

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Protecting Against National Security Threats	)	WC Docket No. 18-89
to the Communications Supply Chain Through	)	
FCC Programs	)	

**COMMENTS ON PRELIMINARY COST CATALOG AND REPLACEMENT LIST**

The Rural Wireless Broadband Coalition (“Coalition”),<sup>1</sup> by counsel, hereby submits these comments in response to the Public Notice,<sup>2</sup> by which the Wireline Competition Bureau (“Bureau”) invited comment on the Supply Chain Reimbursement Program Study (“Report”),<sup>3</sup> the preliminary Catalog of Eligible Expenses and Estimated Costs (“Catalog”),<sup>4</sup> and the preliminary List of Categories of Suggested Replacement Equipment and Services (“Replacement List”)<sup>5</sup> submitted in the above-captioned proceeding by Widelity, Inc. (“Widelity”). The Coalition urges the Bureau to recognize that fiber backhaul facilities are reasonably comparable to the covered microwave backhaul facilities in use by rural wireless carriers and to amend the Catalog to include cost estimates for the replacement of microwave

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<sup>1</sup> Coalition members include Union Wireless, Viero Wireless, Bristol Bay Cellular, Pine Cellular Phones, Inc., United Wireless Communications, and AST Telecom.

<sup>2</sup> See *Wireline Competition Bureau Seeks Comment on a Report and Preliminary Cost Catalog and Replacement List to Help Providers Participate in the Supply Chain Reimbursement Program*, DA 21-355 (Mar. 25, 2021).

<sup>3</sup> See *id.* at Attach. 1.

<sup>4</sup> See *id.* at Attach. 2.

<sup>5</sup> See *id.* at Attach. 3.

backhaul connections with fiber backhaul facilities that would aid in the transition to 5G technologies.

## I. Introduction

In the *2019 Supply Chain Further Notice*, the Commission recognized that “requiring the replacement of aging equipment that endangers our national security [could] aid our efforts to close the digital divide and encourage the migration to 5G technology in rural America.”<sup>6</sup> When it passed the Secure and Trusted Communications Networks Act of 2019 (“Secure Networks Act”), Congress saw that the Secure and Trusted Communications Networks Reimbursement Program (“Reimbursement Program”) could aid in the transition to 5G technology. The House Report of the Secure Networks Act expressed the congressional expectation that “there be a transition from 3G to 4G or even 5G-ready equipment in instances where equipment being replace was initially deployed several years ago.”<sup>7</sup> Accordingly, in the *2020 Supply Chain Second Order*, the Commission acted “consistent with the intent of Congress” by encouraging “eligible providers replacing third generation and older equipment to obtain reimbursement for the cost of 4G LTE replacement equipment that is 5G-ready.”<sup>8</sup>

The Commission adopted a “reasonableness standard” for the Bureau to employ in making reimbursement determinations under the Reimbursement Program.<sup>9</sup> Under that

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<sup>6</sup> *Protecting Against National Security Threats to the Communications Supply Chain Through FCC Programs*, WC Docket No. 18-89, Report and Order, Further Notice of Proposed Rulemaking, and Order, 34 FCC Rcd 11423, 11475(¶ 138) (2019) (“*2019 Supply Chain Order and Further Notice*”).

<sup>7</sup> H.R. Rep. No. 116-352, at 8 (2019).

<sup>8</sup> *Protecting Against National Security Threats to the Communications Supply Chain Through FCC Programs*, WC Docket No. 18-89, Second Report and Order, FCC 20-176, at 53-54 (¶ 123) (Dec. 11, 2020) (“*2020 Supply Chain Second Order*”).

<sup>9</sup> *Id.* at 52 (¶ 118).

standard, “costs reasonably incurred for the timely removal, replacement, and disposal of covered equipment and services obtained prior to the statutory cutoff dates” will be eligible for reimbursement.<sup>10</sup> The Commission interpreted “costs reasonably incurred” to mean “costs that are reasonable to provide facilities comparable to those . . . reasonably replaced.”<sup>11</sup> It expressly permitted “Reimbursement Program participants to obtain reimbursement for reasonable costs incurred for replacing older mobile wireless networks with fourth generation Long Term Evolution (4G LTE) equipment or service that are 5G ready.”<sup>12</sup>

The Commission did not specify whether for the purposes the Reimbursement Program fiber backhaul facilities can constitute 4G LTE replacement equipment that is 5G-ready. But it seems clear that replacing microwave with fiber facilities is the type of permissible upgrade that Congress and the Commission envisioned for the Reimbursement Program, as fiber backhaul facilities will provide the transport bandwidth that 5G is expected to require. According to a white paper by the Fiber Broadband Association, “fiber is a necessary element of 5G.”<sup>13</sup>

The Coalition will show that ultra-high-speed and low-latency fiber backhaul facilities are comparable to microwave backhaul facilities and should be treated as 4G LTE replacement equipment that is 5G-ready. Eligible providers should obtain reimbursement for the cost of

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<sup>10</sup> *Id.* at 53 (¶ 121). See 47 C.F.R. § 1.50004(a).

<sup>11</sup> 2020 *Supply Chain Second Order* at 53 (¶ 121) (quoting *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Report and Order, 29 FCC Rcd. 6567, 6821 (¶ 623) (2014) (“*Incentive Auction Order*”).

<sup>12</sup> *Id.* (¶ 122).

<sup>13</sup> *The Road to 5G Is Paved with Fiber* at 10, <https://www.fiberbroadband.org/page/paving-the-road-to-5g-with-fiber>.

replacing distribution or core layer microwave equipment with comparable fiber backhaul facilities. Accordingly, the Catalog should be expanded to specifically include cost estimates for deploying fiber backhaul equipment.

Closing the Digital Divide continues to be the Commission's top priority and 5G deployment is key to achieving that goal.<sup>14</sup> Providing Reimbursement Program support for fiber network infrastructure deployment will accelerate the migration to 5G technology in rural America.

## **II. Fiber Backhaul Facilities Are Comparable to Microwave Backhaul Facilities Under the *Emerging Technologies* Framework**

In the *2020 Supply Chain Second Order*, the Commission appeared to adopt a “comparability standard” under which eligible providers will be expected to “obtain the lowest-cost equipment that most closely replaces their existing equipment.”<sup>15</sup> That standard is not optimal in determining whether replacement facilities and existing facilities can be considered comparable. To make that determination, the Bureau should employ the “comparable facilities standard” that the Commission used to relocate 2 GHz fixed microwave incumbents under the “*Emerging Technologies*” framework.<sup>16</sup> The *Emerging Technologies* comparability standard is perfectly tailored to judge whether fiber and microwave backhaul facilities are comparable for

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<sup>14</sup> See *Rural Digital Opportunity Fund*, WC Docket No. 19-126, Report and Order, 35 FCC Rcd. 686, 687 (¶ 1) (2020).

<sup>15</sup> *2020 Supply Chain Second Order* at 54 (¶ 125) (quoting *Incentive Auction Order*, 29 FCC Rcd. at 6822 (¶ 624)).

<sup>16</sup> *Id.* at 54 (¶ 124). See *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, FCC 92-437, ET Docket No. 92-9, First Report and Order and Third Notice of Proposed Rulemaking, 7 FCC Rcd. 6886 (1992) (“*Emerging Technologies Order*”), clarified by Third Report and Order, FCC 93-351, 8 FCC Rcd. 6589 (1993) (“*Emerging Technologies Third Order*”), modified on reconsideration, Memorandum Report and Order, 9 FCC Rcd. 1843 (1994).

the purposes of the Reimbursement Program.<sup>17</sup> In fact, in *Emerging Technologies Order*, the Commission determined that fiber optics were a viable alternative to 2 GHz fixed microwave systems and encouraged licensees to consider fiber as a replacement for microwave where practicable.<sup>18</sup>

In the *Emerging Technologies* proceeding, the Commission adopted rules requiring PCS licensees to provide microwave incumbents with comparable facilities as a condition for involuntary relocation.<sup>19</sup> The Commission adopted a comparability standard under which facilities had to “be equal to or superior to existing facilities to be considered comparable.”<sup>20</sup> It subsequently held that “communications throughput, system reliability, and operating costs [would] be the three factors used to determine when a facility is comparable.”<sup>21</sup> Fiber backhaul is equal to or superior to microwave backhaul in terms of throughput, reliability, and operating costs.

With respect to throughput – the amount of information transferred within the system in a given amount of time measured in bits per second (“bps”)<sup>22</sup> – microwave backhaul facilities have the capacity to transport up to several Gbps, whereas fiber’s capacity has been described

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<sup>17</sup> The Commission referred to the *Emerging Technologies* comparability standard with favor in its *2020 Supply Chain Second Order*, but it did not expressly adopt the standard. See *2020 Supply Chain Second Order* at 54 (¶ 124) & n.376.

<sup>18</sup> See *Emerging Technologies Order*, 7 FCC Rcd. at 6889 (¶ 19).

<sup>19</sup> See *Emerging Technologies Third Order*, 8 FCC Rcd. at 6591 (¶ 5).

<sup>20</sup> *Amendment to the Commission’s Rules Regarding a Plan for Sharing the Costs of Microwave Relocation*, WT Docket No. 95-157, First Report and Order and Further Notice of Proposed Rule Making, 11 FCC Rcd. 8825, 8838 (¶ 24) (1996) (“*Microwave Cost Sharing*”).

<sup>21</sup> *Id.* at 8840 (¶ 27). See *2020 Supply Chain Second Order* at 54 n.376.

<sup>22</sup> See *Microwave Cost Sharing*, 11 FCC Rcd. at 8840 (¶ 28).

as “unlimited.”<sup>23</sup> Fiber is generally regarded as more reliable than microwave.<sup>24</sup> Finally, one study suggests that it costs less to operate fiber-based backhauling than microwave backhauling.<sup>25</sup> Accordingly, fiber backhaul facilities should be considered comparable to microwave backhaul facilities under the *Emerging Technologies* compatibility standard.

### **III. Fiber Backhaul Facilities Should Be Treated as 4G LTE Replacement Equipment that Is 5G-Ready**

The Commission recognized that “from a policy perspective, investing money on outdated and soon-to-be decommissioned equipment and service is of little benefit and an inefficient and wasteful use of Federal support.”<sup>26</sup> Therefore, it allowed “providers replacing older technology to obtain reimbursement for the cost of new replacement equipment that is 4G LTE compatible and is capable of subsequently being upgraded to provide 5G service.”<sup>27</sup> The Commission effectively found that 4G LTE compatible and 5G-ready equipment is “reasonably needed to replace existing equipment.”<sup>28</sup> 5G “technology is meant to deliver higher multi-Gbps peak data speeds, ultra-low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users.”<sup>29</sup> Fiber

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<sup>23</sup> Tzvika Naveh, *Mobile Backhaul: Fiber vs. Microwave* at 4 (Oct. 2009), [https://www.winncom.com/images/stories/Ceragon\\_Mobile\\_Backhaul\\_Fiber\\_Microwave\\_WP.pdf](https://www.winncom.com/images/stories/Ceragon_Mobile_Backhaul_Fiber_Microwave_WP.pdf).

<sup>24</sup> See Deepak Sharma, *Fiber V/S Wireless Backhaul* at 5, <https://www.stl.tech/brain-share/white-papers/fiber-v-s-wireless-backhaul.html>.

<sup>25</sup> See Mozghan Mahloo et al., *Cost Modeling of Backhaul for Mobile Networks* at Fig. 3 (June 2014), [https://www.researchgate.net/publication/260750446\\_Cost\\_Modeling\\_of\\_Backhaul\\_for\\_Mobile\\_Networks](https://www.researchgate.net/publication/260750446_Cost_Modeling_of_Backhaul_for_Mobile_Networks).

<sup>26</sup> *2020 Supply Chain Second Order* at 55 (¶ 126).

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> Report at 48 (§ 25.24).

can provide the ultra-high-speed and low-latency transport necessary to handle 4G LTE networks, together with the projected demands of 5G networks.

Coalition members report that many microwave hops can be replaced with fiber at 1.5X the cost of microwave, or less. In such cases, the cost of upgrading to fiber now presents significant cost efficiencies that serve rural citizens because fiber opens the door to immediate 5G deployment. If the Commission requires a “like-for-like” microwave replacement, in many cases it will lead to two inefficient replacements, as microwave replacement will be funded now, only to be replaced again with fiber upgrade within the next few years to permit 5G service, well before the replacement microwave equipment reaches the end of its useful life.

Replacing microwave equipment may also result in inefficient federal subsidies when affected carriers bid in the upcoming 5G Fund auction. Carriers with fiber will bid lower at the auction, stretching program dollars farther, while those with microwave will bid higher, to include the cost of replacing microwave with fiber. By permitting fiber replacement now, the Commission avoids a potential “double subsidy” that would occur when carriers with new microwave equipment bid to upgrade to fiber in the 5G Fund auction.

By promoting fiber replacement now, the Commission will significantly increase the quality of rural networks that can be leveraged to assist health care facilities, schools, libraries, and local businesses, all of which are likely to seek access to nearby fiber. At the same time, replacing microwave with fiber will not raise overbuilding concerns for small carriers, who own their microwave facilities and intend to own their fiber when it is time to upgrade. Accordingly, the Coalition urges the Commission to consider allowing microwave facilities to be upgraded to fiber, provided that the costs are within the overall budget set by Congress.

The Commission should permit affected carriers to expend some reasonable amount over and above the cost of a microwave replacement to specify fiber, provided the overall budget set by Congress is not exceeded. If the budget is reached, the Commission can apply a *pro rata* reduction to all carriers as needed, with the bottom level being the cost of microwave replacement equipment. The Coalition suggests 1.5X as a starting point for reimbursing microwave with fiber, which is not inconsistent with the principle that program participants are permitted to obtain “reimbursement for reasonable costs incurred for replacing older mobile wireless networks with fourth generation Long Term Evolution (4G LTE) equipment or service that are 5G ready.”<sup>30</sup> In cases where the cost of installing fiber is above 1.5X, the carrier would be required to choose to either fund the investment above 1.5X, or install microwave equipment at its lower cost.

If the Commission rejects the idea of reimbursing more than the cost of microwave equipment to install fiber, it should make clear that eligible carriers may use some or all of their reimbursement funds for microwave equipment to install fiber. This will cost the government nothing additional and will promote fiber deployment, albeit not to the extent of the Coalition’s suggested solution above.

In sum, providers should obtain reimbursement for the cost of replacing covered microwave backhaul facilities with fiber facilities to the greatest extent possible, to accelerate investment in modern 5G services into rural areas.

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<sup>30</sup> 2020 *Supply Chain Second Order* at 53 (¶ 122).

**IV. The Catalog Should Include Cost Estimates for the Replacement of Microwave Backhaul Facilities with Fiber Backhaul Facilities**

On information and belief, Widelity did not contemplate that fiber backhaul facilities would be a reasonable replacement for covered comparable microwave equipment. Consequently, the Catalog does not include cost estimates for the deployment of core or distribution layer fiber backhaul equipment. It should be expanded to specify those cost estimates.

**V. Conclusion**

The Coalition appreciates the opportunity to present these comments and looks forward to working with the Commission to implement the reimbursement program.

Respectfully submitted,

RURAL WIRELESS BROADBAND COALITION

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