



**Testimony of Chris Lewis  
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**Before the  
Senate Committee on Commerce, Science and Transportation  
Subcommittee on Communications, Media and Broadband**

**Strengthening our National Spectrum Strategy**

**August 2, 2022**

Chairman Lujan, Ranking Member Thune: Thank you for inviting me to testify on this important topic. My name is Chris Lewis and I am the President and CEO of Public Knowledge, an organization that is dedicated to promoting freedom of expression, an open internet, and access to affordable communications tools and creative works.<sup>1</sup> Since Congress first authorized auctions almost 30 years ago, America's leadership in spectrum policy innovations has helped drive the mobile sector worldwide. But, as they say in the financial sector, past performance is not necessarily an indicator of future results. So, how do we strengthen our national spectrum policy? We need to focus on continuing to innovate spectrum access models that serve the public's interest by:

1. Grounding our spectrum policy in the public interest objectives that Congress outlined for the FCC, including ensuring competition, innovation, opportunities for women and minority-owned businesses, and efficient use;
2. Allowing innovators to thrive by adopting a balanced spectrum approach that makes spectrum available for more than just incumbent providers—including unlicensed, licensed, sharing, and other diverse access models;
3. Extending the FCC's auction authority for a meaningful timeframe, well beyond 18 months. Successful spectrum policy needs long-term planning—not a temporary approach that prevents spectrum leadership from making spectrum decisions that serve the public interest; and
4. Investing auction revenues, which are ultimately repaid through consumer fees to mobile providers, in the country's public interest objectives to promote the health of the sector and help connect *all* Americans to critical telecommunications services.

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<sup>1</sup> I would like to thank my colleagues at Public Knowledge for their excellent work in preparing me to testify today, especially Greg Guice, Harold Feld, Kathleen Burke, Shiva Stella, and Jenna Leventoff.

## Focusing on Public Interest Objectives

As this Committee reviews how best to strengthen our national spectrum policy, it is critical to start with the principles of our auction policy—promoting the public interest objectives Congress set out for the FCC. In Section 309(j)(3), Congress directed the FCC to design spectrum auctions “with safeguards to protect the public interest” and fulfill the goals of its foundational purpose to make robust communications services available to *all* Americans. The FCC’s public interest objectives, enumerated by Congress, include promoting competition and economic opportunity; ensuring all Americans can access new and innovative technologies; preventing excessive consolidation in the telecom sector; providing opportunities for small businesses, rural telephone companies, and minority and women-owned businesses to compete; and ensuring that our limited spectrum airwaves efficiently and intensively serve the public’s communication needs.

The FCC can achieve these objectives through auction design and specific policies intended to advance greater opportunities for diverse licensees and spectrum users. In the past, the FCC has used tools such as spectrum caps, smaller licensing areas, and bidding credits to promote competition and economic opportunities for small businesses, rural communities, and Tribal Nations. Unfortunately, as the wireless market has matured, these tools have become increasingly less effective. We need to review these and newer ways to achieve these important goals.

For example, just last month, Chairwoman Rosenworcel modified the FCC’s spectrum licensing and leasing rules to increase spectrum access for small carriers and Tribal Nations.<sup>2</sup> By allowing licensees to partition portions of their licensed areas to certain Tribal or rural entities, the Enhanced Competition and Incentive Program (ECIP) hopes to promote greater competition and increase access to advanced wireless services in rural and Tribal areas. Only time will tell how effective this is, but the aims of the ECIP are squarely on point. We have known for some time that Tribal connectivity lags well behind the rest of the country. Often wireless providers can meet their buildout requirements without providing service to the Tribal lands in their license areas. The ECIP program provides a mechanism to narrow the tribal connectivity gap by allowing Tribal Nations to negotiate for access to the spectrum covering their lands. The ECIP is a small step in the right direction.

I will suggest two proposals that could directly improve spectrum access on rural Tribal lands that do not require any changes to the underlying authority of any federal agency—simply a command from Congress that the FCC and NTIA *use* this authority. The first proposal builds

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<sup>2</sup> Partitioning, Disaggregation, and Leasing of Spectrum, Report and Order and Second Further Notice of Proposed Rulemaking, WT Docket No. 19-38, FCC 22-53 (July 18, 2022). Consolidated Appropriations Act, Pub. L. No. 115-141, Division P (RAY BAUM’S Act of 2018), Title VI (MOBILE NOW Act), § 601 et seq. (2018) (codified at 47 U.S.C. §§ 1501-1512).

on the “Tribal window” created by the FCC prior to the auction of 2.5 GHz licenses. Under this program, Tribes on Federally recognized rural tribal lands were permitted to apply for licenses covering their Tribal lands. To date, the FCC has distributed 335 licenses covering a combined 350 different Tribes in over 30 states.<sup>3</sup> Congress should require that prior to any future commercial auction of spectrum, the FCC create a similar window for Tribes to apply.

My second suggestion builds on the highly successful CBRS framework. The 3.5 GHz band is primarily allocated for federal use. Working together, the FCC and NTIA created a system that allows users “general authorized access” to this federal spectrum while protecting the primacy of federal users. Congress should order the FCC and NTIA to explore extending CBRS-style spectrum sharing for Native Americans on Tribal lands. This would recognize the unique Trust Relationship between federal agencies and Tribal governments, restore sovereignty to Tribes over the “public airwaves” under Tribal jurisdiction, and promote digital inclusion and economic opportunities for Native Americans.

In striving to achieve greater participation throughout the wireless ecosystem by minority and women-owned businesses, the Commission should be not only looking at how auction design could be used to encourage greater participation, but as the as the National Urban League recently testified, “spectrum auction winners should be encouraged or incentivized to hire from underrepresented communities beyond entry level positions, establish diversity hiring goals, and increase supplier diversity.”<sup>4</sup> Finding potential solutions to this challenge will hopefully be an integral part of the FCC’s Communications Equity and Diversity Council that Chairwoman Rosenworcel recently re-chartered.<sup>5</sup>

Achieving the goal Congress set for the FCC of connecting *all* Americans, requires spectrum policies that primarily focus on achieving public interest objectives and promote opportunities for Tribal Nations, minority and women owned businesses, and rural communities. We need Congress, the FCC and NTIA to think creatively about how best to advance these objectives.

## **We Need to Pursue A Balanced Spectrum Policy Approach**

We are in the midst of a connectivity revolution—the number of connected devices per home rose from 11 in 2019 *to 25* in 2021—a growth of over 100% in three years.<sup>6</sup> Televisions,

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<sup>3</sup> Public Notice, “Wireless Telecommunications Bureau Waives 2.5 GHz Rural Tribal Window Specific Interim and Final Performance Deadlines,” WTB DA 22-730 (Rel. July 8, 2022). Available at: <https://www.fcc.gov/document/25-ghz-rural-tribal-window-extension-performance-deadlines>

<sup>4</sup> *Strengthening our Communications Networks: Legislation to Connect and Protect*, Subcommittee on Communications and Technology, House Committee on Energy and Commerce (May 24, 2022).

<sup>5</sup> *Communications Equity and Diversity Council*.

<sup>6</sup> *Connectivity and Mobile Trends Survey: How the Pandemic Has Stress Tested the Crowded Digital Home*, Deloitte Center for Technology, Media & Telecommunications (2021).

watches, earbuds, speakers, doorbells—even washing machines and refrigerators— now rely on spectrum. Most of these “smart” devices rely on unlicensed spectrum. Even licensed services increasingly rely on unlicensed technology to offload data on their own congested airwaves.

Similarly, demand for internet access has continued to grow. In a report released by the FCC earlier this year, overall internet connections (fixed and mobile) increased by about 4.7% in 2019 to 449 million; mobile connectivity increased by 5.1% to 336 million.<sup>7</sup> On average, consumers spend five hours a day on their mobile devices.<sup>8</sup> As more and more devices can *only* connect to the internet through Wi-Fi, even wireline services now rely on unlicensed spectrum. Wi-Fi is so ubiquitous that for most Americans it is synonymous with at home broadband.

The demand on unlicensed and licensed spectrum underscores just how critical using a mix of access regimes is to meet the connectivity demands of our nation. Unfortunately, there are very few spectrum “greenfield” opportunities remaining. As more and more services are packed closer together, ensuring efficient spectrum use is more critical than ever. Every spectrum stakeholder must work together to enhance efficiency.

The Citizens Broadband Radio Service (CBRS) proceeding demonstrates how technology, engineering, and committed policymakers can successfully provide efficient access to spectrum for many different uses in a single spectrum. In the CBRS band, the FCC adopted a three-tiered access regime that protects ongoing incumbent uses (military radar) while creating opportunities for commercial licensed services (priority access licenses or PALs)<sup>9</sup> and allows General Authorized Access to frequencies when they are not in use).<sup>10</sup> These diverse uses are coordinated through an automated frequency coordinator known as the Spectrum Access System, which relies on sensing technology to detect when frequencies are in use in real-time.<sup>11</sup> This framework allows for a much higher utilization of the band than a single access regime could have. With over 150,000 network nodes deployed in CBRS and no reported cases of interference, this type of efficient sharing regime works.<sup>12</sup>

The CBRS takeaway is that so long as policymakers are open to the full suite of access regimes, we can find ways to efficiently use all large swaths of spectrum. Consider the lower 3 GHz band, a multi-tiered sharing regime can provide an alternative to the “auction it all-or-nothing” mentality. A balanced approach to the lower 3GHz band would recognize DOD’s spectrum needs. NTIA should work with the FCC to ensure those needs are accurately accounted

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<sup>7</sup> [Internet Access Service: Status as of June 30, 2019](#), Federal Communications Commission, Industry Analysis Div., Office of Economics and Analytics (Mar. 9, 2022).

<sup>8</sup> [45 Mobile Internet Stats You Need to Know](#) (2022).

<sup>9</sup> 47 C.F.R. § 96.25.

<sup>10</sup> 47 C.F.R. § 96.35.

<sup>11</sup> 47 C.F.R. § 96.53.

<sup>12</sup> [Taking Stock of Spectrum Sharing](#), John Leibovitz and Ruth Milkman (Sept. 2021). This paper provides a very thorough and thoughtful set of policy recommendations for considering more spectrum sharing opportunities.

for as proposals for repurposing federal spectrum move forward. Similar issues are likely to emerge in other bands, like the 7 GHz band, where incumbent government operations are spread throughout the band. An in-depth evaluation of 7 GHz and many other spectrum bands may reveal that the most efficient and intensive approach to opening up spectrum is through an unlicensed or a mixed approach, while preserving vital national security concerns. We should be willing to follow the facts and data where they lead.

Even beyond these constructs, there are still other hybrid approaches we have yet to explore and we need to empower policymakers to pursue them. For example, the FCC is currently reviewing the potential uses of the 12 GHz band. By authorizing an unlicensed underlay and expanding existing one-way data service to include mobile broadband services, the Commission can promote competition in the mobile space, provide greater access to spectrum for rural broadband, and create the broad channels of unlicensed spectrum necessary for Wi-Fi 7. Public Knowledge believes the Commission can authorize these additional uses without compromising existing satellite TV and broadband satellite uses, creating a win-win solution for everyone and ensuring the 12 GHz band is put to its most “efficient and intensive use.”<sup>13</sup>

### **Affirmative case for a longer extension—Spectrum is a Vital Public Asset, Not an ATM**

A balanced approach to spectrum policy that focuses on facts, not the politics of the day, is strengthened with a long-term vision. Pursuing long-term vision requires a long-term commitment to the FCC’s auction authority. Eighteen months is well short of the long-term commitment we need. Limiting the FCC’s auction authority to a timeframe that prevents it from conducting even a single auction is unbalanced, short-term thinking. It does not promote the best and most efficient use of this valuable public resource. It treats spectrum as nothing more than an ATM. Instead, auctions should serve as one of many tools that the FCC can use to secure a sustainable wireless future for America.

Effective interagency spectrum coordination is another critical aspect of ensuring that our airwaves serve the public. Public Knowledge is very encouraged by the strong leadership of both FCC Chairwoman Rosenworcel and NTIA Administrator Davidson in re-energizing the interagency coordination process. When agencies work together, it provides an opportunity for all stakeholders to participate in a data-driven process that helps the FCC navigate complex spectrum decisions and make evidence-driven decisions about our limited airwaves. We applaud the FCC and NTIA’s commitments to re-establish high-level meetings; update their Memorandum of Understanding, recommit to using an evidence-based spectrum compatibility analysis; and develop a strong, sustainable, national spectrum policy that meets the growing needs of both federal and non-federal users. Successfully creating a robust national spectrum

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<sup>13</sup> Expanding Flexible Use of the 12.2-12.7 GHz, WT Docket No. 20-443; *Expanding Flexible Use in Mid-Band Spectrum, 3.7-24 GHz*, GN Docket 17-183, 36 FCC Rcd. 606 (2021).

plan will require commitments from the whole government, including federal agencies and Congress. Congress can best demonstrate its commitment to a successful national spectrum plan through a longer reauthorization timeframe that does not focus primarily on mandating the next auction.

We need to recognize that this is the most opportune time to give the FCC, NTIA, and other federal agencies breathing room to develop a balanced spectrum policy that can provide for our future needs while encouraging innovation in new spectrum management techniques. For example, NTIA is pursuing incumbent informing capabilities, which can build upon and complement the environmental sensing capability system used in the CBRS band. Thanks to the bipartisan efforts of Congress, the work of the Trump Administration, and the continuing work of the Biden Administration, wireless providers now have access to sufficient spectrum to deploy state-of-the-art 5G systems. Even though the industry is already looking ahead to 6G and Wi-Fi 7, the standards for these systems are still years in the future. The truth is that we have no real spectrum crunch. Our 5G race with China now relies on carriers spending their money to deploy networks, not on new spectrum auctions. On both the industry side and the federal side, now is the time to step-back and carefully plan for the future.

A long-term commitment to the FCC's spectrum auction authority empowers government entities to develop a pipeline of spectrum that supports our nation's long-term communications goals. By signaling that the FCC will have future auctions, without mandating their timeline, Congress can "nudge" agencies and private stakeholders to develop thoughtfully considered plans for the future of spectrum commercialization (sharing, unlicensed, licensed). An 18-month timeframe is more appropriate for issuing a report than putting together an auction. Congress could direct the NTIA to issue a report that identifies potential bands and how they may be structured for commercial use, seeking to find the right balance between licensed and unlicensed. Since the spectrum map was last updated in 2016, such a report would be invaluable in helping the FCC and Congress make informed spectrum decisions that will help advance our nation's communication needs.

Having (and taking) the time to develop a national spectrum policy that properly engages all stakeholders is important. The licensing and spectrum distribution models we use today will lock us into specific uses and business models for the foreseeable future. The old cliché of "measure twice, cut once" applies in spectrum planning as well as home improvement. Now is the time to make sure federal agencies have the right tools and enough time to use those tools properly.

## Reinvesting Auction Proceeds in the Communications Sector Where the Private Sector Can't, or Won't

So far I have not focused on or said anything about maximizing the proceeds that we derive from auctions because, as I explained earlier, the FCC's core spectrum responsibility is to ensure that every allocation serves "the public interest, convenience, and necessity." As Congress looks at strengthening our national spectrum policy, a good way to meet this responsibility is to invest auction revenues in public interest objectives that private investment can't, or won't fund. One way to do that is for Congress to designate funding for important infrastructure needs. Members of Congress on both sides of the aisle have previously expressed support for using auction proceeds for public interest endeavors, such as completing NG-911, promoting rural and Tribal broadband access, meeting our nation's education and telehealth needs, and finishing the work on rip-and-replace.<sup>14</sup>

Chairman Lujan, building on the work of Chairwoman Cantwell and Senators Schatz and Markey, recently began working to provide long-term funding for digital equity and inclusion. We know that beyond access and affordability, barriers to adoption, including digital literacy, skills training, and device access, prevent a large number of families from connecting.<sup>15</sup> There are more than double the number of people that technically have access to broadband, but cannot actually make use of it, than there are people that simply lack access to a broadband connection.<sup>16</sup> Digital equity programs help knock down those barriers to adoption and help communities make greater use of their connectivity. Congress provided some funding in the Infrastructure Investment and Jobs Act for these efforts, but a more sustainable source of funding is needed to advance these important equity goals. Public Knowledge recently joined with other public interest organizations to launch the "Airwaves for Equity" initiative, which proposes setting aside spectrum auction revenues to fund digital inclusion efforts.<sup>17</sup>

Reinvesting auction proceeds in public interest telecommunication efforts is critical and has enjoyed bipartisan support. We urge members of this Committee to determine on a bipartisan basis how to best structure funding for these public interest needs.

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<sup>14</sup> [Investing in America's Digital Infrastructure Act](#), S. 2956 (116th Cong., 1st Sess.) (2019); [Spectrum Management and Allocation for Taxpayers Act](#), S. 3246 (116th Cong, 2d Sess.) (2020); [5G Spectrum Act](#), S. 2881 (116th Cong., 1st Sess.) (2019).

<sup>15</sup> Schwartzbach, Kevin, [Addressing Digital Literacy and Other Reasons for Non-Adoption of Broadband](#), SUNY Rockefeller Institute of Government ("Sixteen percent of working-age adults (16 to 65 years old) are not digitally literate... While only 11 percent of white adults are digitally illiterate, this rate is much higher among Black (22 percent) and Hispanic adults (35 percent). Moreover, a lower percentage of native-born adults (13 percent) are digitally illiterate compared to foreign-born adults (36 percent). Additionally, there are lower rates of digital illiteracy among younger adults (8 percent for those aged 16 to 24, for example) than older adults (28 percent for those aged 55 to 65, for example). Much like adoption rates, the largest disparities are found between those with different levels of education. While only 5 percent of adults with an associate's degree or higher are digitally illiterate, this rate stands at 41 percent for adults without a high school degree.") (July 8, 2022).

<sup>16</sup> National Urban League, [The Lewis Latimer Plan for Digital Equity and Inclusion](#) (2021).

<sup>17</sup> See [Airwavesforequity.org](#).

## **Conclusion**

Strengthening our national spectrum policy is important work. By focusing on the long-term public interest objectives Congress set out for the FCC and NTIA, we can improve our national telecommunications system by increasing competition through promoting opportunities for minority and women owned businesses, advancing innovation with a balanced approach to spectrum, and ensuring that our limited airwaves are efficiently and intensively used. Giving the FCC and other policymakers the time and tools they need to develop a spectrum plan that meets these objectives is essential. Congress can help facilitate this critical planning by making a long-term commitment to the FCC's auction authority and meet the increasing needs of the public by earmarking auction revenues to public interest connectivity needs. Doing so will help ensure that all Americans are able to connect to critical communication services.