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