

be the No. 1 priority for FAA—way ahead of making sure that manufacturers can meet their deadlines for aircraft delivery. Safety has to come first.

As a result of the work we conducted on our T-HUD Subcommittee and our oversight hearing, Ranking Member REED and I have provided increased funding for aviation safety and aircraft certification activities. The need for additional staffing has been confirmed by the Joint Authorities Technical Review report, which determined that FAA's certification office for Boeing had inadequate staff involved in the MAX certification program.

In addition, the Joint Authorities found that FAA needs to expand its staffing for human factors and human system integration work as it relates to aircraft certification. In other words, if there is a new system, we cannot allow training on that system to be bypassed and mention of that system to not be included in the manuals that accompany the aircraft. Pilots have to know, going into that cockpit, exactly what could happen, and they need training on simulators.

Clearly, a lot of work needs to be done on this issue. I believe we have taken some important first steps in the T-HUD bill that is before us.

I yield the floor.

RECESS

The PRESIDING OFFICER. Under the previous order, the Senate stands in recess until 2:15 p.m.

Thereupon, the Senate, at 12:35 p.m., recessed until 2:15 p.m. and assembled when called to order by the Presiding Officer (Mrs. CAPITO).

COMMERCE, JUSTICE, SCIENCE, AGRICULTURE, RURAL DEVELOPMENT, FOOD AND DRUG ADMINISTRATION, INTERIOR, ENVIRONMENT, MILITARY CONSTRUCTION, VETERANS AFFAIRS, TRANSPORTATION, AND HOUSING AND URBAN DEVELOPMENT APPROPRIATIONS ACT, 2020—Continued

The PRESIDING OFFICER. The Senator from Louisiana.

RADIO WAVES

Mr. KENNEDY. Madam President, I want to talk for a few minutes about money, 5G, and radio waves.

A radio wave is nothing more than electromagnetic radiation that moves through the air. That is all a radio wave is. Imagine a pond, and think of a radio wave as a ripple, or wave, in that pond. The wave kind of goes like this. It has a peak and a valley and then a peak and a valley. Eventually, it gets shorter and shorter. That is what a radio wave is. There are different kinds of radio waves. I don't know how many, but there are a bunch, and they are differentiated by the lengths of the peaks and the valleys.

Remember? The radio wave is doing this. As it goes to the top and comes to the bottom, that is called a cycle.

Frequency—you have heard that term before—is nothing more than how many cycles a radio wave goes through in one second. So we have out there—we can't see them, for they are invisible—thousands, millions of these radio waves that are, once again, going like this.

Now, what does that have to do with 5G? So 5G is nothing more than a certain type of radio wave. I will come back and talk a little bit about the 5G in a second.

When I make a cell phone call to the Presiding Officer, my voice is being converted into an electrical signal, as she knows. It is being sent to her phone through a radio wave. Once it gets my signal carried by the radio wave, her telephone converts it back into my voice. That is all a cell phone is.

I say: Hello, Madam President.

My voice is then converted into an electrical signal that is sent by a radio wave to her telephone. That is how a cell phone works.

What is 5G? "5G" stands for "fifth-generation wireless technology."

The very simple answer to "What is 5G?" is that it is an incredibly fast radio wave that can carry a huge amount of data. I mean, it is lightning fast. Even if you have fourth generation, it is 10-times faster than anything we have right now. Fifth generation's waves are going to be 10-times faster and will carry way more data, way more information. It is going to change the world, not just the United States of America. It is going to change the world. It is going to change space.

You have heard about the Internet of Things. 5G is going to be able to hook up all kinds of devices that will be able to talk to each other simultaneously.

Once we get 5G in America, I will be able to open my garage door from a half a mile away. The Presiding Officer will be able to set the timer on her coffee pot from here in the Senate if she wants to. Surgeons will be able to conduct surgery thousands of miles away from each other through the internet. We will have driverless cars. Do any of you ever get money out of an ATM? They are going to be gone. We will not need ATMs anymore. You will be able to get the money through a smartphone. Through 5G technology, farmers will be informed well in advance of when there are diseases encroaching upon their crops. We will not have to sign our names anymore. 5G will make possible what are called personal heat signatures. It is going to change the world.

Remember, 5G is just a radio wave. Who owns that radio wave and the air that it goes through? The people of America do. Every country owns its own radio waves. If there is any doubt, the Communications Act of 1934 says that the United States of America—you and I—own that radio wave and the ability to send that radio wave from my cell phone to the Presiding Officer's cell phone.

You will not be surprised to learn that not all radio waves—I told you

there were millions of them, billions of them—are made in the same way. There is a special kind of radio wave that is just perfect for fifth-generation wireless technology. This is called the C band. The C band is between 3.7 gigahertz and 4.2 gigahertz. That is the frequency. I think of it as being a certain type of radio wave that is perfect for C band that can be sent through the air to effectuate 5G. That certain radio wave and the air and the right to execute that service belongs to the American people, and the FCC is in charge of it.

The FCC auctions these radio waves all the time. When those at a radio company or a television company or an internet company say, "I need to use some of those radio waves," they go to the FCC. The FCC says: OK, we are going to auction that radio wave off because we believe in competition and because these radio waves belong to the American people, and so we want to get the best price.

In the last 25 years, the FCC has conducted over 100 auctions of radio waves. The FCC doesn't call them radio waves. It calls them spectrum. You have heard the term "spectrum auction." The FCC has done a public auction—over 100 of them—of these various radio waves, or bands of spectrum, and has brought in \$123 billion for the American people. It has done an incredible job.

Now we are about to assign the special radio waves for 5G. I don't blame them for trying. Yet there are three foreign-owned satellite companies, two foreign companies from Luxembourg—I love Luxembourg; it is a great country—and one foreign corporation from Canada—I love Canada—that have gone to the FCC and said they can do an auction faster than the FCC can.

We need to get these 5G radio waves out to the wireless companies really fast. These three foreign satellite companies have said: If you will just give us those radio waves, we will auction them off for you, and we will do it a lot faster than you can.

When I first read about this, I said: Am I reading this right? The FCC has held over 100 auctions. They have brought in \$123 billion. We have these radio waves for 5G that the experts say are worth \$60 billion, and instead of auctioning them off and letting everybody fairly compete, these three foreign corporations want the FCC to give them the airwaves and let them auction them off, and the foreign companies get to keep the money. I am astounded. I said: Gosh, I couldn't ask for something like that with a straight face.

But do you know what is even more incredible? The FCC is thinking about doing it. They are thinking about doing it. They are thinking about taking \$60 billion that belongs to the American people and just giving it to this alliance of companies—two from Luxembourg and one from Canada—and saying "Here. It is yours. Go auction it

off" even though they have never conducted a spectrum auction in their lives. Do you know how much \$60 billion is? I did the math. And our FCC is thinking about doing it.

What I find really incredible is that the President just issued this Executive order—well, he did it a little while ago—buy American and hire American. I was so proud when I saw this Executive order—buy American and hire American. It doesn't mean we don't love our world's neighbors, but America first. And what is our FCC thinking about doing? They are thinking about giving our spectrum to three foreign companies and letting them keep the \$60 billion. Talk about swampy.

These are also foreign companies. Now, I don't mean that in a pejorative sense, and I love Luxembourg, and I love Canada. They had a French company in here too. The French company has bowed out, at least for a while. But our job is not to maximize profits for foreign corporations; our job is to help our people.

This 5G has national security implications. Before we give away these 5G airwaves to a foreign corporation, we need to know whom they are going to give it to. What if they give it to China? What if they say "Well, we will conduct our own auction" and they give it to Huawei?

There is another reason that this whole approach is foolhardy. 5G is going to be great for the cities. That is where it is going first. But what about the people who don't live in the city? What I would like to see us do and I am encouraging the FCC to do is to hold a public auction, take some of that \$60 billion they are going to get, and use it for rural broadband to make sure the people who live in rural areas get taken care of as well as the people who live in the cities because our wireless technology companies are going to have to be encouraged. They make a whole lot more money selling in a city than they do out in the rural areas.

Remember, this foreign corporation group says they can do an auction faster, even though they have never done an auction in their lives. They say: We can do it faster, and we have to beat China. So give us the radio waves. We will do a quick auction. We get to keep the \$60 billion, but we will get it out there.

There is just one problem: All those wireless technology companies that didn't get to bid—every single one of them is going to file suit if we don't do a public auction. So we are going to have this tied up in court for 20 years. We are going to be so far behind China. China is going to have lapped us several times. We are going to think we are in first place, but we are really going to be in last place.

I have held hearings—not because of anything that I did or any competence on my part. I am chairman of the Financial Services and General Government Subcommittee of the Appropriations Committee, and the only reason I

got the job is seniority, OK? Nonetheless, I got it, and the FCC is under my jurisdiction. I have been holding hearings, and I am going to hold more hearings.

So far, the only reason that anybody can give me to take these 5G airwaves and give them to a foreign corporation is that they think they can do it faster, despite the fact that we will have litigation and despite the fact that they have never done an auction before.

The best way to resist temptation, in my opinion, is a proper upbringing, a strong set of values, and witnesses. We need to have a public auction of this internet, of the 5G radio waves. Everybody needs to compete. If we don't want a foreign company to get control of it—and I don't—we can put it in the bid specs. Huawei need not apply. Not personal, but as long as you spy for China, you can't work here.

We need a level playing field. We need to have competition. Competition is a moral good. Everybody needs to get an equal bite at the apple. This doesn't need to be done in a backroom, swampy deal. I am not saying that anybody's brother-in-law is going to get taken care of here. I am not saying that, but it sure looks swampy. And we need to do it exactly like we have done for the 100 past broadband spectrum auctions.

I am saying that not only to our Senate colleagues here, but I hope I am speaking clearly enough to the FCC. Do the right thing. Don't give away \$60 billion that belongs to the people of America to two companies in Luxembourg and one other one in Canada. It is wrong.

I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The senior assistant legislative clerk proceeded to call the roll.

Mr. WARNER. Madam President, I ask unanimous consent that the order for the quorum call be rescinded.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. WARNER. Madam President, I am going to speak on another matter in just a moment, but I want to thank my friend the Senator from Louisiana.

There are a number of subjects that are debated on this floor that I may know a little bit about, may not know much at all about, but on the subject he was just addressing, the question of spectrum and the challenges and the threats around 5G—I can still claim this—I am proud of the fact that I spent a longer time in business than I have in politics. My whole career was spent in the business of mobile communications, wireless communications. I spent the last 3 or 4 years on the Intelligence Committee in a bipartisan way looking at both the challenge and the opportunity in 5G, and let me assure you that some of the items the Senator from Louisiana has raised in terms of the security threats that will be posed if we end up with the wrong vendor in 5G are an enormous problem.

I don't always agree with this President. On this item, he is right. My hope is that he will stick to his guns and not trade that away in a trade negotiation with China.

I also know that getting spectrum aligned the right way has been one of our challenges because other nations have been able to, frankly, in Asia and elsewhere, align spectrum better, so the underpinnings are better positioned than we are. So how we do this is 100 percent right.

Let me also say that whether it is Louisiana or Virginia, one of the issues I hear the most—I am not talking far world; I am talking small towns and midsize cities in Virginia, and I am sure the same is the case in Louisiana—the issue is—Democrat, Republican, and Independent—when am I going to get broadband in an accessible way?

If we don't make sure that we think this through on spectrum and recognize the national security implications and also recognize that if we roll out 5G and leave, in my State, 18 percent of the population behind who doesn't even have broadband, their ability to compete in the 21st century is going to be dramatically undermined.

So I hope I will have a chance to visit with my friend the Senator from Louisiana and see if we might be able to work together on some of these issues.

For a while, at least before the FCC auctioned off that spectrum, it was left in other hands, and suffice it to say that I know how much that spectrum is worth.

I thank my friend the Senator from Louisiana for his comments.

PROVIDING FOR CONGRESSIONAL DISAPPROVAL UNDER CHAPTER 8 OF TITLE 5, UNITED STATES CODE, OF THE RULE SUBMITTED BY THE SECRETARY OF THE TREASURY AND THE SECRETARY OF HEALTH AND HUMAN SERVICES RELATING TO "STATE RELIEF AND EMPOWERMENT WAIVERS"

Mr. WARNER. Madam President, I will turn to a different matter.

I move to proceed to Calendar No. 278, S.J. Res. 52.

The PRESIDING OFFICER. The clerk will report the motion.

The senior assistant legislative clerk read as follows:

Motion to proceed to Calendar No. 278, S.J. Res. 52, a joint resolution providing for congressional disapproval under chapter 8 of title 5, United States Code, of the rule submitted by the Secretary of the Treasury and the Secretary of Health and Human Services relating to "State Relief and Empowerment Waivers".

Mr. WARNER. Madam President, I know of no further debate.

The PRESIDING OFFICER. Is there further debate on the motion?

The motion was agreed to.

The PRESIDING OFFICER. The clerk will report the joint resolution.