

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

In the Matter of	)	
	)	
Rural Digital Opportunity Fund	)	WC Docket No. 19-126
	)	
Connect America Fund	)	WC Docket No. 10-90

**REPLY COMMENTS OF  
FRONTIER COMMUNICATIONS CORPORATION**

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Attachment: LYA, “How Can Past Auction Experience Inform the RDOF Process”

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**I. Introduction and Summary**

Frontier Communications Corporation (“Frontier”) respectfully submits these Reply Comments in response to the Federal Communications Commission’s (“Commission’s”) *Rural Digital Opportunity Fund Notice of Proposed Rulemaking* (“RDOF NPRM”).<sup>1</sup>

The record in this proceeding reflects broad support for Frontier’s proposals, including: deferring the allocation of RDOF Phase I support until the Commission’s parallel mapping improvement efforts bear fruit; in the absence of such deferral, targeting truly unserved areas of the country during RDOF Phase I while completing mapping by prioritizing census block groups wholly unserved at 25/3 Mbps or, potentially, census blocks wholly unserved at 10/1 Mbps; and adjusting the proposed universal service fund (“USF”) transition process to avoid inadvertently harming providers already undertaking federally subsidized rural deployments. We discuss these proposals in sections II, III, and IV below, respectively.

Consistent with the concerns raised in Frontier’s comments about ensuring that RDOF winning bidders are able to fulfill the RDOF performance obligations, the record also reflects

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<sup>1</sup> *Rural Digital Opportunity Fund, et al.*, Notice of Proposed Rulemaking, 34 FCC Rcd 6778 (2019).

robust support for a rigorous pre-auction evaluation process designed to ensure that applicants are qualified to provide the services they are committing to provide. Frontier strongly agrees, particularly in light of the findings of an analysis by auction experts LYA, which describes how lessons learned from past auctions should inform the RDOF.<sup>2</sup> In section V, Frontier proposes that the Commission take specific steps to improve the pre-auction process by, among other things: (I) affording commenters the opportunity to review CAF-II Auction long form applications on a confidential basis to plumb this valuable dataset for factors that, when present, will maximize the likelihood that RDOF dollars are put to good use; and (ii) consider requiring a “Bid Bond” as part of the bidder qualification process.

Finally, in section VI, Frontier proposes that the Commission consider allocating spectrum, or priority access to spectrum, to RDOF winners when they win in a given area to help reduce the spectrum risk associated with RDOF bidding and promote robust fixed broadband in rural America.

## **II. Commenters Broadly Support Deferral of Phase I Until the Commission Addresses Critical Mapping Issues**

As the Chairman explained in March of this year, the Commission’s “universal service programs operate on a fixed budget funded by American taxpayers,” and to get “the most bang for the buck” an “accurate snapshot” is needed to “make sure these scarce resources go to the places most in need.”<sup>3</sup> To that end, the Commission has undertaken significant and praiseworthy efforts to improve its collection of broadband deployment data, including in its ongoing Digital

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<sup>2</sup> See Attachment, LYA, “How Can Past Auction Experience Inform the RDOF Process” (“LYA Paper”).

<sup>3</sup> Ajit Pai, Chairman, FCC, Remarks at the USTelecom Forum on Reinventing Broadband Mapping (Mar. 21, 2019), <https://docs.fcc.gov/public/attachments/DOC-356682A1.pdf>.

Opportunity Data Collection (“DODC”) proceeding.<sup>4</sup> That proceeding’s “fresh, innovative approach to broadband mapping” promises to lead to reforms “especially important to [the] universal service programs” administered by the Commission, ensuring as a result that Americans in rural and high-cost areas no longer “miss out on vital universal service support that could help deliver broadband services to them.”<sup>5</sup>

Applying these values to the RDOF will be critical to ensuring its success. Multiple commenters support Frontier’s view that the over \$16 billion price tag associated with RDOF Phase I drives the need for accuracy in subsidy allocation—higher stakes necessitate higher performance. As CenturyLink explains, “to fully accomplish the goal of getting higher-speed broadband to all unserved locations in high-cost areas, the Commission will need better tools to identify unserved locations in larger ‘served’ areas.”<sup>6</sup> ITTA, meanwhile, notes that to “most effectively and efficiently target[] support,” it “is imperative that the auction have the benefit of a granular, accurate, and thorough accounting of unserved and underserved locations in eligible areas.”<sup>7</sup> Indeed, a wide range of commenters that broadly support the goals of the RDOF

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<sup>4</sup> See generally *Establishing the Digital Opportunity Data Collection, et al.*, Report and Order and Second Further Notice of Proposed Rulemaking, 34 FCC Rcd 7505 (2019) (“DODC Order”).

<sup>5</sup> *Id.* at 7609 (Statement of Chairman Ajit Pai).

<sup>6</sup> Comments of CenturyLink, WC Docket Nos. 19-126, 10-90, at 8 (filed Sept. 20, 2019) (“CenturyLink”).

<sup>7</sup> Comments of ITTA—The Voice of America’s Broadband Providers, WC Docket Nos. 19-126, 10-90, at 3 (filed Sept. 20, 2019) (“ITTA Comments”).

program—including governmental entities and industry—all express concern about the likely fate of RDOF Phase I absent adequate new mapping data.<sup>8</sup>

**III. If the Commission Does Not Delay Phase I Until the Conclusion of Its Mapping Proceeding, It Should, At Minimum, Focus Solely on Census Block Groups Wholly Unserved at 25/3 Mbps or, in the Alternative, Target Census Blocks Wholly Unserved at 10/1 Mbps While It Expeditiously Completes Mapping.**

If the Commission decides to proceed with RDOF Phase I prior to concluding its mapping improvement efforts, the agency’s proposal to “target those areas that current data confirm are wholly unserved” while it expeditiously completes mapping represents the optimal

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<sup>8</sup> See, e.g., Comments of the California Public Utilities Commission, WC Docket Nos. 19-126, 10-90, at 3 (filed Sept. 20, 2019) (“CPUC”) (“While the CPUC supports the creation of the RDOF, as an initial matter, the CPUC strongly opposes the launch of the RDOF’s competitive bid, funding award, and disbursement processes for any public funds until the FCC improves the broadband availability data collection process and develops better broadband coverage maps.”); Comments of the State of Maine ConnectME Authority and the Maine Broadband Coalition, WC Docket Nos. 19-126, 10-90, at 2 (filed Sept. 20, 2019) (describing the need to use “more granular and accurate data the State of Maine to determine which addresses are unserved”); Comments of the United States Cellular Corporation, WC Docket Nos. 19-126, 10-90, at iii, 10-11 (filed Sept. 20, 2019) (“US Cellular”) (“U.S. Cellular opposes the Commission’s plan to use flawed FCC Form 477 data as the basis for awarding RDOF support. Before distributing \$16 billion in RDOF Phase I support, the Commission should take the time necessary to ensure that RDOF eligibility is determined through the use of accurate and reliable coverage maps. . . . The Commission cannot go forward with an auction until it has a picture of rural America that is more accurate than the one depicted by FCC Form 477.”); Comments of USTelecom—The Broadband Association, WC Docket Nos. 19-126 *et al.*, at 11 (filed Sept. 20, 2019) (“USTelecom”) (“The Commission plans to conduct the Rural Digital Opportunity Fund using census block location count information that has proven to be outdated; as a result, a provider will not know exactly how many locations truly exist in the area it is proposing to serve.”); Comments of the Wireless Internet Service Providers Association (“WISPA”), WC Docket Nos. 19-126, 10-90, at 16-17 (filed Sept. 20, 2019) (“WISPA Comments”) (“It is of utmost importance for the Commission to rely on the most accurate, granular, and current information it has before it establishes the areas eligible for RDOF support. . . . In an ideal environment, the fabric would be the mapping tool on which the Commission would rely to set the number of ‘locations’ in a census block (or other geographic area) and to determine the physical location of the ‘locations’ within that area.”).

approach.<sup>9</sup> Focusing RDOF Phase I on “wholly unserved” areas has received significant record support, although there is some variation between commenters with respect to the areas and broadband speeds that should be used to define “unserved.”<sup>10</sup> In its comments, Frontier urged the Commission to first target census block groups (generally about 39 census blocks), rather than census blocks, that are wholly unserved at 25/3 Mbps. As Frontier previously explained, by focusing on these larger “wholly unserved” areas, the Commission would “avoid overbuilding across [Connect America Fund (‘CAF’)] Phase II, RDOF Phase I, and RDOF Phase II” subsidized buildouts.<sup>11</sup> Census block groups that are entirely unserved at 25/3 Mbps are unlikely to have received any federal investment, present the least risk of overbuilding between programs, and are likely in the most need of federal subsidy.

Some commenters argued that the Commission should first target census blocks that are wholly unserved at 10/1 Mbps. For instance, the Pennsylvania’s Public Utility Commission, Office of Consumer Advocate, and Office of Small Business Advocate explain that targeting census blocks lacking 10/1 Mbps before mapping is completed may avoid “commingling partially served census blocks (having access to at least 10/1 Mbps) with truly unserved census

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<sup>9</sup> *RDOF NPRM*, 34 FCC Rcd at 6779 ¶ 3.

<sup>10</sup> *See, e.g.*, CenturyLink at 8; ITTA Comments at 12-14; Comments of Race Telecommunications, Inc., WC Docket Nos. 19-126, 10-90, at 2 (filed Sept. 20, 2019); USTelecom Comments at 10; Comments of NTCA—The Rural Broadband Association, WC Docket Nos. 19-126, 10-90, at 31-34 (filed Sept. 20, 2019) (“NTCA Comments”); Comments of California Internet, L.P. DBA GeoLinks, WC Docket Nos. 19-126, 10-90, at 1 (filed Sept. 20, 2019); Comments of ADTRAN, Inc., WC Docket Nos. 19-126, 10-90, at 3 (filed Sept. 20, 2019).

<sup>11</sup> Comments of Frontier, WC Docket Nos. 19-126, 10-90 at 10 (filed Sept. 20, 2019) (“Frontier Comments”).

blocks”—an act that would “exacerbate, and widen, the rural digital divide.”<sup>12</sup> Similarly, WISPA notes “[c]ensus blocks without 10/1 Mbps service are [the] areas most in need of fixed broadband.”<sup>13</sup> And as WTA explains, “[t]here are very significant differences between an area that is ‘wholly unserved’ because it has no high-speed broadband or service or customers whatsoever, and one that has little or no 25/3 Mbps broadband service but has an existing broadband network that is presently providing 10/1 Mbps services to existing customers”—especially since “many customers appear still to consider 10/1 Mbps service to be high-speed. . . .”<sup>14</sup> While Frontier believes that census blocks unserved at 10/1 Mbps may be tightly interlaced with census blocks that already have 10/1 Mbps broadband and therefore present a greater risk of overbuilding between RDOF Phase I and RDOF Phase II than a census block group approach, targeting funds to census blocks wholly unserved at 10/1 Mbps still would result in significantly less risk that RDOF Phase I funds distributed prior to the completion of the Commissions’ mapping initiatives would be spent overbuilding already existing subsidized broadband networks.

#### **IV. The Commission Should Strengthen the Transition from CAF to RDOF.**

The record reflects universal support for ensuring the transition from CAF to RDOF is structured in a way that guarantees consumers continue to receive service. As ITTA explains, “to ensure the transition from CAF II model-based support to RDOF auction support does not

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<sup>12</sup> Joint Comments of the Pennsylvania’s Public Utility Commission, Office of Consumer Advocate, and Office of Small Business Advocate, WC Docket Nos. 19-126, 10-90, at 4 (filed Sept. 20, 2019).

<sup>13</sup> WISPA Comments at 30.

<sup>14</sup> Comments of WTA—Advocates for Rural Broadband, WC Docket Nos. 19-126, 10-90, at 3 (filed Sept. 20, 2019).



undermine the public interest by threatening consumers with loss of service or a spike in pricing, the Commission should provide for adequate transitional support and adopt other measures to facilitate the transition.”<sup>15</sup> Hence NTCA’s argument that “[w]hile much of the focus of universal service policy is understandably on connecting those that are unserved today, it is an equally important public policy and statutory goal to ensure that those who are connected *stay connected*, and that those rural American consumers and business can continue to access quality broadband at affordable rates on an ongoing basis” hits the nail on the head.<sup>16</sup> In the words of the Nebraska Public Service Commission, “[i]n areas where the [RDOF] auction milestones will not be reached until year five or six, consumers will still need to depend on reliable and affordable services from their provider. Without continued support and obligations tied to that support [there is a risk] Nebraska consumers will be harmed”—meaning that the “Commission should establish a more clearly defined transitional support mechanism with specific metrics for the carriers in the interim.”<sup>17</sup>

The record further demonstrates that a key factor in ensuring that consumers continue to receive service during the transition period is a seventh year of CAF II support. Tellingly, no commenter opposes this proposal, while a number of commenters acknowledged its importance. As ACA Connects – America’s Communications Association explains, “it is unlikely that the

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<sup>15</sup> ITTA Comments at 6.

<sup>16</sup> NTCA Comments at 34 (emphasis in original)

<sup>17</sup> Comments of the Nebraska Public Service Commission, WC Docket Nos. 19-126, 10-90, at 6-7 (filed Sept. 20, 2019); *see also, e.g.*, CenturyLink at 28 (“CenturyLink encourages the Commission to continue with CAF II model support and legacy transition support through 2021 to best enable a smooth transition to the RDOF program”); USTelecom Comments at 24-34 (section entitled (“It Is Essential to Determine Service Transition Obligation and Funding Issues at the Outset”).

Commission will be able to complete the RDOF Phase II auction before the CAF Phase II model-based support term ends in 2020,” meaning the “Commission may not know which price cap carriers will be eligible for the additional year of CAF Phase II transitional funding until after such funding runs out” and must accordingly “allow all price cap carriers that accepted model-based support to elect an additional year of CAF Phase II funding in 2021 in exchange for meeting their existing public interest obligations.”<sup>18</sup> As the Muscogee (Creek) Nation states, therefore, “all recipients should have the option to apply for 7<sup>th</sup> year support following strict guidelines for continued support as determined by the Commission.”<sup>19</sup> To do otherwise would, as Windstream explains, “upset the settled expectations of price cap model support recipients when they elected to receive this support and produce an inequitable result.”<sup>20</sup>

Another critical factor raised by commenters is the need to ensure that incumbent local exchange carriers (“ILECs”) are not unfairly penalized by legacy federal and state eligible telecommunications carrier and carrier of last resort (“COLR”) rules that are predicated on the continuing availability of universal service subsidies. As Frontier previously explained, “RDOF represents the later stages of a longer-term transition from a long-gone assumption of ILEC

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<sup>18</sup> Comments of ACA Connects—America’s Communications Association on the Notice of Proposed Rulemaking, WC Docket Nos. 19-126, 10-90, at 27 (filed Sept. 20, 2019) (“ACA”).

<sup>19</sup> Comments of the Muscogee (Creek) Nation, WC Docket No. 19-126, at 13 (filed Sept. 20, 2019); *see also, e.g.*, ITTA Comments at 29-32 (arguing the FCC should also provide transitional support beyond the optional seventh year); USTelecom Comments at 31-32 (the Commission should make clear that all CAF II model-based support recipients are entitled to a full seventh year of funding).

<sup>20</sup> Comments of Windstream Services, LLC, WC Docket Nos. 19-126, 10-90, at 23 (filed Sept. 20, 2019).

monopoly and implicit subsidies to explicit, targeted broadband subsidies.”<sup>21</sup> The implications of that transition are addressed in a recent paper by Tony Clark (former Chairman of the North Dakota Public Service Commission) and Monica Martinez (former Michigan Public Service Commissioner) commissioned and referenced by USTelecom that states “when the ILEC is no longer receiving support and the FCC has sanctioned a new company to serve in its place, the ILEC should be relieved of all federal and state obligations to provide service in such area,” since “[a]s government provided benefits are eliminated, associated government mandates to provide services must fall by the wayside.”<sup>22</sup>

The Commission should address this critical issue by forbearing from legacy requirements based on ILECs’ historical status as monopoly, subsidy-supported providers and preempting any comparable state requirements, including COLR obligations. The RDOF represents a tremendous opportunity to help close the rural digital divide—but the Commission’s efforts to do so will be inherently stymied if “remnants of the regulatory compact continue to burden ILECs in ways that hinder and affirmatively [and asymmetrically] harm their ability to compete.”<sup>23</sup> Ultimately, as Commissioner O’Rielly stated:

[T]o the extent that price cap carriers lose funding as a result of the auction, it is . . . crucial that we relieve them of certain legacy obligations, under both state and federal laws, that bind them to carrier-of-last-resort obligations and prevent them from exiting markets. It seems extremely unfair to maintain this unfunded

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<sup>21</sup> Frontier Comments at 14.

<sup>22</sup> USTelecom Comments at 25 (quoting and citing Tony Clark & Monica Martinez, *The More Things Change, The More They Need to Change: Why New Realities Require New Rules*, at 2 (Sept. 20, 2019) (“Clark/Martinez Paper”)).

<sup>23</sup> *Clark/Martinez Paper* at 8.

mandate, especially to the extent that a competitor is receiving funding to serve the same territory.<sup>24</sup>

It is critical that the Commission ensure a fair state of play by relieving price cap carriers of any obligations where they lose funding as a result of the RDOF. And to ensure continuity of service, the Commission should require RDOF winners to provide service immediately upon receiving funding, or fully and sufficiently fund existing carriers until the obligation is fully assumed.

**V. Additional Steps Are Needed to Ensure That RDOF Auction Winners Do Not Strand Rural Americans.**

In its initial comments, Frontier noted that the Commission’s proposal to base the RDOF auction rules on the CAF-II auction rules creates risks because “it remains to be seen whether [the CAF-II auction] was successful at selecting providers that will be able to perform to the Commission’s specifications.”<sup>25</sup> Other commenters express similar concerns.<sup>26</sup> As NTCA explains, “it is important that the Commission make a greater effort to require potential RDOF bidders to demonstrate more thoroughly their qualifications and capabilities to deliver as promised prior to participating in the auction.”<sup>27</sup> Taking a “harder look” up front to ensure that only bidders who are demonstrably qualified and capable of performing are permitted to

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<sup>24</sup> Michael O’Rielly, Commissioner, FCC, Remarks Before the FCBA Young Lawyers Committee Universal Service Fund Seminar, at 3 (Oct. 2, 2019) <https://docs.fcc.gov/public/attachments/DOC-360018A1.pdf>.

<sup>25</sup> Frontier Comments at 11.

<sup>26</sup> See, e.g., Comments of INCOMPAS, WC Docket Nos. 19-126, 10-90, at 13 (filed Sept. 20, 2019) (“INCOMPAS”) (subsection III.b. entitled “Bidders Should Be Qualified And Have A Proven Service Track Record.”).

<sup>27</sup> NTCA Comments at 24.

participate in the auction will make the Commission’s job easier on the back end of the RDOF program.<sup>28</sup> As Verizon notes, “additional pre-auction scrutiny on applicants that are seeking authority to bid for a large number of locations, relative to the size of their existing customer base, or are planning to bid for performance tiers in which they currently provide little or no commercial service” will help ensure that the RDOF auctions are not skewed by inaccurate or artificially deflated price signals.<sup>29</sup> Improved vetting as to qualifications would also allow for lessening letter of credit requirements—a proposal that has received significant record support.<sup>30</sup>

These concerns are fleshed out in greater depth in the attached paper from LYA, an independent auction consulting firm that Frontier engaged to analyze the publicly available information about the CAF-II bidding process and winning bidders.<sup>31</sup> As LYA explains, there is very limited data available about how CAF-II auction winners will provide the services they have committed to provide—particularly in the “above-baseline” service tier—but the publicly available data raise two significant areas of concern.<sup>32</sup>

First, LYA’s analysis revealed concerns about whether major bidders in the CAF-II auction proposing to provide spectrum-based services will be able to obtain adequate access to spectrum to meet the speed or capacity requirements of the “above baseline” tier in which they

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<sup>28</sup> Frontier Comments at 12-13.

<sup>29</sup> Comments of Verizon, WC Docket Nos. 19-126, 10-90, at 7-8 (filed Sept. 20, 2019) (“Verizon”).

<sup>30</sup> *See, e.g.*, WISPA Comments at 34-41; CenturyLink at 10-16; ITTA Comments at 14-18; USTelecom Comments at 43-47.

<sup>31</sup> *See generally* LYA Paper.

<sup>32</sup> *See id.* at 13-17.

won support.<sup>33</sup> Second, some of the bidders that won the largest amounts of support and the largest numbers of locations are very small entities, such that the amount of support that they won represents a large multiple of their current revenue and fulfilling their service commitments would require them to serve several times the number of customers that they currently serve.<sup>34</sup> LYA discusses the similarities between these circumstances in the CAF-II auction and certain circumstances in the Commission’s 1996 Auction 5 for the PCS C Block – “arguably the only ‘black mark’ on the long history of successful FCC auctions.”<sup>35</sup>

Based on its auction expertise, LYA expresses concerns about the risks of failure in cases where “a bidder’s enterprise value or revenue is much smaller than the amount of funding it receives.”<sup>36</sup> In such cases, “failing to meet its deployment obligations poses a limited risk and the entity can effectively externalize risks to the Letter of Credit.”<sup>37</sup> As a result, “such a bidder may underbid to win subsidy across more areas, while only risking having to return a portion of it if it is unable to fully meet deployment obligations.”<sup>38</sup>

In discussing ways to improve the process, LYA notes that, “[w]ithout access to additional information, there is not sufficient public information to suggest whether the CAF II Auction rules sufficiently protected public funding, ensured successful deployment, and should

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<sup>33</sup> *See id.* at 10, 14-17.

<sup>34</sup> *See id.* at 7-9.

<sup>35</sup> *Id.* at 9. *See also id.* at 12.

<sup>36</sup> *Id.* at 12.

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

be replicated in whole.”<sup>39</sup> As a result, LYA concludes that “access to additional CAF II Auction information would enable meaningful comment on necessary RDOF design rules and protections.”<sup>40</sup> Expert review of long forms may reveal that certain carriers indeed have solid plans to meet speed commitments, or it could reveal that carriers are placing their hopes on winning spectrum in future auctions – which is risky and not guaranteed – and otherwise making uncertain assumptions. Outside review would provide additional insight regarding additional rules and safeguards to ensure rural Americans receive the quality broadband service the Commission is paying for.

Frontier therefore proposes that the Commission permit interested parties to review CAF Phase II long form applications, subject to the procedures the Commission previously has adopted to govern review of highly confidential materials.<sup>41</sup> The Commission should release an appropriate protective order to facilitate this review. Review of CAF Phase II long form applications—and analysis of applicants’ success or failure—represents a significant opportunity to identify factors that, when present, are likely to ensure companies that promise deployment as part of the RDOF program can actually deliver.<sup>42</sup> While the Commission undoubtedly conducted a thorough review, it should not pass up the opportunity to allow interested parties to plumb this valuable dataset for factors that, when present, will maximize the likelihood that

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<sup>39</sup> *Id.* at 19.

<sup>40</sup> *Id.* at 17.

<sup>41</sup> See, e.g., *Petition of USTelecom for Forbearance Pursuant to 47 U.S.C. § 160(c) to Accelerate Investment in Broadband and Next-Generation Networks*, Protective Order, 33 FCC Rcd 5290 (WCB 2018).

<sup>42</sup> If the Commission elects not to adopt a highly confidential procedure for review at this time, it should at minimum solicit public comment on the idea.

RDOF dollars are put to good use. As LYA explains, the questions answered by the long form applications “are critical to evaluating the networks that the FCC is funding, and each of these items involve significant expert judgment calls that invite potentially divergent views.”<sup>43</sup>

Likewise, the Commission should reject proposals to lessen the rigor of pre-auction evaluation processes, which would effectively shift the risk of non-performance onto ratepayers. For example, given the acknowledged issues with the extant Form 477 dataset, applicants should not be permitted to skip technical screenings in short-form RDOF Phase I applications when Form 477 data shows a provider can already accomplish what their bid commits to.<sup>44</sup> Likewise, LYA recommends careful upfront scrutiny of backhaul assumptions: “Short Form applicants should be required to provide details on their middle mile/backhaul network to guarantee that the capacity commitment will be met, with a maximum pre-set oversubscription ratio to ensure a reasonable quality of service to all potential customers.”<sup>45</sup> Additionally, given the Commission’s acknowledged need to re-evaluate when and where qualifying broadband service already is available and sufficient, applicant participation in other USF programs must not be deemed sufficient evidence of ability to participate in RDOF.<sup>46</sup>

LYA also suggests that the FCC consider requiring a “Bid Bond” as part of the bidder qualification process.<sup>47</sup> This would be akin to an upfront payment in spectrum auctions, to

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<sup>43</sup> LYA Paper at 19.

<sup>44</sup> *Contra, e.g.*, ACA at 25-26.

<sup>45</sup> LYA Paper at 4.

<sup>46</sup> *Contra, e.g.*, INCOMPAS at 13.

<sup>47</sup> LYA Paper at 7-9.



define maximum bid eligibility and provide a test of whether the size of a bid is reasonable relative to the bidder's ability to implement and build out.<sup>48</sup> LYA notes that the “procurement auction” structure of the RDOF risks creating a “‘race to the bottom’ for purposes of distributing funding” where the “lowest cost provider may take the most risks, provide a service that just passes guidelines, and generally presents the highest risk of default.”<sup>49</sup> A bid bond requirement—particularly if combined with the additional confidential disclosure and analysis discussed above—would help address these concerns.

In sum, the Commission must take steps to ensure that a program of the significance of the RDOF delivers on its promise and fully delivers broadband for rural Americans. To do so, the Commission should allow greater scrutiny of applications in the CAF-II process to identify trends that could inform modifications to the RDOF rules and require a “bid bond” in the RDOF auction.

**VI. The Commission Should Provide a Dedicated Fixed Wireless Spectrum Allocation or Priority Access for RDOF Winners, or, at a Minimum, Accelerate Access to Spectrum for Fixed Wireless in Rural Areas.**

With the RDOF, the Commission should consider allocating spectrum or priority access to spectrum to RDOF winners when they win in a given area. Based on the limited available public information, it appears that many CAF II Auction winners may be relying heavily on unlicensed spectrum to meet CAF II Auction speed obligations. With unlicensed spectrum, there may be some risk whether the spectrum will remain sufficiently free of congestion to guarantee a sufficient quality of service. Alternatively, carriers may be relying on winning in future

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<sup>48</sup> *Id.*

<sup>49</sup> *Id.* at 12.

spectrum auctions – again a prediction not without risk.<sup>50</sup> Either way, based on the fundamental reverse auction structure of the CAF II Auction and proposed RDOF, the carrier willing to assume the greatest risk has an advantage for winning the subsidy. For instance, all other things being equal, a fixed wireless carrier betting that it can provide service using entirely unlicensed spectrum, or a fixed wireless carrier betting that it can purchase spectrum at a lower cost, will necessarily have a lower cost profile (and thus win the bidding) than a wireless carrier that uses licensed spectrum or a wireless carrier that projects a higher cost for licenses.

By allocating spectrum or priority access to the RDOF winner, the FCC can promote robust fixed broadband in rural America and reduce the spectrum risk associated with RDOF bidding. With a sufficient allocation of spectrum, the Commission could proceed in full confidence that a fixed wireless bidder had adequate spectrum to provide the quality of service bid. Additionally, the Commission would guard against potentially overly optimistic assumptions for spectrum pricing and that unlicensed spectrum will remain free of congestion.

At the same time, by granting spectrum or priority access to RDOF winners in RDOF areas, the Commission will greatly expand the reach of its available funding. The spectrum itself represents a form of subsidy and would act as a catalyst for broadband deployment. For instance, for those carriers relying on some portion of the subsidy to finance spectrum acquisition costs, that cost would be removed and the RDOF dollars could be focused on additional broadband deployment. Such spectrum policy has ample precedent. Both Congress and the Commission have also been focused on new, innovative solutions for closing the rural

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<sup>50</sup> *See, e.g., id.* at 15.

digital divide, discussing the possibility of investing auction proceeds towards rural buildout.<sup>51</sup>

With FirstNet, the Commission allocated 20 MHz of spectrum in tandem with the buildout of the nationwide public safety network. Whatever the appropriate band, the Commission could similarly allocate spectrum in tandem with rural broadband buildout on a more granular basis.

Such an allocation or priority would only be required in rural RDOF areas, and these are by definition areas where the spectrum is less likely to be used for mobile services. There is substantial evidence that spectrum is not used as intensively in high-cost areas.<sup>52</sup> As Chairman Pai, for example, has explained, a “wireless carrier may never build out to [rural high-cost] areas if it’s never required to do so, even though its exclusive license prevents anyone else from building out to that same area with that same spectrum.”<sup>53</sup> Given the relatively less intensive mobile usage in rural areas, enabling fixed point-to-multipoint broadband makes perfect sense for the 3.7-4.2 GHz band and will accelerate the delivery of broadband to rural America.<sup>54</sup>

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<sup>51</sup> See Ajit Pai, Commissioner, FCC, Remarks at The Brandery, Cincinnati, Ohio: *A Digital Empowerment Agenda* (Sept. 13, 2016) (“*Chairman Pai Digital Empowerment Remarks*”), <http://bit.ly/2pluTEe>; AIRWAVES Act, S.1682, 115<sup>th</sup> Cong. (2017) (“[T]he Commission shall allocate 10 percent of the proceeds from each system of competitive bidding conducted under this Act for the deployment of wireless infrastructure in areas that the Commission has determined are underserved or unserved with respect to wireless broadband Internet access service.”), <https://www.congress.gov/bill/115th-congress/senate-bill/1682/text>.

<sup>52</sup> See, e.g., *Connect America Fund*, Report and Order and Further Notice of Proposed Rulemaking, 32 FCC Rcd 2152 ¶ 1 (2017); *Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services*, Nineteenth Report, 31 FCC Rcd 10534 ¶¶ 40-43, 99 (WTB 2016).

<sup>53</sup> *Chairman Pai Digital Empowerment Remarks*.

<sup>54</sup> Reply Comments of Alphabet Access, RM-11791 at 6 (Aug. 22, 2017) (explaining that “many point-to-multipoint operations will be in the remote, unserved areas where fixed service is needed most,” while mobile carriers are more likely to use spectrum for “capacity improvements in urban areas”).

In the absence of an outright allocation of spectrum or grant of priority access to the RDOF winner, the Commission should continue to free up additional spectrum for fixed rural wireless deployment. As Frontier has explained in other proceedings, fixed wireless can be an important tool in providing high-quality broadband services in rural and hard-to-serve areas. As Frontier and others have argued in many additional proceedings, the Commission should expeditiously adopt rules to facilitate access to spectrum for rural fixed wireless broadband.<sup>55</sup>

## **VII. Conclusion**

Frontier applauds the Commission's continued efforts to expand broadband and digital opportunities in rural areas and urges the agency to craft its new RDOF program in keeping with the foregoing.

Respectfully submitted,

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<sup>55</sup> See Comments of Frontier and Windstream, GN Docket No. 18-122, RM-11791, RM-11778 (Aug. 7, 2019); Comments of Frontier and Windstream, GN Docket Nos. 18-122, 17-122, RM-11791, & RM-11778 (Oct. 29, 2018); Comments of Frontier, Windstream, and Consolidated, GN Docket 17-258 (Dec. 28, 2017).

# ***How Can Past Auction Experience Inform the RDOF Process***

**Filed with Reply Comments of Frontier Communications  
FCC WC Docket 19-126 – October 21, 2019**

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## 1. Executive Summary

1. In August 2019, the FCC proposed to establish the Rural Digital Opportunity Fund (RDOF), which will commit at least \$20.4 billion over the next decade to support high-speed broadband networks in rural America.<sup>1</sup>
2. The RDOF follows on from the Connect America Fund (CAF) Phase II auction (CAF-II) held in 2018. As a result of the CAF-II auction, it is expected that funding in the amount of \$1.488 billion will be provided for broadband deployment over ten years to over 700,000 households and small businesses in 45 states.
3. Less than 80% of funding available as well as potential locations to be served were awarded as a result of the CAF-II auction.
4. We also note that a number of winners from the CAF-II auction have since defaulted on a portion or all of the funding won during the auction.<sup>2</sup> This means that the customers that were to be eventually addressed with a new broadband connection will now likely continue to be either unserved or served with a service quality below acceptable standards in 2019.
5. The CAF-II auction awarded subsidies in a reverse auction process with sequential rounds – a multi-round descending clock auction. Rounds began at a high amount of subsidy per location served and declined round by round based on demand. The same process is anticipated to be implemented for the upcoming RDOF auction.<sup>3</sup>
6. The RDOF auction is planned to award over 10x the amount of subsidy as the CAF-II auction. Thus, to ensure a successful outcome for Rural America the processes regarding eligibility, bidder qualification, vetting of technical information and assurances that bidder commitments will be even more important.
7. This Report provides a discussion of the CAF-II rules and results, as well as prior FCC and other spectrum auctions, to inform the rules and process being put in place for the upcoming RDOF auction. Elements covered in this discussion include:
  - a. eligibility requirements for the RDOF auction, contrasting those with the approach used in spectrum auctions;
  - b. technology options and network investment requirements, in the context of the commitments made by CAF-II winning bidders; and

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<sup>1</sup> Notice of Proposed Rulemaking, Rural Digital Opportunity Fund, FCC 19-77, August 2, 2019

<sup>2</sup> Per Notices issued by the FCC Enforcement Bureau, October 11, 2019

<sup>3</sup> FCC 19-77, *op.cit.*, paragraph 19





- c. a discussion of the performance requirements put forward to obtain RDOF subsidies.
8. The objective of our discussion is to provide recommendations on how the auction rules in CAF-II could be improved for the RDOF to ensure the best outcome possible for rural America.

### *Overview of Findings*

9. Ensuring that subsidies are commensurate with ability of winners to execute:

#### **1.1**

- Unlike in a spectrum auction, bidder qualification in CAF-II was based on the size of the bid placed, not on an upfront payment. There were thus no constraints on bids placed, allowing bidders to bid for and win subsidies far in excess of their current gross revenues and scale of operations.
  - In other words, the auction process provided a way for bidders to win subsidies on attractive terms in the hope of subsequently being able to meet the buildout requirements.
  - One example from auction history that illustrates the high risk associated with conducting auctions with overly attractive terms is FCC Auction 5. Auction 5 awarded PCS C Block licenses to “entrepreneurs” that were allowed to make low-cost installment payments. This led bidders to over-bid for licenses. With insufficient backing, many were unable to pay. In the end, bidders representing 84% of the total winning bids in the auction defaulted.
  - While winning bidders in CAF-II were required to put in place a Letter of Credit backing their commitments, this Letter of Credit was only required in the Long Form application – i.e., post auction – and only in an amount covering the first two years of funding.
  - The FCC will be paying out CAF-II support before there is any test of whether buildout requirements are being met. This is unlike a spectrum auction, where bidders are required to pay for their licenses within 60 days of the close of the auction.
10. There would appear to be a significant downside risk for the FCC in the results of the CAF-II auction. Bidders were able to secure large amounts of subsidy financing, based on future financing obtained post-auction and, in some cases, counting on licensed spectrum that must be won in future competitive auction processes.





11. This creates a high level of uncertainty around implementation as well as realization of the CAF-II service objectives and suggests that the RDOF auction should have additional safeguards and rules.
12. Ensuring that service commitments will be met by the auction winners: We reviewed the CAF-II auction results, focusing on the commitments of the top 10 winning bidders to provide the levels of service for which funding was obtained:
  - There is no publicly available information that can be used to validate the commitments made with respect to service speeds of 100 Mbps/20 Mbps as well as usage of 2 TB. We highlight that this usage level is 7x higher than the current industry average in the US and brings significant requirements in terms of backhaul and interconnect capacity for which no information is requested on the Short Form application.
  - Spectrum-based winners will likely require access to licensed “last mile” spectrum, which many currently do not have. For example, on their Short-Form applications, some bidders identified 24 GHz spectrum. But they did not subsequently participate in FCC Auction 102 for 24 GHz licenses. Other licensed spectrum identified – e.g., CBRS 3.5 GHz and 2.5 GHz – will only become available in future spectrum auctions and presents substantial uncertainty. There is no guarantee of winning spectrum licenses in competitive auction processes.

## 1.2

### *Recommendations for safeguards and rules for RDOF*

13. The findings of this Report point to a number of possible safeguards and rules for consideration in the RDOF auction:
  - Eligibility system for bidders as part of the pre-auction qualification process – bidders should be qualified to bid up to a certain level of subsidy capped relative to their size. As part of the qualification process, the Commission could consider a requirement for bidders to provide a Bid Bond as a performance guarantee. Adding this to the qualification process would be the equivalent of an upfront payment in a spectrum auction. Certain bidders could be considered as pre-qualified and exempted from providing a Bid Bond in order to qualify to bid, notably entities that have already successfully met CAF model-based support requirements.
  - Independent Review of CAF II Auction Long Form – There should be greater scrutiny and expert review of short and long form applications –



particularly with respect to access to spectrum and ability to meet usage requirements and particularly with backhaul and middle-mile capacity. Current FCC proposals are only to start testing to measure and verify broadband performance for CAF-II auction winners starting in January 2023. Allowing outside parties to review CAF-II auction long form applications would enable parties to provide better comments on rules necessary for the success of the RDOF.

- Limit maximum bid to maximum subsidy – An additional safeguard could be to have the allowable maximum bid not to exceed total subsidy available. In other words, bidders would not be able to create large non-winning bids that artificially increase activity. Overlapping bids for different technologies is what should drive over-demand, not bidding over supply.
- Upfront Backhaul Review – There should be more assurance that performance targets can be met. Short Form applicants should be required to provide details on their middle mile/backhaul network to guarantee that the capacity commitment will be met, with a maximum pre-set oversubscription ratio to ensure a reasonable quality of service to all potential customers.
- Modify Usage Commitment – In addition, we would recommend modifying the usage commitment, at least for the above baseline service level commitment (100 Mbps down, 20 Mbps up). The FCC could set an evolving usage commitment to be met over the next 10 years based on the average usage reported every year, increased by 35% for the subsequent year. For example, in year 1, it could be 271 GB increased by 35%, reflecting the increase from 2019 to 2020.



## 2. CAF-II Process, Eligibility and Bidder Commitment

14. Bidders were qualified for CAF-II based on commitments to build out areas meeting broadband performance requirements, identification of technology and spectrum available to support the buildout and based on FCC review of financial information.

15. Qualification also required certification that the bidder “has been providing voice and/or broadband services for at least two years” and has met filing requirements of FCC Form 477.<sup>4</sup>

16. In addition:

*to “confirm an applicant’s understanding of its obligations, [the FCC required] the applicant to certify under penalty of perjury in its short-form application that:*

*The applicant acknowledges that it has sole responsibility for investigating and evaluating all technical, marketplace, and regulatory factors that may have a bearing on the level of Connect America Fund Phase II support it submits as a bid, and that, if the applicant wins support, it will be able to build and operate facilities in accordance with the Connect America Fund obligations and the Commission’s rules generally.*

*This certification will help ensure that an applicant acknowledges and accepts responsibility, if it becomes a qualified bidder, for its bids and any forfeitures imposed in the event of default, and that it will not attempt to place responsibility for the consequences of its bidding activity on either the Commission or any of its contractors.”<sup>5</sup>*

2.1

### **Bidder Eligibility – CAF-II Auction Compared to Spectrum Auctions**

17. Unlike a spectrum auction, bidder eligibility for the CAF-II auction was not defined by acquisition of eligibility in the form of bidding units acquired via an upfront payment. In the CAF-II auction there was no upfront financial commitment.

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<sup>4</sup> Public Notice: CONNECT AMERICA FUND PHASE II AUCTION SCHEDULED FOR JULY 24, 2018 NOTICE AND FILING REQUIREMENTS AND OTHER PROCEDURES FOR AUCTION 903, FCC 18-6, February 1, 2018, paragraph 42

<sup>5</sup> *ibid*, paragraph 119



18. In a spectrum auction, bidders make an upfront payment, which serves to acquire eligibility points, which are then used to bid on licenses in the auction. An upfront payment determines a bidder's initial bidding eligibility, which is the "maximum number of bidding units on which a bidder may place bids in a single round."<sup>6</sup>
19. In the CAF-II auction, on the other hand, bidder eligibility was defined by a bidder's activity and was calculated as the sum of the implied support amounts (calculated at the bid percentage) for all the areas bid for in the round and could not exceed its activity from the previous round.<sup>7</sup>
20. This meant that there was no cap on the amount of subsidy for which a bidder could bid, other than the amount it had bid in the previous round.

### *Issues with CAF-II Approach to Defining Bidder Eligibility*

#### **2.2**

21. While it was of course the intent of the CAF-II auction to start "high" and reduce subsidy by round, the ability to place very large opening bids illustrates two key issues.
22. First, over bidding supply – i.e., one bidder bidding for more than the total support available – creates artificial demand, increasing overall auction activity. In a spectrum auction, no one bidder can over-bid supply, but the closest analogy would be to "parking points", wherein artificial over-demand is created on licenses of high value. In the spectrum auction case, increased activity leads to higher prices. In a reverse auction such as CAF-II, increased activity leads to lower subsidy available, since bidders have to "under-bid" as the rounds advance.
23. Overbidding supply, i.e., creating demand via large non-winning bids, can thus have a distortionary effect on an auction. We note that several participants in the CAF-II auction did bid over the maximum amount of \$198M in the auction.<sup>8</sup>
24. Second, even if the FCC had set the maximum bid at the amount of total subsidy, i.e., \$198 million per year, the process would still have allowed bidders to place bids representing all or the majority of the support available. With no eligibility

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<sup>6</sup> For example, see Public Notice: AUCTIONS OF UPPER MICROWAVE FLEXIBLE USE LICENSES FOR NEXT-GENERATION WIRELESS SERVICES, FCC 18-109, August 3, 2018, paragraph 154

<sup>7</sup> FCC 18-6, *op.cit.*, paragraph 249 and Public Notice: COMMENT SOUGHT ON COMPETITIVE BIDDING PROCEDURES AND CERTAIN PROGRAM REQUIREMENTS FOR THE CONNECT AMERICA FUND PHASE II AUCTION (AUCTION 903), FCC 17-101, August 4, 2017, paragraph 99

<sup>8</sup> For example, in the CAF-II auction, the opening bid of Wisper ISP, Inc. was for \$238.4 million in annual support, 20% more than the entire amount of support available in the auction. Viasat placed a Round 1 bid of \$566 million in annual support, almost triple the amount of the total support available.



system to define maximum activity, there was no test of reasonableness as to the size of a bid relative to a bidder's ability to implement and build out.

25. For example, AMG's opening bid in the CAF-II auction was for \$120 million in annual support, more than 10x AMG's estimated revenue.<sup>9</sup> In the end, AMG won \$28 million in support, almost triple its total revenue.
26. Similarly, Wisper ISP Inc. placed an opening bid of \$238 million, some 80x its estimated revenues.<sup>10</sup> Wisper ended the auction winning \$22 million in annual support, over 7x its total revenue.
27. It is not the intent herein to suggest that specific companies should not be awarded CAF or RDOF support. But the lack of rules concerning bidder eligibility and auction activity could lead to a failed outcome from the auction.
28. The FCC will be paying out CAF-II support to winning bidders before there is any test of whether buildout requirements are being met.<sup>11</sup> This is unlike a spectrum auction, where bidders are required to pay for their licenses within 60 days of the close of the auction.
29. The equivalent to an upfront payment in a spectrum auction would be submission of a Bid Bond or similar security in the CAF/RDOF auction. The Bid Bond would be used to set a limit on the total support bidders could bid on in the auction.
30. The CAF/RDOF reverse auctions are essentially "procurement auctions." In a procurement auction, for example for bidding on government contracts, bidders are often required to obtain a Bid Bond to provide a guarantee of performance once the contract is signed.
31. The FCC in fact uses a similar mechanism in awarding satellite service authorizations. Following a request for market access, i.e., typically before a license is issued, the FCC's rules "require that most NGSO licensees or recipients of market access must have on file a surety bond, requiring payment in the event that the licensee either fails to meet certain build-out milestones specified in the

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<sup>9</sup> AMG is estimated to have company revenue of \$10.82 million. See: D&B Hoovers information at [http://www.hoovers.com/company-information/cs/company-profile.amg\\_technology\\_investment\\_group\\_llc.9a48f279084d259d.html?aka\\_re=1](http://www.hoovers.com/company-information/cs/company-profile.amg_technology_investment_group_llc.9a48f279084d259d.html?aka_re=1)

<sup>10</sup> See Comments of Frontier Communications Corporation, In the Matter of Rural Digital Opportunity Fund, Connect America Fund, WC Dockets 19-126 and 10-90, September 29, 2019, footnote 26, page 13

<sup>11</sup> As part of the agenda for its October 2019 Open Commission Meeting, the FCC has proposed testing to confirm broadband performance for CAF-II auction winners to start in January 2023, over 4 years after the auction ended. Draft Order on Reconsideration, FCC-CIRC1910-01, WC Docket 10-90, October 4, 2019, Paragraph 77



- Commission's rules, or surrenders the license before meeting certain milestones for the operation of its system."<sup>12</sup>
32. This surety bond is intended to "prevent harmful 'warehousing' of spectrum and orbital resources."<sup>13</sup>
33. A safeguard for the RDOF auction would thus be to include the requirement for bidders to provide a Bid Bond as part of the pre-auction qualification process. This would prevent "warehousing" of subsidy funds.
34. In this way the FCC would have the equivalent of an upfront payment as is the case for bidders qualifying for participation in a spectrum auction.<sup>14</sup> For CAF/RDOF, certain bidders could be exempted from a Bid Bond requirement, notably operators that have successfully completed model-based CAF support requirements. On this basis, these bidders would be considered to be pre-qualified.
35. Many other regulators apply up front payment rules in spectrum auctions. The Canadian government and other regulators such as Ofcom in the UK and, ComReg in Ireland require upfront payments to qualify as a bidder. In some cases, an irrevocable Letter of Credit serves as a deposit that may be drawn in the case of default on payment of fees.<sup>15</sup>
36. Some auctioneers go one step further to ensure that bidders are fully committed to the amounts bid in the auction.
37. For example, in Ireland the spectrum regulator ComReg has used a rule that: "Where a Bidder's Deposit falls below 50% of its highest Bid made so far in the Auction, ComReg reserves the right to require the Bidder to increase its Deposit to at least 50% and not more than 100% of its highest Bid."<sup>16</sup> This may result in a

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<sup>12</sup> Streamling Licensing for Small Satellites, FCC 19-81, Report and Order IB Docket No. 18-86, August 2, 2019 page 37, footnote 262

<sup>13</sup> In the Matter of Update to Parts 2 and 25 Concerning Non-Geostationary, Fixed-Satellite Service Systems and Related Matters, FCC 17-122, Report and Order and Further Notice of Proposed Rulemaking, IB Docket No. 16-408, September 27, 2017, paragraph 62

<sup>14</sup> For example: "Each Auction 102 applicant with a complete application seeking to qualify to bid must follow the instructions contained in this Public Notice for submitting an upfront payment." FCC DA 19-24, AU Docket No. 18-85, January 31, 2019, paragraph 4

<sup>15</sup> For example: "The financial deposit must be in the form of a certified cheque, bank draft, money order, wire transfer, or an irrevocable standby letter of credit..." Technical, Policy and Licensing Framework for Spectrum in the 600 MHz Band, ISED, Government of Canada, SLPB-002-18, March 2018, paragraph 264

<sup>16</sup> Information Memorandum 16/71 for the 3.6 GHz Band Spectrum Award, ComReg, 24 August 2016, page 114, section 4.98



temporary stoppage of the auction when bidder(s) are required to *top up* their initial Letters of Credit, to maintain eligibility.

38. We highlight that upfront payments being too low and a lack of a significant top-up requirement has been highlighted as a significant issue in the 3G spectrum auction held in the United Kingdom in 2001.<sup>17</sup>
39. The Bid Bond approach would provide the equivalent of an upfront payment for a spectrum auction. The Bid Bond would be cancelled if the bidder does not win any subsidy or adjusted down to actual amount if the bidder wins less subsidy than represented by the bond.
40. This safeguard for the RDOF auction would help ensure that overly optimistic bidding does not result in an ultimate failure of the auction by winners not living up to commitments made.

### ***FCC Auction 5 – Failure Due to Overly Favorable Terms***

#### **2.3**

41. FCC Auction 5, held in 1996, is arguably the only “black mark” on the long history of successful FCC auctions. Auction 5 was for the PCS C Block, with bidding restricted to “entrepreneurs” – i.e., bidders that were not the mobile incumbents.
42. Auction 5 “failed largely because of overly attractive installment payments (10% down and 6-year interest-only at the risk-free 10-year Treasury rate). This encouraged speculative bidding, which led to all the major bidders defaulting and declaring bankruptcy.”<sup>18</sup> In comparison the standard U.S. spectrum auction requires significant upfront down payments and payment in full immediately after the auction is complete.
43. The following table summarizes the bidders that defaulted in Auction 5:<sup>19</sup>

**Table 1 – Auction 5 License Winners, Net Bids and Upfront Payments**

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<sup>17</sup> The UK upfront payment was £50 million, and was increased to £100 million when bidding for any license reached £400 million. As bid values ended up being in billions, the upfront payment and top up would have had little effect. Essentially the upfront payments were too low and did “not provide an adequate disincentive” when bidding was in the billions. Observation from “Auctions: Theory and Practice,” Paul Klemperer, Princeton University Press, 2004, page 188

<sup>18</sup> “Lessons from the United States Spectrum Auctions,” Prepared Testimony of Peter Cramton, Professor of Economics, University of Maryland President, Market Design Inc., Before the United States Senate Budget Committee, 10 February 2000, pages 3-4.

<sup>19</sup> Per FCC Auction 5 Tracking Tool files. Note: Net bid values shown reflect a 25% discount from actual high bids placed.



Original Auction 5 C Block Winning Bidder	Auction 5 Net Bids			Upfront Payment \$M	Current Licensee
	Value \$M net of 25% discount	% of total	multiple of upfront payment		
Nextwave Personal Communications	\$ 4,201	42%	53	\$ 79	Verizon
DCR PCS Inc.	\$ 1,427	14%	36	\$ 40	AT&T
General Wireless Inc.	\$ 1,060	11%	20	\$ 54	T Mobile
BDPCS Inc.	\$ 874	9%	125	\$ 7	Re-auctioned FCC Auction 10
Ominpoint (OPCS)	\$ 509	5%	13	\$ 40	T Mobile
PCS 2000 L.P.	\$ 344	3%	7	\$ 50	AT&T, T Mobile
Subtotal	\$ 8,415	84%	31	\$ 270	
<i>Total net bids</i>	<i>\$ 10,072</i>				

44. Bidders representing 84% of the winning net bids in the auction defaulted on payments for their licenses. The favorable bidding rules clearly incented these bidders to wildly overbid:

- All six of these were qualified as “small businesses” meaning gross revenues of “between \$0 and \$40,000,000.”<sup>20</sup> Their collective net bids of \$8.4 billion would be 35x total gross revenues, if each were at the maximum gross revenues to be qualified as a small business.
- On average, the bids placed by these bidders was 31x their upfront payments. Nextwave bid 53x its upfront payment and BDPCS 125x.

45. To put this in context, in the largest FCC auction held to date – Auction 97 for AWS-3 licenses, which raised a record \$41 billion in net bids over 341 rounds – the top 10 bidders on average paid 12x the opening bid. Excluding the largest bidder (AT&T), the average was 9x the opening bid.<sup>21</sup>

46. After Auction 5 closed, Nextwave was able to pay its down payment of \$474 million but could not meet installment payment obligations.

47. Through a series of court cases and FCC actions, Nextwave was able to keep the licenses it had won.<sup>22</sup> In 2004 Verizon acquired the licenses for \$3 billion.<sup>23</sup> Thus, this spectrum was not used for the benefit of US consumers until 10 years after it had been awarded.

<sup>20</sup> Per FCC Form 175 Auction Applications, Auction 5.

<sup>21</sup> Based on LYA analysis of FCC Auction 97, round 341.

<sup>22</sup> The FCC v. Powers of the Bankruptcy Courts A Closer Look at NextWave and the Other C-Block Cases, ABI Journal, American Bankruptcy Institute, April 2001.

<sup>23</sup> Verizon Wireless Agrees to Buy NextWave Spectrum Licenses, The Wall Street Journal, November 8, 2004.





48. In another case, winning bidder BDPCS committed to purchasing licenses for \$874 million (net bids) as of the last round of the auction on May 6, 1996 but could not meet the FCC's May 15, 1996 deadline for an initial down payment of \$36.7 million.<sup>24</sup> Its licenses were taken back by the FCC and re-auctioned in FCC Auction 10 in July 1996.
49. It is clear that Auction 5 was run without sufficient protection or safeguards that would ensure that bidders would be able to meet their commitments.
50. Bidders were able to place a bet, with only 10% down at the time of auction, plus interest payments over the following six years, that they could develop a business plan in six years or that the spectrum would have sufficiently appreciated that they could sell and exit. Because these participants were by definition small businesses, their downside risk of default was limited, while the upside of their participation was substantial.
51. By outbidding other participants to acquire licenses at inflated prices, the defaulting Auction 5 bidders prevented other bidders from acquiring licenses and delayed implementation of service using the PCS C Block.
52. Given that a major purpose of a spectrum auction is to license frequencies that will ultimately be used to provide service for public benefit, an auction where 84% of the bids end up being defaulted for payment was clearly a failure.
53. In the case of Auction 5, this was evident in the case of many bidders immediately after the auction since they were not even able to pay the 10% for the licenses they had won.
54. In the case of the CAF-II auction, there is no similar hurdle for winning bidders until several years after the auction ended.
55. However, there is a significant risk that the CAF II Auction framework for distributing funds poses a substantial risk of bidders not meeting commitments for the same reasons as Auction 5.
56. Like Auction 5, the CAF-II Auction required little in the way of upfront financial commitment to ensure that bidders will be able to deliver. And like Auction 5, the FCC saw some bidders placing winning bids for levels of commitment many times the value of their existing companies.

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<sup>24</sup> Order on Reconsideration, Emergency Petition for Waiver of Deadline for Submission of Down Payment for the Broadband PCS C Block Auction filed by BDPCS Inc., FCC DA 96-874, May 30, 1996, paragraph 2



57. The CAF-II Auction service commitments are substantial. The reverse auction framework ensured that the bidder that won is the one that promised the most for the lowest cost to serve areas the FCC has determined too costly to serve absent subsidy. But these winning bidders will be financed for three years before having to meet a deployment milestone.
58. If a bidder's enterprise value or revenue is much smaller than the amount of funding it receives, failing to meet its deployment obligations poses a limited risk and the entity can effectively externalize risks to the Letter of Credit. In other words, such a bidder may underbid to win subsidy across more areas, while only risking having to return a portion of it if it is unable to fully meet deployment obligations.
59. Given that the goal of the CAF-II Auction is to provide universal service, an auction where a substantial number of bids fail will be problematic, especially because the FCC will not know if the winning bidders are living up to their commitments until several years after the auction, delaying broadband deployment to these rural Americans.
60. While auctions have been a great success for the FCC, by its very nature, a reverse auction framework risks being a "race to the bottom" for purposes of distributing funding. The lowest cost provider may take the most risks, provide a service that just passes guidelines, and generally presents the highest risk of default. Given all of these heightened concerns, the FCC must carefully consider all of its rules and protections to fully guard against this race to the bottom.



### 3. Ensuring that Service Commitments will be Met by Auction Winners

61. There were 103 winning bidders in the CAF-II auction – FCC Auction 903 – which ran from July 24, 2018 to August 21, 2018. The top 10 winning bidders accounted for 78% of the subsidy awarded and 77% of the locations to be served.

62. The two bidders that won the most support – AMG Technology Investment Group LLC and Wisper ISP, Inc. – accounted for 34% of the total support awarded and 25% of the locations to be covered.

63. A summary of the CAF-II auction results for the top 10 winners is shown below.

**Table 2 – Top 10 CAF-II Auction Winners and Performance Commitments**

Rank	Winning Bidder	Annual Support Awarded		No. States	No. locations		Performance Commitment
		Amount	% of total		Number	% of total	
1	AMG Technology Investment Group LLC	\$ 28,128,379	19%	6	100,661	14%	Above Baseline - Low latency (93%)
2	Wisper ISP, Inc	\$ 22,031,937	15%	6	80,149	11%	Above Baseline - Low latency (99%)
3	Rural Electric Cooperative Consortium	\$ 18,602,249	13%	8	66,322	9%	Gigabit - Low latency
4	Viasat, Inc.	\$ 12,249,988	8%	20	190,595	27%	Baseline - High latency
5	California Internet, L.P.	\$ 8,783,240	6%	2	11,845	2%	Above Baseline - Low latency
6	Commnet Wireless, LLC	\$ 7,994,169	5%	6	31,824	4%	Baseline - Low Latency
7	Benton Ridge Telephone Company	\$ 5,237,182	4%	3	23,957	3%	Above Baseline - Low latency (98%)
8	Cal.net, Inc.	\$ 5,051,665	3%	1	20,859	3%	Above Baseline - Low latency (99%)
9	Midcontinent Communications	\$ 3,890,234	3%	3	9,371	1%	Above Baseline - Low latency
10	Wilkes Telephone Membership Corporation	\$ 3,282,002	2%	2	13,886	2%	Gigabit - Low latency
Subtotal - top 10		\$115,251,046	78%		549,469	77%	
Total annual support awarded		\$148,119,490			709,884		

64. Of note in particular is that AMG and Wisper – both “wireless ISP’s” (WISPs) have performance commitments of “Above Baseline – Low Latency”, for 93% of locations and 99%, respectively.

65. “Above Baseline” service was defined as 100 Mbps down, 20 Mbps up with a monthly usage allowance of 2 terabytes (TB).<sup>25</sup> The service target thus consisted of both a speed objective, as well as a usage objective.

#### 3.1.1 No Publicly Available Information to Validate Speed Commitments

66. In terms of service speed, there is no publicly available information to validate speed commitments made by bidders in the auction. AMG, for example, as part of

<sup>25</sup> Public Notice: CONNECT AMERICA FUND PHASE II AUCTION SCHEDULED FOR JULY 24, 2018 NOTICE AND FILING REQUIREMENTS AND OTHER PROCEDURES FOR AUCTION 903, FCC 18-6, February 1, 2018, paragraph 12



an FCC experimental license, was testing equipment supporting “top download speed” of only 25 Mbps and upload of 5 Mbps in the lead up to the CAF-II auction.<sup>26</sup>

67. In addition, the equipment being tested by AMG was to run on the CBRS frequencies – 3550-3650 MHz. These frequencies have recently become available for “general access” (unlicensed applications), but “priority access licenses” (PALs) will only be auctioned in FCC Auction 105, scheduled for June 2020.

68. Several CAF-II auction bidders indicated that CBRS spectrum is part of the frequencies they may use to fulfill their commitments. CBRS was indeed part of the list of spectrum bands approved by the FCC for the CAF-II auction.

69. However, there is no mention on the Short Form application if a company intends to use GAA or PAL spectrum; nor is there any analysis required to permit an assessment of its ability to meet the commitments made during the auction, both in terms of speed as well as usage requirements (see later in this Report for a brief discussion of the usage commitment).

### 3.2 *Winning WISPs Will Likely Require Licensed Spectrum That They Do Not Yet Have*

70. CBRS – AMG, in particular, noted that it will “certainly seek to acquire access to 3550-3650 MHz spectrum to implement its CAF-II plans.”<sup>27</sup> A number of spectrum-based bidders identified CBRS as a spectrum option along with unlicensed spectrum.

71. There is of course no assurance that AMG – or any other CAF-II winner – will win licenses in Auction 105, and even if it does, the auction will end approximately two years after the CAF-II auction. Even if licenses are awarded within six to nine months of auction close, that provides very little time to rely on the spectrum before the first enforceable deadline (starting in 2022). Thus, relying on these licenses to meet CAF-II commitments is risky.

72. AMG and others among the top 10 bidders noted above identified other spectrum options in addition to CBRS in their applications to participate in the CAF-II auction.<sup>28</sup>

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<sup>26</sup> AMG Technology Investment Group, LLC dba Nextlink, Response to Commission Questions, FCC Experimental License file 0891-EX-CN-2017, December 2017

<sup>27</sup> *ibid*, page 2

<sup>28</sup> The FCC provided an indicative list of spectrum options for bidders. See FCC 18-6, *op.cit.*, Appendix B.



73. There is considerable uncertainty around a number of these options. For example:

74. 24 GHz – AMG, Midcontinent and Wisper identified the 24 GHz band as a technology option for CAF-II. However, none of these participated in FCC Auction 102, held from March to May 2019, which awarded 24 GHz licenses across the US.<sup>29</sup>

75. Some operators may have point-to-point licenses for 24 GHz, but the equipment for these is not “last mile” but designed for backhaul applications. An example of an unlicensed 24 GHz antenna for microwave backhaul is shown below.<sup>30</sup> The figure shows an example of a 24 GHz point-to-point antenna used for microwave backhaul. It comes with an “outdoor unit” as well as the two antennas shown below for a total weight of 26 lbs. When equipped with a one-foot antenna, the price is \$12,500.<sup>31</sup>

**Figure 1 – Example of 24 GHz Unlicensed Microwave Backhaul Antenna**



76. So, while operators may want to use unlicensed 24 GHz (or other) frequencies for backhaul, the equipment is not “last mile” for consumer applications, either in design or in terms of cost.

77. EBS – some CAF-II applicants identified “educational broadband service” (EBS) in the 2500 MHz range as a technology option. There are 1,300 incumbent EBS

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<sup>29</sup> Per review of FCC Form 175 filings for Auction 102.

<sup>30</sup> Proxim Wireless Tsunami GX-824

<sup>31</sup> <http://www.wavonline.com/s.nl/it.A/id.53763/f>; also <http://bearcom.com/wp-content/uploads/Winncom%20MSRP%20Price%20List%20-%208-25-2017.pdf>



- licensees.<sup>32</sup> It is possible CAF-II winners could obtain access to this spectrum via leasing arrangements. Wisper has leased EBS spectrum in 5 states. Many EBS licenses are already leased to other parties, and none of the top 10 CAF-II winners are currently licensees or lessees of this spectrum, other than Wisper.<sup>33</sup> It should also be noted that EBS licenses are for a 35 mile radius “geographic service area” generally around a school or college location, representing a small portion of a state’s geography and not located to align necessarily with CAF-eligible locations.
78. The FCC plans to conduct an overlay auction of EBS licenses in late 2020.<sup>34</sup> As with CBRS, there is no guarantee that CAF-II winners will win licenses at the auction.
79. TV White Spaces (TVWS) – TVWS technology is planned for deployment by AMG-subsidary Nextlink and others.<sup>35</sup> It is not clear that this technology would support the higher speeds for the RDOF auction. One example of equipment addressing TVWS delivers a “sustained rate of 10/1 Mbps for up to 30 subscribers,” for distances of 5-10 km non-line-of-sight.<sup>36</sup>
80. 70-80-90 GHz – Licenses for these frequencies are available from the FCC on a nationwide non-exclusive basis.<sup>37</sup> Both AMG and Wisper have licenses for these frequencies.<sup>38</sup>
81. While the 70-80-90 GHz frequencies may hold promise, the existing equipment is generally designed for building-to-building connections and backhaul, not for end customer access.<sup>39</sup>
82. This is not to say that wireless technologies cannot be used to meet CAF-II (and RDOF) performance objectives. They surely can.
83. Per AMG/Nextlink (**emphasis** added): “Nextlink intends to utilize **licensed** microwave links to meet the required service commitments. License applications

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<sup>32</sup> In the Matter of Transforming the 2.5 GHz Band, Report and Order, FCC 19-62, July 11, 2019, paragraph 4. Note: the overlay auction would protect incumbent EBS systems.

<sup>33</sup> Per review of FCC ULS information for Radio service code ED.

<sup>34</sup> Public Notice: ESTIMATE OF SYSTEMS OF COMPETITIVE BIDDING FOR FISCAL YEAR 2020, FCC 19-977, September 30, 2019

<sup>35</sup> Nextlink Internet and Microsoft closing broadband gap in central US, Press Release, September 18, 2019.

<sup>36</sup> <http://www.carlsonwireless.com/wp-content/uploads/2018/04/RuralConnect-Gen3-US-03-28a-18-Print-Book-r.pdf>

<sup>37</sup> <https://www.fcc.gov/wireless/bureau-divisions/broadband-division/microwave-services/millimeter-wave-708090-ghz-service>

<sup>38</sup> Per FCC Universal Licensing System, radio service code MM.

<sup>39</sup> For example: <https://www.lightpointe.com/70---80-ghz.html> , <https://www.ericsson.com/en/ericsson-technology-review/archive/2017/microwave-backhaul-evolution-reaching-beyond-100ghz>



for these microwave links have not been submitted to the FCC at this time. If NextLink is awarded CAF Phase II support the license applications will be filed in a time frame consistent with the implementation buildout schedule that the applicant submitted with the long form application.”<sup>40</sup>

84. But licenses for “last mile” spectrum – CBRS, EBS, etc. – are awarded by auction. AMG or others may “intend” to use licensed spectrum, but they cannot be sure of winning licenses in a competitive auction process.

*Access to Additional CAF II Auction Information Would Enable Meaningful Comment on Necessary RDOF Design Rules and Protections*

**3.3**

85. Whether the CAF-II auction winners are living up to the commitments is not checked before three years. Essentially “the FCC will not know whether the Phase II auction can be judged a success in terms of delivering the promised service to rural households for many years.”<sup>41</sup>
86. In terms of confirming bidder eligibility to receive subsidy, Long Form applications (that are filed post-auction) require detailed descriptions of deployments planned, technology to be used, project plans, and network diagrams certified by a professional engineer.<sup>42</sup> The FCC also requires certification of available funds “for all project costs that exceed the amount of Phase II support to be received for the first two years of its support term.”<sup>43</sup>
87. CAF-II “support recipients are required to meet each interim service milestone (e.g., 40 percent of locations by the end of the third year of support, 60 percent of locations by the end of the fourth year, and 80 percent of locations by the end of the fifth year), but for the final service milestone, support recipients have the flexibility to serve a minimum of 95 percent of locations, rather than 100 percent of locations.”<sup>44</sup>
88. CAF-II winners were required to maintain a Letter of Credit “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” and “if a CAF Phase II auction support recipient does not meet its service milestones or take advantage

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<sup>40</sup> Spectrum worksheet, Attachment to FCC Form 183: Auction 903 Short Form – AMG Technology Investment Group LLC., May 18, 2018

<sup>41</sup> NRRI Insights, National Regulatory Research Institute, April 2019, page 10

<sup>42</sup> Final Procedures for the CAF Phase II Auction, FCC 18-6, February 1, 2018, paragraphs 298-305

<sup>43</sup> *ibid*, paragraph 306

<sup>44</sup> *ibid*, cited in footnote 26



of the opportunities to cure or pay back the relevant support, the Commission will draw on the letter of credit.”<sup>45</sup>

89. The information submitted on the Long Form applications is treated as confidential and withheld from public inspection.<sup>46</sup>
90. There is thus no publicly available information to validate if plans and commitments of the winning bidders are realistic. The Long Form applications at least should be subject to independent expert review.
91. The publicly available Short Form applications provide limited information about the ability of applicants to meet CAF-II Auction requirements. However, they raise significant questions regarding whether and how CAF-II Auction applicants will meet the commitments.
92. Because CAF-II Auction winners do not have a deployment deadline for at least two years still, the ability to review the Long Form applications is especially important to understand the safeguards in place and the likelihood for success. While even the first enforceable deadline is likely too early to know how winners are performing, the Commission would know whether winners could certify to deployments, and there would potentially be initial feedback on customer satisfaction with service.
93. The FCC provides guidance on how a Long Form applicant can successfully meet the requirement to provide a description of its technology and system design. The FCC sets out the types of information expected to demonstrate that applicants have the technical qualifications to meet Phase II obligations.<sup>47</sup>
94. In this context, several network details are very important to the quality of service the Commission and public can expect. For instance, items that require careful technical outside review include, among others:<sup>48</sup>
  - a. “Explain, with technical detail, how the proposed spectrum can meet or exceed the relevant performance requirements at peak usage periods.”
  - b. “Provide the calculations used, for each performance tier and frequency band, to design the last mile link budgets in both the upload and download directions at the cell edge, using the technical specifications of the expected base station and customer premise equipment.”

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<sup>45</sup> FCC 19-77, paragraph 84

<sup>46</sup> *ibid.*

<sup>47</sup> FCC 18-6, *op.cit.*, paragraph 301

<sup>48</sup> FCC 18-6, *op.cit.*, paragraphs 302-304.





- c. “Identify all wireline and wireless segments of the proposed networks.”
  - d. “Indicate how many locations will be offered service from each access node or from each gateway, and which performance tier or tiers will be supported at each access node.”
  - e. “Provide technical information about the methods, ‘rules of thumb,’ and engineering assumptions used to size the capacity of the network’s nodes (or gateways) and links. The information provided should demonstrate how the required performance for the relevant performance tier will be achieved during periods of peak usage, assuming a 70 percent subscription rate by the final service milestone.”
  - f. “Describe the underlying propagation model used to prepare the coverage maps and how the model incorporates the operating spectrum, antenna heights, distances, digital elevation, and clutter resolutions.”
95. Each of these items are critical to evaluating the networks that the FCC is funding, and each of these items involve significant expert judgment calls that invite potentially divergent views.
96. Without access to additional information, there is not sufficient public information to suggest whether the CAF II Auction rules sufficiently protected public funding, ensured successful deployment, and should be replicated in whole.

### 3.3.1 On the question of usage commitments for CAF-II and RDOF

97. Short Form applications focus on information on access technology, which can be used to some extent to assess ability to provide service speed, but this does not address usage – bidders that have no network behind them are effectively being evaluated on same terms as large owners of infrastructure.
98. The CAF-II and RDOF requirement for above baseline service commitment is to provide 2TB of capacity per connection per month. First, we note that 2 TB of usage is 7.4x the current average broadband usage by US broadband subscribers, reportedly 271 GB per month in mid-2019.<sup>49</sup>
99. For Comcast, the largest US cable company, median usage now exceeds 200 GB per month, having grown by 34% in 2018.<sup>50</sup> Only 4% of US broadband users use 1 TB of data.<sup>51</sup> So 2 TB usage, as required for “above baseline” service is far above current average usage in the industry.

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<sup>49</sup> <http://openvault.com/broadband-usage-patterns-provide-clues-to-imminent-cord-cutting/>

<sup>50</sup> <https://www.multichannel.com/news/comcast-broadband-usage-up-34-percent>

<sup>51</sup> <https://www.multichannel.com/news/1tb-users-doubled-in-2018>



100. Increasing capacity to guarantee usage levels of the order of 2 TB per month per connection is a costly proposition, especially for wireless based solutions. This level of usage requires extensive spectrum bandwidth. In addition, backhaul or middle mile facilities need to be significantly increased to fulfill such a commitment, especially if a service provider needs to maintain an adequate oversubscription ratio between middle mile/backhaul capacity and retail usage to provide a reasonable quality of service. *We daresay that we would be very surprised if all service providers could commit to 2 TB of monthly bandwidth to all their subscribers obtaining 100 Mbps download speed in 2019.*
101. If we project the evolution of monthly usage per connection over the next 10 years, growing at 35% per year, 2 TB of usage will be attained seven years from now.
102. The discussion above leads to two suggested changes to the rules for RDOF.
103. The first change would be to request Short Form applicants to provide details on their middle mile/backhaul network to guarantee that the capacity commitment will be met, with a maximum pre-set oversubscription ratio to ensure a reasonable quality of service to all potential customers.
104. The second change would be to modify the usage commitment, at least for the above baseline service level commitment (100 Mbps down, 20 Mbps up). The FCC could set an evolving usage commitment to be met over the next 10 years based on the average usage reported every year, increased by 35% for the subsequent year. For example, in year 1, it could be 271 GB increased by 35%, reflecting the increase from 2019 to 2020.



## 4. About LYA

LYA is an independent expert consulting firm founded in 1993 to provide management consulting services to support the telecommunications industry. LYA brings Experience, Expertise and Innovation in Broadband, Spectrum and Auctions.<sup>52</sup>

Consulting engagements cover:

- Spectrum auction bidder support and planning, including in bid room;
- Market design for a 2-Sided Auction Format Proposal;
- 5G Spectrum strategy and assessment of spectrum needs;
- Private auctions of spectrum licenses and other assets;
- Regulatory and policy support, expert testimony and reports;
- Investment and financial analysis, due diligence, business plans;
- Market research – quantitative including published research reports.

LYA has in-house Auction Platforms supporting all auction formats used in the US, Canada and Europe for spectrum auctions, as well as for sequential auctions (Assignment Phase) in addition to having developed an innovative format for a 2-Sided Auction, to effectively conduct a negotiation between sellers and buyers.

LYA has been active in wireless/mobile, spectrum issues and in spectrum auctions since 1995 and has provided support to bidders since 1999.

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<sup>52</sup> LYA is a registered trademark of Lemay-Yates Associates Inc.