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## **INTRODUCTION AND BACKGROUND**

Chairmen Radewagen and Blum, Ranking Members Lawson and Schneider, and Members of the Subcommittees, thank you for this opportunity to testify today to discuss rural broadband and the business case for small carriers. I am Erin Fitzgerald, Regulatory Counsel for the Rural Wireless Association, Inc. (RWA), which represents wireless carriers with fewer than 100,000 subscribers.

RWA's members consist of both independent wireless carriers and wireless carriers that are affiliated with rural telephone/broadband companies. Through their parent companies, many RWA carrier members have provided service in their respective rural communities for more than 50 years. Our members are passionate about ensuring that rural America is not left behind.

RWA members operate in areas where low population density, extreme weather conditions, and difficult terrain make doing so an expensive and challenging task. Insufficient spectrum access for small and rural broadband service providers, a dysfunctional data roaming market, and declining universal service support exacerbate those challenges. Nevertheless, networks operated by small, rural-based wireless service providers promote public safety, encourage innovation and economic development, enable more efficient energy and agriculture production, and support telehealth and distance learning applications.

## **RURAL-BASED CARRIER COVERAGE AND THE COST DIFFERENTIAL**

With respect to many parts of rural America, the four nationwide providers<sup>1</sup> tend to focus coverage only on towns and major highways, and place sparsely populated areas at the very bottom of their network upgrade list. This “sparse coverage” strategy may be acceptable to subscribers who are merely passing through a rural area, but it is not adequate to meet the needs of consumers that live and work there. In contrast, rural-based providers tend to prioritize and value customer experience when it comes to network coverage by making every effort to provide robust coverage throughout all parts of their service area, even outside of towns and miles from public roads.

Rural-based providers also are very aware of the numerous economic reasons for bringing reliable mobile coverage to sparsely populated areas. For example, the use of Internet of Things (IoT) devices and machine-to-machine (M2M) communications is becoming more prevalent in agriculture and energy development applications. IoT devices and M2M communications include smart tractors, connected combines, remote-controlled Center Pivot Irrigation systems, livestock monitoring systems, and other precision agricultural devices, all of which allow producers to make significant gains in real-time productivity and cost management. Further, the oil and gas industries use wireless technology for remote monitoring and control (turning pumps on and off,

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<sup>1</sup> *Policies Regarding Mobile Spectrum Holdings*, Report and Order, WT Docket No. 12-269, GN Docket No. 12-268, at ¶ 24 (rel. June 2, 2014) (stating the number of nationwide facilities-based wireless service providers has decreased by a third from six to four – Verizon Wireless, AT&T, Sprint and T-Mobile).

evaluating tank levels), equipment diagnostics, surveillance, and workforce connectivity (scheduling load transfers). Wind farms use M2M for remote monitoring, equipment repair and service, and emergency shut-downs. M2M capabilities allow turbines to be redirected to best capture available wind energy. These technologies benefit all Americans (not just those living in rural markets), and depend upon reliable wireless connectivity. But IoT devices and M2M connections are often located in the sparsely populated areas that are far away from towns and major highways. Rural-based providers deploy network assets to these areas to ensure coverage is available where it is needed.

A rural-based provider's decision to provide robust coverage throughout its entire service areas, rather than only providing service along major transportation routes or in population centers, results in additional capital expenses in the form of more radio access network equipment, more towers, and more "greenfield" backhaul facilities in adverse climates and terrains. In turn, these higher capital expenses result in higher operational expenses in the form of increased annual maintenance, administrative support, and software and hardware upgrades. Small rural-based providers are not able to spread capex and opex costs across a large network inventory and customer base like nationwide providers. Indeed, rural carriers typically pay higher per-unit prices for access to the latest and greatest mobile device because they are seldom offered volume-based discounts from original equipment manufacturers and distributors. Conversely, nationwide providers are able to average the costs of their rural sites with their numerous and more return-on-investment-friendly urban and suburban sites. Rural-based providers simply do not have this option.

## **SPECTRUM ACCESS**

Access to spectrum promotes competition and is critical to ensuring that rural wireless carriers have the opportunity to participate in the provision of spectrum-based services. Section 309(j) of the Communications Act<sup>2</sup> specifically requires the Federal Communications Commission (FCC) to ensure that spectrum is available to rural telephone companies and small businesses. The FCC can ensure a broad range of entities have an opportunity to acquire spectrum through auction design. Accordingly, when designing future spectrum auctions, the FCC should ensure that it uses geographic license sizes that are attractive to small and regional providers. It should also utilize bidding credits that will encourage auction participation by small rural providers.

### **Geographic License Sizes.**

Spectrum licenses are often auctioned by geographic area. Geographic license sizes vary widely – from a nationwide license to licenses the size of a census tract. Determining geographic license size is a contentious issue in nearly every spectrum auction. Nationwide carriers prefer large

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<sup>2</sup> In regards to the design of competitive bidding systems, § 47 U.S.C. 309(j)(3) provides that the FCC must "promot[e] economic opportunity and competition and ensur[e] that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants, including small businesses [and] rural telephone companies."

license areas because fewer licenses mean less administrative minutiae. Small carriers prefer small license areas because they can afford them and target the license area to their service area. If a geographic area is too big, small carriers can't afford to bid on them at auction (and even if they could, they couldn't afford to construct the network as required).

The use of small geographic license sizes is good for wireless competition, and RWA urges their use. Bidders that wish to serve large geographic areas simply must be the winner for all of those areas and then aggregate them. Small license areas can serve as building blocks for large license areas and encourage broad auction participation, whereas initially establishing large license areas limits the bidding pool to a few nationwide carriers.

### **Bidding Credits.**

The 2015 AWS-3 Auction (Auction 97) yielded more than \$40 billion in net bids, but the results for rural carriers and their subscribers were far less positive. More than half of the eligible bidders (38 out of 70) were rural telephone companies, rural telephone company affiliates or subsidiaries, or groups comprised of these entities. However, of 31 winning bidders, only 11 were rural entities, and at the close of the auction rural bidders accounted for just 25 (or 1.55%) of the 1,611 total licenses won.

After Auction 97, RWA and other stakeholders successfully persuaded the FCC to adopt and use a 15% rural service provider bidding credit in the 2017 600 MHz Broadcast Incentive Auction in addition to bidding credits designed for small businesses. More than 50 rural carriers participated in the 600 MHz Broadcast Incentive Auction – either on their own or jointly with others in bidding entities. Eligible rural service provider bidders saved \$18 million, and were able to secure low-band spectrum – spectrum well-suited for rural networks due to favorable propagation characteristics. The rural service provider bidding credit enhanced auction competition and boosted wireless broadband deployment in rural areas.

### **Spectrum Secondary Market.**

The secondary spectrum market is frequently touted as a rationale for why small license sizes are not necessary in spectrum auctions. But the fact that these mechanisms exist for entities that were unable to obtain spectrum at auction does not automatically make such access sufficient. Leasing and partitioning are neither predictable nor effective means to provide small and rural entities with spectrum access needed for targeted, local deployments. There are no guarantees that any licensee will be willing to partition its spectrum or that they would offer reasonable terms and conditions to do so.<sup>3</sup>

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<sup>3</sup> See generally, Federal Communications Commission, *CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN* (2010), noting, “While the FCC currently has rules that enable secondary markets, the record is mixed” and that some public comments provide “that unused or underutilized spectrum is not being made available to smaller providers, especially in rural areas where spectrum goes unused.”

A report prepared in advance of the 600 MHz Incentive Auction, stated that “there are many examples of large operators acquiring spectrum from smaller players. . . [but] little recent history of the larger carriers leasing, disaggregating or partitioning large sections of spectrum where they already have service.”<sup>4</sup> A more recent survey done by the Wireless Internet Service Providers Association shows that “large wireless carriers are generally unwilling to make licensed spectrum available on the secondary market.”<sup>5</sup> Further, one need only review the FCC’s Universal Licensing System to see that partitioning and disaggregation of licenses is not robust and that the secondary market works for consolidating spectrum in the hands of a few rather than dispersing spectrum among many.

### **“Keep-What-You-Serve” Spectrum Licensing.**

In order to prevent spectrum in rural areas from lying fallow, RWA supports a “keep-what-you-serve” approach to spectrum licensing. RWA supports a five-year post-renewal construction requirement where licensees must demonstrate coverage to 90% percent of their license area to be able to keep the entire licensed area. If a licensee is not providing service to 90% of its geographic license area after the post-renewal five-year period, any unserved area should be made available for re-licensing to providers that want to serve it. Such an obligation at the post-renewal five-year mark would encourage investment in wireless networks and facilitate access to spectrum resources where no investment is made, thereby promoting the rapid deployment of wireless services to rural Americans. After the renewal date, there should also be an expectation that the licensee will lose any unserved area not served at the end of the next license term.

This “keep-what-you-serve” approach allows licensees to continue to provide service in the geographical areas that are constructed and operational, while ensuring that rural spectrum does not lie fallow. Under this approach, if a licensee fails to meet its five-year post renewal construction deadline or its end of renewal term 100% coverage requirement, its authorization to operate will terminate automatically for those geographic areas where it is not providing service to 90% of the geography on the date of the post-renewal five-year deadline or to 100% at the end of the renewed license term, and those areas will become available for reassignment by the Commission. This approach provides an incentive for existing licensees to continue to invest in the buildout of their market after renewal of a license, and also provides a clear path toward better wireless broadband service in rural areas.

### **ROAMING CONCERNS**

In the United States today, there are four nationwide or near-nationwide mobile wireless carriers, and dozens of small, rural and regional mobile wireless carriers. Small and regional mobile wireless providers depend on data roaming agreements with the nationwide carriers to ensure

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<sup>4</sup> Richard Marsden, Dr. Chantale LaCasse, and Jonathan Pike, *Local and Regional Licensing for the US 600 MHz Band* (January 2014), listing dozens of recent transactions in which large providers obtained spectrum from small providers.

<sup>5</sup> *Promoting Investment in the 3550-3700 MHz Band*, Comments of the Wireless Internet Service Providers Association, GN Docket No. 17-258 (Dec. 28, 2017).

nationwide coverage. The ability to offer nationwide coverage to subscribers is a competitive necessity for facilities-based, domestic mobile wireless providers. American consumers have come to expect nationwide coverage without added retail roaming rates, and small and regional providers simply cannot provide facilities-based nationwide coverage with spectrum holdings that are limited to local or regional markets. Nonetheless, the country's nationwide carriers are often hesitant to enter into bilateral voice and data roaming agreements at commercially reasonable rates, terms and conditions.

Furthermore, these same nationwide carriers often refrain from offering their own subscribers access to rural roaming coverage on small carriers, including RWA members, even when their own coverage is inferior or non-existent. In these situations, a nationwide provider will suspend its customers' outbound roaming privileges in rural markets despite the fact that the nationwide provider's coverage in those markets is not as extensive as the potential roaming partner's coverage. This means that a nationwide provider's own subscribers do not have access to available networks. While this business practice is legal under the FCC's roaming rules, the resulting deprivation of service is extremely harmful to hundreds of millions of American consumers who do not get access to rural carriers' networks – networks that those same consumers have supported through payments into the Universal Service Fund.

This practice harms wireless consumers and rural-based mobile wireless providers, but more importantly, it creates an environment where public safety is threatened as well. In the event of a natural disaster or debilitating failure (even if just temporary) to one carrier, without bilateral roaming in place, an untold number of mobile users, including front-line public safety users, will be unable to communicate. Bilateral roaming agreements benefit all consumers and ensure that urban consumers travelling into rural markets that are outside their nationwide carrier's footprint have access to mobile broadband coverage.

Additionally, the lack of bilateral roaming eliminates a source of non-federal revenue that small rural providers can then in turn use to offset network costs. If small, rural-based providers enter into truly bilateral roaming relationships with nationwide providers and the nationwide providers provide their customers with the ability to roam on rural-based providers' networks, rural-based providers' finances would greatly improve and that in turn would lessen their reliance on both state and federal universal service support. Indeed, rural-based providers would have the ability to invest more capital in network expansion and modernization, which would improve mobile broadband coverage in rural America.

Another huge problem lurking on the horizon for rural wireless consumers – and one that is all but unknown outside of those on the front lines of our industry – is the issue of VoLTE roaming. For the uninitiated, VoLTE, which stands for Voice over LTE, is simply the ability to make a voice telephone call over a 4G LTE network. What is the looming VoLTE problem? First, all of the country's mobile carriers, large and small, are now using 4G LTE networks. This in itself is good. However, all four of the country's nationwide or near-nationwide carriers are also actively shutting down, at varying paces, their circuit-switched 2G and 3G networks. The problem with this otherwise beneficial migration to an all-IP network architecture is that for decades, all voice telephone calls placed over cellular networks in a roaming context were treated, unambiguously,

as circuit-switched telecommunications services. This means they are afforded greater regulatory protections than packet-switched commercial data roaming services. What will happen when all mobile wireless carriers in the U.S. are LTE-only and no longer use circuit-switched networks to complete voice telephone calls? Will this mean that rural consumers will be unable to place a simple voice telephone call because large carriers refuse to enter into VoLTE roaming agreements? There is anecdotal evidence to suggest that this is precisely what is happening now, and action must be taken before 2G and 3G networks are shut-down to make sure that all wireless consumers in America can make VoLTE voice calls when roaming.

## **BARRIERS TO HIGH-COST UNIVERSAL SERVICE**

The FCC is preparing to hold two reverse auctions for universal service fund support in the next few years. Before a winning bidder can be authorized to receive support, it must obtain an irrevocable stand-by letter of credit (LOC) from an eligible bank that covers the first year of support for all of the winning bids in the state. Before a recipient can receive its support for the coming year, the recipient must modify, renew, or obtain a new LOC to ensure that it is valued at a minimum at the total amount of support that has already been disbursed plus the amount of support that is going to be provided in the next year. The costs related to obtaining and maintaining LOCs can be burdensome, particularly for small and rural carriers that lack resources to tie up capital in LOCs over many years.

RWA appreciates the Commission's effort to broaden the range of options Mobility Fund Phase II (MF-II) auction participants have in meeting its LOC requirements, by expanding the number of financial institutions that can furnish a LOC.<sup>6</sup> Further, RWA welcomes the Commission's recent decision to permit a MF-II recipient to reduce the value of an LOC following verification of reaching certain performance milestones for the supported area(s).<sup>7</sup>

Despite these changes, however, RWA and its members remain concerned that obtaining the necessary LOCs will be a burdensome and costly process for small and rural carriers, will tie up funds for 3-7 years, and siphon funds away from wireless broadband deployment. As RWA has previously noted, some of its members are still carrying LOCs from Mobility Fund Phase I at a cost of \$500 a day in bank fees on top of keeping much needed capital tied up in the LOC. RWA members anticipate that meeting the LOC requirements will increase bid amounts by 4-5% - a percentage that will rise with interest rates. These are funds that could be put toward additional wireless broadband deployment.

RWA has proposed alternatives to traditional LOCs. First, RWA has worked with the National Association of Surety Bond Producers and the Surety & Fidelity Association of America to

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<sup>6</sup> *In the Matter of Connect America Fund; Universal Service Reform – Mobility Fund*, Report and Order and Further Notice of Proposed Rulemaking, WC Docket No. 10-90, WT Docket No. 10-208, FCC 17-11, at ¶¶ 174-180 (rel. Mar. 7, 2017).

<sup>7</sup> *In the Matter of Connect America Fund; Universal Service Reform – Mobility Fund*, Second Order on Reconsideration, WC Docket No. 10-90, WT Docket No. 10-208, at ¶ 5 (rel. Feb. 27, 2018).

explore the possibility of utilizing surety bonds as an alternative to LOCs and revise the nature and scope of the secured obligation to make the financial security more widely available to small businesses. Surety bonds offer additional prequalification screening benefits and, in many cases, could be less costly for small businesses.

Also, RWA is unaware of an instance in which the Commission has executed on a single LOC as a result of a recipient's default. The FCC receives no measurable benefit from carrier expenditures to comply with the LOC rules, because it has all the security it needs with respect to Commission licensees—the threat of revocation or non-renewal of a license should a universal service recipient commit any misconduct. RWA has suggested that the FCC eliminate its LOC requirement and make clear that program recipients that do not use funds as intended will be barred from future participation, subject to monetary forfeitures, and potentially the loss of one or more Commission licenses either through revocation or non-renewal.

## **ONEROUS REGULATORY FILINGS**

RWA supports efforts to streamline and reduce the number of regulatory filings imposed on wireless carriers. The most concerning issue isn't necessarily the complexity of the forms, but the sheer volume of forms that must be submitted. RWA's members, and other similarly situated small and rural carriers, have limited personnel resources to dedicate to regulatory compliance. Small staffs manage substantial workloads, and regulatory compliance costs divert important resources that would otherwise be used to ensure the optimum performance of providers' networks.

### **Hearing Aid Compatibility Reporting Requirements.**

All handset manufacturers and wireless service providers are currently required to file annual status reports with the FCC on their hearing aid compatibility (HAC) deployment and compliance efforts. The FCC has sought industry input on whether to amend the FCC's rules to exempt non-nationwide, wireless service providers from the annual reporting requirement. RWA supports this initiative and urges Congressional support as well.

RWA fully supports the availability of hearing aid compatible handsets to customers that need them. However, the FCC's annual wireless HAC reporting requirements have proven to be extremely problematic for small carriers. These requirements cause RWA members and other small carriers to spend substantial resources throughout the calendar year ascertaining the HAC status and ratings of various handsets, which requires the continuous review of multiple resources. Because of the need to report on HAC handset inventories on a month-by-month basis, the amount of work to aggregate the data is substantial. RWA supports the elimination of this reporting requirement for non-nationwide carriers, as well as the creation of a standardized FCC database of current handset HAC ratings.

### **FCC Form 477.**

Accurate and reliable mobile broadband deployment data is critical to policymakers as well as to consumers. Obtaining meaningful data in the mobile context is challenging because a user's



mobile service experience is affected by factors such as terrain, indoor/outdoor location, distance from a tower, weather, congestion, and the type of connected device. RWA has long expressed concerns about the accuracy of self-reported data collected semiannually on Form 477, and the lack of a common coverage standard governing Form 477 data collection.

Mobile service providers currently report and certify coverage data based on the minimum advertised speeds associated with a certain network technology in a frequency band, but do not utilize a common coverage reporting standard. Because mobile service providers select their own methodologies for determining the coverage and speeds provided, these methodologies tend to vary among providers. These varying methodologies make it difficult for the Commission to compare coverage areas and minimum reported speeds, as the underlying meanings of what the coverage and speed information depict may differ among mobile service providers. This lack of common coverage standards meant that data yielded by Form 477 filings proved to be unusable for the purposes of determining which areas should be eligible for MF-II support. *All* mobile wireless carriers with 4G LTE service were required to make an *additional* filing for this purpose. Mobile wireless service providers should not be required to file information that would create non-comparable coverage data, nor should they have to compile and submit several different data sets for the same type of service in the same service areas.

RWA supports switching to annual, instead of semi-annual, reporting for all Form 477 filers. RWA sees no down side to making this change, and believes that data does not change enough during a 12-month period to justify the costs associated with making a semi-annual filing. Preparing one annual filing (rather than two semi-annual filings) would ease the regulatory burden on small rural carriers, who would save personnel resources, as well as attorney and consultant fees.

## **CONCLUSION**

On behalf of RWA, your interest in the challenges facing rural wireless carriers is greatly appreciated. Thank you for inviting me to be with you today. I look forward to your questions.