

**STATEMENT OF COMMISSIONER JESSICA ROSENWORCEL
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BEFORE THE
UNITED STATES SENATE
COMMITTEE ON COMMERCE, SCIENCE & TRANSPORTATION
“WIRELESS BROADBAND AND THE FUTURE OF SPECTRUM POLICY”
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Good morning, Chairman Thune, Ranking Member Nelson, and members of the Committee. Thank you for the opportunity to appear before you today and talk about the future of spectrum policy.

Few of us go anywhere today without mobile devices in our palms, pockets, or purses. But as commonplace as wireless service may feel in our lives now, the truth is we are just getting started. Over the next five years, world-wide demand for mobile service is expected to grow by 10 times. As the Internet of Things emerges, wireless functionality will become a part of nearly everything we do.

Back in the here and now, all of this wireless demand has consequences for a scarce resource: spectrum. The airwaves around us that are responsible for our modern wireless economy are finite. The iron laws of physics being what they are, we are simply not making more. So the challenge is to use the spectrum we have more efficiently.

There are many things we can and should do to be more efficient with this scarce resource—from improving network technology to improving network topology. But we also need to rethink how we allocate our airwaves—and in particular the airwaves used by the federal government. So that is where I want to begin.

Today, federal authorities have substantial spectrum assignments. This makes sense because critical missions throughout the government are dependent on wireless services. Federal systems that rely on spectrum help protect us from attack, like early missile warning systems. They help manage our air traffic, enhance our crop productivity, and monitor our water supplies.

Traditionally, when commercial spectrum demands rise, we go to these federal authorities and put on the pressure. We urge, coax, and cajole them in an effort to free old government airwaves for new private sector use. If they agree, we clear government users out of a portion of their airwaves, relocate them, and eventually auction the cleared spectrum for commercial use.

With the tremendous demands on our airwaves today we could do this again, just as we have in the past. But it's a creaky system. It's not reliable. It's not consistent. It takes too long. In short, it's not the steady spectrum pipeline the modern mobile economy needs.

The future of spectrum policy requires incentives. We need a federal spectrum policy that is based on carrots, not sticks. If we want a robust and reliable spectrum pipeline, we need to make sure that federal authorities see gain—and not just loss—when their airwaves are

reallocated for new mobile broadband use. To do this, we need to develop a series of incentives to serve as the catalyst for freeing more spectrum for commercial markets.

We could begin by expanding incentive auctions to federal spectrum users. These auctions would be modeled on the broadcast spectrum incentive auctions that are planned for the 600 MHz band. Participating federal authorities would receive a cut of the revenue from the commercial auction of the airwaves they clear—and could use these funds to support relocation as well as initiatives lost to sequestration. This is a complex undertaking, because agencies do not operate in a market environment and are subject to annual budget allocations, but we should explore it—with discrete spectrum bands or agencies.

We could also update the Spectrum Relocation Fund. Today the Spectrum Relocation Fund assists federal authorities with relocating their wireless functions when their spectrum is being repurposed for commercial use. But this fund could also provide incentives for more government sharing by rewarding federal users when they share their spectrum with agencies that are being relocated.

While we are at it, we should review laws that create perverse incentives. Consider the Miscellaneous Receipts Act. This law can prevent negotiations between federal agencies and winning bidders in wireless auctions. But if we make changes, we could auction imperfect rights and permit winning bidders to negotiate directly with federal authorities remaining in the band to help meet their wireless needs. This could speed repurposing of our airwaves and also provide commercial carriers with incentives to help update federal systems that are past their prime.

Finally, we should develop a spectrum currency with assistance of the Office of Management and Budget. With a uniform system of valuation for federal spectrum assignments, we can explore further incentives for efficiency and better understand the opportunity cost of federal use.

The future of spectrum policy requires looking at millimeter wave spectrum. Today, the bulk of our wireless networks are built on spectrum below 3 GHz. But in the future, we need to bust through this ceiling and look high—really, really high. We need to look at spectrum all the way up to 24 GHz and perhaps as far as 90 GHz. If we combine wide channels from these stratospheric frequencies with dense networks of small cells we can overcome propagation challenges and deliver wireless service at faster speeds than ever before. This approach is likely to be a major force in the next generation of wireless services, known as 5G. The race to 5G is on and our counterparts in Europe and Asia are already making way. We may have led the world in 4G, but laurels are not good resting places. So the time to explore greater use of this spectrum is right now.

The future of spectrum policy requires not just more licensed spectrum—but also more unlicensed spectrum. In short, we need more Wi-Fi. Unlicensed spectrum, like Wi-Fi, democratizes Internet access, encourages permissionless innovation, and contributes \$140 billion in economic activity annually. But historically the legislative process has overlooked the value of unlicensed spectrum because it gets low marks in the scoring process at the Congressional Budget Office. But this accounting misses the mark—because the broader benefits of unlicensed

spectrum to the economy are so great. So in any legislative effort to increase the licensed spectrum pipeline, we need a cut for unlicensed—call it the Wi-Fi dividend.

In sum, if we combine more incentives to facilitate the repurposing of federal government spectrum for new commercial use with more exploration of the possibilities of millimeter wave spectrum and more opportunities for Wi-Fi—we can build a spectrum pipeline that is robust, reliable, and a potent force in our economic future.

Thank you. I look forward to answering any questions you may have.