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"TRANSFORMING RURAL AMERICA: A NEW ERA OF INNOVATION"

SOUTHEAST TECHNICAL INSTITUTE
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Thank you, Chairman Thune, for the invitation to testify. It is great to be back with you in South Dakota. I want to commend you and the Committee for holding this field hearing on rural broadband and the new era of innovation it is enabling in communities across the country. Your strong leadership on rural broadband issues has expanded economic opportunities for rural America. I also want to recognize and extend my thanks to Senator Fischer. I had the privilege of visiting Nebraska with Senator Fischer and learning how fast Internet connections are able to transform rural communities.

Spending time like this outside of D.C.—hearing directly from the community members impacted by our policies—is critical. There is no substitute for seeing firsthand the challenges that come with building broadband in some of the hardest-to-serve parts of the country. And there is nothing that underscores the importance of our efforts to solve those challenges—to close the digital divide—than seeing how so many in rural America are using a high-speed connection to innovate and create economic opportunity—whether in agriculture, healthcare, or education.

I saw this last spring in West Michigan's farm country. That's where I met Jason. At 36 years old, Jason has worked on farms and ranches for 20 years. He was born only a few miles from the crop supply company where he now works. There's no paved road to his job. To get there, he crisscrosses railroad tracks that run through town, and when I visited, the drive took us past mounds of dry fertilizer and potash, ready to be spread in the adjacent fields.

Jason's job is to collect silos worth of data: drone-based images detailed enough to track even small changes to a single leaf; real-time information about soil moisture and chemistry; LiDAR-based maps that identify the micro-climates within each plot of land; and bales of information gathered by sensors on his connected combines and sprayers.

Jason has the tech expertise that would be in high demand 2,000 miles away in Silicon Valley. But he's chosen to raise his family in Moline. He told me he's never been more optimistic about the future of farming.

The challenge, Jason explained, is getting all this data up into the cloud where it can be analyzed and put to productive use. And that means a high-speed connection, which Moline now has. A broadband provider ran fiber along the railway bed—the same set of tracks that helped Moline get its start in the 1870s when the Grand Rapids and Indiana Railway passed through.

Now Jason can upload the gigabytes of data he collects and leverage the horse-power of cloud-based artificial intelligence to put this information to work.

The results are remarkable. Jason now sends real-time data to his connected combines. The combines make inch-by-inch adjustments, to the spacing, depth, and type of seeding, and they change the types and amounts of fertilizer, too. My favorite of Jason's smart ag inventions? He told me about an IoT device that traps pests, uploads their images, and then uses AI to identify them and recommend a solution.

With these broadband-enabled, smart ag applications, Jason estimates that farmers are seeing at least a 30 percent increase in productivity and crop yields, not to mention a significant reduction in the use of fertilizer, pesticides, and water.

Jason is a tech whiz. That is clear the second you meet him. And he's like so many other bright minds across rural America that have been able to innovate and realize their potential right in their hometowns because of the opportunity that broadband gives them. We want to close the digital divide so that even more Americans have that same opportunity. But building broadband in rural areas is tough. It requires grit, determination, and ingenuity. Thankfully, those are qualities that are abundant in rural America.

You can see this skill set at work just south of here in Chancellor, South Dakota. That's where I met Tyler—a scrappy entrepreneur that runs a tech startup from his home. Tyler needed a better broadband connection, so he created one himself. He asked an ISP to run fiber to an old utility pole near his house. He then set up a high-speed, fixed wireless link to bridge the gap between his home and the fiber connection. Turns out, this setup worked well to bring broadband to Tyler's house. He looked around and realized that he could help bring more broadband to his neighbors around Chancellor by doing similar work. So Tyler decided to go into the broadband business. He now runs a small Wireless Internet Service Provider or WISP called Leap Communications. Tyler told me that connecting rural South Dakota is not easy work. And he showed me that you can't be afraid of heights to do it.

Tyler guided me 180 feet above nearby Parker, on top of the town's water tower. Up there, he showed me the antenna he uses to beam broadband to his customers, including a farm located about nine miles away. We visited that farm later in the day, and we spoke with Duane, who runs the operation. Duane volunteered that he used to go to church regularly to improve his connection. You see, before he met Tyler, Duane did not have broadband at the farm. So he would go to the church parking lot almost every day to use its Wi-Fi and upload the massive data sets he collects on his connected tractors and combines. Duane was quick to point out that he still goes to church, but with a broadband connection provided by Tyler's company, he can now spend his time there focused on a higher purpose.

I saw this same broadband-powered innovation on display with Senator Fischer in rural Nebraska. On that visit, I spent time in a feedlot in Milford, Nebraska with a startup called Quantified Ag that's built what they call "Fitbit for Cattle." It's a small, connected tag that's attached to a cow's ear when they arrive at the feed lot. It measures the cow's temperature, tracks its head and body movement, and can pick up on issues that are tough for any human to spot. Every morning, data from the cows are uploaded and analyzed by the company. If the data show a cow that is outside the normal range of measurements, a small red light starts flashing on the cow's ear tag. The pen rider spots the light and can then move in for a more detailed analysis. The preliminary results indicate that the technology is helping to improve outcomes for the herd, saving time and money, and reducing the use of antibiotics and other treatments.

For communities across the country, broadband is giving families a chance to improve their lives, to innovate, and to expand their economic opportunities. That is why the work of this Committee and the

FCC is so important. And that is why our top priority is closing the digital divide—to ensure that every community in the country has a fair shot at next-generation connectivity. Following the leadership of Chairman Thune and his colleagues, the FCC has been taking bold action to accelerate the buildout of broadband infrastructure in rural America. I want to highlight a few of those steps today.

First, we have moved quickly to modernize and update our wireless infrastructure rules. These are reforms that can flip the business case for entire communities—creating the incentives for providers to build out in areas that otherwise could get left behind. To start, we identified more than a billion dollars in "upfront fees" and other federal regulatory charges that were needlessly increasing the cost and slowing down the build out of small cells and other next-gen infrastructure. We acted to rein in those excessive fees.

For another, we addressed the state and local review process for new small cells, which are the building blocks for 5G. We did this by building on commonsense reforms already enacted by elected officials in their own communities—including by Mayor Paul TenHaken here in Sioux Falls. Chairman Thune has been a strong leader on many of these issues, including through his introduction of the STREAMLINE Small Cell Deployment Act, which would further accelerate the buildout of new wireless services.

Second, the FCC has reformed our rules on wireline service. We have done so through a series of decisions that help support the buildout of Internet infrastructure in areas where vast distances, tough terrain, and sparse populations undermine the private sector business case to build.

I want to highlight just one set of reforms today, which relates to our Universal Service Program. The program's new way of awarding funding gives broadband builders incentives to provide the most efficient service to the most customers. If they figure out a way to save the taxpayer money, they get to share in those gains. It's a win-win, and it's the way our funding programs should work. We were pleased to see that even more South Dakota broadband builders joined this new market-based program. Offers we made in December could make available an additional $18 million to provide fast Internet to more than 40,000 new locations in South Dakota. We also increased to $70 million per year the amount of funding available to broadband builders in South Dakota who already were a part of our market-based program. For those builders who are still in our old support program, we encouraged them to be more efficient, and as a result, they now have $20 million more available to them. And finally, for the most difficult to serve areas, we held an auction last year that will result in $5 million to build to another 1,000 locations in South Dakota.

Just this morning, in fact, I visited a site in Mitchell, South Dakota, where one provider is turning on a new, high-speed service that will connect hundreds of previously unserved residents in Davison County.

The FCC's reforms are already delivering results. The digital divide narrowed by almost 20 percent last year alone. Internet speeds across the country are up nearly 40 percent. More fiber was built out last year than ever before. And investment in broadband networks is back on the rise.

Indeed, the U.S. now has the largest 5G deployment in the world. The private sector in the U.S. built out 5G in 14 communities last year. Those U.S. builds were driven by a significant increase in small cells—in fact, the number of small cells put up in the U.S. increased from 13,000 in 2017 to more than

60,000 in 2018. And we are on a trajectory to maintain this global leadership, with estimates predicting a total of 200,000 small cells in the U.S. by year end 2019, along with over 40 5G communities. And one carrier alone has recently announced plans to build out 5G to 99 percent of the U.S. population.

All of that is good for consumers, but it's also good for workers. All of this broadband construction has created job openings, many of which remain unfilled. The industry tells me that it needs to hire 20,000 more tower climbers and telecom techs to build 5G. These are good-paying jobs—the kind that you can raise a family on. They don't even require a four-year degree. With only a few months of training, the wireless infrastructure industry can provide 20,000 ladders up to the middle class.

Some ladders are longer than others, and for some reason I agreed to climb 2,000 feet with some of South Dakota's finest tower hands. I was with Mike and Ammon of Vikor Teleconstruction. The tower was for KDLT-TV in Rowena, one of the largest broadcast towers in the world. Mike and Ammon were kind enough to pry the bureaucrat from the books and show me what connecting the Dakotas really takes.

The truth is that Mike and Ammon are 5G workers. They switch out and repair equipment so that wireless broadband can reach kids at school, moms and dads can start home businesses, and cops and firefighters can keep us safe. And we need more Mikes and Ammons to do the job. So two months ago, I announced a 5G jobs initiative. Modeled on a program developed by Aiken Technical College in South Carolina, it looks to community colleges as a pipeline for these 5G jobs. In 12 weeks, someone with no training can learn the skills needed to land a good-paying job in the tower industry.

We need to expand this model program to community colleges across the country to ensure we have the skilled workforce in place to build and maintain next-gen networks. I have been working towards that goal, and that is why I am glad that Chairman Thune is holding this hearing here at Southeast Tech. Alongside Chairman Thune, I have been working with leadership here, and I am pleased that Southeast Tech is now looking to add a tower tech program right here at their Sioux Falls campus. Programs like this can help address our country's need for more 5G workers and close the skills gap.

More 5G workers will help us solve a related problem in rural America: the doctor divide. With a growing physician shortage, it's difficult to find specialists in many rural communities, and even basic care is often out of reach.

Leaders here in South Dakota are using telehealth to meet this challenge. I saw their work last year when I spent time with the talented team at Avera eCare. This facility is home to world-leading specialists, and thanks to a broadband connection, these healthcare professionals are available to patients located throughout the state and across the Plains. A small, rural clinic that may only have the resources to keep a single person on staff can now pull up an entire team of professionals at Avera eCare through a video connection, thus bringing their expertise and specialization to bear in treating a patient. This type telehealth offering is saving lives and driving down the cost of care.

And it is part of new trend in healthcare. The provision of high-quality care is no longer limited to the confines of connected, brick-and-mortar facilities. Indeed, technology that's available only inside a hospital or clinic does little to help communities or patients that are long miles and many hours away from those facilities. So I am pleased to be leading the FCC's effort to stand up a new $100 million Connected Care Pilot Program. And I am glad to share an update today on this FCC proceeding.

The idea for the Connected Care Pilot Program is simple. We are seeing a shift in healthcare that's the equivalent of moving from Blockbuster to Netflix. With an app right on your smartphone or tablet, you can now access quality care wherever you are. I think the FCC should support this new trend in care.

So I am pleased to report that my colleagues at the FCC voted just two months ago to support my proposal, and we are now taking public comment on the idea. We have proposed to support a limited number of telehealth projects over a multi-year period with controls in place to measure and verify the benefits, costs, and savings associated with connected care. It could take the results we've already seen in the limited trials to date and help replicate those results in communities across the country. This will allow remote patient monitoring and mobile health applications that can be accessed on smartphones and tablets, to lower the burdens on patients, and the health care system as a whole. I want to encourage the stakeholders here in South Dakota and across the country to participate in the FCC's proceeding.

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In closing, I want to thank you again, Chairman Thune, for holding this important hearing, and for your leadership on rural broadband. I welcome the chance to answer any questions.