and if so how should the term "legacy service" be defined?²⁴

AARP believes that the section 214 application provides a sufficient signal that "existing" or "legacy" services are being replaced. The criteria that will be applied, as discussed below,

²⁴ FNPRM, ¶209.

should apply to any replacement service identified by the requesting carrier, whether the service be IP-based, wireless, or some other technology.

The FNPRM raises questions regarding conditions under which an automatic grant pursuant to section 63.71(d) may be appropriate. Given concerns expressed above regarding operability and affordability, AARP does not support automatic grants. AARP is also not supportive of automatic grants in cases where the proposed replacement or alternative service is provided by a third party. Proposals to replace the services identified in a section 214 discontinuance application by third-party services requires a higher degree of Commission scrutiny. Absent specific protocols that the Commission would need to establish, AARP does not believe that it is reasonable for a requesting carrier to certify the performance of third-party services. Issues associated with the coverage, stability and reliability, and affordability of third-party services must be certified with the benefit of specific information from the service provider that the applicant proposes as the replacement service provider. The Commission should require direct evidence from any third-party service provider regarding the functionality, coverage, reliability, and affordability of the services identified as potential replacements.

Multiple Replacement Services Require Additional Scrutiny

The FNPRM raises the issue of whether it would be appropriate for the Commission to require a single replacement service for automatic grant eligibility, or whether “it [is] sufficient that multiple alternative services are available which collectively satisfy all of the adopted criteria?”²⁵ AARP strongly believes that automatic grant should not be associated with any proposal that requires multiple alternative services to generate sufficient functionality to replace the legacy service associated with the section 214 discontinuance. AARP also does not believe that it is

²⁵ FNPRM, ¶211.

appropriate, as the FNPRM suggests,²⁶ to treat the requesting carrier's *demonstration*²⁷ associated with replacement services offered by first-parties and third-parties equally. Absent specific consent and cooperation of the third-party service provider, AARP is skeptical that the proposing carrier would have sufficient knowledge of the third-party's network operations and capabilities to make an independent determination that the proposed third-party services meet the Commission's criteria.

Network Capacity and Reliability

The FNPRM tentatively concludes that alternative replacement services should meet the following criteria:

(a) afford the same or greater capacity as the existing service and
(b) afford the same reliability as the existing service even when large numbers of communications, including but not limited to calls or other end-user initiated uses, take place simultaneously, and when large numbers of connections are initiated in or terminated at a communications hub, including but not limited to a wire center. This means that:

- 1) Communications are routed to the correct location
- 2) Connections are completed
- 3) Connection quality does not deteriorate under stress
- 4) Connection setup does not exhibit noticeable latency.²⁸

AARP believes that these criteria provide a reasonable starting point for the evaluation of network capacity and reliability for the services to which it is proposed that consumers migrate. However, AARP notes with concern that the Commission has focused on network performance during periods of high call volumes, and has not included service availability during grid-power outages. Reliability in next-generation networks should be consistent with the reliability of the

²⁶ FNPRM, ¶213.

²⁷ *Id.*

²⁸ FNPRM, ¶216.

networks that are being replaced. The “five nines” of reliability should be addressed by the Commission, and if it does not pursue a 99.999% reliability standard, it should specify the standard that it will utilize.

AARP agrees with the CWA comments cited in the FNPRM regarding reasonable consumer expectations for voice communications that are “clear, understandable, and free of distortion.”²⁹

AARP believes that the Commission should establish minimum standards associated with service quality, with the understanding that should an individual state impose more rigorous requirements, the state’s higher standards would provide the basis for evaluation. However, the importance of the Commission establishing service quality standards is illustrated by the reduction in state service quality oversight. A 2013 NRRI report summarizes the reduction in state authority regarding service quality matters:

Based on the legislatures’ views of the evolution of the telecommunications market and the availability of multiple carriers, the bills enacted between 2006 and 2012 either removed or significantly limited state utility commission jurisdiction over service-quality standards and limited regulators’ ability to accept and adjudicate customer complaints. For example, legislation in Florida and Wisconsin moved the process for handling consumer complaints about telecommunications providers to the state Department of Agriculture. In Missouri, carriers may exempt themselves from quality-of-service oversight and responding to customer complaints if these issues are already covered by the FCC. And in other states, including Maine, Mississippi, New Hampshire, North Carolina, and Ohio, the commission’s jurisdiction over service quality and customer complaints is limited to customers who purchase basic local service.

Legislation proposed in 2013 continues down this same path. The bills proposed during the 2013 legislative session specify that the state commission has no authority over services provided over broadband connections, including VoIP and other IP-enabled services. In addition, bills proposed in Connecticut, Kansas, Kentucky, Massachusetts, Minnesota, Missouri, and Tennessee would restrict commission jurisdiction over wireline service quality and reduce and/or remove oversight of consumer complaints. In those states where the legislation maintains commission jurisdiction over service quality and

²⁹ FNPRM, citing to CWA Comments.

customer complaints, it does so only to a limited extent in specific areas such as basic service, slamming and cramming, and wholesale service quality.³⁰

Given the need for accurate data on carrier performance during the technology transition, it makes abundant sense for the Commission to begin collecting service quality data as part of the section 214 discontinuance process, and the data collection should continue following the transition cutover, thus enabling the evaluation of trends and troubles with service quality.

Packet Loss, Latency, and Jitter

The FNPRM raises issues associated with the appropriate latency and jitter to specify.³¹ AARP notes that these issues are regularly addressed by companies like Cisco, who provision equipment utilized in IP-broadband networks. Cisco appropriately notes that factors like packet loss, latency, and jitter are choice variables for network providers, and that these choices are typically memorialized in service level agreements (SLAs) with customers:

One of the key metrics in measuring voice and video quality over an IP network is jitter. Jitter is the name used to indicate the variation in delay between arriving packets (inter-packet delay variance). Jitter affects voice quality by causing uneven gaps in the speech pattern of the person talking. Other key performance parameters for voice and video transmission over IP networks include latency (delay) and packet loss. IP SLAs is an embedded active monitoring feature of Cisco software that provides a means for simulating and measuring these parameters in order to ensure your network is meeting or exceeding service-level agreements with your users.³²

VoIP service quality is addressed in SLAs offered by major carriers for their business VoIP services. SLAs provide an objective measure of provider performance that is being driven by competition in business markets, and thus should be evaluated by this Commission as a means to identify regulatory standards for residential services. For example, Verizon SLAs for business

³⁰ Sherry Lichtenberg, Ph.D. "Telecommunications Deregulation: Updating the Scorecard for 2013." National Regulatory Research Institute, April 2013, pp. 25-26.

³¹ FNPRM, ¶217.

³² http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipsla/configuration/15-mt/sla-15-mt-book/sla_udp_jitter_voip.html#GUID-6507B56A-F809-46D6-BC51-780E325A3782

VoIP specify that service credit will be granted when packet loss exceeds 0.50%, when round-trip latency exceeds 45ms, and/or when jitter exceeds 0.40ms.³³ Similarly, AT&T specifies that business VoIP services will be associated with Packet delivery at least 99.95%; Jitter of less than 1 ms average; and latency of less than 37 ms average round-trip latency PoP-to-PoP network-wide.³⁴ Level 3 also specifies VoIP quality in its SLAs in terms of service availability (99.99%), packet loss (0.01%), jitter (6 ms round-trip), and delay (50 ms round-trip).³⁵ AARP believes that this information provides a reasonable starting point for establishing service standards for the voice services that will utilize IP-broadband networks.

Additional Service Quality Metrics

As discussed above, the Commission should specify measures such as service availability, latency, jitter, and pack loss to quantify service performance of proposed alternative services. However, these measures alone do not generate a sufficient “customer experience” standard. The FNPRM raises the issue of the use of an “R Factor” score, which measures voice performance, and points to the potential limits of such an approach due to the International Telecommunication Union’s caveat regarding the use of “R Factor” scores.^{36, 37}

While AARP acknowledges that ITU has not recommended a model for actual customer opinion prediction, the use of the “R Factor” by carriers is worthy of note. For example, “R Factor”

³³ http://www.verizonenterprise.com/industry/public_sector/state_local/contracts/texasdir_texas_an_ng/docs/sla.pdf

³⁴ <https://ebiznet.sbc.com/calnetinfoiii/Uploads/Link/ATT%20Service%20Level%20Agreements%201%203%205%20-%20VoIP.pdf>

³⁵ http://www.level3.com/en/legal/interexchange-service-schedules/~media/Assets/legal/legal_convergedBusinessNetworkServicesServiceSchedule_bmg.ashx

³⁶ FNPRM, ¶218.

³⁷ “Such estimates are only made for transmission planning purposes and not for actual customer opinion prediction (for which there is no agreed-upon model recommended by the ITU-T).” Telecommunication Standardization Sector of ITU, Series G: Transmission Systems and Media, Digital Systems and Networks, International Telephone Connections and Circuits – Transmission planning and the E-model, The E-model: a computational model for use in transmission planning, June 2015, p. 1.

scores are utilized by AT&T in its SLAs for business VoIP services.³⁸ On the other hand, Verizon specifies the Mean Opinion Score (MOS) in its VoIP SLAs:

Mean Opinion Score is a measure (score) of the audio fidelity, or clarity, of a voice call. It is a statistical measurement that predicts how the average user would perceive the clarity of each call. The Verizon Internet Dedicated MOS Service Level Standard provides that Verizon's U.S. Mainland Network MOS performance not be less than 4.0 between Verizon designated inter-regional transit backbone network routers ("Hub Routers") in the contiguous United States. MOS is calculated using the standards based E-model (ITU-T G.107).³⁹

AARP believes that the Commission should consider a hybrid approach that applies specific standards associated with service availability, packet loss, jitter, and delay, and also applies the Mean Opinion Score to ensure that the audio fidelity of calls is of high quality. With regard to standards for these measures, AARP believes that replacement services should have availability that is consistent with legacy service standards. The “five nines” of reliability have characterized service availability in legacy networks, and this level of availability is reasonable going forward. Table 1 provides other standards that the Commission should consider as appropriate.

Table 1: Voice service performance parameters	
Parameter	Standard
Data Delivery	99.99%
Round-Trip Latency	50 ms
Jitter (one-way)	3 ms

³⁸ http://www.corp.att.com/stateandlocal/docs/current_analysis.pdf

³⁹ http://www.verizonenterprise.com/industry/public_sector/state_local/contracts/texasdir_texas_an_ng/docs/sla.pdf

With regard to the use of MOS or, alternatively, R Factors, these values have standard interpretations, as is evidenced from Table 2, which reproduces data from VoIPTroubleshooter.com.⁴⁰

Table 2: Standard interpretations of R Factor and MOS		
User Opinion	R Factor	MOS
Very Satisfied	90-100	4.3 - 5.0
Satisfied	80-90	4.0 - 4.3
Some users satisfied	70-80	3.6 - 4.0
Many users dissatisfied	60-70	3.1 - 3.6
Nearly all users dissatisfied	50 – 60	2.6 - 3.1

Given the importance of voice quality, and the FNPRM’s additional discussion of the importance of HD voice, AARP believes that the Commission should also employ either MOS or “R Factors” in the evaluation of service quality, and should set performance levels no lower than MOS scores of 4.3, or R Factors scores of 90.

Device and Service Interoperability

As the FNPRM indicates, both voice and non-voice devices should receive continuity of functionality during the migration to next-generation broadband networks. AARP has previously provided extensive comment on this issue,⁴¹ and AARP believes that the FNPRM’s emphasis on

⁴⁰ <http://www.voiptroubleshooter.com/basics/mosr.html>

⁴¹ See, AARP Comments *In the Matter of Application of Verizon New Jersey Inc. and Verizon New York Inc. to Discontinue Domestic Telecommunications Services*, WC Docket No. 13-150, Comp. Pol. File No. 1115, July 29, 2013, pp. 12-14; Comments of AARP *In the Matter of AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition; Petition of the National Telecommunications Cooperative Association for a Rulemaking to Promote and Sustain the Ongoing TDM-to-IP Evolution*, WC Docket No. 12-353, January 28, 2013, pp. 13-14, 21-

device and service interoperability is appropriate. AARP also applauds the FCC's tentative conclusion that “in development” replacement technologies should not be counted in section 214 discontinuance proceedings.⁴² With regard to measurement of interoperability levels, AARP believes that the Commission must play a role in device interoperability qualification by establishing a standardized test of a representative sample of devices. These devices should include, at a minimum, common connected devices that are currently interoperable with the PSTN, such as:

- personal and medical alarm and monitoring systems,
- home and fire alarm systems, and
- fax and credit card processing machines.

As part of any section 214 application, the requesting carrier should provide third-party certified test results for the test devices specified by the Commission. To establish the set of test devices, the Commission should hold a workshop and invite interested vendors to identify devices and standards, such as the Managed Facilities-Based Voice Network and/or ITU T.38 that are consistent with the continuity of the operations of their devices. By using an approach that encourages vendor participation, the Commission will encourage the adoption of best practices by equipment vendors, and the businesses that use their devices to provide services to consumers, and thus enable a reasonable level of flexibility in device migration associated with the transition to IP-broadband networks.⁴³

23; *In the Matter of Technology Transitions Policy Task Force Seeks Comments on Potential Trials*, GN Docket No. 13-5, July 8, 2013, pp. 24-27.

⁴² FNPRM, ¶221.

⁴³ By identifying the standards that the next generation networks will be compatible with, equipment vendors and service providers will be encouraged to adopt compatible technologies.

Service for Individuals with Disabilities

Individuals with disabilities require special attention as networks transition. The FNPRM appropriately applies an “adequate substitute” test that will require carriers to demonstrate that replacement services allow the same accessibility, usability, and compatibility with assistive technologies.⁴⁴ AARP believes that it is reasonable to require carriers seeking section 214 discontinuance to describe in their applications the specific alternative technologies that are available for individuals with disabilities, assuming that existing technologies will no longer function. The section 214 application should also include, in the event that consumers will be required to purchase new technologies, the cost per consumer of alternative, compatible equipment. Requesting carriers should be required to work with the appropriate state and/or federal agencies that distribute equipment to qualified individuals with disabilities, and the section 214 application should provide a copy of the carrier’s plan, and the specific state and federal agencies that the carrier will be working with on this matter.

TTY and RTT Services

The FNPRM raises the issue of transition from TTY to real time text (RTT) services. AARP notes that the Commission is separately considering the petition of AT&T regarding a waiver of TTY rules and the potential to transition to RTT.⁴⁵ AARP certainly supports the transition to new technologies, but is concerned that the transition not overlook basic issues, such as how much the alternative costs. For example, as noted in comments filed on AT&T’s petition, “RTT is available on smartphones, tablets, and any other Internet-connected device that has a keyboard

⁴⁴ FNPRM, ¶222.

⁴⁵ *In the Matter of Petition for Rulemaking to Update the Commission’s Rules for Access to Support the Transition from TTY to Real-Time Text Technology, and Petition for Waiver of Rules Requiring Support of TTY Technology; Facilitating the Deployment of Text-to 911 and Other Next Generation 911 Applications Framework for Next Generation 911 Deployment; IP-Enabled Services; Telecommunications Relay Services and Speech-to-Speech Services for Individuals; Implementation of Sections 716 and 717 of the Communications Act of 1934*, et al, GN Docket No. 15-178, PS Docket No. 11-153, PS Docket No. 10-255, WC Docket No. 04-36, CG Docket No. 03-12, CG Docket No. 10-213, June 12, 2015.

and a screen. This makes RTT a highly mobile accessibility solution that is *already-available to users with one of those devices.*”⁴⁶ However, not all TTY users may currently have the necessary mobile devices, and the broadband data plans, necessary to make them operate. As a result, ensuring that the transition does not leave some users behind, or place them in a position where the technology alternative is prohibitively expensive, AARP urges the Commission to move with care on the RTT issue. As noted by the Michigan Public Service Commission in comments filed in the AT&T Petition proceeding, important questions on the TTY to RTT transition need answers. AARP repeats those questions below:

1. What are the requirements of RTT for both the provider and the customer? Does the provider need special equipment? Who will pay for this? Does a customer need a mobile phone, a computer and/or broadband service? If the customer does not have the necessary equipment, will AT&T provide or subsidize it? If not, how does the cost for the customer compare to the purchase of a TTY?
2. How will the anticipated changes impact the Telecommunications Relay Service (TRS) fund?
3. If the FCC changes its rules regarding TTY, how will TTY changes in the various state laws be addressed?
4. AT&T’s Petition for Waiver mentions that “AT&T is developing and will deploy RTT over its new VoIP offerings in the 2017 timeframe”. What services will Deaf and Hard of Hearing customers with IP service receive between now and then? Will RTT be piloted?
5. AT&T should provide more details on the four ways in which people with hearing loss or who are speech-impaired will be able to use 911 and 711 calling, given various scenarios (e.g., consumer moves to a new area with IP only). (See page 7 of the AT&T Petition for Waiver).

⁴⁶ Comments of Consumer Groups *In the Matter of Petition for Rulemaking to Update the Commission’s Rules for Access to Support the Transition from TTY to Real-Time Text Technology, and Petition for Waiver of Rules Requiring Support of TTY Technology; Facilitating the Deployment of Text-to 911 and Other Next Generation 911 Applications Framework for Next Generation 911 Deployment; IP-Enabled Services; Telecommunications Relay Services and Speech-to-Speech Services for Individuals; Implementation of Sections 716 and 717 of the Communications Act of 1934*, et al, GN Docket No. 15-178, PS Docket No. 11-153, PS Docket No. 10-255, WC Docket No. 04-36, CG Docket No. 03-12, CG Docket No. 10-213, August 24, 2015, p. 5.

6. Approximately how many AT&T customers still use a TTY? When and how will customers be notified that the TTY is being phased out? Will consumers need to be educated on the use of RTT?⁴⁷

The Michigan Public Service Commission's questions raise important general issues that the Commission should consider with any transition associated with assistive technologies.

Compatibility Standard for Assistive Technology

AARP is in agreement with the Commission regarding the appropriateness of adopting a “standard regarding compatibility with assistive technologies for purposes of evaluating discontinuance applications.”⁴⁸ The transition to IP-broadband networks will yield more benefits if a unified approach is undertaken. AARP urges the Commission to combine the AT&T waiver petition with this proceeding, and to address the TTY/RTT issue on a unified basis.

The FNPRM also asks for comment on the issue of the “end date for the termination of TTY text services.”⁴⁹ AARP is concerned that establishing firm sunset dates for TTY technology overlooks the numerous providers of legacy services that may not be pursuing transition plans that are similar to those advanced by AT&T and Verizon. Other carriers, that on a combined basis serve millions of subscribers, may continue to deliver voice services over legacy facilities for an extended period. Frontier⁵⁰ and CenturyLink,⁵¹ for example, appear to be pursuing a

⁴⁷ Comments of the Michigan Public Service Commission *In the Matter of Petition for Rulemaking to Update the Commission's Rules for Access to Support the Transition from TTY to Real-Time Text Technology, and Petition for Waiver of Rules Requiring Support of TTY Technology; Facilitating the Deployment of Text-to 911 and Other Next Generation 911 Applications Framework for Next Generation 911 Deployment; IP-Enabled Services; Telecommunications Relay Services and Speech-to-Speech Services for Individuals; Implementation of Sections 716 and 717 of the Communications Act of 1934*, et al, GN Docket No. 15-178, PS Docket No. 11-153, PS Docket No. 10-255, WC Docket No. 04-36, CG Docket No. 03-12, CG Docket No. 10-213, August 24, 2015, pp. 3-4.

⁴⁸ FNPRM, ¶223.

⁴⁹ FNPRM, ¶223.

⁵⁰ “When we talk about copper from a technology perspective it is alive and well for us and we're enhancing it quite a bit and we're enhancing it by investing in fiber deep in the core, and when I say deep in the core it's fiber to every single one of those DSLAMs. The ubiquity of the copper network is the compelling reason why we're going to continue to invest and use it.” Frontier President and COO Dan McCarthy, quoted in *Fierce Telecom*, March 18, 2014, “AT&T, CenturyLink, Frontier see utility with copper but want flexibility in technology transition.” <http://www.fiercetelecom.com/story/att-centurylink-frontier-see-utility-copper-want-flexibility-technology-tra/2014-03-18>

much more conservative approach to the retirement of legacy facilities and services. Adopting hard and fast sunset dates may lead to customer confusion, and place undue burdens on some service providers and their customers. Should the Commission impose a termination date for TTY services, it should only do so for a specific carrier that has filed for section 214 relief. However, even under those circumstances, AARP does not see clear benefits for firm dates.⁵²

PSAP and 911 Service

The FNPRM raises the critical issue of continuity of service associated with PSAP and 911 service. On these matters, there should be no retreat, and AARP supports the tentative conclusion that any substitute service should comply with applicable state, Tribal, and federal regulations regarding the availability, reliability, and functionality of 911 service. The FNPRM raises a question as to whether the Commission should allow “substitute services (to) merely comply with any 9-1-1 regulations applicable to such services, or whether they provide as good – or better – 9-1-1 functionality as the service(s) they replace?”⁵³ There should be no retreat on this matter, 911 functionality should be as good or better for any proposed replacement service. Thus, regarding the FNPRM’s question regarding the acceptability of using wireless 911 automatic location information as a substitute for traditional landline service,⁵⁴ AARP does not believe that the Commission should allow the technology transition to result in wireless 911

⁵¹ “If CenturyLink were to face a similar natural disaster like Verizon did with Hurricane Sandy in New Jersey, it would replace the damaged copper with fiber. We’re not in the wireless game so if that were to happen to us, we would likely overbuild probably with fiber because it would give broadband capability our customers would need.” Bill Cheek, President of Wholesale Markets, Centurylink, quoted in *Fierce Telecom*, March 18, 2014, “AT&T, CenturyLink, Frontier see utility with copper but want flexibility in technology transition.”

<http://www.fiercetelecom.com/story/att-centurylink-frontier-see-utility-copper-want-flexibility-technology-tra/2014-03-18>

⁵² AARP notes evidence that technology standards may take a long time to be fully retired. At one time, there were competing standards for power distribution, with the DC power favored by Thomas Edison vying for dominance with the AC power of George Westinghouse. Ultimately AC power prevailed, but the power company Con Edison did not retire its last DC power distribution service until 2007! See “A/C But No D/C: Last Con Edison Direct Current Customer is History, November 14, 2007. <http://www.coned.com/newsroom/news/pr20071115.asp>

⁵³ FNPRM, ¶225.

⁵⁴ FNPRM, ¶225.

automatic location information serving as a replacement for legacy 911 location service performance. AARP is in full agreement with the CTC Technology & Energy report which states:

The IP-transitioned phone network must be tested to verify that users have the same access to 911 as do users of the current public switched telephone network, and that all calls to the public safety answering point (PSAP) accurately deliver the callers' fixed locations.⁵⁵

The use of wireless 911 ALI is not equivalent to the civic addresses associated with wireline ALI. Wireless 911 ALI is decidedly inferior to traditional ALI database information in multi-tenant buildings. 911 services must not be compromised as part of the IP transition.

With regard to next generation 911 network performance, such as trunks and selective routers, the Commission should look to the recommendations of the FCC's Public Safety and Homeland Security Bureau.

Develop and Implement NG911 Transition Best Practices: The transition to NG911 introduces new technologies, service arrangements and business relationships into the 911 ecosystem, adding complexity that heightens the risk of a widespread outage with the potential to affect multiple states. The Bureau's inquiry has shed light on a number of measures that providers can take to improve service reliability during this transition. The Bureau recommends that the Commission charge CSRIC with developing and refining a comprehensive set of best practices in this area.

Intergovernmental and Stakeholder Information Sharing: The transition to NG911 creates a need for closer coordination of evolving practices and expectations regarding 911 among all governmental and commercial entities, as well as a broad-based understanding among all stakeholders regarding the status of deployment of NG911 from all stakeholders involved.

Situational Awareness: All parties involved in 911 end-to-end call completion, as well as appropriate public safety authorities, need to take steps to improve situational awareness during an outage.

⁵⁵ "A Brief Assessment of Engineering Issues Related to Trial Testing for IP Transition," January 13, 2014. Available at: <https://www.publicknowledge.org/files/CTC-PK%20PSTN%20Report.pdf>

Exercise of Enforcement Powers: The Commission should use enforcement action as necessary to safeguard reliable end-to-end 911 service. 911 service providers must remain vigilant and ensure compliance with the Commission’s 911 requirements, including outage reporting requirements, particularly as they transition to NG911 networks.

Contractual Relationship Monitoring: Primary 911 service providers should monitor their contractual relationships to establish clear operational roles and responsibilities for situational awareness and information sharing, and exercise operational oversight with respect to their subcontractors and implement the appropriate mechanisms to retain meaningful controls.⁵⁶

The Public Safety and Homeland Security Bureau (PS&HS) also recommended that the Commission hold additional proceedings to address these critical 911 network reliability issues.⁵⁷ AARP believes that the Commission should use this proceeding to establish best practices and to address the other issues raised by PS&HS. If these issues are not addressed at the same time that the Commission addresses section 214 discontinuance issues, an unacceptable piecemeal approach will result. The cart of 214 discontinuance should not be placed before the horse of highly reliable 911 services. A significant policy failure will result if the IP transition results in a lower level of 911 access.

AARP urges the Commission not to lose sight of the critical public safety issues associated with IP transition, especially those associated with the underlying reliability of both access to emergency services and to the general performance of the underlying broadband networks in times of emergency, when grid power is more likely to be unavailable. The next generation public network must offer reliability similar to the legacy PSTN, otherwise, consumers, competition, and innovation will be harmed.

⁵⁶ “April 2014 Multistate 911 Outage: Cause and Impact, Report and Recommendations,” Public Safety Docket No. 14-72, PSHSB Case File Nos. 14-CCR-0001-0007, Report of the Public Safety and Homeland Security Bureau, Federal Communications Commission, October 2014, pp. 25-26.

⁵⁷ *Id.*

Communications Security

The migration to next generation IP-broadband networks introduces inherent structural risks associated with technology failure. Network tendencies to fail is not a new issue for this Commission. Every technology platform has its own unique points of failure, and these unique points of failure result in the need for mitigating responses and best practices. For example, the use of moisture-sensitive paper-insulated copper wires in the legacy PSTN is a distinct point of vulnerability, and unless countervailing measures are taken (in the case of paper-insulated copper—properly functioning air pressurization systems), the network will be prone to failure. IP-based networks are inherently vulnerable to being hacked and disrupted. As a result, the Commission must establish standards that result in appropriate mitigation techniques that will reduce the risk of network failure. AARP fully agrees with Public Knowledge’s observations on this issue:

To determine new technologies’ security, the Commission should consider the degree to which the network is vulnerable to being shut down or damaged by an attack, the network’s points of failure, the ability to impersonate other users on the network, whether attackers could maliciously disconnect or activate other devices on the network, and the ability to generate spoofed calls. Carriers should be able to explain to the Commission what steps they have taken to secure new networks and what testing they have conducted. The Commission should review these reports to compare them to industry best practices and the security metrics of the existing network.⁵⁸

The FNPRM asks whether it would be sufficient for an applicant to demonstrate that the provider of the substitute service has “engaged in implementation of the National Institute for Standards and Technology (NIST) Cybersecurity Framework (NSF).” The NIST “Framework for Improving Critical Infrastructure Cybersecurity” states as follows:

An organization can use the Framework as a key part of its systematic process for identifying, assessing, and managing cybersecurity risk. *The Framework is not designed to replace existing processes; an organization can use its current process and overlay it onto the Framework to determine gaps in its current cybersecurity risk approach and develop a*

⁵⁸ Public Knowledge, et al. *CPE Backup Power Comments*, February 5, 2015, pp. 18-19.

roadmap to improvement. Utilizing the Framework as a cybersecurity risk management tool, an organization can determine activities that are most important to critical service delivery and prioritize expenditures to maximize the impact of the investment.⁵⁹

The use of the NIST framework assumes a benchmarking approach, but internal service provider benchmarking is not sufficient for the purposes that the Commission envisions. AARP believes that the NIST Framework could be utilized by the Commission to establish a standardized network security benchmark that would enable service providers to demonstrate that they have applied best practices and are devoting sufficient resources to network security issues. Certainly, at a minimum, the applicant should be required to provide detailed information regarding the provider's cyber risk management practices, its implementation of relevant industry best practices, and its engagement with fellow providers to address shared risks.⁶⁰

Service Functionality

In the *Technology Transitions Order*, the Commission noted that “Technology transitions mark progress and are a good thing – sometimes even a triumph.”⁶¹ For these aspirational objectives to be achieved, service functionality must not decline. This is true for both voice and data services that may be provided over legacy networks. It will certainly not be a triumph if, for example, affordable DSL-based broadband services are eliminated and consumers are forced to migrate to more costly and less reliable wireless broadband services. Likewise, the discontinuance of service functions such as Caller ID, which is raised in the FNPRM, would be a step backward.⁶²

⁵⁹ Framework for Improving Critical Infrastructure Cybersecurity, Version 1.0, National Institute of Standards and Technology, February 12, 2014, p. 13, emphasis added.

⁶⁰ FNPRM, ¶228.

⁶¹ *Technology Transitions et al.*, GN Docket No. 13-5 et al., Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, 29 FCC Rcd at 1439, para. 15.

⁶² FNPRM, ¶230. Of course, should a superior substitute to Caller ID be proposed as a part of the technology transition, such an outcome would be desirable.

The FNPRM raises the issue of the definition of service functionality. AARP believes that this issue is akin to the service continuity and quality issues that were addressed earlier in these comments. If services or devices are impaired as a result of the proposed technology transition, then the function of the service is degraded. Applicants should be required to identify all impacts of the proposed transition on all existing service offerings, and the Commission should recognize that “triumph” will not follow if service functionality is degraded as part of the technology transition.

Coverage

The FNPRM tentatively concludes that coverage associated with replacement services should be the same as for the discontinued service.⁶³ AARP agrees. A shrinking service footprint is not an acceptable outcome of technology transition. However, the FNPRM goes on to suggest that consideration of a *de minimis* reduction in service coverage may be acceptable.⁶⁴ AARP urges the Commission to avoid *de minimis* tests, as these can easily become a slippery slope. A bright-line approach—no change in coverage—is superior as it will lead to assurances that consumers will not be harmed as a result of the technology transition. Replacement services must provide the at least the same coverage as legacy services.

Consumer Education

The FNPRM appropriately raises the issue of consumer education. AARP agrees that section 214 applications should include a customer education and outreach plan. With regard to the components of an education and outreach plan, the Commission should establish a model that includes the following components.

⁶³ FNPRM, ¶231.

⁶⁴ *Id.*

Notification materials that clearly address:

- The changes to the network and the impact on existing services that are purchased by individual customers, including whether all existing services will be available following the transition.
- If the technology transition has any impact on existing network functionality, a clear statement of those changes and the potential impact on customers.
- Information regarding the installation and/or modification of CPE performance, including backup power, and notice should also address whether any technician access to the customer's premise is required.
- Should the technology transition result in any potential for incompatibility with legacy technologies/services that are provided by third parties (alarm systems, modems, etc.), a description of the types of affected technologies, and potential alternatives that are compatible with the new technology.
- Information on any transitional or phase-in issues associated with the technology transition.
- Any changes in service prices associated with the services that the customer currently purchases, or the anticipated replacement services.

As discussed earlier, AARP has substantial concerns regarding the potential for customers to be required to utilize services from a third-party carrier they did not choose as a result of section 214 discontinuance. As a result, additional education/notification requirements should apply in these cases.

- A description of the choices the consumer has among alternative providers -- including a description of the services, and service prices, available from the alternative providers -- and contact information for the alternative service providers.
- An explanation as to whether the customer can expect to be contacted by the alternative provider, or whether the customer must proactively find another service provider.

AARP also believes that part of any customer education plan should include additional support for individuals with disabilities and the elderly. All standard educational and informational

materials should identify additional points of contact for individuals with disabilities. The additional information should address issues such as the impact of the transition on specialized systems that are more likely to be utilized by those with disabilities, such as health and personal monitoring, access to emergency services, and the potential need to replace legacy devices.

Customer Notice

The FNPRM requests comment on whether the Commission rules should be revised to explicitly “allow email-based notice or other forms of electronic or other notice of discontinuance to customers.”⁶⁵ AARP believes that notice by email is appropriate as long as consumers have previously agreed to receive notice from the carrier via email. Express, verifiable, prior approval should be received from the customer regarding the acceptability of receiving notification via email. To the extent that customers have not agreed to receive notice via email, the notifying carrier should utilize postal mail, and postal mail should also be employed in cases where email messages are returned as non-deliverable. Absent specifics regarding the potential “other forms of electronic or other notice,” AARP does not support the use of alternative methods. AARP is opposed to the potential use of oral notification via telephone or exclusive use of carrier web sites in the notification process. While AARP is opposed to the use of oral notification via telephone as the primary approach to the delivery of information regarding section 214 discontinuance, telephone notification could be used as a last resort to contact customers where other means of notification have failed, or in cases where the carrier is aware that telephone notification is the customer’s preferred method of contact. With regard to individuals with disabilities, to the extent that carriers are aware that a customer has a disability, the carrier should take steps to ensure that notification is consistent with the customer’s capabilities. Similarly, the

⁶⁵ FNPRM, ¶238.

carrier should make notice available in all languages that the carrier normally uses to conduct its business, or as required by state law or state commission rule.

Conclusion

For the transition to all IP networks to be a triumph, the Commission must continue to maintain its focus on fundamental issues such as service affordability and reliability. AARP encourages the Commission to move with caution. The recommendations that have been discussed above contribute to appropriate safeguards. As the Commission works on the details of the process that will ultimately enable the discontinuance of legacy services, the Commission must not lose sight of the larger issues associated with IP transition, especially those associated with the affordability and underlying reliability of broadband networks. The next generation public network must offer affordability and reliability similar to the legacy PSTN, otherwise, consumers, competition, and innovation will be harmed.