



**The Free State Foundation's
POLICY CONFERENCE**

**"NEXT GENERATION 5G WIRELESS NETWORKS:
SEIZING THE OPPORTUNITIES AND OVERCOMING
THE OBSTACLES"**

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National Press Club
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MODERATOR:

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PARTICIPANT:

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FCC

* This transcript has been edited for purposes of correcting obvious syntax, grammar, and punctuation errors, and eliminating redundancy in order to make it more easily readable. None of the meaning was changed in doing so.

P R O C E E D I N G S

Mr. May: I'm Randy May, President of the Free State Foundation, as most of you know. I want to welcome you here. I also want to welcome especially Arizona Public Broadcasting System. Arizona PBS is here and we're especially pleased with that.

Some of you have heard me say before, C-SPAN has covered quite a few of our events. They were here to cover our annual conference held on May 31st here at the Press Club. I said at the beginning that I'm a C-SPAN junkie. Those of you who watch C-SPAN know that we refer to ourselves sometimes as C-SPAN junkies. I'm always glad when they're here. But I'm especially pleased today that Arizona PBS is here and I might become an Arizona PBS junkie as well.

So, if somehow you thought that you might have stumbled into another program on net neutrality, you're wrong, probably happily so. (Laughter.) Indeed, it's possible, although I wouldn't bet my house on it for sure, that we might get pretty far into our discussion today without ever uttering the words "net neutrality." But

truth be told, the subject we're going to be discussing today is as important as any other communications policy topic. The title of our program is "Next Generation 5G Wireless Networks: Seizing the Opportunities and Overcoming the Obstacles." So as not to steal the thunder of any of our distinguished speakers today, I'm only going to say a few brief words by way of introduction, so you'll appreciate why I just said the topic we're discussing is so important.

According to CTIA, The Wireless Association, 5G networks will be up to a hundred times faster and five times more responsive than today's networks. They will be able to support a hundred times more devices, beacons, and wearables. And, obviously, perhaps you might get different estimates from different people or entities. But if those figures are even close to being correct, you can see how important and transformative 5G is going to be.

Furthermore, future deployment of 5G wireless networks is projected to produce an additional \$500 billion of economic growth, and wireless operators are expected to invest an estimated \$275 billion over the next decade to deploy 5G across America. That investment has projected to create 3 million new jobs. Again, I'm not here to vouch

that every single one of those figures is going to prove correct. But if you just heard what I said and if you want to cut those numbers in half or by two-thirds, you would still understand and appreciate how important 5G deployment is.

So that's the "opportunities" part of the program's title. But there's also the "overcoming the obstacles" part. To build out 5G networks nationwide and to realize their full potential, an incredibly large number of new cell towers, base stations, and small cell sites, along with widespread modifications to existing sites, will be necessary to seize the opportunities presented by next generation wireless services and overcome the obstacles -- all levels of government, federal, state, and local, have a role to play.

I'm not going to say anymore, because I'm sure our speakers are going to address both the opportunities and the obstacles in a way that, by the time we're done today, will give us all a very good understanding of the public policy implications of 5G.

What I want to do is introduce our speaker and tell you about the program today. Most of you here, hopefully all of you, know that Commissioner Michael O'Rielly has

been slated to be the opening key note speaker at the program today. But the House Commerce Committee decided that they were going to have an oversight hearing today, and that's going on right now. It might have been surprising to me, but Commissioner O'Rielly decided that he was going to have to be there rather than up here.

(Laughter.)

One of our speakers today is former FCC Commissioner Jonathan Adelstein. I know if he were confronted with that choice as to whether to be at the House Oversight hearing or be here when he was Commissioner, he would have been here. You don't have to respond to that at all.

(Laughter.)

But anyway, here's what I'm hoping and I know Commissioner O'Rielly is too, that if that hearing winds up in time and he can get away, he said he'll dash right up here. I told him if he gets here by 1:30 then we'll all be ready and waiting. And if he does happen to appear at that door, let's give him a big round of applause, a nice welcome.

But in the meantime, we're very fortunate and I'm grateful that we have with us Don Stockdale, the new

Wireless Telecommunications Bureau Chief at the FCC, to lead off today and then we're going to follow that with the panel. After Don's through, I'm going to bring up the panel and we'll know then what's occurred with the hearing at that point. So, first I'm going to introduce Don. We'll do that part of the program, and then we'll do the panel.

I think it was just about a month ago that Don returned to the FCC to serve as Chief of the Wireless Telecommunications Bureau under Chairman Pai. A lot of you have been here before and you've heard me say this, but it's true for this program; in the interest of time, you've got your bio materials right there, so I'm going to give you just the highlights of each one of these people. The thing that I would say about Don Stockdale, as you can see, is that he's a Ph.D. economist and a lawyer. He's both of those things. So, on some days, Chairman Pai might say, "I need an economist," and there he is. Some days, he might say, "I need a lawyer." You know, he's both of those things. He's served in increasingly prestigious and responsible positions at the Federal Communications Commission before he took up this latest post. So, Don, I just want to ask you, is this your first speech since you've been named Chief of the Bureau? Just say it is,

anyway.

(Laughter.)

MR. STOCKDALE: It is.

MR. MAY: Okay, see, this is Don's first speech since assuming that position and I'm really pleased that he's here today. He's going to speak and then we're going to take just a couple of questions when Don's finished.

Don.

(Applause.)

MR. STOCKDALE: Thank you, Randy, and thanks to the Free State Foundation for giving me the opportunity to speak with you today about 5G, an incredibly important and potentially transformative technological innovation. I was happy to step in to replace Commissioner O'Rielly when he was delayed. But I hope that you will not hold me to the standards that you will hold Commissioner O'Rielly because, as Randy pointed out, I've only been in this job four weeks and I'm still learning the ropes. So, I hope you'll take that into account.

Before I begin my talk, I need to start with a standard disclaimer that the remarks I give today reflect my own views and do not necessarily reflect those of the Commission or any Commissioner. So, having gotten that out

of the way, let's turn to substance.

The FCC is dedicated to promoting investment in both fixed and mobile broadband networks, and it is trying to do so through a light touch regulatory environment that is intended to reduce barriers to investment and to innovation. In addition, Chairman Pai has repeatedly stated that his top priority is closing the digital divide and bringing the benefits of the Internet age to all Americans.

Randy has asked me to focus on 5G. So, what I want to do is focus on two broad categories of policy reforms that relate to broadband wireless in general and to 5G in particular. And they are, first, policies to make more spectrum available for flexible use. Second, policies to facilitate infrastructure deployment, both wireline and wireless. And finally, I want to mention briefly the Commission's efforts to extend wireless broadband to areas that are currently unserved, and I want to mention the potential relevance of 5G to achieving that goal.

So, let's start with policies to increase the supply of spectrum. The Commission's approach to spectrum policy is based on a three-part formula. First, we want to make spectrum available for both licensed and unlicensed

uses. Second, we want to encourage and protect innovation driving competition. And third, we want to remove regulatory barriers to deployment and to stay out of the way of technological development.

In making spectrum available, the FCC is focused on enabling flexible use. Instead of mandating that a specific wireless technology be used for a particular spectrum band, we leave that choice to the private sector. We at the Commission believe that that has been a wise choice. This approach has allowed wireless networks the freedom to evolve. This approach also means the 5G services could be deployed today in existing flexible use licensed and unlicensed spectrum bands.

The Commission understands that no single spectrum range can meet all the diverse demands of 5G applications. Accordingly, the Commission is working to free up spectrum in all ranges, including low, medium, and high bands. For example, low range spectrum bands are of value because of their propagation characteristics, that is, they will transmit over long distances. In order to address demands for low band spectrum, the FCC recently concluded the Broadcast Incentive Auction. This is the first time, I believe, in history that any regulator has conducted a two-

sided spectrum auction, and it is an auction that regulators in other countries are following closely. This spectrum ended up yielding 84 megahertz of low band spectrum in the 600 MHz band, which will be made available for broadband and other commercial uses. We also recently updated technical rules and power limitations in the 800 MHz cellular band. This should make that band more amenable to mobile broadband services.

With regard to mid-band spectrum, we are continuing to work with the industry, with NTIA, and other federal agencies to finalize spectrum rules in the 3.5 GHz band. As many of you may know, the staff recently circulated a Notice of Inquiry that will soon seek comment on flexible use opportunities for bands in the 3.7 to 24 GHz range. And in particular, the NOI will seek comment on three specific bands, the 3.7 to 4.2, 5.925 to 6.425, and 6.425 to 7.125 GHz bands.

Finally, in the ongoing *Spectrum Frontier's* proceeding, we continue to establish operational and licensing rules for millimeter wave spectrum above 24 gigahertz. This spectrum will provide a strong foundation for advancing 5G networks and the "Internet of Things." In the *Spectrum Frontier's* proceeding, the FCC has already

made 11 GHz of high-frequency spectrum available, 4 GHz in the licensed bands, and 7 GHz for unlicensed use. We are in the process of examining an additional 18 GHz for possible use.

Let's turn and talk a little bit about potential obstacles to infrastructure deployment. The second policy reform that is critical to promoting 5G is to facilitate both wireline and wireless broadband infrastructure. To give you a sense of how important it is, today there are about 300,000 cell towers in the United States. The mobile wireless industry has already been densifying its 4G networks in order to bolster capacity by deploying multiple small cells.

But the technological or technical characteristics of millimeter wave spectrum, which is expected to play a very big role in 5G, will make small cell deployment even more critical. In fact, I've been told the 5G buildout will require the deployment of literally millions of small cells, which differ significantly from conventional cell towers. One thing I should point out here is that for each of these small cell deployments, there needs to be backhaul. This also requires the deployment of both fixed wireless and fiber infrastructure, so that these towers can

be connected to the wireless networks.

Last summer, the Wireless Bureau took an initial step towards facilitating infrastructure deployment by signing an agreement with the Advisory Council on Historic Preservation to streamline small cell deployments. This spring, both the Wireless and Wireline Bureaus initiated rulemaking proceedings to review numerous aspects of infrastructure deployment regulation. These NPRMs, among other things, will explore ways to expedite local review and speed up access to rights of way, examine the reasonableness of fees and of our pole attachment rules, and seek comment on how to expedite historic preservation and environmental reviews.

In addition, Chairman Pai has formed the Broadband Deployment Advisory Committee or BDAC. BDAC is made up of representatives of major stakeholder groups and it is now in the midst of comprehensively examining deployment issues. And we expect that it will propose model codes for states and municipalities and propose ways for improving wireless infrastructure siting procedures for federal lands.

Finally, let me just say a couple of words about universal service support for high cost areas. In the

United States, as you all know, there are many rural high cost areas where it is simply uneconomic to deploy wireline and wireless broadband. As a result, the Commission has adopted universal service policies to provide support in these high cost rural areas. As part of its broader universal service program, the Commission created a mobility fund and it is currently designing a reverse auction that will provide up to \$4.53 billion in recurring support over the next 10 years. And I should note that the U.S. was also an innovator in introducing reverse auctions for providing universal service support. The Commission is also developing a reverse auction to distribute universal service support for wireline infrastructure. And while this is my own personal opinion, given the promise of 5G, I think that we'll find that 5G will serve an important role in helping deploy broadband to rural areas.

So, to recap, the Commission is committed to promoting the deployment of 5G by, first, making more low, medium, and high bands spectrum available for flexible use; second, by adopting policies to encourage infrastructure deployment and helping to reduce or eliminate obstacles to such deployment; and third, by developing efficient universal service policies to support the deployment of

broadband networks in high cost rural areas. By unleashing the potential for 5G, we can accelerate the growth of our economy, create new jobs and new opportunities, and improve the quality of life for all Americans. Thank you.

(Applause.)

MR. MAY: Don, thank you very much. I just asked Don on Friday, I think it was, to come over and speak and that was terrific on short notice. And when I have you back, I promise I'll even give you more notice, although I now know you don't need much notice.

A couple things. I did forget to remind you to tweet and our handle is, and it should be on that piece of paper, but it's hashtag FSF5G. #FSF5G. So please tweet away.

And I want you to keep eating. I wanted to start the program as I said, so we would make sure we got into it. But I also paid for this food, and if my mother were here and she looked around and saw all of these plates, she would say, "You need to finish more of this lunch." So, keep eating, please.

So, what we're going to do now is take a couple of questions. I promised Don we would just have a couple, so I'm going to recognize people and wait for the mic. So

first off, we're going to call on Paul Kirby. Paul, the mic is heading in your direction.

MR. KIRBY: Paul Kirby with TR Daily. You mentioned the 3.5 GHz band. I think you did. So, one of the issues there, there have been some administrative --

MR. STOCKDALE: 3.5?

MR. KIRBY: Yes.

MR. STOCKDALE: Okay.

MR. KIRBY: The 3.5. A number of the SAS [Spectrum Access System] administrators have been conditionally approved. Nothing as far as the ESC, the Environmental Sensing Capability [operators]. My understanding is there are issues with NTIA and federal agencies in terms of coming up with an agreement for how that would work. Can you give us any update on the ESC?

MR. STOCKDALE: I'm not sure what I can say that's public. I will say that the FCC is continuing to work with NTIA and with the federal agencies to try to complete the construction of SASs in the deployment of the ESCs. And it's my understanding that progress is continuing to be made.

MR. MAY: Howard over there, Howard Buskirk.

MR. BUSKIRK: Howard Buskirk, Communications Daily.

I'm trying to figure out something I can ask you that you might be able to answer today, because I know you're pretty new at this.

MR. STOCKDALE: Thank you.

(Laughter.)

MR. BUSKIRK: One of the things that has been said out there has been that the FCC plans all these auctions for the high frequency spectrum, but we haven't gotten much feedback from the FCC in terms of what you all are thinking in terms of timing. Everybody's talking about 5G and how important the high frequency spectrum is. Do you have anything on that that you could tell us?

MR. STOCKDALE: Well, it is one of the issues that we are currently working on. We are in the midst right now of trying to develop the auction software and the application software for the two reverse auctions. We are sort of devoting a hundred percent of our resources into that. We're then trying to develop a sort of tentative list over ordering of subsequent auctions, based on when we think the spectrum can be made available. And I think that's all I can say at this point.

MR. MAY: Okay, well, if there is one more question, I'll take that. And if not, just join with me in

thanking Don again for coming over please.

(Applause.)