Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
Washington, D.C. 20230

In the Matter of	)	
	)	
Development of a National Spectrum Strategy	)	Docket No. 230308-0068
	)	

COMMENTS OF
THE FREE STATE FOUNDATION*

I. Introduction and Summary

These comments are submitted by the Free State Foundation (FSF) to the National Telecommunications and Information Administration (NTIA) in response to its request for comments regarding the development and implementation of a National Spectrum Strategy for the United States. The agency should adopt and implement its proposal to identify at least 1,500 MHz of spectrum for study – and, importantly, it should make determined efforts to reallocate at least 1,500 MHz of spectrum for more commercial use. And while the maintaining the availability of sufficient unlicensed spectrum should remain an important objective, the National Spectrum Strategy's short-term priority should be accomplishing the repurposing of more mid-band spectrum for exclusive licensed use, starting with the 3.1-3.45 GHz band.

There is a pressing need for more spectrum for commercial wireless services, particularly for mid-band spectrum to support deployment of 5G networks. But the pipeline for spectrum to deliver next-generation services is virtually empty, and this puts future U.S. global leadership for 5G in jeopardy. The U.S. government occupies substantial swaths of spectrum, and much of it is being underutilized. That spectrum ought to be reallocated for timely rollout and optimization of

* These comments express the views of Randolph J. May, President of the Free State Foundation, and Seth L. Cooper, Senior Fellow and Director of Policy Studies. The views expressed do not necessarily represent the views of others associated with the Free State Foundation. The Free State Foundation is a nonpartisan, non-profit free market-oriented think tank.

commercial wireless services. The spectrum to be identified should include low-band, mid-band, and high-band spectrum, and the National Spectrum Strategy should set spectrum allocation and repurposing goals specific to each of those band ranges. For near-term purposes, the agency should fast-track the 3.1-3.45 GHz band for repurposing and licensing on an exclusive use basis. Additionally, priority should be given to evaluating spectrum in the 4 GHz and 7/8 GHz bands for near-term commercial use, again, with licensing preferably on an exclusive use basis.

The National Spectrum Strategy, to the extent feasible, should favor property rights-like policy frameworks that rely on private market competition to create incentives for investment and innovation that maximize the value of the use of spectrum. For those bands identified as suitable for licensing, the National Spectrum Strategy generally (but not always) should prefer licensing on an *exclusive* rather than on a shared basis. An essential characteristic of a property rights-like regime is the owner's, in this case the licensee's, exclusive right to determine how the property will be used. In contrast to the use of shared spectrum, exclusivity accords spectrum licensees strong investment incentives because they are better able to control resource development that allows planning for realizing financial returns. Furthermore, to the extent feasible considering the relevant circumstances, the National Spectrum Strategy generally should favor authorizing licensees to operate within their spectrum allocations with full commercial power. Higher-powered signals enable more intensive use of spectrum resources.

Although licensing spectrum on an exclusive basis should be a near-term priority, sharing may be the only viable approach for certain bands because relocation of government users could jeopardize national security, law enforcement, or other key government functions. In those circumstances, sharing spectrum certainly is to be preferred over letting spectrum go underutilized. Moreover, some spectrum may be better suited for *un*licensed use. Unlicensed

spectrum uses involving fixed wireless technologies like Wi-Fi have become increasingly important as both a complement and a competitor to fiber and cellular wireless services. The use of Wi-Fi to offload traffic from wireline networks benefits both consumers and service providers. Thus, future allocations of high-band spectrum ought to be fully considered for unlicensed use. But the National Spectrum Strategy should designate as much of the remaining available mid-band spectrum as possible for licensed use, preferably on an exclusive basis.

To lessen the likelihood that such disagreements will clog up the spectrum pipeline, the agency must assert its leadership role in developing and implementing the National Spectrum Strategy. The implementation plan for the National Spectrum Strategy should expressly acknowledge NTIA's lead role in representing all executive branch agencies regarding reallocations of spectrum used by federal agencies. Unity in the executive branch on spectrum matters is best achieved through a single agency head, and, when necessary in particular circumstances, through leadership by the president.

Additionally, the implementation plan should establish the expectation that federal executive branch agencies with interests pertaining to spectrum being evaluated for reallocation must participate in the NTIA-led interagency process in order for their views to be considered in reallocation decisions. The implementation plan should emphasize that the NTIA-led process is the proper venue for executive branch agencies to present their views on the spectrum policy matter at hand. The implementation plan should deter executive agencies from going outside the NTIA-led process in attempts to disrupt the spectrum pipeline or FCC decisions about private commercial uses for spectrum. It also should expressly acknowledge the FCC's role as the expert independent agency overseeing commercial spectrum usage.

And the implementation plan for the National Spectrum Strategy should set forth timelines, procedures, and requirements for exchange of information and dialogue between federal agencies regarding proposals for repurposing spectrum for commercial use. Formal rules would help ensure transparency and accountability, thus promoting more timely resolutions of agency disputes over spectrum matters.

Finally, recognition of the pressing need to address the projected shortage of spectrum available to meet current and anticipated needs should heighten NTIA's urgency to develop and implement a National Spectrum Strategy more quickly than the announced schedule.

II. The National Spectrum Strategy Needs to Identify at Least 1,500 MHz of Spectrum for Repurposing and Fast-Track Mid-Spectrum for Commercial Use

Commercial wireless services are a tremendous source and driver of value to the U.S. economy as well as to the societal well-being of the American public. Reliance on free market competition, as an integral component of federal communications policy, has been successful in promoting U.S. leadership in wireless services. Wireless providers have invested massive resources to develop and deploy next-generation broadband networks, including $261 billion in 4G networks during the past decade, increasing wireless gross domestic product (GDP) by 253%, and creating nearly 10% of the total increase in U.S. GDP during that span.[1] And ongoing rapid deployment of 5G networks has been achieved due to wireless providers' investing $35 billion in 2021 alone – and a combined total of $121 billion between the years 2018 and 2021 – in constructing and upgrading network infrastructure used to deliver advanced services.[2] According to a recent report by Compass Lexecon, "[i]n 2020 alone, the wireless industry

[1] *See* Recon Analytics, "The 4G Decade: Quantifying the Benefits" (July 2020), at: https://api.ctia.org/wp-content/uploads/2020/07/The-4G-Decade.pdf.
[2] *See* CTIA, "2022 Annual Survey Highlights" (Sept. 13, 2022), pg. 3, at: https://www.ctia.org/news/u-s-wireless-investment-hits-record-high.

contributed over $1.3 trillion in gross output, $825 billion in GDP, and nearly 4.5 million jobs to the American economy."[3]

Access to spectrum is a key input for delivering commercial wireless services, and more spectrum is needed to carry growing wireless data traffic volumes. The amount of wireless traffic has risen sharply over the past decade, as U.S. wireless network data traffic climbed to 53.4 trillion MB in 2021, up sharply from 13.7 trillion MB in 2016 and 0.4 trillion MB in 2010.[4] And wireless data demand is projected to rise even further in the years ahead.

However, there is a shortfall in available spectrum for commercial use, and wireless service providers lack access to the spectrum needed to meet future demands. Indeed, the spectrum pipeline is virtually empty. The current predicament was mostly foreseeable and avoidable had the U. S. government acted more expeditiously to address the looming shortage.

Combined with the current unprecedented lapse in the FCC's authority to conduct spectrum auctions, the empty spectrum pipeline is jeopardizing U.S. global leadership in 5G and beyond, at a time when China, especially, is racing ahead. The National Spectrum Strategy should recognize that the U.S. is running a mid-band spectrum deficit compared to projections for global competitor nations. According to a September 2022 report by Analysys Mason, over a five-year period, the amount of mid-band spectrum in the U.S. dedicated to licensed 5G services will increase to 450 MHz, but that total falls significantly short of the expected allocations in China (1660 MHz), Japan (1100 MHz), the U.K. (790 MHz), and South Korea (700 MHz).[5] The

[3] Compass Lexecon, "The Importance of Licensed Spectrum and Wireless Telecommunications to the American Economy" (December 7, 2022), at: https://www.ctia.org/news/the-importance-of-licensed-spectrum-and-wireless-telecommunications-to-the-american-economy.
[4] CTIA, 2022 Annual Survey Highlights, at pg. 4.
[5] Analysy Mason, "Comparison of total mobile spectrum in different market" (Sept. 20, 2022), at: https://www.ctia.org/news/u-s-continues-to-trail-globally-in-critical-mid-band-spectrum-for-5g.

U. S. government should undertake mid-band spectrum repurposing efforts in order to shore up that deficit.

Recognition of the direness of the situation regarding spectrum available to meet current and anticipated needs should heighten NTIA's urgency to develop a National Spectrum Strategy more quickly than the announced schedule. Then the plan needs to be implemented as promptly as it reasonably can be to replenish the spectrum pipeline and secure America's leading role in wireless services.

The National Spectrum Strategy should address the spectrum shortage head-on by identifying at least 1,500 MHz of spectrum that is under the federal government's control and repurposing that spectrum for commercial use. The spectrum to be identified should include low-band, mid-band, and high-band spectrum, and the National Spectrum Strategy should set spectrum repurposing goals specific to each of those ranges.

Most importantly, the National Spectrum Strategy should make its short-term priority the repurposing of more mid-band spectrum (1 GHz to 8.5 GHz). The federal government occupies significant amounts of mid-band spectrum that ought to be reallocated for timely rollout and optimization of commercial wireless services. A report by Accenture found that 61% of all mid-band spectrum (3 GHz – 8.4 GHz) or 3,300 MHz is dedicated to government use, compared to 1,910 MHz available for unlicensed use, and 270 MHz was available, at the time of the report, for licensed commercial use.[6] In other words, Accenture found that the federal government had access to twelve times more mid-band spectrum than commercial wireless services. To rectify this imbalance and ensure that wireless services have sufficient spectrum, the lower 3 GHz (3.1-3.45 GHz) band should be fast-tracked for repurposing. Additionally, spectrum in the 4 GHz

[6] Accenture, "Spectrum Allocation in the United State" (September 28, 2022), at: https://www.ctia.org/news/spectrum-allocation-in-the-united-states.

(4.4-4.49 GHz) and 7/8 GHz (7.125-8.46) bands should be evaluated for near-term commercial wireless use, with consideration of exclusive licensed basis given a high priority.

III. The National Spectrum Strategy Should Prioritize Exclusive Licensed Use of Suitable Spectrum

The federal government's control over spectrum used by the private sector should be exercised in line with principles favoring a property rights-like regime. This means that the National Spectrum Strategy, to the extent feasible, should favor property rights-like policies that rely on private market competition and exclusivity to maximize the economic value of spectrum resources. This approach incentivizes investment and innovation and, therefore, enhances overall consumer welfare. We do not suggest that recognizing the benefits that inhere in a licensing regime provide specific answers to technical and engineering-informed policy questions about which bands are best suited for licensed or unlicensed use. But once the FCC has determined, through careful application of its spectrum engineering expertise, the optimal approach for use of specific bands, a property rights approach should shape policy implementation to the extent feasible.

For those bands suitable for commercial licensing, the National Spectrum Strategy generally (but not always) should prefer licensing on an *exclusive* rather than on a shared basis. Exclusivity accords spectrum licensees stronger investment incentives because they are better able to control resource development and seek financial returns compared to users of shared spectrum. Maximizing the use of spectrum also means authorizing licensees, to the extent feasible, to operate within their spectrum allocations with full commercial power. Higher power signals enable more intensive use of spectrum resources. Accordingly, the National Spectrum Strategy should favor commercial wireless operations using the higher-powered signals, provided they do not cause harmful signal interference with users operating in adjacent bands.

Although licensing spectrum for commercial use on an exclusive basis should be the generally preferred approach to spectrum use, sharing may be the only viable approach for certain bands because relocation of government users could jeopardize national security, law enforcement, or other key government functions. Sharing spectrum certainly is to be preferred over letting spectrum remain underutilized. But as is often the case with owning land and other resources, when the owner's (here the licensee's) control of the property is encumbered, the value of the property and demand for it decreases. That insight applies to spectrum just like other natural resources. Accordingly, the National Spectrum Strategy should recognize that making spectrum available on a non-exclusive or shared basis with government incumbents, while proper in certain circumstances, will reduce the ability of wireless providers to make maximum use of the spectrum and, thus, decrease the demand for it and lower its economic value.

Moreover, the National Spectrum Strategy should recognize that some spectrum may be better suited for *un*licensed use, just as certain land and water resources are not ideally suited for private acquisition but best serve as common property. Unlicensed spectrum uses involving fixed wireless technologies like Wi-Fi have become increasingly important as both a complement and a competitor to fiber and cellular wireless services. And unlicensed Wi-Fi is likely to be even more important as cable broadband providers offload more of their data traffic onto Wi-Fi 6e as well as future Wi-Fi 7 networks and as "Internet of Things" or "IoT" devices become more prevalent.

But at the same time, the National Spectrum Strategy should recognize that the U.S. already is a global leader in unlicensed spectrum, particularly in the mid-band. The FCC's *5.9 GHz Order* allocated 45 MHz of spectrum for unlicensed use,[7] and its *6 GHz Order* allocated

[7] FCC, *Use of the 5.850-5.925 GHz Band*, ET Docket No. 19-138, First Report and Order, Further Notice of Proposed Rulemaking, and Order of Proposed Modification (released Nov. 20, 2020), *affirmed by Intelligent*

1,200 MHz of spectrum for unlicensed use.[8] A significant amount of high-band spectrum may have strong suitability for unlicensed use, and full consideration should be given for unlicensed use in bands in that upper range.

IV. The National Spectrum Strategy Should Require That Decisions Be Made Pursuant to an NTIA-Led Interagency Process

There have been several highly visible disputes between federal agencies in recent years regarding commercial spectrum allocations, including the FAA's dispute with the FCC's decision to authorize 5G wireless operations in the C-Band,[9] the Department of Transportation's public disagreement with the FCC's 2020 decision to dedicate a part of the 5.9 GHz band for unlicensed wireless use,[10] as well as NASA and NOAA's public opposition to the Commission's 2019 issuance of licenses for wireless services in the 24 GHz band.[11] If this recent history is any guide, then it is to be expected that there will be future instances in which executive branch agencies disagree with the FCC regarding spectrum allocation decisions. To lessen the likelihood that such disagreements will clog up the spectrum pipeline, the National Spectrum Strategy should make clear NTIA's leadership role in developing and implementing the strategy.

The National Spectrum Strategy's implementation plan should expressly acknowledge NTIA's role in representing all executive branch agencies regarding reallocations of spectrum

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Transportation Society of America v. FCC, ___ 4th __, D.C. Cir. Case Nos. 21-1130, 21-1131, 21-1141 (Aug. 22, 2022).

[8] FCC, *Unlicensed Use of the 6 GHz Band*, ET Docket No. 18-295, Report and Order and Further Notice of Proposed Rulemaking (*6 GHz Order*) (released April 24, 2020), *review denied in part and granted in part sub nom. AT&T Services, Inc. v. FCC*, 21 F.4th 841 (D.C. Cir. 2021).

[9] *See, e.g.*, Randolph J. May and Seth L. Cooper, "The FAA Should Stop Interfering With 5G in the C-Band," *Perspectives from FSF Scholars*, Vol. 16, No. 60 (Nov. 12, 2021), at: https://freestatefoundation.org/wp-content/uploads/2021/11/The-FAA-Should-Stop-Interfering-with-5G-in-the-C-Band-111221.pdf.

[10] *See, e.g.*, Andrew Long, "The FCC's 5.9 GHz Proposal Would Advance Both Wi-Fi and Vehicle Safety," *Perspectives from FSF Scholars*, Vol. 15, No. 59 (Nov. 9, 2020), at: https://freestatefoundation.org/wp-content/uploads/2020/11/The-FCCs-5.9-GHz-Proposal-Would-Advance-Both-Wi-Fi-and-Vehicle-Safety-110920.pdf.

[11] *See, e.g.*, Seth L. Cooper, "U.S. Policymakers Should Stick to Their 24 GHz Spectrum Band Plan," *FSF Blog* (Jun. 11, 2019), at: https://freestatefoundation.blogspot.com/2019/06/us-policymakers-should-stick-to-their.html.

being used by federal agencies. Unity in the executive branch on spectrum matters is best achieved through a single agency head, and, when necessary in particular circumstances, through leadership by the president.

Additionally, the implementation plan should establish the expectation that federal executive branch agencies with interests pertaining to spectrum being evaluated for reallocation must participate in the NTIA-led interagency process in order for their views to be considered in reallocation decisions. The implementation plan should emphasize that the NTIA-led process is the proper venue for executive branch agencies to present their views and influence federal spectrum policy. The implementation plan should deter executive agencies from going outside the NTIA-led process in attempts to disrupt the spectrum pipeline or FCC decisions about private commercial uses for spectrum.

Settled expectations regarding the NTIA-led spectrum pipeline process should prompt government officials, media, and the general public to give low credence to last-minute or after-the-fact complaints or protests about spectrum reallocation decisions. Eleventh-hour efforts by disgruntled federal agencies to scuttle spectrum decisions made through proper channels should not be credited by NTIA, lest such efforts undermine the finality of spectrum pipeline and FCC decisions and create regulatory uncertainty that harms the investment-backed expectations of investors and the value of repurposed spectrum in future spectrum license auctions.

The implementation plan for the National Spectrum Strategy should set forth timelines, procedures, and requirements for exchange of information and for dialogue between federal agencies regarding proposals for repurposing spectrum for commercial use. Formal rules regarding the spectrum pipeline and spectrum reallocation determinations for specific spectrum bands would help ensure transparency and it likely would promote more timely resolutions of

agency disputes over spectrum matters. Also, a specified process could make it harder for opponents of a particular spectrum policy decision to later make dubious complaints about processes being bypassed when in fact they were followed.

Finally, and importantly, the implementation plan for the National Spectrum Strategy should expressly acknowledge the FCC's role as the expert independent agency overseeing commercial spectrum usage. The Commission has on its staff engineers with considerable expertise and experience evaluating and adjudicating disputes regarding signal interference claims. Acknowledgement in the strategy of the Commission's functions and authority, and its expertise and experience, should alleviate any unjustified fears about potential signal interference harms resulting from the launch of next-generation services like 5G, Wi-Fi 6e, and beyond.

V. Conclusion

For the foregoing reasons, the Commission should act in accordance with the views expressed herein.

Respectfully submitted,

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April 17, 2023