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Fast Action on the Lower 3 GHz Band Will Secure America's 5G Future

by

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On February 1, the FCC and NTIA announced they reached a new cooperative agreement regarding spectrum. In this same spirit of cooperation, the FCC and its counterparts in the Administration should make the clearing and auctioning of 100 MHz of spectrum in the 3.35-3.45 GHz band for licensed use a top priority. Mid-band spectrum is critical for deploying 5G services, but more is urgently needed and options are few. Spectrum below 3.45 GHz appears to be the best candidate for replenishing the commercial spectrum pipeline.

Combining 3.35-3.45 GHz spectrum with C-band, CBRS, and other adjacent 3 GHz spectrum could create a contiguous block of 630 MHz for 5G services. Additional lower 3 GHz spectrum can later be repurposed for commercial use, either on an exclusive or shared basis. Unless the FCC and other federal agencies cooperate and act fast to restock the mid-band spectrum supply, opportunities for creating new jobs and economic growth will be diminished. And the U.S. will risk China and other global competitors surpassing the U.S. in the race to lead in 5G.

Next-generation broadband operations – including 5G wireless networks – are vital to our nation's economic future. A report released on February 2 by the Boston Consulting Group (BCG) estimates that buildout of 5G network infrastructure will directly contribute $400-$500

billion to U.S. GDP and create up to 1 million jobs over the next decade. It is expected that initial GDP and job growth primarily will be realized by construction, information services, and manufacturing industries. As 5G networks are augmented to provide new uses for agriculture, transportation, and other industries, tremendous indirect benefits will be realized for the nation's economy. As BCG estimates: "[t]hese indirect 5G benefits will add $1.0 trillion to $1.2 trillion to GDP and create 3 million to 3.6 million new jobs from 2020 to 2030. This indirect impact represents about 70% of the total value potential from 5G."

It is widely acknowledged that an ample supply of mid-band spectrum is needed to harness the full potential of next-generation 5G mobile wireless networks. As the FCC stated in its *3.7 GHz Service Order* (2020): "Mid-band spectrum is essential for 5G buildout due to its desirable coverage, capacity, and propagation characteristics." Delays in 5G deployment result in tremendous losses in potential economic opportunities. BCG estimates that every 6-month delay in 5G deployment results in a nationwide loss of $25 billion in potential benefits.

Timely availability of additional mid-band spectrum is vital to ensuring U.S. economic competitiveness against China and other nations in the global race to 5G. A June 2020 study by Analysys Mason found that, on average, other countries will have five times more licensed mid-band spectrum than the U.S. by the end of 2020. According to Analysys Mason's summary of future and potential spectrum assignments, Japan is dedicating 1,000 MHz of mid-band spectrum for licensed use. Meanwhile, the UK is dedicating 790 MHz, South Korea 660 MHz, Canada 480 MHz, and China 460 MHz. But recently-auctioned C-band and CBRS spectrum add up to only 430 MHz. And CTIA anticipates that within the next few years – and absent significant and timely action by the FCC and other federal agencies – the U.S. faces a mid-band spectrum deficit of 310 MHz compared to its global competitors.

In a July 2020 speech, former FCC Commissioner Michael O'Rielly addressed the potential of the 3.1-3.55 GHz band for next-generation commercial wireless services:

> It currently houses a number of Department of Defense radar systems and has been identified by Congress for possible commercial purposes. I have made the argument that, of this 450 megahertz block, upwards of 200 must be cleared and go towards meeting our insatiable demand for licensed spectrum. I know the upper 100 can be repurposed without much heartburn, and we can work through the second 100 the same way. As for the remaining 250 megahertz in the lower portion of the band, the bulk of it, at a minimum, must be shared, as in the 3.5 GHz tiered structure of priorities. This would protect the DoD purposes while opening these portions to 5G services as well.

The Commission's *3.1-3.55 GHz Order* from October 2020 proposed steps to reallocate the upper 100 MHz identified by Commissioner O'Rielly for shared use with government users. It announced plans to auction the 3.45-3.55 GHz band by December 2021 and enable commercial use by early 2022. That leaves the lower 350 MHz – the 3.1-3.45 GHz band – as a potent untapped resource for commercial 5G services.

In a July 2020 report mandated by the MOBILE NOW Act, NTIA acknowledged that sharing at least some spectrum below the 3.45 GHz band was possible, and the agency committed to studying the matter. And in its *3.1-3.55 GHz Order*, the FCC sought input on the feasibility of reallocating the 100 MHz of spectrum in the 3.35-3.45 GHz for commercial wireless service at the same power levels it proposed for the 3.45-3.55 GHz band. Additionally, the order directed the Commission's Wireless Telecommunications Bureau and Office of Engineering and Technology staff to continue working with NTIA and DoD to examine what steps are needed for allowing commercial wireless services to share the remainder of the 3.1-3.55 GHz band, especially the 3.35-3.45 GHz band.

The likely exponential benefits from freeing up lower 3 GHz spectrum stem from its proximity to adjacent CBRS and C-Band spectrum that already has been dedicated to flexible commercial use. As the FCC's *3.1-3.55 GHz Band Order* recounted: "Collectively, the 3.45-3.55 GHz band and neighboring 3.5 GHz and 3.7 GHz bands could offer 530 megahertz of mid-band spectrum for flexible use." Adding another 100 MHz of spectrum from the 3.35-3.45 GHz band would create a 630 MHz contiguous block for commercial 5G wireless services. And that block later can be increased by repurposing spectrum in the 3.1-3.35 GHz band, either on an exclusive or shared basis.

Putting spectrum in the 3.1-3.45 GHz band into commercial use apparently involves relocating some important and sensitive DoD operations, and it is difficult for anyone without engineering expertise or security clearance to offer an opinion. But Commissioner O'Rielly's insider view of the potential for the lower 3 GHz band, and his identification of that spectrum below 3.45 GHz as a prime candidate for commercial 5G usage, warrants careful follow-up. Also, it is widely known that the federal government currently controls two-thirds of mid-band spectrum. Federal agencies would retain control over significant spectrum resources even if spectrum in the 3.1-3.45 GHz band is reallocated for commercial use.

Federal funding, whether through auction proceeds or congressional appropriations, can be used to offset relocation costs of federal operations on the lower 3 GHz band. Moreover, identification of spectrum below 3.45 GHz for repurposing is also the result of a process of elimination. It is widely acknowledged that the spectrum pipeline needs to be replenished, and there are no better alternatives than the lower 3 GHz band, particularly when it comes to mid-band spectrum.

Importantly, the strong preference of the government – including the FCC, NTIA, and DoD – should be to relocate existing federal users from below 3.45 GHz and license it for exclusive commercial use by auction winners. This approach is consistent with Commission policy. As the *3 GHz Services Order* reiterated: "[T]he Commission considers clearing spectrum for flexible use to be a priority when it is feasible to do so." The order further explained: "Spectrum that has been cleared to the greatest extent possible provides maximum flexibility in future uses, ensuring intensive and efficient use of that spectrum going forward. Spectrum encumbrances, on the other hand, constrain the potential of future uses of that spectrum, deter investment in the band, and undermine the public interest benefits of the relicensing process." Spectrum sharing arrangements also can boost commercial 5G network deployment, but those

arrangements should be recognized as a second-best outcome compared to exclusive commercial licensing.

There were notable breakdowns in federal agency cooperation concerning the use of the 24 GHz band and the L-band. Hopefully, the February 1 cooperative agreement between the FCC and NTIA on spectrum research and development marks the start of better relations between agencies. The Administration will need to improve interagency coordination in order to resupply the spectrum pipeline with lower 3 GHz spectrum. If the FCC and other agencies cannot reach agreement or if they create delays, American job-seekers and U.S. standing in the global economy will take devastating hits.

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