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THE BROADCAST INCENTIVE AUCTION: UPDATE ON
REPACKING OPPORTUNITIES AND CHALLENGES

THURSDAY, SEPTEMBER 7, 2017

House of Representatives,
Subcommittee on Communications
and Technology,
Committee on Energy and Commerce,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:02 a.m., in Room 2123, Rayburn House Office Building, Hon. Marsha Blackburn [chairman of the subcommittee] presiding.

Present: Representatives Blackburn, Lance, Shimkus, Latta, Guthrie, Kinzinger, Bilirakis, Johnson, Long, Flores, Brooks, Collins, Cramer, Walters, Costello, Walden (ex officio), Doyle, Welch, Clarke, Loeb sack, Dingell, Eshoo, Engel, Butterfield, Matsui, McNerney, and

Pallone (ex officio).

Also Present: Representative Green.

Staff Present: Elena Hernandez, Press Secretary; Zach Hunter, Director of Communications; Bijan Koohmaraie, Counsel, Digital Commerce and Consumer Protection; Lauren McCarty, Counsel, Communications and Technology; Alex Miller, Video Production Aide and Press Assistant; Dan Schneider, Press Secretary; Jennifer Sherman, Press Secretary; Evan Viau, Legislative Clerk, Communications and Technology; Hamlin Wade, Special Advisor, External Affairs; Jeff Carroll, Minority Staff Director; Alex Debianchi, Minority Telecom Fellow; David Goldman, Minority Chief Counsel, Communications and Technology; Jerry Leverich, Minority Counsel; Lori Maarbjerg, Minority FCC Detailee; Jessica Martinez, Minority Outreach and Member Services Coordinator; Dan Miller, Minority Policy Analyst; and Andrew Souvall, Minority Director of Communications, Outreach and Member Services.

Mrs. Blackburn. The Subcommittee on Communications and Technology will now come to order. And the chair recognizes herself for 5 minutes for an opening statement.

And I do want to begin by welcoming everyone to the Communications and Technology Subcommittee with our hearing titled "The Broadcast Incentive Auction: Update on Repacking Opportunities and Challenges." And I want to thank our witnesses for being here today. We appreciate having your perspective on this issue.

Mobile connectivity has become an essential component of our everyday lives. Today, Americans are consuming more mobile content than ever before. Since 2010, data traffic delivered over wireless networks has increased by a factor of 35. Last year alone, Americans have generated over 13 trillion megabytes of wireless data traffic. That is the equivalent of 1.5 million years of streaming HD video. Now, that is what is running over our networks.

All of this consumption has led to a pressing need for more mobile broadband spectrum. This committee, along with the FCC, NTIA, and the private sector, has worked to identify opportunities to feed the spectrum pipeline. The broadcast incentive auction presented a rare opportunity to make a significant block of spectrum available for mobile broadband use.

After years of discussion on auction design and preparation, the first two phases of the auction have been successfully completed. Earlier this year, the reverse and forward auctions concluded, raising \$19.8 billion in revenues, the second largest auction in FCC history,

and contributing over \$7 billion to Federal deficit reduction.

We have now begun the third phase of the auction. This is the repack. In crafting legislation that authorized the auction, this committee worked very hard to strike a balance between the needs of broadcasters and the consumer demand for wireless service.

Discussions involving stakeholders from all sides of the auction resulted in agreement on the postauction transition timeline and budget. The FCC has done its part to carry out the first part of the auction and set the parameters for the repack. It is now time for industry to work together to ensure that this agreement is honored and that the repack is completed on time.

This morning, we will hear about the ongoing challenges with completing this phase of the auction. Our witnesses will discuss outstanding issues with relocating broadcasters to new channels as well as the importance of clearing the 600 megahertz band as soon as possible. We will also examine unanswered questions surrounding low-power television and translator stations, an issue that is very important to many members on this committee.

Hurricane Harvey has reminded each and every one of us -- and now Hurricane Irma, which is pressing down on the U.S. We all know how important broadcasters and wireless providers are in times of emergency. Preserving access to over-the-air television while also meeting consumer needs for mobile broadband is a goal that we all share and a problem we need to all resolve together.

Today's panel will inform us on the challenges and the

opportunities of the latest effort to advance this goal. Thank you, and I look forward to the testimony from our witnesses.

And at this time, I yield to the gentleman from Pennsylvania, who is the recent father of the groom. And I know his opening statement is going to be as beautifully delivered as his toast to the happy couple.

Mr. Doyle, you are recognized for 5 minutes.

[The prepared statement of Mrs. Blackburn follows:]

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Mr. Doyle. Thank you very much, Madam Chair, and I thank you for holding this hearing. And thank you to the witnesses for appearing before us.

I want to start by saying -- and I think all of us up here feel the same way -- that our thoughts and prayers go out to those affected by Hurricane Harvey in Houston and those folks that are in the path of Irma.

But, you know, in tragedy and loss, we also hear stories of perseverance and fortitude. Broadcasters in Houston have been on the air nonstop since Harvey, doing everything from coordinating food drops and rescues to setting up fundraisers to help with the recovery.

And, similarly, cellular networks have largely continued to function in the region. I know my good friend Frank Pallone has been doing a lot of work on this issue since Sandy, and his efforts, as well as those of the wireless carriers and the FCC, has paid off. The vast majority of the region maintained cellular service, which enabled critical lifesaving operations, as well as coordinating communications between families and loved ones and first responders.

So I am happy to see the progress that these industries have made, but we need to continue to improve. And with Irma on the way, we may be tested again all too soon. That is one reason this hearing is so important. Spectrum is at the heart of both broadcast and cellular technologies, and it is critical that we get this repack right because a misstep could disrupt both technologies.

Early reports from the FCC suggest that the 1.75 billion

repacking fund will fall short in getting broadcasters relocated. I and many of my colleagues support Ranking Member Pallone's Viewer Protection Act, which sets aside an additional \$1 billion for broadcaster relocation and authorizes \$90 million to conduct outreach to consumers to inform and educate them about the transition.

And while I am interested in holding broadcasters harmless through this process, I am concerned by some allegations we are hearing that some broadcasters may try to use this process to slow the repack or to use the process for their own gain. I encourage the FCC to take a zero-tolerance approach to this kind of activity.

I look forward to the hearing. And at this time, Madam Chair, I would like to yield the remaining time I have to my friend Gene Green.

[The prepared statement of Mr. Doyle follows:]

***** COMMITTEE INSERT *****

Mrs. Blackburn. Mr. Green is recognized.

Mr. Green. Thank you, Mr. Chairman and to the members of the committee. At one time, I did serve on the telecom subcommittee. But I want to thank my friend Mike Doyle.

For 7 days, the Texas Gulf Coast was hammered by Hurricane Harvey, bringing destruction beyond anything witnessed in living memory in our State. The storm dropped 4 feet of rain on greater Houston. Over 100,000 homes and residences were flooded in Harris County alone.

Currently, 85,000 Texans are staying in shelters and temporary FEMA housing. Authorities believe at least 70 Americans were killed due to Harvey, and that number will continue to rise.

During the worst of Harvey, the people of Houston and Harris County were able to rely on the dedication of our local TV and radio broadcasters to provide critical lifesaving information, including emergency flash flood warnings, live coverage of our local officials, and first responders, and up-to-the-minute updates on conditions in our neighborhood and roads. This dedication exhibited by our local CBS affiliate, which I was at the week before Harvey, KHOU, channel 11, which continued airing emergency coverage of Harvey while water filled their first floor.

I also thank the hard work of the dedicated and of our local communication workers, wireless providers, who maintained our wireless communication network throughout Harvey. I am happy to say that 99 percent of the cell towers in Harris County are currently operational.

As our committee examines the impact of the broadcaster spectrum and repack, I ask that we take into account the value that our local broadcasters provide during emergencies like Harvey, and ensure that broadcasters will be made whole and so they can be at the next emergency.

In Houston, we typically get a tropical storm, a hurricane about every 7 years, so we know we are going to be there. They are not moving Houston, but we will end that.

But anyway, I want to thank my good friend for yielding to me, and I will yield back to Mike. Thank you.

Mr. Doyle. I yield back.

Mrs. Blackburn. The gentleman yields back.

And at this time, I recognize the chairman of the full committee, Mr. Walden, for 5 minutes.

The Chairman. Thank you very much, Madam Chair. And I appreciate our witnesses who are here today for this really important hearing.

And I also join those who are keeping you in our thoughts and prayers, all those affected by the hurricanes and the flooding, Harvey, Irma. I would add to it a couple names you are not familiar with: Chetco, Eagle Creek, Indian Creek, among others, which are the fires that are ravaging the northwest, including just a few miles from where I live.

Over the weekend, the Eagle Creek fire took off and has now burned 33,000 acres. I had embers on my deck 17 miles away. Freeway systems closed. The rail lines are closed. And even the mighty Columbia River

is not allowing barge traffic at this time. And this is in the national Columbia River scenic area, and so it seems like every region of our country is affected.

And the comments made by my colleagues, they are helping out every step of the way with -- the citizens, our brave first responders, the firefighters, the EMTs and all, but also our broadcasters, public and commercial. Cell towers are staying up and operating, emergency communications are at work. Our ham radio operators, of which I am one, are very active in all this as well.

And it speaks to the importance of the hearing today to make sure that we have the most vibrant, modern communications platforms in the world and that they continue to operate and provide emergency and day-to-day communication to our citizens.

In a district such as mine with this enormous nature of it and these threats that we face, it is also important to realize it is very mountainous, and that means translators matter. And I know that is an issue that is on my mind because we have a lot of consumers out in the rural areas whose only link for television and the emergency communications that comes with that is off a translator in a deep valley or somewhere else. So we have got to figure that piece of this out. It wasn't part of the original package, but somehow in here we have got to figure a way through that one as well.

The legislation that brings us here today started back in 2012 with the Middle Class Tax Relief and Job Creation Act under the FCC. Our whole goal then was to take this very important spectrum and make

it available for its highest and best purpose and use and drive innovation and help try to find a spectrum that would meet the insatiable demand of all of us who are consumers to pull up all of our devices, like many of you probably are wishing you were doing right now instead of listening to me, and watch video, among other things.

And so it is important that we did that. We raised \$19.8 billion, the government. We funded FirstNet, or at least the first tranche of FirstNet, for the interoperable public safety broadband network called for by the 9/11 Commission, and we are continuing our oversight over that.

But today, we need to look at this repack. That is the next phase. I said all along we would do that at the appropriate time to see if the right amount of funds are there to accomplish the goal. We didn't know. We still don't know for sure.

We are also concerned about the timelines, the number literally of engineers that can do repacks. We have heard about FM stations that may be affected that we didn't know -- really think through that they may have an affect here.

And so we have got a lot of work on our hands. We know that. We want to hear from each of you. That is why it is such a diverse panel, because we know how much is at stake. And so thank you for being here. Thank you for working with us over the last 5 years. And now we enter the final phase. We want to make sure we get this phase right as well.

So, Madam Chair, I thank you for your leadership on this issue and that of the committee on both sides of the aisle, and I look forward

to hearing from our witnesses.

[The prepared statement of Chairman Walden follows:]

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Mrs. Blackburn. The gentleman yields back.

Is there anyone on our side seeking the balance of his time?

No one is seeking the time. And I think it expresses the importance of this hearing coast to coast. You are looking at disasters and the importance of timely information and individuals being able to be informed.

At this time, in Mr. Pallone's absence, I recognize Ms. Matsui for 5 minutes. The gentlelady is recognized.

Ms. Matsui. Thank you very much, Madam Chairman.

Thank you for yielding. It is important that our committee, following the last spectrum incentive auction, is monitoring the process to ensure a smooth transition for broadcast stations.

The information broadcasters share is of critical importance to my constituents' daily lives. As I watched the destruction of Hurricane Harvey and the threat and the destruction already posed by Irma, I think of the Sacramento area and its extreme risk of natural disasters like flood and wildfire.

We rely upon our local news for accurate, local information during times of crisis. Spectrum is the invisible infrastructure of the 21st century, and the most recent spectrum auction was a success because of the participation of dozens of carriers across the country.

We need to continue to encourage innovation that keeps us moving forward, paving the way for things like 5G, which we are leading on with new public-private partnership in Sacramento. Wireless is the way forward, but we must also ensure that our broadcasters have the

resources they need to make sure that everyone has access to the best information, both globally and locally.

Thank you, and I yield to --

Mrs. Blackburn. Okay. I think --

Ms. Matsui. -- to the gentleman next to me.

[The prepared statement of Ms. Matsui follows:]

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Mrs. Blackburn. Okay. The gentlelady is yielding to Mr. McNerney. You are recognized.

Mr. McNerney. Well, I thank my friend from California.

I want to follow up on the ranking member's remarks. We have a spectrum. The 39 months is just an estimate. We really don't know exactly how much time, but we have to be careful we don't allow foot dragging to move that period longer and longer, because it is going to cost money.

And I am also very concerned about the merger that we are -- that is sort of hanging over our head between Sinclair and -- at any rate, the problem is that when we go there, we are going to be having a lot of concentration of spectrum and broadcast to one or two organizations that will enter many, many homes and will change the national dialogue. We really need diversity, so it is important that we have -- continue to have diversity. It is important that we make sure that the spectrum allocation is finished on time.

With that, I yield back.

Mrs. Blackburn. The gentleman yields back.

And the gentlelady yields back. And we were waiting for Mr. Pallone, but he is not here, has not arrived.

So this concludes the member opening statements. I would like to remind all members that pursuant to committee rules, their statements will be made a part of the record.

We want to thank our witnesses for being here today and for taking the time to come before the subcommittee. And you are each going to

have the opportunity to deliver your opening statement. You will be followed with a round of questions by members. We look forward to your answers.

And our witness panel today includes and we are welcoming Scott Bergmann, who is the vice president of regulatory affairs at CTIA. Welcome back. Rebecca Murphy Thompson, who is the general counsel and executive VP of the Competitive Carriers Association; Rick Kaplan, who is the general counsel and executive VP of the National Association of Broadcasters; Patrick Butler, who is the CEO of America's Public Television Stations. Go Vols. Lyn Plantinga, who is the VP and general manager of NewsChannel 5 Network in Nashville, Tennessee. And she does not say "go Vols." She says "go Vandy." And Jim Tracy, who is the chairman of the National Association of Tower Erectors.

We appreciate that you are each here today. And we especially appreciate your preparing your testimony and submitting that in advance. And we will begin the panel today with you, Mr. Bergmann. You are recognized for 5 minutes.

STATEMENTS OF SCOTT BERGMANN, VICE PRESIDENT, REGULATORY AFFAIRS, CTIA; REBECCA MURPHY THOMPSON, GENERAL COUNSEL AND EXECUTIVE VICE PRESIDENT, COMPETITIVE CARRIERS ASSOCIATION; RICK KAPLAN, GENERAL COUNSEL AND EXECUTIVE VICE PRESIDENT, NATIONAL ASSOCIATION OF BROADCASTERS; PATRICK BUTLER, CEO, AMERICA'S PUBLIC TELEVISION STATIONS; LYN PLANTINGA, VICE PRESIDENT AND GENERAL MANAGER, NEWSCHANNEL 5 NETWORK; AND JIM TRACY, CEO, LEGACY TELECOMMUNICATIONS, INC., NATIONAL ASSOCIATION OF TOWER ERECTORS CHAIRMAN

STATEMENT OF SCOTT BERGMANN

Mr. Bergmann. Thank you, Chairman Blackburn, Ranking Member Doyle, and members of the subcommittee. On behalf of CTIA, thank you for the opportunity to testify about the incentive auction and the postauction transition.

Because of this committee's leadership, the incentive auction was a tremendous success, the second largest spectrum auction by revenue raised and spectrum reallocated. It was a win for broadcasters, wireless providers, and American consumers.

CTIA and its members strongly support the FCC's transition plan which provides a flexible roadmap. We support a fully funded repack that ensures broadcasters are made whole for their reasonable costs. We appreciate this committee's oversight and urge it to maintain the 39-month timeline.

Delay would harm deployment of cutting-edge mobile wireless services, especially in rural areas, and could undermine future spectrum auctions. This first-of-its-kind auction has revolutionized the way that we repurpose spectrum to meet the Nation's exploding mobile needs. It freed up 84 megahertz of spectrum. It grossed \$19.8 billion. Fifty different parties won wireless licenses, including nontraditional and rural providers. And 175 broadcast stations were winners and will receive almost \$10 billion in proceeds.

This spectrum will generate substantial economic benefits. The 70 megahertz of license spectrum will add more than 700,000 new jobs and as much as \$22 billion to the GDP, so it is critical that this transition be accomplished smoothly, efficiently, and within the 39-month timeline.

This low-band spectrum will enable new wireless services across the country, particularly in rural areas, which has been a topic of great interest to this committee. And winning bidders are already putting this spectrum to use.

T-Mobile, the largest winner, launched operations in Wyoming and Maine just 2 months after receiving licenses. This year alone, the carrier will add new sites in Oregon, Texas, Kansas, Oklahoma, New Mexico, North Carolina, North Dakota, Pennsylvania, Virginia, and Washington.

To realize these benefits, it is important that we hold to the 39-month timeline. After carefully considering an extensive record from various stakeholders, the FCC developed a plan that provides

flexibility for broadcasters, minimizes disruption for viewers, and provides certainty to wireless providers.

The plan features a 39-month transition, which was upheld by the courts, and 10 separate phases, eliminating the need for all stations to obtain equipment or schedule a tower at the same time. The FCC's plan is not static. It established a process for broadcasters to extend their deadlines if necessary. And the FCC already has the authority to address potential timing problems, making legislative changes unnecessary. But significant delay would risk world buildout and 5G deployment and would be unfair to forward auction winners that invested nearly \$20 billion.

Delay could also negatively impact future auctions. If the government shows a willingness to retroactively change the rules, bidders in future auctions will build less, causing a decrease in spectrum prices and availability.

Moving forward, CTIA's members are doing all they can to be part of the solution. Our members are engaging with broadcasters to address repacking challenges, such as funding relocation costs for rural public television stations and low-power TV stations. They are working to ensure that equipment like antennas is available and are doing continuous outreach to translator and wireless microphone communities. CTIA expects this close collaboration and financial investment will continue throughout the repack.

Finally, I would like to acknowledge the hardship from Hurricane Harvey, particularly in the district of Congressman Olson and the

wireless industry's efforts to maintain service for millions of Americans across Texas and Louisiana.

CTIA commends this committee for its ongoing interest in wireless resiliency. Ranking Member Pallone has been intensely focused on this topic since Superstorm Sandy. Last year, wireless carriers adopted a network resiliency framework to improve resiliency during emergencies and natural disasters.

Using this framework was successful. Wireless companies readied backup generators, prepositioned fuel, educated consumers, and brought in emergency response teams. Even as traffic spiked, wireless services were there when people needed them most. More than 95 percent of cell sites remained working throughout the storm. More than 300 wireless emergency alerts were sent to warn people about tornados, flooding, and other dangers. More than 96,000 calls were delivered to 911, and millions of people used wireless to call, text, gather and share information, and communicate with loved ones.

Thank you for the opportunity to testify today, and I look forward to your questions.

[The prepared statement of Mr. Bergmann follows:]

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Mrs. Blackburn. The gentleman yields back.

Ms. Murphy Thompson, you are recognized, 5 minutes.

STATEMENT OF REBECCA MURPHY THOMPSON

Ms. Murphy Thompson. Thank you.

Chairman Blackburn, Ranking Member Doyle, Ranking Member Pallone, and members of the subcommittee, I am honored to testify about the immense opportunities compared to the minimal challenges presented by repacking the 600 megahertz band for mobile broadband.

CCA represents nearly 100 wireless carriers that serve urban centers and most rural parts of our country, along with 150 vendors and suppliers. The vast majority of CCA members are small businesses serving rural areas.

Chairman Blackburn, I appreciate the subcommittee's keen focus on prioritizing access and expansion of mobile broadband service and agree that an efficient and safe repacking process is a sound way to achieve this mutual goal.

For these reasons, let me commend this committee for crafting legislation that gave life to the historic incentive auction, which unleashed 84 megahertz of low-band spectrum for mobile broadband use and garnered \$20 billion in gross revenues, which includes \$10 billion in payments to broadcasters and \$7 billion for deficit reduction. I would call that a good day at the office.

The repacking process represents the third and final stage of the

incentive auction. CCA carrier members represent the majority of the winning bidders in the auction who spent over \$15 billion to acquire nearly 2,400 licenses.

CCA's carriers were key to the auction's success and are anxious to deploy the spectrum to provide the latest mobile broadband services to consumers throughout the United States. The ongoing repack is not about wireless operators versus broadcasters; rather, collaborative work will expand access to mobile broadband, increase competition, and meet our country's need for economic growth and creation. We cannot afford to wait.

A persistent digital divide continues to plague certain parts of the United States, leaving rural communities trailing behind their urban counterparts on the road to 5G. The 600 megahertz spectrum is critical to bridge this digital divide and is tailor made for serving rural areas with excellent propagation characteristics.

This is why so many of CCA's members showed up, bid, and won spectrum in the auction. This is also why CCA members have continuously worked with broadcasters, tower crews, and other industry stakeholders to transition the spectrum.

With continued congressional oversight and FCC diligence, CCA is confident that industry can safely and efficiently complete the transition within the 39-month timeline established by the FCC, based on congressional statute and upheld by the court.

The committee and the FCC have committed that broadcasters will not go dark as a result of the transition period. The FCC antenna task

force also has carefully balanced the need to clear the 600 megahertz spectrum for mobile broadband use while protecting consumers. This included an efficient waiver process for any station that is unable to transition due to circumstances out of its control.

CCA supports these goals and urges Congress and the Commission to stay the course and maintain the 39-month timeline. This ensures carriers' investments are realized and consumers receive the most advanced services.

With this clarity in hand, CCA members ask that this committee reject any effort to delay the transition. As noted, CCA members spend significant capital in the auction with the expectation of offering consumer innovative services. Altering timelines now post auction could leave significant resources stranded, which would inject uncertainty into future auctions.

In addition, the proposed Sinclair acquisition of Tribune could significantly delay the repacking effort as a result of its dominant market share and should be denied. Withholding spectrum in rural areas will deepen the digital divide and leaving consumers who could benefit most from the next generation technology without mobile broadband. As we say at CCA, wireless carriers must keep up with their Gs as networks move from 3G to 4G and soon 5G.

Congress provided \$1.75 billion for the repacking process. Initial expenditure estimates appear to exceed that amount. If additional financial resources are needed, CCA stands ready with Congress to make sure that adequate funding is available to complete

the repack process within the 39-month timeline.

In closing, reallocating the 600 megahertz spectrum for mobile broadband use creates jobs and presents a multitude of consumer opportunities. We must stick to this well-established, consistently upheld 30-month timeline and allow the commission to use its existing waiver process to resolve challenges that are outside our broadcasters' control if they arise. Once repacked, 600 megahertz spectrum can immediately provide advanced services to rural Americans and be the foundation for 5G.

Thank you for the opportunity to testify, and I welcome your questions.

[The prepared statement of Ms. Murphy Thompson follows:]

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Mrs. Blackburn. The gentlelady yields back.

Mr. Kaplan, 5 minutes.

STATEMENT OF RICK KAPLAN

Mr. Kaplan. Good morning, Chairman Blackburn, Ranking Members Pallone and Doyle, and members of the subcommittee. My name is Rick Kaplan, and I am the general counsel of the National Association of Broadcasters.

On behalf of NAB, I appreciate this opportunity to discuss the unprecedented repacking of nearly 1,000 TV stations as part of the broadcast TV incentive auction. NAB has worked closely with this subcommittee on the legislation authorizing the incentive auction and its subsequent implementation.

One of the fundamental elements underpinning our collaboration has been Congress' commitment that broadcasters and their viewers would be held harmless following the auction. In practice, this means that nonparticipating broadcasters would remain on the air, serve the same viewers after the auction as they did before, and not be required to incur costs when being assigned new frequencies.

At the outset, it might be helpful for me to clear up any possible misconceptions about what broadcasters are and are not asking from Congress. First, broadcasters are not seeking any money from Congress beyond what makes us whole. We are not and have never sought to subsidize upgrades beyond our current operations.

Second, broadcasters are not proposing that Congress resets the FCC's current 39-month repacking window. That framework has been established and the transition is underway. We are seeking, however, for Congress to make clear that no individual station should be forced off the air or have a significant reduction in service if circumstances beyond its control prevent the station's transition at its assigned time.

Third, now is the time for congressional action. For that reason, NAB greatly appreciates this subcommittee's willingness to hold this hearing and its ongoing consideration of legislative next steps.

Stations are well into the transition process with the first group required to move to their new channels just over 1 year from now. They are already incurring substantial costs and have no idea whether they are going to be fully reimbursed.

In addition, stations must understand their options today should their circumstances beyond their control prevent them from meeting their assigned transition deadlines. Broadcasters have every incentive to work towards a swift transition. There is simply no benefit to our industry if there are unnecessary delays.

For that reason, NAB is committed to doing our part to ensure that this first-of-its-kind auction is truly a success. We agree with CTIA that the incentive auction's failure would be crippling for future auctions. And nothing could be worse for the auction's precedential value than if the number-one takeaway is that incumbents were left

holding the bag.

However, the outstanding issues with the incentive auction demand Congress' attention, not only because their resolution comports with the spirit of the Spectrum Act, but also because of the critical role broadcasters play in serving communities across the country. It should not take a devastating event such as Hurricane Harvey to remind us just how indispensable broadcast TV and radio stations are to our Nation's safety and well-being.

For communities big and small, local broadcasters and national broadcast networks combine to provide critical news and information to keep the public educated and engaged. This is precisely why CTIA's and CCA's wireless emergency alerts instruct consumers to, quote, check local media when alerting communities to a matter of urgency.

It is also important that Congress take meaningful steps to protect those broadcasters who had no stake in the auction but are now, it is likely, collateral damage. Hundreds of FM radio stations that are colocated with repack TV stations may be saddled with new costs and significant disruptions. Low-power TV and translators are also struggling to maintain their ability to serve urban and rural audiences.

NAB continues to believe that with congressional FCC leadership the repack can be a success. To date, Chairman Pai has more than ably guided the commission through a repacking process that received little attention before he assumed the agency's helm.

We are grateful to bipartisan congressional leaders for their

attention to this issue and to Ranking Member Pallone and his cosponsors for their proposed legislative solution. We look forward to continuing to work with you to help this transition proceed as smoothly as possible for all stakeholders, and most critically, the viewers and listeners who rely on our signals every day.

Thank you again for the opportunity to discuss these issues, and I look forward to your questions.

[The prepared statement of Mr. Kaplan follows:]

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Mrs. Blackburn. Mr. Butler, you are recognized for 5 minutes.

STATEMENT OF PATRICK BUTLER

Mr. Butler. Thank you, Madam Chair. As the representative of --

Mrs. Blackburn. Microphone, please.

Mr. Butler. Got it. Okay. Sorry.

Thank you, Madam Chairman.

As the representative of 170 public television licensees throughout America, let me focus my testimony today on the need for more funds to complete the repacking of our channels in the aftermath of the spectrum auction. That need is real, and for public television stations in particular, those funds are essential to our continued service.

Thanks to the advocacy of this subcommittee, Congress approved a \$1.75 billion postauction transition fund in the original spectrum law. The FCC has now determined that broadcasters will need at least another \$400 million to be held harmless from the financial effects of this transition as the law requires.

For the 149 public television stations being repacked, the funding deficiency is more than \$50 million. This is in addition to the roughly \$270 million, which repacking public stations are scheduled to receive from the original transition fund.

These are all staggering, overwhelming figures for public

television stations operating as local nonprofit educational institutions, and we must rely on the good faith of the Congress to hold us harmless in this transition as promised.

Kentucky Educational Television alone must reconfigure 16 transmitters to accommodate the postauction repacking requirements. KET, a State agency, needs \$21 million to comply with this mandate of the Federal Government, roughly the equivalent of a 4 years' operating budget.

Other public television stations, whether licensed to States, universities, local school districts, or nonprofit community foundations are all in the same boat. Without your help, that boat will capsize, and with it will go the essential services in education, public safety, and civic leadership on which your constituents depend.

America's Public Television Station supported the spectrum auction process from the beginning, and we are committed to completing this repacking transition as soon as possible.

Dozens of public stations entered the auction and 26 licensees emerged with commitments to surrender their spectrum, share their spectrum, move from UHF to VHF frequencies or from high-V to low-V frequencies. With our friends at CTIA, the wireless association, we conducted a pilot project in southern California to demonstrate how spectrum could be dynamically shared.

We also engineered an agreement with our friends at T-Mobile to cover the cost of repacking 384 public television translators that carry our signal to almost 38 million viewers, many of them in rural

America.

But none of this should suggest that we are capable of bearing an additional \$50 million repacking burden on our own. Incurring such an extraordinary expense would devastate the very programs and services that make public television so valued by so many millions of Americans across the country and across the political spectrum.

For 54 percent of American families, public television is all the preschool education their kids get. PBS LearningMedia helps almost 2 million educators teach 40 million K through 12 students with more than 120,000 curriculum-aligned interactive digital learning objects created from the best of public television, the Library of Congress, the National Archives, NASA, and more.

Our mission of civic leadership encompasses serving as the C-SPAN of State governments hosting hundreds of candidate debates at every level of the ballot and producing thousands of hours of regularly scheduled programs on local public affairs, history, and culture every year.

And as we saw this past week, the public safety mission of local public television stations literally saves lives. The PBS Warning Alert and Response Network routed more than 400 wireless emergency alerts to the cell phones of people in the path of Hurricane Harvey in less than a week. And a public safety data casting network created by Houston Public Media and local emergency agencies enabled first responders to monitor flooding conditions by sending live video directly to the dashboards of emergency vehicles all across the vast

Houston metropolitan area.

Public television's public safety data casting has been so successful in pilot projects around the country that the U.S. Department of Homeland Security has entered into a formal agreement with us to promote this capability to public safety agencies throughout the country.

So in conclusion, the sooner we can get these additional funds, the more likely it is that public television stations can repack on schedule, avoid going dark, and continue the essential services we provide to 97 percent of the American people.

Congress is our only hope, and this subcommittee, once again, has a critical role to play in assuring that the last act of the auction process is as smooth and successful as the first. Thank you.

[The prepared statement of Mr. Butler follows:]

***** INSERT 1-5 *****

Mrs. Blackburn. Ms. Plantinga, 5 minutes.

STATEMENT OF LYN PLANTINGA

Ms. Plantinga. Good morning, Chairman Blackburn, Ranking Members Pallone and Doyle, and members of the subcommittee. Thank you for inviting me here today. My name is Lyn Plantinga. I am the general manager of NewsChannel 5 in Nashville, Tennessee, where I oversee day-to-day operations of 149 employees.

NewsChannel 5 is proud to be a part of the E.W. Scripps Company and its 33 television stations across 24 markets nationwide. As the number-one rated station in Nashville, NewsChannel 5 is dedicated to practicing the Scripps' motto: Give light and the people will find their own way. We carry out this mission by telling the stories of people who often do not have a voice and ensuring accountability for the actions of the powerful.

Our commitment to community through coverage of breaking news, severe weather, in-depth investigations, and civic engagement helps make Nashville a better place to live and to work.

Behind the newsroom cameras, before the Doppler radar image or the live feed from our news helicopter can reach our viewers, NewsChannel 5 maintains and operates a sophisticated technical infrastructure to originate and deliver our free broadcast signal over the air to viewers in middle Tennessee and southern Kentucky.

In the fall of 2019, this infrastructure will be tested when

NewsChannel 5 is required to move channels to accommodate an auction of broadcast spectrum that affords our station and its viewers no benefit. At a minimum, we will expend time and resources to significantly reconfigure our operations and educate over-the-air viewers to rescan their television so they can find us on our new channel. In the worst case, we will face out-of-pocket costs and viewer disruption that undermines our ability to serve our community.

To put what is an otherwise academic problem in real terms, NewsChannel 5's move will require the purchase and installation of a new transmitter, new primary antenna, and an interim antenna. We estimate that these equipment and labor costs will total \$4.1 million for our station alone. While this is a high number, it is not atypical. Of Scripps' 33 local television stations, 17 of them will be moving channels, including those in Tampa, Buffalo, and Detroit at an estimated cost of \$55 million.

More people tune to NewsChannel 5 for news and information than to any other station in the State of Tennessee. We have earned this position in the market through dependable coverage, quality journalism, and investing in our team and tools so we can raise the bar every day.

Local broadcasters like us who drew the proverbial short straw and face this channel change upheaval, through no fault of their own, should certainly not be required to drain additional resources from their coverage by footing the bill from a repack for which we yielded no benefit.

The logistics of our channel reassignment also prevents significant challenges in completing our move in the timeframe that is prescribed by the FCC. Though branded NewsChannel 5, we will actually move from channel 25 to 36 in Nashville.

Over the course of only 6 weeks, we will need to complete our work and coordinate with two other local broadcasters, the station that occupies the channel we are moving to and the station that will move into the channel that we currently occupy. There is little margin for error, and this will all be happening while five additional broadcasters perform similar tower work in Nashville.

We can foresee these difficulties because NewsChannel 5 has been down this road before. Our three previous channel moves during the digital transition proved extremely difficult because of challenges in scheduling the individual components of the channel change, getting equipment delivered, and work done on time.

Weather also played a significant role. Heavy rain can prevent a tower crew from climbing, especially on a tower as tall as ours at nearly 1,400 feet. Several days of rain or more severe weather can close the window to complete a project. This repack's compacted timeline and the market pressures of so many stations changing channels at the same time adds to the difficulty.

In conclusion, I really want to emphasize our shared goal for a successful transition that accomplishes Congress' objective of deploying additional wireless services. However, NewsChannel 5 asks that Congress take all the necessary steps to ensure that its relocation

costs are fully covered by the FCC.

We also ask that our viewers be protected from any risk of signal disruption should we be unable to complete our station move on time due to no fault of our own. Anything less would not only be inequitable, but would undermine the ability of NewsChannel 5 and all of these impacted broadcasters to continue to serve Nashville and the other local communities.

Thank you again for inviting me here today and I look forward to answering your questions.

[The prepared statement of Ms. Plantinga follows:]

***** INSERT 1-6 *****

Mrs. Blackburn. Mr. Tracy, 5 minutes.

STATEMENT OF JIM TRACY

Mr. Tracy. Chairman Walden, Chairman Blackburn, members of the committee, subcommittee, my name is Jim Tracy. I am the CEO of Legacy Telecommunications in Burley, Washington. But I am here today testifying on behalf of the National Association of Tower Erectors, or NATE.

I am honored to serve as the chairman there, and we are a nonprofit trade association in the wireless and broadcast infrastructure sectors. NATE's diverse membership encompasses every layer of the wireless communications ecosystems and infrastructure. It includes over 825 member firms. We build service and maintain hundreds of thousands of communications structures, towers, throughout the United States and other countries.

But I would be remiss -- and I am going to have to go off script here a minute -- if I did not reach out and say thank you to the -- a new concept is the zero responder, because the first responders don't get to talk to the people who are in trouble unless we keep them on air.

And the people that we serve are working right now in California and in Oregon, by your house, Mr. Chairman. And they are working in Washington, and they are working in Montana to make sure that we are leapfrogging all of the cell sites ahead of the fires.

And several weeks ago we started preparations, and ours were the people that were on the ground at the zero time, not the first responder, the zero responder to get ahead in the Gulf Coast to make sure that we could communicate when Irma was upon us -- or when Harvey was upon us.

And for the last week, down in south Florida, we have been making preparations with generators and cell sites, towers, and things like that to make sure that the first responders do have a way to communicate. So NATE member companies are and continue to be on the front lines of not only the natural disasters but also this broadcast repack.

And the FirstNet deployment. And let's not forget about the densification of not only those networks but also the next gen, the 5G that is coming up. This is creating the perfect storm for the wireless tower climber.

Now, NATE's mission has -- NATE's mission statement is focused on the core principles, there are really four pillars: safety, quality, standards, and education. It was drafted 22 years ago when the association was founded. And not only are these the guiding principles today, but they are also the foundation on which we were built.

In recent years, we have continued and we are working collaboratively with OSHA, FCC, and FAA. And we have developed a variety of safety and education programs and tools for our members and their climbers, such as the NATE STAR program, voluntary program where we worked directly with OSHA on and where our members commit to higher

levels of education and training and that kind of thing.

I also would like to bring to your attention our broadcast video repack. That is where we reached out and talked to the climbers to show them a video. These are the generation that text with two thumbs. We have to get to them and talk to them in a way that they can reach and understand.

So that workforce video provides an overview of the unique challenges that are on these tall big iron structures. Greater detail on this is included at the end of the written testimony.

We have also partnered with ANSI to create -- ANSI, what we call A1048, which is the tower standard, defines what a tower is and how it should be put together.

We also have worked with the National Wireless Safety Alliance. It is a broad coalition of all parts of this industry, which I am proud to sit with these people at the table today who are all of our friends. Anyway, they provide tower technician certification and credentialing to lift up the people who actually have to go out and do the work and allow them to do it with dignity.

Through these and other efforts we are building, maintaining, modifying communication towers faster and safer than ever before.

There is one unescapable fact: At present, there are not enough qualified workers to perform all the work that is going to be required in this perfect storm. Today, I am the voice for an estimated 30,000 tower industry workers. We refer to them as tower technicians. Many of these men and women are employed by NATE member firms. Yet the

workforce challenges our industry faces continue to meet communications demands will be exacerbated not only by the repack but by the establishment of FirstNet, 5G, and the tower marking mandate that the FAA has on top of us.

I kind of went off script a little bit, so I am going to skip ahead and say thank you very much for your time. It is not enough for people to want these tower jobs, but they have to be able to physically and mentally be capable of performing the tasks. So I appreciate your time today, and I look forward to answering your questions.

[The prepared statement of Mr. Tracy follows:]

***** INSERT 1-7 *****

Mrs. Blackburn. The gentleman yields back.

And this concludes our testimony. And so we are going to move into our question and answer part of this hearing. And I am going to begin by recognizing myself for 5 minutes.

And, Mr. Bergmann, I want to come to you. And let's talk a little bit about what you mentioned in your testimony with how an extension on the repack schedule, making changes there would affect the carrier participation in this and in future auctions. So I want you just to drill down on that just a little bit more.

Mr. Bergmann. So I thank you very much.

Mrs. Blackburn. Microphone, please.

Mr. Bergmann. Thank you very much for the question. Appreciate it.

For us, this transition really sort of boils down to one simple thing: The faster we get access to spectrum, the faster we build out. The faster we are able to serve rural America, the faster we are able to build out 5G, and the 39-month timeline is an absolutely critical part of that for our companies.

We talked a lot about \$20 billion that this auction raised, which is remarkable, right, the second largest spectrum auction by revenue. But what that means to the companies and the bidders, right, who have made those bids, I think is worth note, right.

This is the equivalent of purchasing JetBlue, right, or purchasing Best Buy, or, you know, Domino's and Alaska Airlines, and then, you know, saying you are not going to be able to use it for, you

know, 3 years and 3 months.

So, you know, that is a tough sell to boards of directors, right, to go and make that kind of investment. But the reason our companies do that is because of competition in the wireless industry and a desire to serve and lead and bring new services to American consumers.

So this timeline is really important for the investments that we are making. I think it is really important for us as a country as well too, when you think about the economic growth and job creation that will come out of this spectrum.

So we are very appreciative of this committee's willingness to hold this oversight hearing and to try to make sure that we stick to that 39-month timeline.

Mrs. Blackburn. Okay. Ms. Murphy Thompson, you talked a little bit about jobs and jobs growth. Do you want to quickly add anything to his comments?

Ms. Murphy Thompson. Yes. Thanks. I wholly agree with Mr. Bergmann about the uncertainty. But, in particular, for rural carriers who -- I have a chart here that I would like to show you. Competitive carriers are the ones who really showed up for this auction. They are the blue ones. They basically mortgaged the farm for this spectrum, and access to it is critically important especially in rural areas. Rural constituents are the ones that are going to benefit most from things like telehealth and distance learning and enhanced public safety. And all those things are -- incredibly spur job creation throughout rural America, which is what we are focused on.

Mrs. Blackburn. All right. Ms. Plantinga, let me come to you. You have been through this before, and you referenced that in your testimony. And channel 5 is scheduled to go through in phase six --

Ms. Plantinga. Yes.

Mrs. Blackburn. -- which means late 2019 for you.

So what I would like for you to quickly do is discuss what you are doing to, in preparation, kind of how you are timelining this out since you have done this before, and then what your expectations are, and then, for the record, what your concerns are, if you will just timeline that out a little bit.

Ms. Plantinga. Yes, Chairman Blackburn, thank you for that question.

Because the E.W. Scripps Company has over half of its television stations changing channels as a result of the auction, we have a cross-company repack team that is leading the effort on this. At NewsChannel 5, I can tell you that already we have our strategic plan in place.

Changing channels is a little bit like changing the tires on your car while you are still rolling down the highway, because you have to keep the existing signal on the air while you are building the infrastructure for the new station. And we have a strategic plan to do that using a temporary antenna and a lot of equipment.

We have identified the individual pieces of equipment that we will purchase, and we have identified the vendors who will do the work for us. So I do believe our ducks are in a row for the transition.

In terms of concerns, I would say based on past experience, I have a couple of concerns. The first, of course, is the financial piece. We want to be certain that we are fully reimbursed for the cost of this transition. Again, we were the people who drew the short straw, and we understand it is our responsibility to step up and make this happen, and we intend to do that. But we were told at the beginning of this process that those costs would be reimbursed, and we are looking for assurance that that is going to happen. The uncertainty around the financial piece is a concern, and we all know uncertainty is bad for business.

The second concern that I have is around the timing. In our previous channel changes, we have had some difficulty. I think the current timeframe is achievable if all goes smoothly. But in our previous channel changes, we have run into some obstacles, and that timing is a concern.

Mrs. Blackburn. Thank you.

Time has expired. Mr. Doyle, you are recognized.

Mr. Doyle. Thank you, Madam Chair.

This first question is for the whole panel, and I am just looking for a yes or no answer. Do you think the broadcaster relocation fund is sufficient to relocate the broadcasters? I will start with Mr. Bergmann.

Mr. Bergmann. Certainly, based on the FCC's initial estimates it looks like --

Mrs. Blackburn. Microphone.

Mr. Doyle. Microphone, please. And I am looking for a yes or no.

Mr. Bergmann. Sure. I think based on current estimates, it looks like no.

Ms. Murphy Thompson. No.

Mr. Doyle. No.

Mr. Kaplan. No.

Mr. Doyle. No.

Mr. Butler. No.

Mr. Doyle. No.

Ms. Plantinga. No.

Mr. Doyle. No.

Mr. Tracy. That is not my area of expertise.

Mr. Doyle. Okay. So we have, what, five noes and an abstention.

Let me just say to my colleagues on both sides of the aisle that we are ready to close this gap. I don't think any of us want broadcasters in our districts to go off the air and people to be cut off because of an accounting error.

Let me ask, first, Mr. Kaplan, I have heard allegations that some stations are dragging their feet to complete their channel moves in the hopes that if they wait long enough, they can more fully transition to the new ATSC 3.0 compatible equipment. I have also heard that some broadcasters are demanding that this new technology be included in new wireless devices. Mr. Kaplan, tell me, are stations trying to slow walk this process and have the deadlines pushed back or delayed in the

hopes that they can get either taxpayers or auction winners eager to get access to this spectrum to pay for these upgrades or concede to costly additional features on their devices? Does your organization think that is right or fair?

Mr. Kaplan. Well, absolutely not. I don't think that has actually been going on, to my knowledge. And the FCC has set up very specific deadlines by which you have to transition. So even if someone was to attempt to do that, there is no ability to do that because the FCC has said you must transition. And we have supported, throughout the process, an aggressive transition --

Mr. Doyle. Mr. Bergmann, what do your members think?

Mr. Bergmann. So I certainly think we think it would not be appropriate to slow down the transition for a technology upgrade. We certainly hope that broadcasters will do everything in their power to stick to the timeline.

Mr. Doyle. Ms. Thompson -- Ms. Murphy Thompson, excuse me, CCA has filed a petition to deny the Sinclair-Tribune merger at the FCC, and your testimony expresses concerns that this deal could impact the repacking process. Tell us what your concerns are.

Ms. Murphy Thompson. Thank you. That is a good question. I appreciate the opportunity to expand on that.

There are two primary concerns: First is the sheer size of Sinclair and Tribune, and together they would have to move over 200 stations. We also have seen already that Sinclair has had reluctance in complying with a 39-month timeframe, and so post transaction we are

concerned that having to move 200 stations could derail the timeframe and divert resources away from broadcasters who are ready to move.

The second is Dielectric, who is a subsidiary, a broadcast antenna equipment manufacturer of Sinclair. They post transaction would hold 90 percent of the market share. That is pretty staggering. And with that and the daisy chain issues that will occur, we are concerned that there is going to be artificial demand for Sinclair stations and, again, diverting resources away from broadcasters that are ready to move.

Mr. Doyle. Thank you.

Mr. Butler, Deborah Acklin from WQED in Pittsburgh is on your board, and their station and others participated in the incentive auction to some degree. How do you see public television stations leveraging these funds to secure themselves and also expand and evolve their mission, and what is your hope for the public TV post auction?

Mr. Butler. Thank you, sir. Well, WQED is certainly taking the lead, as it has over several decades, in enhancing the educational mission of all the public television, beginning with Mr. Rogers and The Fred Rogers Company and so forth.

So I believe Deb's intention is to not only retire some debt, which her station incurred over the last many years trying to operate on a shoestring, but also to enhance this educational mission still more. I think that is also the ambition of most of the 26 stations that have participated in the auction and have gotten some kinds of proceeds from them.

But, you know, local public television is a very idiosyncratic

thing. The adage in our industry is if you have seen one public television station, you have seen one public television station. And so each of these stations is going to have its own philosophy about how to best apply these funds. And some will be enhancing their endowments. Some will be doing a lot more in public safety, which we are very much encouraging them to do and in education.

But we are all in the public service business, and these funds, which are unevenly distributed across an idiosyncratic system will not give the entire public television system a particular boost in one direction or another. These will be local decisions that local managers like Deb will make.

RPTR TELL

EDTR ROSEN

[11:01 a.m.]

Mr. Doyle. Thank you. Thank you, Madame Chair.

Mrs. Blackburn. Chairman Walden, you are recognized for 5 minutes.

The Chairman. Thank you very much, Madam Chair. And, Mr. Butler, I appreciate your testimony and the good work your stations do, and you are a reminder to the committee that it was our subcommittee that I chaired back when in 2012 that said probably need about \$3 billion to do this.

Mr. Butler. Exactly right. You were right.

The Chairman. And then it ran into our friends in the Senate who wanted \$1 billion, and we got it up to \$1.75 billion, and my belief then was that wasn't enough but it was the best we could negotiate with Senator Reid and his people and now we are -- some of us could say, told you so. But we still don't know what the exact number is going to be, and I think it is important we work together as we go through this transition and repack to make sure that broadcasters are not adversely harmed, because having played a large role in writing this the assurance was given, as we are reminded from my broadcast friends, that those innocent parties would not be injured, they would be compensated, and there would be time to work this through. And so, we have more work to do here clearly.

Mr. Tracy, I appreciate your testimony. I was in the broadcast business for a number of years, and I remember one year the FCC came around and decided to check the paint on all the towers in our area, and decided a lot of them needed to be repainted all in the same year, which, of course, they checked in summer and at 55 degrees or whatever you can't repaint, and there are only like X number of painters, and so I worry about the pressure on your industry to be able to satisfy the re-move to hang these antennas, to perhaps erect new towers and all of that. And you have indicated the market will dictate that. You have pressures with FirstNet buildout and others. Can you meet the 39-month deadline?

Mr. Tracy. You know, it is really important to recognize that the application of pressure creates opportunity to hurry, and our business is not a good business to hurry in, and while most of the towers are not -- you know, the hyperbole indicates that we always say they are 2,000 feet tall --

The Chairman. They are not.

Mr. Tracy. In Mr. Kramer's market, that KVLV tower is probably 2,000 feet. In reality, most of them are 800, but that is still a long fall.

The Chairman. Yes, we don't like to talk about it in those terms. I think ours was 140-something feet. It was an AM tower, but the TV towers are much higher. The question, though, is based on your experience, your knowledge of the industry, is it -- can these stations get relocated in 39 months?

Mr. Tracy. Having not done it before, that is a great question. I think some of our friends on the broadcast side have brought up weather issues are certainly going to come into play, but I think the biggest thing we need to focus on is, number one, we need to do it safety regardless of time frame. Number two, we need to make sure that we are recruiting and training better than we have in the past so that we have the qualified -- but frankly, there aren't enough people to do all of the work that we have mentioned across. I called it the "perfect storm for wireless."

The Chairman. Right.

Mr. Tracy. It is 5G. It is FirstNet. It is repack. It is pinning for aviation FAA standards, and all of those are subject to time constraints.

The Chairman. In terms of your situation in Tennessee, are you able to get the other equipment when you are ordering new antennas, new transmitters and all that, do you feel confident that your station there and the others you are involved with, that that flow is working in a timely enough manner?

Ms. Plantinga. It is a good question. I believe that the time frame that has been laid out from our perspective is achievable if everything goes smoothly.

The Chairman. All right.

Ms. Plantinga. Our experience has been, specifically, in three channel changes, we have not had one that has gone smoothly.

The Chairman. Yes, I understand that.

Ms. Plantinga. Some specific concerns that have involved weather, that have involved equipment, and that have involved personnel.

The Chairman. I guarantee I am the only chairman of the committee that has ever done an all-nighter at the base of a tower in a foot of snow while we are doing a transmission line. And I heard from broadcasters in my district especially, Patsy Small at KOBH about their issue with translators, and I think a lot of us thought that would be the last thing we would deal with, and indeed, it suddenly is becoming the first thing, and that the frequency tables aren't out there for the final allocations for those translators, so they may end up doing it twice. Are you running into that?

Ms. Plantinga. I will tell you we have a translator in Nashville, which we think may not be affected by this, but my biggest takeaway regarding translators is the difference between a primary signal and a translator is something we may all discuss, but from a viewer perspective you get the signal or you don't.

The Chairman. Right.

Ms. Plantinga. And viewers that receive their signal via a translator value that signal as much as any other viewer, and if that is taken away, that is a tremendous disruption.

The Chairman. Yes, and part of what we pledged was we would try not to diminish the coverage area of the stations, and in markets like I represent, a lot of that is served by those very translators, because you are off down in a hole somewhere.

So it is something we probably should have included in the funding piece and did not, and it is something we are going to have to work through, but we also have to recognize we have got people that bought this spectrum and need to be able to move on it. So I understand that, as well. We have got our work to do, Madame Chair, and I appreciate you holding this hearing.

Mrs. Blackburn. The gentleman yields back, and at this time, Mr. Pallone, you are recognized, and I know you want me to be generous with the time because you missed your opening statement.

Mr. Pallone. Oh, well, that is all right, Madam Chair. I just wanted to ask unanimous consent to introduce my opening statement into the record.

Mrs. Blackburn. So ordered.

[The prepared statement of Mr. Pallone follows:]

***** COMMITTEE INSERT *****

Mr. Pallone. Thank you. So this will be the second time in the last decade that the TV industry has been repacked into a smaller portion of the spectrum. The first was in 2009 with the digital television transition, and just as back then, we need to make sure that viewers and radio listeners do not get left behind. And so, that is why I included funds in the Viewer Protection Act to help support consumer education. This was modelled on how Congress approached the DTV transition.

So I wanted to start with Mr. Kaplan. You helped spearhead the consumer outreach for the FCC in 2009. In some ways, this transition seems even more complex than the last one. Are there lessons we learned from that experience that can help us this time around?

Mr. Kaplan. I think there is. I think the first one that many members mentioned right off the bat is industry is working together. And I am also pleased to report that the FCC has been working very closely with our industry already to get things off the ground, and that will be critical because we all play a part, whether it is moving off spectrum, moving to spectrum, so I think collaboration is absolutely key.

I think you mentioned the funding piece, and that absolutely is another important component. In the last few months of the DTV transition, Congress did approve \$90 million to go towards consumer education. In that case we had one date, June 12th 2009 that was the transition date. Here we are going to have many, many dates in each market just to solve with. So luckily, we at NAB have done a lot

already. We have a website up and running for consumers, TVAnswers.org, PSAs, videos, things like that. So I think those kind of things are going to be imperative as we move forward.

Mr. Pallone. Thank you. And then I wanted to ask Mr. Butler, during Hurricane Sandy public broadcasters played a critical role in keeping people informed and saving lives, and I know the stations in Houston have also been going above and beyond over the past couple of weeks, and these efforts demonstrate just how important public broadcasters are for our communities. So if you would just say what are the potential outcomes for public TV stations if there isn't enough money in the reimbursement fund?

Mr. Butler. Well, as I have said, we operate on shoestrings to begin with, and we are non-profit organizations that don't have a lot of capital sitting around to invest in anything. And so, the risk for us is almost existential, if we have an unfunded mandate like a \$50 million fund for a transition that we can't meet. So everything is at risk for us, all the programming that people count on, all the educational services that we provide to schools around the country, all the public safety work that we do in New Jersey and Texas and elsewhere, and the civic leadership that we provide, trying to equip our citizens to have all the information that they need to make the appropriate decisions, they need to make in the world's most important democracy. All of that is at risk if we are faced with a \$50 million bill in addition to the \$270 million that we are likely to get from the transition fund.

If we can't pay for that, all of that is at risk, and it is a big problem for us, and I don't want to disparage anything that the commercial broadcasters feel about this, too, but as nonprofits, we have a particular interest in making sure that this program is well-funded.

Mr. Pallone. Thank you. And then I wanted to go back to Ms. Thompson. One of the goals of the Viewer Protection Act is to make sure that we get the spectrum into the hands of wireless providers as quickly as possible, and I know that in response to Mr. Doyle, Ms. Thompson, you raised concerns about the potential impact of the proposed Sinclair/Tribune merger on the 39-month repacking process time frame. But could you just elaborate on your concerns on how that might relate to the Viewer Protection Act, if you would?

Ms. Murphy Thompson. Sure. So the transaction between Sinclair and Tribune will, by its own CEO's admission, create the largest broadcast company by a country mile. Having said that, that creates both vertical and horizontal market power that will allow them to delay this transition.

We believe that oversight, and through the Viewer Protection Act, additional funds will be necessary to help broadcasters and the likes of Mr. Butler's company to help them transition, so we fully support providing additional funds when necessary. I think I would just close in saying that the Sinclair/Tribune transaction only benefits Sinclair and Tribune, which is why nobody supports it.

Mr. Pallone. All right. Thank you very much. Thank you, Madam

Chairman.

Mrs. Blackburn. The ranking member yields back, and at this time, I recognize the vice chair of the subcommittee, Mr. Lance.

Mr. Lance. Thank you, Madam Chair, and good morning to the distinguished panel. Mr. Bergmann, it is important that the United States win the race to 5G, because it means significant investment and jobs here in this country.

A recent report by Accenture estimates that 5G will bring 3 million new jobs, and half a trillion dollars in increased GDP. During the August district work period, I led a roundtable of companies in the district I serve. Those companies are some of the leading innovators in 5G, and we discussed how we can ensure that the United States will continue to be the leader in wireless innovation.

One key that was brought up several times is the necessity of sufficient commercial spectrum available to meet the needs of 5G deployment. How important are FCC spectrum auctions, such as the most recent incentive auction to this effort?

Mr. Bergmann. So thank you for the question and thank you for your leadership as well, too, on this topic. We really appreciated the 5G forum that you held back in New Jersey and drawing the attention of communities to the opportunities that 5G brings. You talked a little bit about the investment that wireless providers are ready to make in 5G, \$275 billion over the next 7 years, and the opportunities that creates, 3 million new jobs, half a trillion dollars to our economy, and that is really an opportunity for communities.

I think we talked a lot about what 5G might mean in terms of increased speeds, increased capacity, but I think one of the things that is really exciting about 5G is the opportunity to reinvent industries, to create smart communities, the opportunity to integrate wireless so that our transportation times go down, so that we save lives, so that our medical capabilities are enhanced. So there is a tremendous upside, I think, both for us as a Nation, and then for our communities with 5G.

And the 600 megahertz spectrum is really a key part of that. We talked a lot about the need for low-, mid-, and high-band spectrum for 5G, and this 600 megahertz spectrum is prime low-band spectrum that enables signals to travel long distances and enables us to connect 100 times the amount of devices that we could connect before. So as we think about trying to have automated vehicles, embed sensors into our water systems to get better water quality, and then just to connect people right across broad areas, the 600 megahertz spectrum will play a really key role and this incentive auction is a key part of that, making sure that we are sticking to our timelines, and getting that spectrum out to use quickly is also a really key part of it.

Mr. Lance. Thank you very much for your answer. Ms. Plantinga, I may be from New Jersey, but my wife and I met at Vanderbilt Law School in Nashville, and the principal reason Marsha has permitted me to serve on this committee.

Ms. Plantinga. Excellent. Good decision making all the way around.

Mr. Lance. It certainly was a good decision that I was able to meet my wife.

We witnessed the horrific hurricane, and we, of course, all pray for the people in Florida, and Ranking Member Pallone and I are intimately familiar with what happened at Sandy. Broadcasters keep local audiences informed and safe in times of emergency. How does your local station keep viewers informed and what does the repack mean for this critical service to communities across the Nation?

Ms. Plantinga. Absolutely. We have a commitment to quality investigative journalism. Our station is a leader nationally in weather coverage and weather equipment. Tennessee is actually a dangerous place for weather. The number of deaths related to tornados in Tennessee is very high. So we take that responsibility very, very seriously. So that certainly is an important way to keep people informed.

I will tell you in 2010 a 500-year flood hit Nashville Tennessee, and NewsChannel 5 was flooded. We lost our entire newsroom. Everyone had to leave that floor of the building, and we stayed on the air for several days with nonstop coverage keeping the community informed and letting people know where they could go, what areas to avoid and keeping our communities safe. So our commitment to safety and information in middle Tennessee is our greatest responsibility.

In terms of what this repack means for us, my biggest concern at this point is regarding the timeline, because I know that we will do our part to stick to this timeline and want it followed. The difficulty

is if something happens that is beyond our control, for example, weather, delivery of equipment -- an example for weather would be a lot of people realize if you have a tornado, you are not going to be climbing a tower. People may not realize that a good, hard rain can prevent a tower climb; or a blustery day where the winds are going in a few different directions, so essentially, normal weather can shut down a tower climb. If you get a good week of rain in a compacted time period like ours where three stations are moving in 6 weeks, a week of rain can make that goal unattainable.

So our ask is simply if it is a situation like that that is out of our control, that we have some type of safe harbor that allows our signal not to be cut off. Because my understanding is we don't have that now, and that if something like a rainy week caused us to miss our deadline, that NewsChannel 5 is shut off for all of middle Tennessee.

Mr. Lance. Well, thank you my time is expired. That is a very good point, and my thanks to the entire panel. I yield back.

Mrs. Blackburn. Ms. Clarke, you are recognized for 5 minutes.

Ms. Clarke. I thank you, Madam Chair, and I thank our ranking member. I thank our panelists for their expert testimony here this morning.

To Mr. Butler, public television is an extremely valuable resource for Americans across the country. This has been for at least a generation or more now. Public television stations are critical for the education of children and preparing them for the new STEM jobs and

opportunities of the future. Unfortunately, these operations aren't always fully funded. And I am concerned that the potential shortfall in the repack could endanger these small stations. Would you provide us with your view as to why getting the repack right is particularly important for the Nation's public television stations?

Mr. Butler. Yes, ma'am. Thank you. As I have said in other responses to other members here, the issue that we face is that we just don't have this kind of money sitting around to invest. And absent the help of Congress itself we are going to have a very difficult time. It is going to be impossible to be frank for us to meet this burden, which Congress, in its original Spectrum Act, said we should not be burdened with to begin with, we should be held harmless, and this is a great harm that is about to be inflicted upon us, absent some additional funds.

So I would say that the issue that we face is that all of the work that we do is endangered by the possibility that these funds will not be made available to us, and I think it is also important for the committee to understand that not only the urgency of the funds, but the fact that the funds will be made available sometime soon is just very important. Our stations, almost half of them, are State or university licensees, and so they are beholden to State budget cycles, university budget processes and so forth, and they have no capability on their own to raise this kind of money, and absent the certainty and the speed with which Congress needs to act on this issue, half of our stations are just going to be floundering without any certainty as to

how to meet this obligation. And if we go dark, all of the things that we do in education and public safety and civic leadership are gone, and the American people have been quite generous in their support for us, not only for the Federal funding that we support, but in every public opinion poll that really has ever been taken since we went on the air. We are among the most trusted, the most valued institutions in America straight across the political spectrum, and I just don't think we want to lose that at a time like this.

Ms. Clarke. Absolutely. I thank you for your response.

Ms. Thompson, in your written testimony, you note that a combined Sinclair/Tribune transaction has the potential to slow the repacking process. I also understand that Sinclair already owns the dominant broadcast antennae manufacturing company. Do you think Sinclair could use its control of this company to slow down its competitors' ability to meet their repacking debt timelines?

Ms. Murphy Thompson. Yes, that is a great question. And the answer is without a doubt. As I noted, Dielectric post-transaction will have 90 percent of the market share, which will give them the ability to focus primarily on stations, the Sinclair stations diverting resources from broadcasters who were ready to move, many of whom have been doing preparations already today to make the 39-month deadline a reality. So we are very concerned about that.

Ms. Clarke. Very well. Thank you for your response. And to Mr. Bergmann, can the 600 megahertz band support next generation 5G wireless technologies? And can we expect the deployment of 5G services

in this 600 megahertz band to serve as a catalyst for 5G deployments in other frequency bands.

Mr. Bergmann. Thank you, Congresswoman Clarke. Absolutely. And we are already seeing winners in the auctions start to roll out. Services in the spectrum is remarkable within 2 months of receiving licenses starting to build out advance LTE services, and planning for 5G as well, too.

As a country, we are aiming to lead in 5G, and within our industry our members are vying to lead in 5G. The U.S. delegation went to the standards bodies and asked to have the standards accelerated by a year in 5G. And we are very much thinking about high bands, mid bands, and low bands. The 600 megahertz spectrum is ideal for that low-band spectrum for 5G, so we very much have our plans on that.

Ms. Clarke. Thank you.

Ms. Murphy Thompson. Yes, I know your time is expired. Can I indulge you for a minute to collaborate what Mr. Bergmann said?

Mrs. Blackburn. Quickly.

Ms. Murphy Thompson. So we have a joint member T-Mobile who has already deployed in Cheyenne, Wyoming, and I just was hoping to put into the record the press release that describes how they have already been using the 600 megahertz spectrum.

Mrs. Blackburn. The gentlelady yields back. At this time, Mr. Shimkus, you are recognized for 5 minutes.

Mr. Shimkus. Thank you, Madam Chairman. Thank you for being here. It is a very good panel, very important subject; 39 months and

enough money, if you want to boil it down, I think that is kind of the debate.

So just on just a few specifics. Mr. Bergmann, on the 5G -- first of all, Mr. Tracy, you are in a great position. People want to build towers. So we just got to find the workers, and we should be able to do that. Are a lot of the people who are building the towers, are they with bargained units or CWA, Communication Workers of America, or are they not bargained or -- because I know some unions have the programs of Helmets to Hardhats programs where you can transition military personnel. I am a veteran, and a lot of us are, which would seem like, you know, if someone is ready to jump out of a plane or climb a cliff, they might be able to climb a tower. Do you have any other of those type of programs or work --

Mr. Tracy. We have worked very closely with Warriors for Wireless, although that program is in the beginning, and it does take a longer time to transition into the broadcast portion. That is a skill set that is, quite frankly, very technical and different from what we do in the wireless carrier category, so.

Mr. Shimkus. But also, our military does have a pretty good expertise in communications themselves?

Mr. Tracy. They do, and you know, especially when you look at our special forces they have very defined objectives with small teams and compressed time frames that are very high-pressure situations. They generally have thrived in wireless.

Mr. Shimkus. And I have also worked in my district quite a bit

about working with local community colleges who should be the gateway, and that has been -- it is still challenging. I continue to be frustrated by the jobs available in the manufacturing sector and getting qualified people who will show up on time who are drug free and that challenge, and it is a societal thing, and I am kind of saddened for it, but you are in a good position if you are the builder and people need to redo these towers, so I wanted to throw that on the table.

But following up, Mr. Bergmann, on 5G, we had a hearing a couple months ago, and part of that was not on towers anymore. The proposal is these small boxes to be placed kind of on Main Street, and affixed to buildings and stuff. Is that true?

Mr. Bergmann. Thanks for the question, and it is a nice challenge to think about having more jobs, right, than we can fill, but you are absolutely right. As we think about the next generation of wireless architecture, we are thinking not just about large towers. That is still an important part of wireless network infrastructure, but we are thinking about this evolution to small cells, things that are more like the size of a pizza box or a baseball bat. And the challenge that we are facing is we have about 300,000 cell sites today. We are going to add about that same amount over the next 3 years, so literally, double the number of sites we have got. So as we think about those new small cells, we need to think about the infrastructure citing policies so that we make sure that we can build that out quickly.

Mr. Shimkus. I think a lot of us are very supportive of that. Let me finish with the public broadcasting folks who -- it is a great

heritage, a great tradition, an example, and I wanted to use this opportunity to talk about the Luther movie that is going to be aired on many public broadcasting stations on September 12th. This is the 500th anniversary of the Reformation, so Thrivent Financial has put together a movie to talk about the life and times of Martin Luther and it will be aired nationally. That is something that obviously the for-profit entities can't do all the time. It has been an education historical account, and that is a -- that added value that you all bring, and so we would hope in this transition that we first do no harm to other voices out there in the broadcast sector.

Mr. Butler, do you want to comment or add to that?

Mr. Butler. Thank you, sir. Thank you very much. The Luther documentary is a wonderful example of the kind of work that we do that nobody else does. I am not on the programming end of the public television business, so I don't want to misrepresent anything here, but it is true that this is our stock in trade going to programming that nobody else is going to do.

In that vein, Ken Burns will be premiering his 18-hour history of the Vietnam War starting on September the 17th on public television. There is nobody else in the world that would devote 18 hours to a history of the Vietnam War, other than American public television, and we are very proud of the fact that that is the business that we are in. Whatever one thinks one knows about the Vietnam War, your assumptions are going to be challenged and some will be overturned by this series that Ken has done.

I have been fortunate to see all 18 hours of it, and it is a masterpiece. So we are very proud of the fact that we do that kind of programming, which is not going to find its way on any other broadcast signal, and we are committed to continuing that kind of work.

Mr. Shimkus. Thank you. Thank you Mr. Chairman.

Mr. Lance. [Presiding.] Thank you, Mr. Shimkus. The chair recognizes Mr. Loeb sack.

Mr. Loeb sack. Thank you, Mr. Chair. This has really been informative, as all these hearings are. It is really great to have so many great people on the panel here, and thank you for your testimony in answering so many questions.

The first thing I want to say, Ms. Plantinga, back in 2008, when Iowa suffered a huge flood, and half the damage of Iowa was in my congressional district. We had a local TV station was flooded in downtown Cedar Rapids, and they had folks literally broadcasting outside the station, and so, I just want to appreciate sort of the heroism and the great service of so many of these local folks like you. I really appreciate that.

You know, clearly today, this selection impacts services that are critical to folks in my district, broadcast television, mobile broadband, and on both fronts, we need to make sure these transitions are done seamlessly, and I think we can all agree on that. In order to both protect consumers and make sure that Americans can reap the benefits of the auction, including the potential for improved rural broadband access, really important for my district, for Chairman

Walden's and others, as well, Marsha's, others, and I am encouraged to hear there have already been voluntarily efforts by auction winners, T-Mobile, to help translators in low-power stations, particularly in those rural areas.

And, Ms. Murphy Thompson, I appreciate you mentioning in your testimony my legislation, your written testimony. While the Rural Wireless Access Act does not deal specifically with repack, I share your concerns that we need better wireless coverage data in order to achieve the goal we all share of improving rural broadband access, and I want to thank, in particular, Mr. Costello, for joining me on that bill in a bipartisan effort, and I hope we can move that sooner rather than later.

As sometimes happens, Mr. Shimkus sort of took some of my fire away already when it comes to workforce development but, I do have to ask you, Mr. Tracy, first of all, I appreciate your testimony. These are great jobs that can't be outsourced, for one thing. That is really fantastic, isn't it, that we don't have to worry about these kinds of jobs moving overseas? But I do want to ask you, sort of, what are the qualifications for these workers in the first instance, people who are doing these towers, working on these towers?

Mr. Tracy. I guess the first element is the ability and the willingness to ascend and work at elevation. And when you get beyond, that the training and education requirements involve everything from fall protection to RF safety and awareness, and when you roll into that then you are talking about the differences in being able to identify

the hazards of working at that, and it is everything from, you know predatory birds to hornets and wasp nests that are 130 feet off the ground that could surprise you. And when you add all those things up, it takes a long time to get someone so that they are very productive in their job, and you don't do anything second nature when you are 130 feet off the ground until you have done it quite a few times and your muscle memory begins to kick in.

Mr. Loebsack. Well, I want to echo Mr. Shimkus' remarks about, especially, the Helmets to Hardhats program because I actually have a couple of kids who are in the Marine Corps and I have traveled overseas a number of times on the Armed Services Committee to visit our troops as a number of folks here today have. Those folks, in many instances, are very qualified for these kinds of jobs. I just would want to make sure that, you know, folks continue to tap into that reservoir of experience and ability and willingness to do these kind of jobs as well. I just wanted to second what Mr. Shimkus said.

And certainly workforce preparation, you know, I am a huge fan of community colleges. I have my own saying I made up that community colleges are the principal intersection, not the only, but the principal intersection between education and workforce development, so I wanted to put a plug in for them as well as Mr. Shimkus did. Do you have any comments you want to make on that or other job training programs?

Mr. Tracy. There is a community college in Iowa that does a wonderful job. They are an ATE member, and they do a wonderful job

of training, but also, there is an outfit that operates in California, Texas, and in my home State of Washington called Airstreams Renewables, that is actually recruiting from active duty military and making the transition available for our heroes that are coming back from the campaigns.

Mr. Loebsack. Thank you very much. One quick question I want to get on the record at least. It does sound like this broad agreement that more resources are needed to ensure the smooth transition that we are talking about. And Mr. Kaplan, why is it important to address the funding and possible timing shortcomes now even though the station moves themselves won't start until later next year?

Mr. Kaplan. Well, as you said, the work is being done now, and so the equipment is being ordered, and all those kinds of things are taking place today, and if that is not addressed now, broadcasters have no certainty as to what might be covered, and especially in terms of timing, if they are going to be knocked off the air because of circumstances beyond their control, and they don't know that until that moment, that is going to be devastating for the broadcasting industry.

Mr. Loebsack. Thanks to all of you and thanks, Madam Chair. I yield back.

Mrs. Blackburn. The gentleman yields back. Mr. Guthrie, you are recognized.

Mr. Guthrie. Thank you very much. Ms. Plantinga, so I am in Bowling Green, Bowling Green, Kentucky, so I am Metro, and I am in your media market, and so we get NewsChannel 5, and some people say people

in my area know more about what is going on in Nashville than Kentucky. I was never reminded more of that once when I was flying from D.C. back to Nashville, and I was flying with the chairman, Diane Black, and Jim Cooper, and a lady nudged me after we landed and said, "You can't believe this, but we were flying with three Congressmen." Well, I didn't say four, I just said "Well, they looked familiar," but anyway, so a lot of people do watch -- in my area, watch your -- know more about Nashville going on. But I say this because even I have your program, your channel programmed on Sunday morning when I am at church. There is a show I like to watch when I get home, and so I guess my question is probably more of a nuisance than a problem, and Mr. Kaplan, if you will talk about this too, but you individually, there is going to be 1,000 broadcast stations, yours in particular in my area, that is going to be relocating channels, and just the process of communicating that, there has got to be a plan. How are you going to let people know that, you know, 913 in Bowling Green is not going to be the channel used to watch NewsChannel 5?

Ms. Plantinga. Absolutely. Having been through this three other times, it requires a strong message repeated. People don't get it the first time, and they need to hear it over and over again. Our plan is extensive coverage within newscasts, crawls at the bottom part of the screen during our highest profile programming, and PSAs that will be running on our channels. So we are going to have to tell people over and over and over again.

One of the issues with the rescanning is, if someone is seeing

Channel 5 on a certain frequency and that frequency goes away, they can no longer see our signal to hear that rescan message again, so it is tricky. I will tell you during our previous channel changes, I have called people's nephews and said, Could you please go to your Aunt Irma's house and help her rescan? I have literally been in people's homes, I have gone to homes with our chief engineer in middle Tennessee and walked into their living rooms and helped them rescan, because our motto is "leave no home behind." We don't want anybody to lose the broadcast signals that they value.

But it is a challenge. The communication piece is challenging, and the previous communication piece with the digital transition had everybody going at once and a lot of money being spent for a national messages as well as our local message.

Mr. Guthrie. Maybe you should get one of your world famous weather persons to give a public service announcement? Oprah Winfrey started on your channel doing weather.

Ms. Plantinga. Yes, she did.

Mr. Guthrie. So, Mr. Kaplan, I assume all the other stations are going through the same?

Mr. Kaplan. Yes, they are, and I echo that. You know, one interesting thing here is that I went through this working for the FCC in 2009 during the DTV transition, and was actually on the phone with a number of members of Congress who were trying to get their TVs rescanned, as well, on the Senate side.

Mr. Guthrie. Of course.

Mr. Kaplan. You know, no consumer is going to know tomorrow if their wireless carrier has 10 less megahertz of spectrum, but they will know if they can't receive their television station. And that is a key thing here. Not that wireless isn't incredibly important, but in the timeliness of all of this, that is something to keep in mind.

Mr. Guthrie. Okay. Thank you. Mr. Tracy, actually stuff you don't think about when you are doing timelines, the FAA bill is kind of in limp status. Right now it is not moving forward, and I know there is some requirements for towers in the FAA bill for marking and different things that you have to do. How does the fact that that is not passed yet and in place and you know exactly what you need to do affecting your ability to repack and do what you need to do to towers? Is that interfering at all, resources or timing? Does that have anything to do with what is going on here?

Mr. Tracy. Well, in terms of planning and logistics, it is tough to prepare for a job if you don't know it is coming. And we do know the 5G is coming. We don't really know when, but we know that the rollout is coming sooner rather than later.

We know that FirstNet is under pretty specific time constraint, and we are going to be actively participating in that, but here again, when you add all these things together and you talk about the perfect storm for the wireless worker now --

Mr. Guthrie. Because you are adding the --

Mr. Tracy. -- we have a lot of people we still have to train, because our workforce is too small right now, and recruiting is an issue

in virtually any business, but when you have to add the physical nature of what we do to the technical nature, we have to log on to a laptop, there is a lot of skill sets that really come into play.

Mr. Guthrie. I have about half a minute, so I will ask another question, but Mr. Kaplan or Mr. Bergmann, you want to talk about how the other requirements that are coming from other bills are affecting your ability to move forward on time frame, or does it affect your timing?

Mr. Bergmann. So certainly, the work that this committee is doing to speed the infrastructure setting process I think is really critical and important in terms of our ability to roll out --

Mr. Guthrie. Does the FAA bill have any impact on what you do?

Mr. Bergmann. Certainly, absolutely. The ability to make sure that we are spending resources smartly and efficiently with respect to tower study and maintenance, and it is funny, one of the words I think you have heard from me to the panel is "collaboration." This is one of the many areas where we work closely with our friends in the broadcast industry and appreciate working with this committee on that legislation, as well, too.

Mr. Guthrie. I am out of time, so I yield back.

Mrs. Blackburn. Mr. McNerney you are recognized for 5 minutes.

Mr. McNerney. I thank the chairlady and I thank the witnesses for their testimony. I find it very interesting. First of all, Mr. Bergmann, my district is largely rural and has spotty connections, some agriculture. What is in mind, how would my deployment of 5G benefit

the constituents in my district?

Mr. Bergmann. So thanks very much for the question, and I do agree with you. I think communities notice whether they are part of the next G, right? If they have 4G, if they have 5G, they really notice, and it makes a big difference to those communities. So one of the great things about this spectrum is that it is ideally suited as a low-band 5G band. So the kinds of things that that unlocks, right, are faster services, better downloads, much more responsive services.

So from a rural perspective, we think about things like being able to take advantage of medical professionals in urban centers and have that kind of virtual diagnosis and treatment, and the reduced latency that you will have from 5G really opens up tremendous opportunities to try to bring better medical care to rural areas. Think about education, right, and the ability for kids in a rural classroom to put on virtual reality glasses, and all of a sudden, be in the Smithsonian. So a trip that might have otherwise been inaccessible is now there.

Mr. McNerney. So there is a lot of benefits then for rural kind of activity basically?

Mr. Bergmann. Very much so.

Mr. McNerney. Considering my concern about the Sinclair/Tribune merger, what interest does Sinclair have in the ATSC 3.0?

Mr. Bergmann. My understanding is that the broadcasters are all thinking about the transition and upgrading their equipment and we certainly support that ability, but we think it is really critical that a transition to ATSC 3.0 not slow down that transition. And again,

we certainly hope that every broadcaster will be doing everything that it can to make sure we stick within that transition.

Mr. McNerney. Thank you. Ms. Murphy Thompson, has Sinclair taken any other steps that would cause delays in the repacking process?

Ms. Murphy Thompson. As I have already noted, they have taken several steps, including delaying the outset of the incentive auction and also creating additional market power that would enhance their reluctance to comply with this, and, you know, the vertical market power that they would possess post transaction would have a significant impact on the transition.

And if I could, just for a second, comment on what Mr. Bergmann said, I agree. The only thing I would note for rural areas in particular, you know, many of them are still going from 3G to 4G, so this spectrum is critically important to get access to it immediately so that they can get to their next generation of technology and then build on to 5G.

Mr. McNerney. So how would the merger impact efforts to close the digital divide then following up your --

Ms. Murphy Thompson. How would the -- I am sorry, how would the merger --

Mr. McNerney. How would the merger, the Sinclair/Tribune merger impact --

Ms. Murphy Thompson. I think it would detrimentally affect that. Our carriers showed up to this auction in droves because they need the spectrum. They wouldn't have spent all this money in order to sit on

it. They are going to deploy it, and, you know, even if you delay at the outset, there is a cascading effect which could push this time frame out for years, which would deprive rural carriers, rural consumers of these next generation services.

Mr. McNerney. And the last question about that. How might the merger impact U.S. competitiveness in the global rush to 5G?

Ms. Murphy Thompson. Yes, it is the same answer, frankly. This spectrum is the baseline foundation to build on 5G, and yes, some of it will be used for 5G, but it is the foundation layer, and without being able to connect, you are not going to be able to use the remote patient monitoring that Mr. Bergman talked about. So if we want to leave the race to 5G, we need to unleash this 600 megahertz band spectrum in the timeframe that was allotted.

Mr. McNerney. Thank you. Mr. Kaplan, are you confident that no broadcaster will go dark as a result of the transition to 3.0?

Mr. Kaplan. As a result of the transition to next gen television, absolutely not. All it will do is enhance service. It is our version of 5G, and we are extremely excited about what it can do for consumers.

Mr. McNerney. So there won't be any delays or any broadcasters going dark then?

Mr. Kaplan. There will be no delays as a result of a next generation television, correct.

Mr. McNerney. Right. Of 3.0 ATSC?

Mr. Kaplan. Yes. What we call next gen television, ATSC 3.0 should have no bearing whatsoever on the repack.

Mr. McNerney. I am going to be out of time, but I was going to ask you about broadcasters currently taking to protect themselves from cyber attacks, but I will have to let that question go.

Mrs. Blackburn. The gentleman can submit that for the record as he yields back, and we will submit that to you for later.

Mr. Kinzinger, you are recognized.

Mr. Kinzinger. Well, thank you, Madam Chair. Thank you for yielding and for holding the important hearing today and for all of you for being here. I really appreciate it. The incentive auction has proven to be a unique and innovative way to bring additional spectrum to the broadband market and additional revenues to the Federal Government. We are all invested in ensuring that it remains successful and can serve as a model for future allocations of spectrum or anything else we want to go about that way. But I am equally concerned that the local broadcasters, many of whom are being asked to move channels to make all of this work, are treated fairly and that no consumer is harmed in the process.

So Mr. Kaplan, you mentioned in your testimony that NAB is not proposing a new repacking deadline or an open ended extension of the FCC's 39-month repacking window. But you did say that Congress should act to make it clear that no individual station should go off the air, or have significant reduction in service if, in fact, circumstances outside its control prevent its timely transition.

The FCC already has the authority to grant deadline extensions on a case-by-case basis upon reviewing the circumstances and the

variables that are outside of the control of the broadcaster. Variables, including inclement weather, crew shortages, zoning issues, and other matters that may affect the earnest efforts of the broadcasters. Can you please explain in greater detail what you believe Congress should actually do to provide this leeway? In other words, what sort of language or guarantee are you proposing that we enact? And please be as precise as you can.

Mr. Kaplan. Sure. Thank you for the question. And, yes, there is actually various bills out there already with the language that would do exactly what we would like to do, and I am glad you reiterated what I said in my testimony which is this should be a fairly easy problem to solve in that it is not a debate over whether 39 months is the correct number of months. It is really just that safety valve as to if you are unable to transition due to circumstances outside of your control, you should not be penalized, and I think we can all agree on that. The FCC has said that it does not intend to grant waivers if it affects the overall transition. So that is kind of counted us in already, and if you look at NewsChannel 5's circumstance where they are moving to another channel with someone on it, so they have to move, and then their channel, once they vacate, is going to have someone else move on to it, you can see how that obviously one move affects the other.

So Congress is important in this process because the FCC really looks to this committee to give it direction, and so making that statement that no station should go dark, or have a significant loss in service due to circumstances beyond its control, that would help

us greatly at this point.

Mr. Kinzinger. So you think just basically making the statement and having the hearings is --

Mr. Kaplan. I think legislation is incredibly important paired with legislation as we have all agreed here except for the one abstention that there should be more money in the fund.

Mr. Kinzinger. Roger. All right. Mr. Bergmann, as you know, there are millions of our constituents across the country that are going to be affected by this transition. Ideally, everything will go off without a hitch and at the end of the process, everybody will have equal or better access to television broadcasting, more people will have access to broadband in rural areas, and eventually, everyone will have a much faster internet speed.

It may be a bit optimistic to think that everything will go off without a hitch, but we are holding out hope. But to reach the end goals, everyone is going to need to work together. So as you mentioned today in your testimony, there are authorities at the FCC to make some deadline extensions on a case-by-case basis. We don't yet know if there will be any such issues, but if they arise sometime down the road, are you and your member companies prepared to deal with it, and if so, could you please describe how you see that situation unfolding in a productive and collaborative manner?

Mr. Bergmann. So thanks, Congressman, very much for the question. So, you know, we absolutely hope and expect that we are going to be rolling out services, and we are seeing that before 39 months,

right? Just within 2 months of the auction we see our member companies rolling out services. So I think a lot of what we are trying to do is think about how this process plays out over time. And the FCC has put together, I think, a very thoughtful transition plan that is based on 10 phases, so we try to chunk, you know, the challenges up as we go, but as you mentioned, they have also built in some backup plans, and the ability to grant waivers, and I think you talked a little bit about those sort of touchstone, right, or unforeseeable circumstances or events that are beyond the station's control.

So I think the FCC very much has the authority to address those kinds of issues as they come up, and I would completely agree with, you know, my friends in the broadcast industry, we are really confident that Chairman Pai and the commissioners are focused on this task. They have all come here and said, and you have asked before, so I know you care deeply about this issue, they said no station will go dark.

So I think we are confident that the FCC has the authority, has the ability, has the willingness to make sure this is a smooth transition.

Mr. Kinzinger. Well, thank you. And I want to quickly say we have made it clear that broadcasters will be made whole throughout this whole process. I intend to work with my colleagues to ensure that we uphold our end of the bargain. And I appreciate both sides for really engaging in this incredible undertaking, because this is massive and complicated and very much appreciated. I think at the end of the day, it all works out well. So with that, Madam Chair, I yield back.

Mrs. Blackburn. The gentleman yields back. And Ms. Eshoo, you are recognized for 5 minutes.

Ms. Eshoo. Thank you, Madam Chairwoman. This is an important hearing, and it is timely because of the challenges of the hurricanes, and it certainly cast a spotlight on what broadcasters do, how the American people depend on broadcasting in our country, and, of course, all the issues that are attendant to the auction and what is moving forward.

So thank you for the wonderful testimony that each one of you have given. I love hearings because I always learn so much from the people that come here to be instructive to us.

First, my sensibilities are that we did a very good job in thinking through the auction. The auction brought in tremendous sums of dollars. I think that there is a lot of good news that is going to come out of it, so that -- and the American people are going to benefit from it, as well. You have already given testimony about that, but I just want to say that I think that -- number one, I think the 39 months is a long period of time. And while I understand that we are all sensitive about what can happen, and our sensitivities are at an all-time high now because of Harvey and Irma and all that is going on; I don't think there was anyone that objected in the beginning that 39 months was an insufficient timeframe to accomplish what needed to be accomplished.

So I think the case that has been made relative to the dollars that are needed in order to make the transition is a case that the

Congress has to pay very close attention to.

So I have raised concerns about the proposed Sinclair/Tribune merger from a media consolidation perspective, and I called on the chairman of the committee to hold a hearing on the merger. I also know that there are a lot of issues going on behind the scenes regarding the ATSC 3.0 standards with respect to the merger and the spectrum repacking plan.

I am very, very sensitive about media consolidation. I think in a democracy there should be many voices to the many, not fewer voices to the many. And so, I was very concerned about that. And I still think that we should be examining that with a hearing.

We also know that spectrum is critical for the deployment of wireless broadband in our country, and service in rural areas and within buildings. So I want to ask some questions about that.

First, going to Ms. Thompson, do you think the issue surrounding the ATSC 3.0 standard further justify the need for a hearing here? You can say just yes or no.

Ms. Murphy Thompson. Yes.

Ms. Eshoo. Why? Briefly.

Ms. Murphy Thompson. Because I think, as I said earlier, that this transaction supports only Sinclair and Tribune, which is why nobody else supports it. And in particular, you know, oversight over this will provide a lot of further detail about what they intend to do, including information about ATSC 3.0.

Ms. Eshoo. Thank you. And on the issue of the critical

deployment of wireless broadband, especially in rural areas and within buildings, how important do you think this repacking plan is for the future deployment of NextGen 911 services and the ability of individuals in rural areas and in buildings to make 911 calls from their mobile devices?

Ms. Murphy Thompson. Sure. And if I could, just first thank you for being the cochair of the NG 911 Caucus. As a board member, I really appreciate all the work you have done there.

Ms. Eshoo. Thank you, along with Mr. Shimkus.

Ms. Murphy Thompson. Yes, Mr. Shimkus as well and other members of the committee. And I think a lot of this comes back to public safety, a lot of what we talked about here today. And, you know, I think that you hope you never have to call 911, but when you do, you want it to connect, and this spectrum, in particular, provides excellent propagation characteristics to travel far distance in rural areas, which means that rural consumers will be able to connect to public safety emergency personnel as we have seen in collaboration with the broadcasters during Hurricane Harvey.

Ms. Eshoo. I just want to do a shout out to Mr. Butler. I think that public broadcasting is a national treasure, an absolute national treasure.

Mr. Butler. Thank you, ma'am.

Ms. Eshoo. And I am a big fan. I can't imagine my life without public broadcasting. It is where I receive my news. I trust that, and its examination, and again, a gift to the American people that keeps

on giving. Thank you.

Mrs. Blackburn. The gentlelady yields back. Mr. Bilirakis, you are recognized for 5 minutes.

Mr. Bilirakis. Thank you, Madam Chairman, I appreciate it. I thank the panel for their testimony this morning. I guess it is almost afternoon.

Mr. Bergmann, the Spectrum Act does not allow low power television and translator stations to receive relocation funds. I understand that some of the members of the CTIA have committed resources to help these stations during the repacking process to advance a timely transition. Can you expand on some of the work your members are doing with these low power TV and translator stations?

Mr. Bergmann. Sure. Thank you so much for the question. I appreciate it. We talked a little bit about collaboration. I think this is a great example of it where, you know, T-Mobile, our largest winner in the auction has worked with LPTV stations, rural public broadcaster stations to make sure that we are doing what we can to try to ameliorate some of those challenges. We saw for some of the LPTV stations was a need to, in some cases, move twice before they got to their new home, their new channel. And so T-Mobile announced a partnership to fund a number of those moves. So I think, you know, my colleague, Mr. Butler, did a great job talking about from the public broadcaster standpoint, the opportunity to make sure that 380-plus translators are facilitated, and I think you will see more of that. There is a lot of collaboration happening in the industry today from

a wireless perspective. We think it is important that we are able to roll out quickly in these services. I know that this committee takes this issue seriously, and is thinking about those questions about funding. But we want to be good partners in that, as well too.

Mr. Bilirakis. Very good. I have a second question for you, sir. As you noted in your testimony, the FCC found 95 percent of the cell sites in counties affected by Harvey were still working, which is significant, in my opinion. Now the people in my district are preparing for Hurricane Irma. In years ahead with carriers developing new uses for spectrum previously used by broadcasters, what potential advantages will users have to do that do not currently exist.

Mr. Bergmann. Sure. So it is a really important and timely question. And I have to say this committee has spent a lot of time thinking about network resiliency, in part, in response to some of what we heard from this committee. Wireless carriers rolled out a network resiliency framework last year that emphasized a lot of things that I think paid dividends in Harvey. Preplanning, information sharing, collaboration, again, making sure that we educate consumers, and we did all of those things before Harvey, you know, an unprecedented event, and I think really saw remarkable performance. You mentioned 95 plus percent of cell sites operational, and you know, what that enabled were calls to 911. It enabled wireless emergency alerts, and, you know, now we are preparing for another.

RPTR ZAMORA

EDTR HOFSTAD

[12:02 p.m.]

Mr. Bilirakis. You are saving lives.

Mr. Bergmann. Saving lives, absolutely.

So each storm is unique, right? And so Irma will present different challenges. In Harvey, it was flooding. In Irma, we are talking about record-setting winds.

But our companies are doing the same things now to preposition for that, as well, too, making sure that we are doing everything we can to be ready to try to keep service up, get service back quickly where it goes down, and educate consumers about how to be smart and use their wireless devices in the time of need.

Mr. Bilirakis. Very good. Thank you.

Does anyone else want to comment on that with regard to the hurricane?

Mr. Kaplan. I would love to.

Mr. Bilirakis. Sure.

Mr. Kaplan. I think, obviously, broadcasters, like wireless companies, have a lot at stake in these times. And we report on the front lines, broadcasters do, as you saw throughout Hurricane Harvey.

I think the hurricane situation actually really sheds light on the challenges we face during a repack, so I am glad you raised this. If you think about it, in phase one of the repack, three stations in

Beaumont, Texas, are scheduled to move. In phase two, 6 months later, another eight stations are set to move. If we were just upon that deadline, what would we do?

At the moment, the FCC rule says, "You are off the air. Sorry." And so that is why we are before this committee to say, hey, there is a sane way to do this. We can all work together. We don't have to adjust the entire timeframe, but, in these circumstances beyond their control, there should be a safety valve that we understand. Because, literally, those stations could have to go off the air during hurricane coverage, according to FCC rules.

So it is very important. And hurricanes, you know, it shouldn't take that for us to realize it, but I do think that sheds light on this very important problem.

Mr. Bilirakis. Well, thank you very much.

I yield back, Madam Chair. I appreciate it.

Mrs. Blackburn. The gentleman yields back.

Ms. Matsui, you are recognized for 5 minutes.

Ms. Matsui. Thank you very much.

And I really want to thank the witnesses for being here today. This has been very enlightening. Thank you so much.

Many of my questions have already been asked already, so let me ask something that probably hasn't been asked yet.

You know, we have seen the critical role that local radio stations play in times of severe weather. And, sadly, they will probably be called upon later on in Chicago this week.

My understanding is that many radio stations have transmitters on the same towers as TV stations and will have no choice but to turn off their signals and possibly erect new auxiliary transmitters in order to continue serving local listeners during the time when crews are working on impacted TV stations.

Mr. Kaplan, does the FCC have authority under existing law to reimburse radio stations for the costs they may necessarily incur as a consequence of the repacking of the TV broadcast spectrum? And should Congress fix this problem by making funds available to impacted radio station just as we are making funds available to TV stations?

Mr. Kaplan. Thank you for the question.

First, the law of the Spectrum Act is very clear that only TV licensees are eligible for the funds under the current law.

And to your second question, yes, Congress should make those funds available. Radio stations are innocent bystanders in this process, and what happens is they have to power down so that work can be done to towers when they are co-located. And there are almost 700 radio stations, FM stations that are affected.

Ms. Matsui. Right, right. Thank you.

We have heard some discussion today regarding the potential consumer education that would be necessary during the repack.

And, Mr. Butler, I am also a fan of public television, having been a chairman of the board of one of them in Sacramento.

Mr. Butler. Yeah.

Ms. Matsui. And so it has been with interest I have been

following what has been happening.

But can you speak about the particular challenges to public broadcasters in making sure viewers can find their stations during and after the repack?

Mr. Butler. Yes, ma'am. And, in particular, our audience, while it goes across generations, is particularly centered on serving very young people and much older people. And those are two populations that are going to need -- they and their families are going to need all the consumer education they can get.

This is not just a matter of turning a switch between analog and digital, as we did 8 years ago. It is a matter of changing signals within a market several times. And there is so much room for confusion in a process like that that we think consumer education is just an extremely important thing.

It was funded, I believe I am right, at \$90 million during the digital transition. And we think that at least that kind of money should be invested in consumer education for this transition as well.

Ms. Matsui. Okay. Thank you.

As I have indicated, I am very sympathetic to concerns that broadcasters have about circumstances like whether that may affect their ability to transition in time. However, I am not sympathetic to any intentional delays or gaming of the system. I am also concerned that, if the Sinclair merger goes through, Sinclair will have significant incentive to slow-walk the transition.

Mr. Kaplan, what safeguards are we putting in place to ensure that

the transition is not unnecessarily delayed?

Mr. Kaplan. Thank you for the question.

I think that the safeguards are already in place. With deadlines and timelines enforced by the FCC that we understand and agree to, there is really no room for a broadcaster to drag their feet. And what we are looking for today is just the safeguards that, if something is beyond your control -- so the circumstance you described I would not imagine would be included -- that is what we are looking to have covered.

And I think you know, in particular, that broadcasters like to work collaboratively with the wireless industry. With your leadership, we worked with the Department of Defense to help clear the AWS-3 spectrum that led to the most successful auction of all time.

Ms. Matsui. All right. Well, thank you very much.

And I yield back.

Mrs. Blackburn. The gentlelady yields back.

Mr. Long, you are recognized for 5 minutes.

Mr. Long. Thank you, Madam Chair.

And, Mr. Bergmann, do you believe that the 39-month date played a role in how much wireless carriers paid for the spectrum during the incentive auction?

Mr. Bergmann. Very much, Congressman. You know, when they get access spectrum is a critical part of how they decide what they should bid. When we are talking about bids of \$20 billion, again, imagine purchasing JetBlue and realizing that you are going to have to then wait for more than 3 years.

Mr. Long. Are you talking about the JetBlue that is not going to charge anybody more than \$99 to fly out of Florida this week?

Mr. Bergmann. Yes.

Mr. Long. I had to get a little plug in there.

Mr. Bergmann. Right. So you want to be able to use it when you need it, right?

Mr. Long. Right.

Mr. Bergmann. So, very much.

Mr. Long. Yeah.

Are you concerned that if Congress changed the date that it could have an impact on the success of future auctions?

Mr. Bergmann. So, we are. You know, when companies make investments of this size, it is predicated on the ability to use that spectrum. So, you know, we do think that if government is changing the rules afterwards and you don't get access to it at the same time, they will discount that in their bids the next time. And I think what that means is lower prices for bidding and, potentially, in two-sided auctions, less spectrum cleared.

So, from a perspective of the economy, right, that is not a good thing, right? We know every time we make available spectrum, wireless providers invest, wireless providers create jobs, wireless providers bring new services to communities. And so the less spectrum that we bring to market, I think overall as a country we are harmed.

And then I know, certainly, from this committee's perspective, the ability to raise money, it can be very helpful. The 2012 Spectrum

Act raised over \$60 billion, right? It enabled the rollout of FirstNet. Just from this last auction, \$7 billion alone went to deficit reduction.

So the ability to make sure that we are, you know, able to take advantage of that tool for our economy, for our rural communities, and also, you know, as a potential funding source are all really, I think, important as part of this process.

Mr. Kaplan. Congressman Long, may I quickly address one comment that was made?

You know, earlier in the hearing, we heard -- I just want to make sure we are all on the same page here. The Spectrum Act itself never set a deadline for repacking. Congress did not address that issue. It left it to the FCC to address. The FCC then went ahead and adopted the 39-month deadline.

And, by the way, which is still -- there were 31 petitions for reconsideration filed during the early stages of the auction about various things in the auction. Thirty of them are closed. Only one remained open throughout the auction period, and that was the deadline.

And, to this day, 39 months is still an open question at the FCC. So I just want to be clear that auction bidders will --

Mr. Long. Right. Thank you.

My next question is for Colonel Tracy.

Colonel -- that is correct, isn't it? You are a colonel?

Mr. Tracy. No, sir.

Mr. Long. You are not an auctioneer?

Mr. Tracy. Not yet, sir. I attend the Western School of Auctioneering later this month.

Mr. Long. Oh, okay. Well, you will soon be a colonel. Because all auctioneers are colonels, anywhere you go. If you ever go to an auction, don't know the guy's name, you say, "Hey, Colonel," he will answer you. So I thought you had already graduated from auction school.

Mr. Tracy. In advance, I thank you, sir.

Mr. Long. As one colonel to another.

As carriers move to deploy the new 5G technologies, how will the tower industry respond to needs from both broadcasters and carrier communities?

Mr. Tracy. Wow, that is a huge question. As a member of CTIA and with great friends at the broadcasting, we are kind of caught in the middle of any argument that happens between dollars and time. That is why I said it was way over my pay grade to comment on how much it was going to cost.

I am a simple tower guy, and I can tell you that we have a math problem. And the math problem involves training enough workers to get up on a tower, where a lot of people, frankly, don't want to be, and getting the work done with quality and safety as our top priorities.

So, if I look at the math problem, I would say that if there is anyplace that this math problem can be solved, it is in the United States of America. I trust our workforce more than I trust any other one place in the world. And especially with -- we talked about our former

military coming in. These folks, if anybody can get it done and solve this math problem, it is the people in the wireless community.

Mr. Long. Thank you.

And, Madam Chair, I hold in my hot little hands "Something for Cellphone Users to Celebrate: The FCC's Air Waives Auction Provides a Much-Needed Boost to Main Street." This is something I would like to submit. It is an op-ed by former Energy and Commerce Committee Chairman -- Communications and Technology Subcommittee Chairman Billy Tauzin, congratulating Congress and celebrating the advanced mobile services that will soon be deployed to places that either lack competition in the high-speed wireless marketplace or don't have it at all.

Mrs. Blackburn. So ordered.

[The information follows:]

***** COMMITTEE INSERT *****

Mr. Long. And, with that, I yield back.

Mrs. Blackburn. The gentleman yields back.

Mr. Welch, 5 minutes.

Mr. Welch. Thank you, Madam Chair.

First of all, I want to thank the panel. It has been a really good panel. Bottom line here, we want to make sure the broadcasters have a good signal, and we want to get the benefit of deployment of broadband in rural areas. That is a really, really important issue for rural America, which is most of America.

Mr. Kaplan, I support Ranking Member Pallone's bill to provide additional funds so that the broadcasters have -- they are held harmless during the repack process. But I would ask you, you have done this a bit already, but can you elaborate on what the broadcasters need to ensure the smoothest repack possible and to ensure that viewers are not left in the dark for any period of time after the repack?

Mr. Kaplan. Sure. We need two things, which is money and time.

And in terms of money, it is to be fully reimbursed, because broadcasters, as I said, today are spending that money. They are putting in the orders; they need to do it. We have heard testimony about exactly the steps that are necessary to do these tower climbs, to have the antennas, transmitters, those types of things that are critical.

Mr. Welch. So Mr. Doyle asked everybody whether there is enough money, and everybody, with one abstention, said there isn't. What are we talking about, in terms of money? And can you explain how you have

come to a conclusion about what is needed?

Mr. Kaplan. Sure. Well, we could look to the FCC. So we have all submitted -- broadcasters submitted initial estimates that the FCC has looked through, and that came to over \$2.1 billion. Also, we have heard today from members issues about radio, low-power television, and those things are enormously important for the ecosystem as well.

So, you know, we are in the neighborhood. We know it is going to be at least \$2.1 billion, and it is probably going to go up a little bit, plus money for some other entities that are casualties in the process.

Mr. Welch. Thanks, Mr. Kaplan.

Mr. Bergmann, can you share with the committee what the spectrum will mean for our rural constituents. I mean, that is a huge part of America. It is supposed to be, as you know, under the original Telecommunications Act, getting the same service as urban areas. We are not doing that, and it is really hollowing out the opportunity for rural America, where if people are going to start jobs, entrepreneurs are going to come -- and a lot of people want to -- I know this in Vermont -- because of what they see as a quality of life that is different, they can't do it, as you well know, unless they have urban-style speeds.

So can you talk about what the spectrum can do?

Mr. Bergmann. Sure. Thanks, Congressman Welch. And I certainly appreciate your and this committee's attention to making sure that rural America is a full participant in wireless. And I think there

are a couple components of it.

One we were talking about just a couple minutes ago is a lifeline, right? And you mentioned this. The ability to reach 911 in times of need is really critical in rural areas, right? When you are at sparsely populated communities, winding roads, that ability to reach 911 is absolutely critical.

The other piece is an economic opportunity, right, a growth opportunity, the ability to work where you want, to be creative where you want to be. It is something that wireless is really unleashing.

When I think about the spectrum inventory, I think about this spectrum, the 600 megahertz spectrum -- and this is like the long-distance runner, right? This is the spectrum that can cover miles and miles. It has great propagation characteristics. And I think what you see for rural America, it is happening today, right? T-Mobile announced in Cheyenne, Wyoming, and in Maine first. It is a little bit unusual compared to where we normally see services first rolled out.

So this repack, this process is really key to getting the services out.

Mr. Welch. All right. Thank you. I don't have much more time, and I just want to let Ms. Murphy Thompson comment on that same question as well. But thank you.

Ms. Murphy Thompson. Sure. And let me just thank you for all the work you have done to help promote rural broadband, both for your constituents and all of CCA members. It is in our DNA. And I know

right now "rural" is a big buzzword, but it is something we have been working on for a long time.

And this spectrum, as Mr. Bergmann said, is critical to all sorts of new technologies in order to connect rural America, not leave them behind in these next-generation technologies. And, you know, we would ask continued assistance from Congress to help bridge this digital divide.

Mr. Welch. Okay. Thank you very much.

Madam Chair, I yield back. Thank you.

Mrs. Blackburn. The gentleman yields back.

Mr. Flores, 5 minutes.

Mr. Flores. Thank you, Madam Chair.

And I thank the panel. This has been a great hearing so far.

Unfortunately, there were some unintended consequences in the repacking. Mr. Bilirakis addressed one of those, with the low-power TV and translators.

Another one is that the industry, the broadcast industry, shares towers with AM stations, FM stations, and also with FM translators. And so those operators are also going to be impacted as the broadcaster, the TV broadcasters, go through the repacking process and changing transmitters and antennas and so forth.

So to address this issue, yesterday Mr. Green and I introduced H.R. 3685, the Radio Consumer Protection Act. This bill establishes a similar fund for the narrow purpose of reimbursing radio stations during the repacking transition. It closes the unintended oversight

that prevents radio stations from being left out of the process.

And we have all seen the vital role that local radio stations play for millions of Americans that are faced with severe weather, such as Harvey and Irma, and natural disasters and other local emergencies. And it is at times like these that local radio can be a lifeline for the people we serve, especially when power and all the other communication services are down.

So my questions are these: Mr. Kaplan, do you have an idea as to how many towers that the TV broadcast industry used or shared with AM/FM and FM translators?

Mr. Kaplan. I do. And, first of all, thank you and Congressman Green for introducing that bill. It is a very important legislation.

There are actually 678 TV towers that would share with FM stations.

Mr. Flores. Okay. And so my next question is, what is the impact on those radio stations as the TV stations start to do their modifications?

Mr. Kaplan. It could have a significant impact on those stations. Because what happens is, when tower climbers go up to do the adjustments they need for the TV repack, the FM stations have to power down, you know, for safety reasons. And it all depends upon when those happen.

During the DTV transition, it was less of a problem because we had far more time, so radio stations could organize that, you know, 2:00 a.m. to 5:00 a.m., and that was not a big deal. But with the tight

timeline they are under now, unless they build auxiliary stations, they are going to be forced to, you know, power down during drive time or for weeks at a time.

Mr. Flores. Well, your last comment there leads me to ask the question, are there any other unforeseen costs of the spectrum repacking on the radio industry that were not envisioned originally?

Mr. Kaplan. Not at this time, but as days go by and things happen, we keep learning new things, which is why processes like these can be very difficult.

Mr. Flores. Okay. I would ask you to supplementally advise the committee as those come up, if you would.

Mr. Kaplan. Will do.

Mr. Flores. Mr. Bergmann, as I understand it, the wireless carriers who purchase the spectrum have to wait 39 months before they can begin to generate a return on the acquisition.

And I appreciate that things in the wireless space move at a very fast pace. What does 39 months mean to the wireless industry? Do you have a way to quantify that in terms of revenues or lower rate of return, things of that nature?

If you could do that quickly. I have a second question for you.

Mr. Bergmann. Sure.

So 39 months is an eternity in the wireless world. We reinvent ourselves every 5 to 10 years, building out entire new networks. T-Mobile recently acquired 700 megahertz spectrum, built out the country in 2 years. So that is a long, long time for us.

Mr. Flores. So I guess we could have seventh generation out by the time that you get a chance to get a return on your investment. I am being facetious.

Continuing with you, Mr. Bergmann, you made a reference to the evidence provided to the FCC that there are sufficient tower crews available to meet the repack deadline. The FCC says that.

Can you expand on the nature of this evidence, and why is there so much conflicting information about whether or not there is enough time to complete the transition? Because Mr. Tracy has indicated otherwise, and some of our broadcast folks have said that, you know, they are worried about the tower resources.

Mr. Bergmann. Sure.

So, you know, the FCC holds open processes and sought comment at a variety of different times about the 39-month timeline, about the particular, you know, the 10-phase project that I described for you, and had an opportunity to hear from all sides, from all interests, and considered a variety of different approaches. I think they were originally proposing 18 months for the timeline; ultimately decided 39 months. That was challenged in court. The court upheld that 39-month timeline.

And then the staff developed a transition plan that, again, breaks this challenging task into 10 different phases. And I think that is really important. So even as we think about the size of the challenge, remember, we are chunking it into 10 different pieces so that we don't have to have a separate tower crew, antennas for all of those stations

at the same time. We are building that timeline out over the 39 months.

Mr. Flores. Thank you all for your responses.

And I have exhausted my time. I yield back.

Mr. Lance. [Presiding.] Thank you very much.

The chair recognizes Mr. Costello.

Mr. Costello. Thank you.

I read all of the testimony and looked over a bunch of various questions I was going to ask, and I think for the most part we have touched on everything. That is the blessing and the curse of being last, sitting at the end. I wanted to get a couple things on the record, though, that I think are relevant for a couple different reasons.

Let me just start, as cochair of the Public Broadcasting Caucus, Mr. Butler, just to give you an opportunity to explain how this repacking may be a bit different for the public broadcasting vis-à-vis others.

Mr. Butler. Yes, sir. Thank you.

And thanks, first of all, for being the cochair of our Public Broadcasting Caucus. We are honored to have you in that leadership position.

As has been said and as Mr. Bergmann was just touching on, this is not really a 39-month transition. For lots of our stations, this is a much shorter transition than that. Fourteen of our public television stations have to make this transition within the next year almost, November 30 of 2018.

And then there is a cascading effect. The next phase begins the

next day. And so the last phase, which will take us up to July of 2020, we only have 14 stations left at that point to get repacked. And so 135 of our stations alone are going to have to repack well before that 39-month deadline.

Mr. Costello. Why is that?

Mr. Butler. Because of the phasing in that the FCC has created for this process.

And so I am sorry Congresswoman Eshoo is not here for me to be able to clarify that. Thirty-nine months is a long time, but, you know, a year is not a long time. And this is a cascading effect that is going to have a very serious effect on public broadcasters, in particular, because of the difficulty we have in attracting capital for such purposes.

Mr. Costello. Thank you.

Mr. Kaplan, in your written testimony, I want to read a paragraph, a couple sentences, give you an opportunity to respond, and any others, to just unwind this a little bit, both for my understanding technically, which I think I know the answer to, as well as what some of the unforeseen implications may be and how they may have to be addressed, be it through the waiver process or otherwise.

"The repack must take into account the costs and need for coordination associated with TV and radio stations which themselves were not repacked, but, which due to their proximity to repacked TV stations, must reduce power or transmit from an alternate facility for some period of time. These stations' viewers and listeners should not

be dismissed as collateral damage solely because the FCC's original repacking plan did not take them into consideration."

Why due to their proximity to repacked TV stations must they reduce power or transmit? I think we know the answer to that, but if you could put that on the record.

And then secondly, can you discuss some of this collateral damage and how we may need to go about addressing it or be sensitive to it?

Mr. Kaplan. Great. Thank you for the question.

I think this gets back to Congressman Flores' question earlier --

Mr. Costello. Yes.

Mr. Kaplan. -- which is that radio stations that share -- and we have almost 700 -- that share towers with repacked TV stations aren't just going to continue to operate business-as-usual. When those changes are made to the towers, the FM radio stations will have to power down, go off the air. If they don't have an auxiliary facility to accommodate that, they are literally going to be, you know, off the air. You will get static. You won't hear your radio station. And that is for safety reasons. So that is critical that that is addressed.

And it can be done in two ways. Money is critical, because if you have the ability to build an auxiliary station, then that can solve some of the problem. And time and flexibility, you said at the end of your remarks, I think that was exactly right, which is to be sensitive to.

I think the issue to be sensitive to is the rush to transition, which we are all going to try and meet each and every deadline, does

put pressure on those kind of situations. Because whereas you could power down at night during the DTV transition because that is when the work could be done, we don't have to luxury if we are going to meet each of the 10 phases.

Mr. Costello. Right.

Mr. Butler, the APTS partnership with the wireless industry to conduct a pilot project on spectrum sharing, just share your thoughts on how it was successful, how it may help your members, as well as any learning lessons.

Mr. Butler. Yes, sir. Thank you.

Among the most important lessons that we learned was the fact that we do have a substantial channel capacity, even in a channel-sharing arrangement, so that both a public station, for example, and a commercial station could run a full complement of channels that they wish to run simultaneously.

We also learned that the dynamic nature of this sharing is very important and conducive to a successful channel-sharing arrangement. You know, as a non-technologist, I had gone in thinking, well, we get 50 percent of the spectrum and you get 50 percent.

Mr. Costello. Right.

Mr. Butler. The fact is that it is dynamically shared, and whoever needs more at one given time can have it. And so our pilot program in southern California proved that, proved what kind of equipment we need --

Mr. Costello. Maybe more agility in there than when --

Mr. Butler. Exactly right. Yes, sir. So that was very important, and we are very much indebted to our friends at CTIA for helping us to do that.

Mr. Costello. Very good. Thank you.

My time has expired. I appreciate all of your testimony. I yield back.

Mr. Lance. Thank you very much.

The chair recognizes Mr. Johnson.

Mr. Johnson. Thank you, Mr. Chairman.

And thanks to our panelists.

You know, this is a really, really important hearing. I represent a part of the country, Appalachia, that makes this such a critical issue. You know, I got 34 stations that broadcast in my district that are moving to new stations in 5 separate phases.

But I have also got that rural Appalachian district where I got a lot of carriers that have purchased new spectrum under the auction to help roll out broadband access and connectivity to a part of the country that is oftentimes long forgotten.

So, from my perspective, we got to figure out a win-win solution to this situation where both sides come away winning.

You know, the broadcasters need to be able to successfully transmit without incurring undue cost or losing time. And in so many cases, they are the only communication that might be going out to a rural area, especially if you have bad weather or some kind of natural disaster come up. God forbid that we have something in Appalachia on

the magnitude of Harvey or what might be coming up the coast with Irma now.

And, also, the carriers need to be able to get a return on their investment and plan on how they are going to roll out these capabilities to Appalachia.

So the hearing is very, very important, because I wanted to hear the update from you folks on the repacking and any anticipated challenges and issues dealing with any delay in the 39 months.

So, Mr. Kaplan, to you: In your opinion, what needs to be done now to ensure that broadcasters are able to successfully meet the FCC's repacking deadlines while still enabling the carriers who are propelling new broadband services into Appalachia to stay on schedule? What do we need to do now?

Mr. Kaplan. Well, thank you, Congressman.

And I cannot frame the issue any better than you did, which is, what is the win-win here? And there is a win-win here, which is why we are here, broadcasters, today to say we are not debating in Congress the 39-month deadline. That is there. We are working with it. We are doing the best we can. What we are trying to find is that win-win.

And so what we need to do is two things. One is -- and it seems like everyone is in agreement -- the money to ensure that broadcasters are made whole, which was the original intention of the Spectrum Act. And the second thing is that safety net for stations who cannot move due to circumstances beyond their control. And right now the FCC's rules don't allow for that.

So that is what we are looking for. The aggressive deadlines are in place, so that is good, to your point about rolling out wireless services, getting them out to the people of Appalachia. That is critical. We have those deadlines, and I cannot tell you how seriously broadcasters are taking them. The planning has actually exceeded my expectations, having worked on this issue for quite some time.

And so I think, with the money and then the safety valve, not a change in the 39 months, the safety valve, this is something we all should be able to come together on, and then we can move forward and meet those deadlines.

Mr. Johnson. Well, you know, the folks that I have talked to on both sides of the fence, both the broadcasters that I have met with in my district in Ohio -- and, by the way, not all of those broadcasters are in Ohio. If you look at my district, you know, half of them are in West Virginia and Kentucky, you know? So, I mean, we are all over the place. But -- and then the carriers. What I am impressed with is both sides being willing to be a part of the solution and everybody acknowledging that we need a win-win here.

So, you know, I hate to punt the ball over to the FCC, but I think they need to figure out how we are going to solve this problem. And I am sure, knowing Chairman Pai and the new regime at the FCC, I know they are taking this very seriously, because he -- his wife is not too far from my district. I think, in fact, she may be on the northern end of my district. That is where she is from. So he gets the Appalachian issue. So I am hopeful.

I probably did more talking than asking questions, but, Mr. Chairman, I yield back. Thank you for your attention.

Mr. Lance. Thank you very much, Mr. Johnson.

Seeing there are no further members wishing to ask questions for the panel, I thank all of our witnesses for being here today.

Before we conclude, I ask unanimous consent to enter the following letters into the record: a letter from Electronics Research, Incorporated; a letter from the LPTV Spectrum Rights Coalition; a T-Mobile press release from Ms. Murphy Thompson; and an op-ed offered by Mr. Long.

[The information follows:]

***** COMMITTEE INSERT *****

Mr. Lance. Pursuant to committee rules, I remind members that they have 10 business days to submit additional questions for the record. And I ask that witnesses submit their responses within 10 business days upon receipt of the questions.

Seeing no further business before the subcommittee today, without objection, the subcommittee is adjourned.

[Whereupon, at 12:35 p.m., the subcommittee was adjourned.]