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OVERSIGHT OF FIRSTNET AND THE ADVANCEMENT OF PUBLIC SAFETY WIRELESS COMMUNICATIONS

HEARING

BEFORE THE

SUBCOMMITTEE ON COMMUNICATIONS AND TECHNOLOGY

OF THE

COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRTEENTH CONGRESS

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THURSDAY, NOVEMBER 21, 2013

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COMMUNICATIONS AND TECHNOLOGY,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:31 a.m., in room 2123 of the Rayburn House Office Building, Hon. Greg Walden (chairman of the subcommittee) presiding.

Members present: Representatives Walden, Latta, Shimkus, Blackburn, Lance, Gardner, Long, Eshoo, Matsui, Lujan, and Waxman (ex officio).

Staff present: Ray Baum, Senior Policy Advisor/Director of Coalitions; Andy Duberstein, Deputy Press Secretary; Kelsey Guyselman, Counsel, Communications and Technology; Grace Koh, Counsel, Communications and Technology; David Redl, Counsel, Communications and Technology; Charlotte Savercool, Legislative Coordinator; Tom Wilbur, Digital Media Advisor; Gene Fullano, FCC Detailee; Shawn Chang, Democratic Chief Counsel for Communications and Technology; Margaret McCarthy, Democratic Professional Staff Member; Kara van Stralen, Democratic Policy Analyst; and Patrick Donovan, Democratic FCC Detailee.

Mr. WALDEN. I am going to call to order the Subcommittee on Communications and Technology. I want to thank our witnesses for being here today. Just at the outset, I would tell you that they expect votes on the House floor at about 10:50, or thereabouts, so I think we will get through our opening statements. I doubt we get to your presentations initially, but then we are going to come back right after those votes and proceed. And so I will start.

OPENING STATEMENT OF HON. GREG WALDEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON

Last March, the subcommittee met to conduct our first oversight hearing of the newly formed First Responder Network Authority, or FirstNet. FirstNet's charge of building a nationwide, interoperable, public safety broadband network from Washington, DC, under the statute was crafted by our friends in the Senate.

As I noted then, the structure of FirstNet was not my preferred approach to solving our Nation's public safety communications challenges. I favored construction from the bottom up, not the top down, with certain minimum interoperability requirements set by

the Federal government, and commercial providers running the network, in partnership with the States. I cautioned then that this approach is not guaranteed by the legislation as passed, but that FirstNet could choose to adopt such approach.

While there is significant work to be done to ensure the States are partners, not customers, of FirstNet, it appears that FirstNet has made progress in reaching out to State, tribal, and local jurisdictions along these lines. This is a significant undertaking, rivaling the network deployments of our largest national wireless carriers. Today's hearing reflects the subcommittee's commitment to continued and thorough oversight of this important effort, and a dedication to ensure that our Nation's public safety users realize the benefits, and know the costs, of the State of the art communications tools that the law envisions.

Now, when we met last March, the FirstNet board had only recently been assembled. Perhaps because of its infancy, there was considerable uncertainty among critical stakeholders with regard to how FirstNet was being administered, and how the public safety broadband network would be realized. Unfortunately, rather than seeing those concerns wane as FirstNet has gained its footing, FirstNet finds itself embroiled in allegations from within that it lacks transparency, and suffers from potential ethical conflicts. As a result, FirstNet is currently under investigation by the Inspector General of the Department of Commerce. Suffice it to say, this is not necessarily a confidence inspiring development. But, for all the efforts by FirstNet, much work remains to gain the support of the States and the tribes, the commercial wireless community, and, most importantly, the first responders, who will rely upon FirstNet in life or death situations.

Ultimately FirstNet needs the confidence and cooperation of all these groups to realize the standards, economies of scale, and potential that FirstNet holds. In order to do so, FirstNet must be an informative and cooperative national coordinator of the myriad moving parts that comprise the public safety community, and do so in short order. Unfortunately, this is precisely where FirstNet seems to be struggling.

This challenge is best exemplified by the fact that no one seems to be able to answer the simple question what is FirstNet? Is FirstNet going to partner with our national wireless providers, or will it be just another commercial provider in government clothing? Has FirstNet modeled a cost for these options? Are States expected to give FirstNet their existing assets as an up-front payment for participation? What is FirstNet going to charge local first responders for use of the network?

Now, these are all questions that we in Congress have been asked as FirstNet struggles to find its way. And while a few jurisdictions have managed to negotiate lease agreements with FirstNet, the fundamental issues regarding cost, coverage, and timing remain unexplained, as do the processes contemplated for the exercise of a State's option to participate in the network. Now, left unresolved, the promise that we made to first responders to overcome once and for all the lack of interoperable communications is undermined, and the prospect of FirstNet's success diminished. We cannot afford to have this effort fail to produce a network, or worse,

have the network deployed, and then have no one show up to use it.

Today we are asking our witnesses what is working, what is not working, and how can we help? We will hear from the chairman of the FirstNet Board, who can provide an update on progress in the deployment of the Public Safety Broadband Network, address these fundamental issues, and hopefully allay our concerns about the openness and transparency of FirstNet's processes. We will also hear from States, the chief of the FCC's Public Safety and Homeland Security Bureau, NIST, whose good work with NTIA on the Public Safety Communications research program is helping answer some fundamental technology questions for FirstNet, and a private sector representative who can provide their perspectives on FirstNet's progress, insights into their respective roles, and share ideas about what FirstNet can do better to get the job done.

And because FirstNet will not initially provide mission critical voice capability, and public safety will continue to rely on traditional land mobile radio systems for voice communications, we will take the opportunity to better understand how the development of the new emergency communications technologies will be used together with traditional public safety communications until FirstNet is capable of addressing public safety's mission critical voice needs.

So I am looking forward to hearing from our witnesses today to address these issues we have raised, and hope to leave with a higher level of comfort with regard to FirstNet's progress and confidence in the manner in which it is conducting its business. That is the purpose of this hearing. I thank the witnesses for being here, and now I would yield to the gentlelady from California, Ms. Matsui, for an opening statement.

[The prepared statement of Mr. Walden follows:]

PREPARED STATEMENT OF HON. GREG WALDEN

Last March the subcommittee met to conduct our first oversight hearing of the newly formed First Responder Network Authority, or FirstNet. FirstNet's charge of building a nationwide interoperable public safety broadband network from Washington, DC, under the statute was crafted by our friends in the Senate. As I noted then, the structure of FirstNet was not my preferred approach to solving our Nation's public safety communications challenges. I favored construction from the bottom up, not the top down, with certain minimum interoperability requirements set by the Federal Government and commercial providers running the network in partnership with the States. I cautioned then that this approach is not guaranteed by the legislation as passed, but that FirstNet could choose to adopt such an approach. While there is significant work to be done to ensure that the States are partners, not customers, of FirstNet, it appears that FirstNet has made progress in reaching out to State, tribal, and local jurisdictions along these lines.

This is a significant undertaking, rivaling the network deployments of our largest national wireless carriers. Today's hearing reflects the subcommittee's commitment to continued and thorough oversight of this effort and a dedication to ensure that our Nation's public safety users realize the benefits and know the costs of the state-of-the-art communications tools the law envisions.

When we met last March, the FirstNet board had only recently been assembled. Perhaps because of its infancy, there was considerable uncertainty among critical stakeholders with regard to how FirstNet was being administered and how the public safety broadband network would be realized. Unfortunately, rather than seeing those concerns wane as FirstNet has gained its footing, FirstNet finds itself embroiled in allegations from within that it lacks transparency and suffers from potential ethical conflicts. As a result, FirstNet is currently under investigation by the Inspector General of the Department of Commerce. Suffice it to say, this is not a confidence inspiring development.

But for all the efforts by FirstNet, much work remains to gain the support of the States and the tribes, the commercial wireless community, and most importantly the first responders who will rely on FirstNet in life or death situations. Ultimately FirstNet needs the confidence and cooperation of all of these groups to realize the standards, economies of scale, and potential that FirstNet holds. In order to do so, FirstNet must be an informative and cooperative national coordinator of the myriad moving parts that comprise the public safety community, and do so in short order. Unfortunately, this is precisely where FirstNet seems tobe struggling.

This challenge is best exemplified by the fact that no one seems to be able to answer the simple question: "What is FirstNet?" Is FirstNet going to partner with our national wireless providers or will it be just another commercial provider in government clothing? Has FirstNet modeled the costs for these options? Are States expected to give FirstNet their existing assets as an up front payment for participation? What is FirstNet going to charge local first responders for use of the network? These are all questions that we in Congress have been asked as FirstNet struggles to find its way. And while a few jurisdictions have managed to negotiate lease agreements with FirstNet, the fundamental issues regarding cost, coverage and timing remain unexplained, as do the processes contemplated for the exercise of a State's options to participate in the network. Left unresolved, the promise that we made to first responders to overcome once and for all the lack of interoperable communications is undermined, and the prospect of FirstNet's success diminished. We cannot afford to have this effort fail to produce a network, or worse, have this network deployed and then have no one show up to use it.

Today, we are asking our witnesses "what is working, what isn't working, and how can we help?" We will hear from the chairman of the FirstNet Board, who can provide an update on progress in the deployment of the public safety broadband network, address these fundamental issues, and hopefully allay our concerns about the openness and transparency of FirstNet's processes. We will also hear from States, the chief of the FCC's Public Safety and Homeland Security Bureau, NIST—whose good work with NTIA on the Public Safety Communications Research program is helping answer some fundamental technology questions for FirstNet, and a private sector representative who can provide their perspectives on FirstNet's progress, insights into their respective roles, and share ideas about what FirstNet can do better to get the job done. And because FirstNet will not initially provide mission critical voice capability and public safety will continue to rely on traditional land mobile radio systems for voice communications,we will take this opportunity to better understand how the development of new emergencycommunications technologies will be used together with traditional public safety communications until FirstNet is capable of addressing public safety's mission-critical voice needs.

I am looking forward to hearing from our witnesses today and hope to leave with a higher level of comfort with regard to FirstNet's progress and confidence in the manner in which it is conducting its business.

OPENING STATEMENT OF HON. DORIS O. MATSUI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Ms. MATSUI. Thank you very much, Mr. Chairman. I am here in place of Ranking Member Eshoo, who will be arriving shortly. But I really want to thank everyone for being here today. I think it is an important issue, and I am glad that we are looking at the progress that we have made here.

FirstNet is a startup, let us not forget that, and like every startup, it has had its growing pains. But since our last hearing, we have seen some progress from FirstNet. FirstNet has hit some milestones, has established a budget, and hired staff. Moving forward we need to work together in a bipartisan manner to ensure its success. If we fail, then we jeopardize the entire system and put America's first responders at risk. It is as simple as that.

Throughout the debate on the spectrum law, I remained focused on the need to responsibly govern any nationwide public safety interoperability network. I believe governance is paramount. It is critical to ensure America's first responders have an efficient and

effective interoperability network. It is also important to ensure we spend taxpayer money wisely. Despite some initial concerns about the role of States taking a back seat, I am pleased that the FirstNet board took this issue head on, and developed a strong, coordinated relationship with the States.

The FirstNet board has significant responsibility. I believe the experienced individuals on the board are capable and qualified to ensure our primary goal of achieving a nationwide level of interoperability for our Nation's first responders, while ensuring fiscal responsibility. It is my hope that we can work together in a bipartisan manner to achieve success for America's first responders.

And I yield time to Mr. Lujan.

OPENING STATEMENT OF HON. BEN RAY LUJAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW MEXICO

Mr. LUJAN. Thank you very much to our Ranking Member Matsui. And, Mr. Chairman, this is an important hearing that we are having today. Quite an exciting time, as we talk about the ability to change the way that we can take advantage of modern technology to ensure that first responders have the tools that they need.

I was sharing with my legislative director, Andrew Jones, a few minutes ago that, while I sat on the New Mexico Public Regulatory Commission, which is the equivalent of Public Utility Commissions across the country, we were very unique in that we had the State fire marshal under our jurisdiction attached to a Department of Insurance, again, a very unique relationship that was created.

But in those conversations, getting to speak specifically to firefighters, with the tragic loss that we have recently had as well with the firefighters in Arizona, who put out many fires in New Mexico, and also those that were from New Mexico, this technology that could be on the body, so that there are eyes and ears around them, monitoring vital signs with them, whether they are firefighters, police officers, or any of our emergency responders, for that matter, is something that I hope that we can get correct here so that we can keep more people alive, keep them safer, and truly improve our abilities to make sure that communities are safer, for that matter, so I am really excited about this.

I think it is intriguing to note that many of the States as well have benefitted from investments in these programs with interoperable systems as a result of the Recovery Act. I know that there is a difference of opinion sometimes with benefits, but I hope that this is one that we can agree on, that this investment was critically important, and that, as we have seen roll out in many States, we can point back to the importance of investment in infrastructure.

So, with that, I yield back the balance of my time, and I thank the chairman, the ranking member very much again for this important hearing.

Mr. WALDEN. Gentleman yields back the balance of his time, and I appreciate the comments.

We will now turn to the vice chair of the full committee, gentlelady from Tennessee, Ms. Blackburn.

OPENING STATEMENT OF HON. MARSHA BLACKBURN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TENNESSEE

Mrs. BLACKBURN. Thank you, Mr. Chairman. I appreciate all of our witnesses being here, and the opportunity to have the hearing, and to do some oversight on FirstNet, and look at how it is standing up, and, due to the passage of the Spectrum Act, we all view public safety as an important Federal Government priority, but we need to do it efficiently, and effectively, and with a little bit of thought toward the price tag, since it is all taxpayer money.

As we have seen with the botched rollout of the Obamacare site, government entities don't have all the answers when it comes to new technologies, and rolling out a nationwide interoperable public safety network is going to require significant consultation and help from the private sector. The decisions that are made today will determine the success or failure of FirstNet in its framework. That is why we need benchmarks, status updates, strong leadership that is focused, and States need to be given resources to manage their operations, if they have found a better way.

So I thank you all for being here, and at this time I will yield to the gentleman from Ohio, Mr. Latta, the balance of the time.

OPENING STATEMENT OF HON. ROBERT E. LATTA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

Mr. LATTA. I thank the gentlelady for yielding. And, Mr. Chairman, thank you very much for holding this hearing today. And I appreciate our distinguished witnesses for appearing to testify today.

A robust public safety communications network is critical to protecting the lives and safety of the American people. We have an obligation to ensure that the implementation of FirstNet is successful and facilitates the communication needs of first responders that bravely risk their lives for ours. While I am encouraged by some of the initial progress that FirstNet has made in the development of the nationwide network, I have concerns that FirstNet is not sufficiently engaging with States throughout the process.

I look forward to hearing the testimony of our witnesses today, as well as the plans to ensure that FirstNet is closely consulting with States, and that States have a clearly defined role in understanding the responsibility and the terms of the planning, development, funding, and implementation of the broadband network.

I thank the chairman, and I yield back.

Mr. WALDEN. Anyone else on the Republican side? Mr. Long, do you have any opening statement? OK. Gentleman yields back the balance of his time. Chair now recognizes the chairman emeritus of the committee, the ranking Democrat, Mr. Waxman.

OPENING STATEMENT OF HON. HENRY A. WAXMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. WAXMAN. Thank you very much, Mr. Chairman. Congress came together to enact the Public Safety Inspector Act last year, delivering on one of the last remaining recommendations from the 9/11 Commission, to create a nationwide interoperable public safety

broadband network for first responders. To implement this long overdue mission, Congress created the First Responder Network Authority, or FirstNet. Today, we are conducting our second FirstNet oversight hearing in less than 8 months, demonstrating the committee's strong bipartisan interest in ensuring this important job is done right from the very start.

And I would like to thank Chairman Ginn of the FirstNet board for testifying again, and updating us on FirstNet's operations and activities. I would also like to join my colleagues in thanking Mr. Turetsky for his service as chief of the Public Safety and Homeland Security Bureau, and wishing him the best of luck in his new role at the FCC.

Given the magnitude of this project, it is critical that FirstNet and its partners operate efficiently and innovate aggressively. To meet this challenge, I believe FirstNet is already moving in the right direction by strengthening its operations through a sound business plan, a growing, talented staff, and a fiscally prudent budget. The Board is now supported by a management team with significant experience in the wireless industry, public safety communications, and financial management. FirstNet is putting its expertise to use, listening to the feedback of various stakeholders, and engaging in extensive outreach to the public safety and governmental communities, as well as vendors, carriers, and technology firms.

From a technical perspective, FirstNet is laying the foundation for the network architecture through multiple requests for information that seek input from industry and other stakeholders. The Public Safety and Spectrum Act has also tasked the National Institute of Standards and Technology, or NIST, with conducting research, and assisting with the development of critical standards and technologies to advance the types of public safety communications to be supported by FirstNet. And I look forward to hearing how NIST has been working with FirstNet to address the technical challenges of standing up the network.

One of the many challenges FirstNet has grappled with since our last hearing is how to address the jurisdictions that received funding for public safety networks through the Broadband Technology Opportunities Program, or BTOP. I am especially pleased that FirstNet reached an agreement with the Los Angeles Regional Interoperable Communications System Authority on its BTOP grant. I know reaching such a complex agreement was not easy, and I appreciate the tenacious good faith efforts exhibited by all parties to the agreement.

The LARICS project will not only benefit first respondents of the L.A. region, it will also provide FirstNet with an opportunity to gather information and share lessons learned with other projects. The State of New Mexico is also moving forward with its BTOP grant, and I want to thank Dr. Darryl Ackley, Chief Information Officer of the State of New Mexico, for testifying today to discuss his State's agreement with FirstNet.

And, finally, I appreciate that FirstNet has acted promptly to address certain procurement and ethics related matters. I look forward to reviewing the findings of the Department of Commerce, Office of Inspector General when they have completed their audit. In

conducting oversight of this fledgling organization, we all share a common interest to protect public investments and guard against waste, fraud, and abuse that may threaten the viability of the network. I hope it will continue to work in a bipartisan way to ensure FirstNet's success. I thank all the witnesses for testifying. I look forward to your testimony, and I want to apologize in advance that I have a conflict, so I won't be able to be here throughout the hearing, but I will have a chance to review the testimony, and my staff, of course, will remain here, listen to everything that is said, and work with you on all of these issues.

Thank you, Mr. Chairman, and I yield back the balance of my time.

Mr. WALDEN. Do you want to yield your remaining 30 seconds to Ms. Eshoo?

Mr. WAXMAN. Was I supposed to do that?

Mr. WALDEN. Not necessarily, but——

Mr. WAXMAN. I yield the balance of my time, and maybe even some extra, to Ms. Eshoo.

Ms. ESHOO. Thank you, Mr. Waxman, and thank you, Mr. Chairman. I just want to say to the witnesses, I apologize for being tardy this morning, and I want to thank Congresswoman Matsui for sitting in, and I look forward to your testimony. I want to salute you, Mr. Ginn, for the work that you are doing. I am just so impressed with what has taken place in a short period of time on a myriad of issues. So I thank you, and I am forgoing the fabulous opening statement that I had for everyone, but we will place that in the record. Thank you.

[The prepared statement of Ms. Eshoo follows:]

PREPARED STATEMENT OF HON. ANNA G. ESHOO

Last Congress, this subcommittee achieved a major milestone when it laid the groundwork for the first-ever nationwide, interoperable public safety broadband network. There were many who thought we would never achieve the last remaining recommendation of the 9/11 Commission and there are some who still have their doubts. Today's hearing is an opportunity to hear from FirstNet as well other stakeholders who are directly involved in the implementation of FirstNet and make sure we remain on track.

In the eight months since our subcommittee's last oversight hearing, significant progress has been made. A General Manager has been named; a 2014 budget has been approved; eleven technical RFIs have been issued with over 300 responses; the FCC has approved technical and operational rules; 54 of 56 State and local implementation grants have been awarded; and FirstNet is well on its way to achieving the goals established in the Middle Class Tax Relief and Job Creation Act of 2012.

But there's no doubt that much more work lies ahead. The next 12 months represent a critical phase for FirstNet. To keep this project on schedule and on budget, FirstNet must continue to leverage the resources of the commercial wireless sector and ensure that it conducts a procurement process that is transparent, that it's based on non-proprietary standards, and promotes competition among software and device manufacturers. I have confidence that under the leadership of Sam Ginn, FirstNet will fulfill its mission to provide our first responders with a state-of-the-art network that is reliable, hardened, redundant and secure.

And finally, while I'm disappointed that the Bay Area's public safety project was unable to reach agreement by last week's deadline, I support FirstNet's decision to protect taxpayer dollars and prevent the use of proprietary technology that could ultimately be incompatible with the nationwide network. We should learn from both the successes and failures of this project and the 6 other BTOP public safety projects and ensure these lessons are applied to FirstNet.

I thank each witness for your commitment to pioneering the next generation of public safety communications and I look forward to hearing your important testimony today.

Mr. WALDEN. I was going to have it framed too, and put on the wall alongside mine.

I want to welcome our witnesses, and thank especially David Turetsky, who is the Chief, Public Safety and Homeland Security Bureau, Federal Communications Commission. Thanks for your service. I understand today is your last day in that role, but we appreciate your being here. We will try not to make it your worst day in that role. And so we want to thank you for all your dedicated years of service.

And I know Mr. Latta was going to introduce our witness from Ohio. If you want to just say some opening remarks about him, and then we will get started?

Mr. LATTA. Well, I appreciate that, Mr. Chairman. I want to welcome Stu Davis, who is the Chief Information Officer for the State of Ohio. You know, Stu has been instrumental in leading Ohio's efforts statewide in public safety emergency management communication system. He has been a leader in the IT industry, and it is an honor to have him here representing the great State of Ohio. So welcome, Mr. Davis.

Mr. WALDEN. We welcome all of our witnesses, and we will start now with the man in charge, who is undertaken this incredibly challenging task, and put a lot of effort into it, no doubt, Mr. Sam Ginn, who is the Chairman of the First Responder Network Authority. Sam, thank you for being here. Thanks for your interaction with the subcommittee, and your service for the country, and we look forward to your statement, sir.

STATEMENTS OF SAMUEL GINN, CHAIRMAN, FIRST RESPONDER NETWORK AUTHORITY BOARD; DAVID S. TURETSKY, CHIEF, PUBLIC SAFETY AND HOMELAND SECURITY BUREAU, FEDERAL COMMUNICATIONS COMMISSION; DARRYL ACKLEY, SECRETARY, NEW MEXICO DEPARTMENT OF INFORMATION TECHNOLOGY; STU DAVIS, ASSISTANT DIRECTOR, OHIO DEPARTMENT OF ADMINISTRATIVE SERVICES; DERECK ORR, PROGRAM MANAGER, PUBLIC SAFETY COMMUNICATIONS RESEARCH PROGRAM, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY; AND DENNIS MARTINEZ, CHIEF TECHNOLOGY OFFICER, RF COMMUNICATIONS DIVISION, HARRIS CORPORATION

STATEMENT OF SAMUEL GINN

Mr. GINN. Yes. Well, thank you, Mr. Chairman. I really appreciate the opportunity. And, Congresswoman Eshoo, it is nice to be here, and I hope that this session will be productive, and we will be able to answer your questions.

I would just like to start out by making a couple of observations. We can get into all the technical issues around outreach and contracts and other things, but I want you to understand that we know who holds the responsibility for building this network. We do. And I think one of the critical issues about this bill is Congress recognized you want to put the responsibility on an entity, and that

is us. We hold that responsibility, and we hold it with an attitude that we can get this network built. So I think we have to start there.

I think the other thing that we have to recognize is this is a large, complex project, enormous scale, enormous technical issues. Critical issues surround outreach to the customers, and I must tell you that we understand if we don't build this system to meet the needs of public safety, it will not be successful. I think principle one is we know we have to do that, and in the testimony we talk about all kind of outreach, and things that we are doing to understand the requirements of public safety, and that information is being filtered in to the technical organization as we design the system.

So we will have time to get into those issues, but I don't want us to miss a larger point, and this is it. When we build this network, and we will build this network, it is going to revolutionize public safety in ways that we don't even understand. It is like most revolutions. When they start out, you know things are going to be different. But when this network is in place, we are going to revolutionize public safety.

Let me give you an analogy, and a simple one. I want you to think back, when you got your first cell phone, and how you used it. And now I want you to think back, given the applications that are available for you to download, how has it affected your day to day life? And I would say significantly. And the point I want to make to you is, when this network goes in place, we will see the innovation and creativity of public safety all across the country, where they step up and solve local issues, local situations, that basically lower their costs, or serve the public better, or increase their own safety.

So I don't want us to lose the larger point in this conversation, simply to say that we are going to get this done, and when we do, I think there will be a tremendous advantage not only to public safety, but to citizens of the country, and all of us who are worried about the cost of providing service to the country. And my sense is that we can take them down dramatically.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Ginn follows:]

Written Testimony of
Samuel Ginn
Chairman
First Responder Network Authority Board

Before the
Committee on Energy and Commerce
Subcommittee on Communications and Technology
United States House of Representatives

Hearing on
"Oversight of FirstNet and the Advancement of Public Safety Wireless Communications"

November 21, 2013

I. Introduction

Chairman Walden, Ranking Member Eshoo, and Members of the Subcommittee, thank you for inviting me to testify on behalf of the First Responder Network Authority (FirstNet). It is a pleasure to return to the Subcommittee and address you on FirstNet's progress since the last time I testified. The goal of building a nationwide, interoperable public safety wireless network remains as critical and important as ever. I remain confident that we will fulfill the goals Congress has asked us to achieve.

When I appeared before this Subcommittee in March, I gave my commitment that we would do everything possible to build this network quickly and to the best of our ability. A little more than six months later, I can report steady progress toward our mission to provide cutting-edge communications technologies that will protect not only our nation's first responders but the citizens that they have sworn to protect.

This year we have seen extensive organizational development at FirstNet, given the fact that until only several months ago, the entire organization was comprised of a Board with help from Department of Commerce staff. Board members had to fulfill dual roles – their traditional Board positions as well as management roles. The Board members reached out to the 56 states

and territories, assisting negotiations with the seven Broadband Technology Opportunities Program (BTOP) public safety grant recipients, and developing policies and practices for self-governance. This proved to be a valuable experience as we were able to learn firsthand what requirements public safety needed from the network that we will build.

The Board members and now the management team have conducted an impressive amount of outreach with our available resources. FirstNet Board members and executives have spoken at more than 85 conferences, meetings, trade shows and other events since the start of 2013. These speaking engagements have reached a broad cross section of stakeholder groups and associations, including those representing the public safety community, federal, state and local governments and tribal leaders, as well as industry.

FirstNet has been kindly invited to speak at the majority of the major public safety and communication groups' annual conferences and we have attended those as well as engaged with organizations including the Association of Public Safety Communications Officials, the National Sheriffs' Association, the International Association of Chiefs of Police, Major City Chiefs, the International Association of Fire Chiefs, the Fraternal Order of Police, the National Governors Association, the U.S. Conference of Mayors, the National Association of State Chief Information Officers, SAFECOM, the Telecommunications Industry Association and the Competitive Carriers Association. These interactions provided us an important opportunity for two-way interaction with the public safety community. We were able to educate our audience about the network, who we are and what we plan to do, while these groups told us about their unique requirements, constraints, as well as the requirements that the network has to provide to them.

The FirstNet team has visited the state of New Jersey to observe the damage that Superstorm Sandy brought to that part of the country. We toured the disaster site in Moore,

Oklahoma, where a devastating tornado destroyed the town this past May. On that same trip we met with Oklahoma Governor Mary Fallin to discuss how FirstNet would help in similar disaster situations. These visits illustrated the fact that an incident commander needs to have the capabilities to observe disaster areas so that he or she knows where to allocate resources. FirstNet will be able to provide the network that will allow the incident commander to have such capabilities.

We visited Boston in the aftermath of the Marathon bombings and met with senior public safety officials including now retired Boston Police Commissioner Edward Davis, on how the public safety communications systems fared during that tragedy. We took away valuable insight that will be incorporated into our state outreach and consultation. These significant events will impact how the network will be designed as we have to take into account all manners of disasters, both natural and acts of terrorism.

We have hired the majority of our senior management, including a General Manager, Deputy General Manager, Chief Financial Officer, Chief Counsel, Chief of Staff and Chief Administrative Officer. These individuals have extensive experience in their respective fields of public safety, management, wireless networks and finance. I am particularly encouraged by these hires as they will provide leadership and expertise to the organization. I have the utmost confidence in these people and am sure that they will carry out their jobs with distinction. It is worth taking away from these past eight months that we have had a productive Board with members that have made personal and financial sacrifices to join our team, and now the senior management is coming into place ready to take the reins and operational responsibility.

We have reached agreements on spectrum leases with two BTOP public safety project grantees – the Los Angeles Regional Interoperable Communications System Authority (LA-

RICS) and the State of New Mexico – and look forward to these early mover projects serving as valuable pilots for the nationwide network. We will be able to use these projects as learning models for the rest of the network. The lessons we will learn I'm sure will prove invaluable as the design of the network begins to take shape.

We have adopted an operating budget, which sets out the priorities and goals for the current fiscal year and will form the foundation upon which we will design and deploy the network.

We have been listening to state, local and tribal public safety stakeholders through a series of regional meetings and other sessions, and will be expanding our consultation and outreach significantly in the next year. This will allow us to work toward developing state plans for all 56 states and territories.

We have also been listening to industry – vendors, carriers and technology firms. We have publicly released and received responses from 11 Requests for Information (RFIs). More than 300 detailed responses were submitted and we are carefully reviewing them as we refine plans for building this network.

And of course, we are listening most intently to public safety. Through our Public Safety Advisory Committee (PSAC), we have a direct link to the public safety community and we are leveraging this to better understand the needs and wants of our nation's first responders.

It has been a challenging year given the task before us, but I feel that we have made significant progress in a positive direction and we will be using 2014 to build upon this initial success. Let me describe how we envision this.

II. Charting a Path Forward

Congress tasked FirstNet to achieve a highly complex and extremely technical mission. It is, therefore, prudent that we take a thoughtful, calculated approach in the design of the network to meet public safety's needs. We need to balance the adoption of an analytical, measured approach against providing the benefits of the network to public safety as quickly as possible.

The key to achieving this balance is to take the responsibilities assigned to us by the legislation and to break them down into manageable tasks that we can tackle, solve, and move forward on. We have to simplify our mission. One method to achieving this is to identify mission areas that we can focus on:

- The basic: To build a nationwide broadband network dedicated to public safety;
- The technical: The network must be secure and fully interoperable while providing priority for public safety;
- The administrative: We must establish a solid business foundation to ensure FirstNet becomes self-sustaining as quickly as possible;
- The fiscal: We must be judicious with taxpayer funds.

We cannot do everything at once. We simply don't have the resources or personnel. Just like an incident commander we must allocate our resources where they will do the most good. Therefore, in our planning we identified priorities in six key areas that we will focus on during fiscal year 2014 (FY14). These are: the business foundation, partnerships, mandates, BTOP's public safety projects, mobile network solutions, and devices.

Each of these issue areas comes with its own unique set of challenges. It is up to us to identify effective and efficient solutions, potentially through a variety of methods, drawing on the input and expertise we are seeking from federal, state, local and tribal public safety entities, as well as vendors and carriers.

We have to ensure that we bring on board the technical competence to build a public safety network that will fulfill all of public safety's needs. We have to be able to attract those people who know how to build networks and incorporate their skill sets with the needs of our nation's first responders.

Network Partnerships

FirstNet will leverage its nationwide scope and assets to enter into partnerships that help reduce network deployment and operating costs and to support the build-out of the network. This is critical to stretching the $2 to $7 billion Congress has made available to FirstNet so that we can meet the requirements of public safety as quickly and affordably as possible.

During FY 2014 our priority will be to explore and validate a wide array of partnership opportunities that will help us achieve our mission. The FirstNet management and technical team is pouring over the responses to our RFIs and will conduct market research on potential partners, to help FirstNet develop requirements and criteria for future partnership agreements, prior to issuing formal RFP's.

Requests for Information (RFIs)

It is worth noting that in June of this year, FirstNet published 10 RFIs that covered a variety of topics. These topics can be broken down into two areas. First, Radio Access Network (RAN) RFIs which included: network partnering and RAN provision, antenna systems,

microwave backhaul equipment, mobile network solutions, and satellites. Secondly, Core RFIs that covered: enhanced packet core (EPC), transmission/transport, data center, network management center/operations management center (NMC/OMC), and network service platforms.

Between June and the closing date which was August 31, we received 285 responses to these RFIs. In my opinion this was an amazing result that illustrates how the private sector is interested in the opportunities that FirstNet will provide to public safety in the future. FirstNet is currently working our way through all of these responses in an effort to better define our partnership strategy and begin to develop detailed requests for proposals (RFPs).

Core Network

By law, FirstNet must deploy a secure and resilient nationwide core network that will connect to the RANs of all 56 states and territories.

Think of the core as the central nervous system of FirstNet's network. The core will incorporate security of the highest standards, operational and business support capabilities, and an applications platform that will support the use of applications throughout the network.

We have a lot of work ahead of us to make this happen, and FirstNet is focused on executing our tasks efficiently and effectively.

State Consultation and Plans

The law also requires FirstNet to present each state and territory with a specific plan for the buildout of the network in that state, based upon the totality of consultations and input we have received.

FirstNet's state plans will explain how FirstNet will work. It will identify full service and support functionalities, device procurement and network services fees, and a description of the roles and responsibilities between FirstNet and that particular state.

Importantly, coupled with this plan must also be an understanding of the implications for a state that opts to build, operate and maintain its own radio access network, which will be connected to the FirstNet core network. The decision of a state to accept, or "opt-in," to FirstNet's proposed plan for that state, or to not accept, and "opt-out" of that plan will be a major one.

It is the goal of FirstNet to develop an environment of "opt-in" throughout the country. We believe that there are substantial advantages which inure to the benefit of all states when each added state "opts-in" to the network, including advantages in cost and timing of building the nationwide interoperable network that will meet the demands of public safety. That is the philosophy that we will take with us as we conduct our consultation with the states.

Indeed, conducting state outreach and consultation is one of FirstNet's top priorities in FY14.

Integration of BTOP Projects

One of the keys to launching a successful network is attracting and developing early interest and we are very pleased to have heard from a number of states and that are eager to work with FirstNet.

By leveraging this interest, including BTOP public safety grant recipients, FirstNet will be able to establish market deployments of the nationwide network that will demonstrate the benefits and capabilities of the network to public safety jurisdictions across the country.

The opportunities that these BTOP projects provide to FirstNet are highly valuable. They will allow FirstNet to test and trial public safety requirements, such as priority access, local control and customization, and emerging Long Term Evolution (LTE) technologies.

One accomplishment in our first year has been to sign Spectrum Manager Lease Agreements (SMLA) with the State of New Mexico and LA-RICS, which received BTOP public safety grants. These lease agreements provide these projects with use of FirstNet's exclusively-licensed 700 MHz spectrum, which they need in order to become operational. These agreements will enable FirstNet to learn key lessons to inform us of what works and what doesn't for the nationwide network. For example:

- Our partnership with LA-RICS will test priority access to the network depending on the nature of the incident.
- In New Mexico, we will focus on spectrum management and network use issues along the U.S.-Mexico border, shared use of a network among state and Federal users, and the use of a remotely-located network core.

We have learned valuable lessons from our discussions with each of the BTOP grantees, especially the need to address every state's unique requirements as we conduct outreach and design the network.

Mobile Network Solutions

Building enough towers to cover the entire geographic area of the United States is both cost-prohibitive and impracticable. We will therefore need to think creatively to provide the coverage that public safety needs in order to carry out its mission. One method of providing coverage in hard to access areas of the country is through mobile network solutions. FirstNet

will need to leverage deployable infrastructure to supplement terrestrial coverage and provide critical communications during incidents when network coverage is unavailable.

Through the use of mobile network solutions, satellites and microwave backhaul, we will be able to extend the geographic reach of the network to serve those jurisdictions that require coverage in challenging geographic areas.

In the coming year, FirstNet will explore a variety of deployable infrastructures. We will work with suppliers to test and trial leading technologies. FirstNet is very excited about the prospects that mobile network solutions will offer to the network. It is clear that mobile network assets will provide FirstNet users with wide-ranging capabilities, and through interaction with states, public safety users, and commercial vendors, we will develop our understanding of how these capabilities can be put to use for the benefit of FirstNet's customers.

Wireless Devices

FirstNet will ensure that public safety has access to a portfolio of broadband LTE devices, built to open standards that meet their communications and information technology requirements, as required by statute. FirstNet must leverage its nationwide purchasing power to encourage industry to introduce new technologies to public safety. We are not in the business of replacing today's Land Mobile Radios. Instead, we intend to augment first responders' current capabilities by leveraging new technologies, based on widely shared standards.

FirstNet will also leverage its nationwide scale and open standards to significantly reduce device price points. Public safety needs a wide array of devices, including rugged devices that can stand up to any condition and the cost of these devices needs to account for constrained state and local budgets.

Working with our PSAC, FirstNet will define user requirements for a portfolio of broadband device types that are required by public safety. We will also conduct extensive market research with providers of devices, and chipsets. The key point is that FirstNet will seek to ensure that wireless devices are available with the capabilities and at price points required by public safety.

It is clear that industry has been very interested in our device strategy. In May, we released an RFI on wireless devices, to which we received 54 responses. I think that this is a most encouraging sign and as we move forward, we will encourage competition to drive down costs to our end users.

The issue of cost is a key point in the success of the network. We have to provide devices that are both affordable and provide an excellent service. The question that we have to answer is: will public safety want, and will they ultimately buy the service that we will provide? While we don't yet have all the answers we are confident that we will be able to deliver on our future plans.

III. Consultation and Outreach

Consultation with federal, state, local and tribal public safety entities is integral to the success of FirstNet. Our objective is to develop long-standing relationships with public safety at every level, including law enforcement, fire services, 911 systems, and emergency medical services. We are working to build a sustainable process and model that our stakeholders can use to provide ongoing input in an environment of mutual trust. As we develop the mandated state plans, we want to ensure that the public safety community, public safety communications experts, State Chief Information Officers (CIOs), governor-appointed state points of contact (SPOCs), Statewide Interoperability Coordinators, and all additional relevant individuals and

groups become part of the consultation process and provide input into their state plan. This will not be a top down approach. Since all disasters and incidents occur at the local level, and because the nationwide network will be utilized by public safety personnel at the local level, we believe our consultation must follow a similar approach.

To that end, FirstNet is in the process of establishing ten regional offices throughout the country. Our intent is that the regions will mirror the ten FEMA regions and our plan is to hire permanent staff and locate them in each region. FirstNet is particularly eager to hire former or retired public safety personnel who already have deep-rooted relationships with first responders in their region so that we can take advantage of the local and regional knowledge base that already exists. These regional staff will provide the main link into FirstNet from the local communities. We envision outreach and consultation to be a joint effort, a partnership. We truly believe creating state plans together is the only way that we will be successful and we will follow this method throughout our consultation.

FirstNet also is engaging with our Federal partners, through the Emergency Communications Preparedness Center and individual agency outreach, to ensure that there is consistent dialogue and coordination at all levels of government.

While we are developing our regional teams and beginning to plan for outreach, FirstNet is also finalizing the formal consultation process that is to take place between FirstNet and state, regional, tribal, and local jurisdictions. This process will identify, plan and implement the most efficient and effective way to utilize and integrate the infrastructure, equipment, and other architecture associated with the network. Federal agencies also will play a role in the successful deployment of the public safety broadband network, and the Board is excited about working with

federal agencies to determine where and how federal assets and expertise can be leveraged for the benefit of the nationwide network and public safety first responders.

The tribal nations will need to be informed of the action that FirstNet is taking and so in an effort to begin this outreach, we convened a one-day workshop at the beginning of November. This workshop was designed to seek guidance from tribal representatives and Indian Country professionals on how to approach tribal outreach and education.

The PSAC is one of our most important resources as we execute our outreach efforts. This 41-member committee, which has representation from every aspect of public safety, is an important and direct link to public safety on a day-to-day basis. FirstNet senior management is in regular communication with the PSAC's five-person executive committee and we will seek the PSAC's input on important issues as we deploy the network.

IV. Conclusion

FirstNet is mandated to build our nation's first nationwide public safety wireless broadband network and this is what we at FirstNet are dedicated to accomplish. We expect a challenging year in 2014, however by following the path forward that I have laid out in my testimony I believe we are postured for success. But we cannot accomplish this without your support and assistance. I look forward to continuing to work with this Committee as our mission moves forward.

Thank you for your time and I would be pleased to answer any questions you may have.

Mr. WALDEN. Mr. Ginn, thank you. They have called votes, and so I think what we will do, before proceeding with others, is go ahead now and recess the committee. We have got a couple of votes, I believe, and then we will be back as soon after the votes as our members can get here, and we will resume this hearing.

So, with that, we will stand in recess.

[Recess.]

Mr. WALDEN. Call back to order the Subcommittee on Communications and Technology, and my apologies that the votes went longer than anticipated, but we have returned, and we appreciate testimony of Mr. Ginn, and I think we were just going to Mr. Turetsky when we had to take a break.

So, sir, if you will turn on that microphone, pull it close, we will resume our hearing.

STATEMENT OF DAVID S. TURETSKY

Mr. TURETSKY. Thank you, Chairman, Ranking Member, and Vice-Chairman. Thank you for this opportunity to discuss the FCC's efforts to support FirstNet through implementation of the Middle Class Tax Relief and Job Creation Act of 2012, and our ongoing mission to enhance public safety and emergency communications.

Traditional public safety land mobile systems continue to provide mission critical voice capability for first responders, and will continue to do so for some time, and must be maintained. But they cannot support the data rich applications that are more and more necessary for public safety personnel to do their jobs. In part, that is why Congress passed the Act, to create a nationwide interoperable wireless broadband network for the public safety community.

As Chairman Wheeler stated earlier this week, communications networks are changing, and fast. And where technological change and public safety intersect, there are both challenges and opportunities. Congress included some specific tasks for the FCC to support FirstNet's mission when it passed the Act in February 2012. For example, it directed the FCC to establish the technical advisory board for first responder interoperability within 30 days. That board then had 90 days to develop minimum technical requirements to ensure a nationwide level of interoperability for the FirstNet network. The Commission then had 30 days to approve and transmit the recommendations to FirstNet. The Commission met each of these deadlines.

Beyond these specific tasks, the Commission has also worked to fulfill its statutory obligation to "take all actions necessary to facilitate the transition" of the 700 megahertz public safety broadband spectrum to FirstNet. Last month the Commission unanimously adopted a report and order that established the basic technical rules for the FirstNet spectrum. Those rules will not only help to accomplish goals like preventing interference, but, vitally, will give vendors guidance they need to compete and innovate, and enable the Commission to certify equipment promptly. These rules are supported by the record, and are consistent with comments from FirstNet, and others.

We recognize that we still have more to address under the law. For example, in some areas, there are incumbent public safety nar-

row band operations in the FirstNet spectrum which pre-date the designation of this spectrum for broadband use. The Act also provides that if a State seeks to exercise its opt-out rights, the Commission must either approve or disapprove the State's opt-out plans, based on specific statutory criteria. We intend to provide clear guidance to the States and FirstNet on how that will work before States have to choose whether to opt out.

The Commission is also considering how best to implement the T-band provisions of the Act, which require future relocation of those public safety systems, and auction of the vacated spectrum. The Bureau issued a public notice on this, and received comments over the summer. We will work with all stakeholders and our Federal partners to ensure that these transitions occur seamlessly and transparently as much as possible.

Next, the public safety community faces another transition to NG–911, which can revolutionize the way the public seeks help. This is tightly interwoven with the FirstNet network, as NG–911 and the FirstNet network can be complementary components of an end to end broadband echo system. Public safety call centers will serve as hubs for data from 911 callers, such as photos or film clips, which can then be disseminated to first responders through the FirstNet network. One step the FCC is taking to facilitate the transition to NG–911 is to advance Text-to-911. People expect to be able to use the means of communications that they use every day to get help, and text messaging is part of the fabric of modern life. It also is the only practical or safe way to reach out for help in some circumstances. Also, wireless calls to 911 increasingly originate indoors. Obtaining an accurate location for those callers can be a challenge, and we held a major workshop at the FCC about that earlier this week.

Finally, I want to mention the successful use of wireless emergency alerts to warn the public of emergencies. Just this past weekend, mobile users in the path of tornadoes in Illinois received warnings from the National Weather Service sent via the Wireless Emergency Alert System. Reports are that this helped some people get to safety before the tornadoes struck. Since implementation in the summer of 2012, WEA, as we call it, warnings have helped to recover kidnapped children, evacuate areas during Superstorm Sandy, and otherwise alert people to get to safety in an emergency.

In closing, transition is the watchword, and the Commission intends to achieve it by working with all stakeholders in a transparent and responsible manner. Thank you.

[The prepared statement of Mr. Turetsky follows:]

Written Statement
of

David S. Turetsky
Chief, Public Safety and Homeland Security Bureau
Federal Communications Commission

"Oversight of FirstNet and the Advancement of Public Safety Wireless Communications"

Before the
Committee on Energy and Commerce
Subcommittee on Communications and Technology
U.S. House of Representatives

Thursday, November 21, 2013

Good morning, Chairman Walden, Ranking Member Eshoo, and Members of the Subcommittee. Thank you for the opportunity to appear before you to discuss the Federal Communications Commission's efforts to implement the Middle Class Tax Relief and Job Creation Act of 2012 (Act), to support the First Responder Network Authority (FirstNet), and to perform the FCC's ongoing mission to enhance the interoperability of public safety and emergency communications.

INTRODUCTION

As Chairman Wheeler stated earlier this week, our communications networks are changing – and fast. We are in the midst of a multi-faceted communications revolution that is quickly advancing as the packets of Internet Protocol (IP)-based communication replace the digital stream of bits and analog frequency waves. Where technological change and public safety intersect, there are challenges and also significant opportunities. Today we are at a crossroads – a place of transition – for the responders who save lives and keep people safe, and for the public who reach out for help in emergencies. Our charge at the FCC, working with our many federal, tribal, state and local partners, and industry, is to harness technological advancements to enable the public to communicate effectively to get the help they need when they need it, while laying the foundation to empower first responders with world-leading public safety communications systems.

Traditional public safety land mobile systems continue to provide mission-critical voice capability for first responders, and will continue to do so for some time. But they cannot support the data-rich applications that are becoming more and more necessary for public safety personnel to do their jobs. That is in part why Congress passed the Act, to provide for the creation of a nationwide interoperable wireless broadband network for use by first responders and the public safety community.

My testimony will describe our efforts to support FirstNet and also our efforts to improve the public's access to 911 and emergency services using wireless technologies. I will address two specific transitions that the Commission is responsible for in the Act: (1) the transition of the 700 MHz spectrum to FirstNet, and (2) assisting the transition of the legacy 911 system to Next Generation 911 (NG911). As I will discuss briefly today, the Commission has taken significant steps to further both of these transitions. Finally, I will highlight other important 911 developments and touch on life-saving advancements in wireless emergency alerting systems.

I. SUPPORTING THE MISSION OF FIRSTNET

In February 2012, when Congress passed the Act, it provided specific tasks for the FCC, as well as for a number of other agencies, in supporting the mission of FirstNet.

For example, one of the first tasks the Act directed the FCC to accomplish was to establish the Technical Advisory Board for First Responder Interoperability within 30 days. The Interoperability Board was given 90 days to develop minimum technical requirements to ensure a nationwide level of interoperability for the FirstNet network, and upon the Interoperability Board's submission of its recommendations to the

Commission, the Commission had 30 days to approve and transmit the recommendations to FirstNet. The Commission met each of these deadlines.

Beyond these specific and important tasks, the Commission has also worked to fulfill its statutory obligation to "take all actions necessary to facilitate the transition" of the 700 MHz public safety broadband spectrum to FirstNet.

Examples in this category include a number of regulatory actions by the Commission to facilitate FirstNet's use of its spectrum. Last year, the Commission issued a new license to FirstNet, providing the spectrum that Congress designated in the Act, to enable FirstNet to move ahead with its mission.

More recently, at its October 28, 2013 meeting, the Commission unanimously adopted a Report and Order consolidating basic technical rules for this spectrum that will help to, among other things, prevent harmful interference and promote prompt certification of equipment to be used in the band.

The spectrum that Congress designated for FirstNet included two swaths of spectrum for which there previously had been two different sets of Commission rules. This presented the need for a unified set of rules to allow equipment to be certified and to encourage competition and innovation in that market, including new entry. The Commission went through a public comment process, and FirstNet filed a letter in early August supporting the Commission's proposals. The Bureau acted quickly to open a window for comment on the FirstNet filing, by September 4th. In all, we received nearly 40 comments on the NPRM and Public Notice from a variety of stakeholders, including public safety, states and localities, vendors and carriers. The rules the Commission adopted were supported by the record and consistent with the comments provided by FirstNet and others.

We have also taken many other steps to facilitate the spectrum transition. This includes, for example, adopting a framework to evaluate whether certain early public safety broadband network deployments that were nearing completion when the legislation passed should proceed. Under that process, we have issued and renewed Special Temporary Authority (STA) for Harris County, Texas, to proceed with a public safety LTE deployment around the Port of Houston in FirstNet's licensed spectrum. This STA has now been operational for a continuous period of 450 days, and has the support of FirstNet. The most recent renewal was in August. In addition, FirstNet itself has entered into two leases: one in the Los Angeles area and one in the state of New Mexico.

We recognize that we have more to do in transitioning the spectrum and complying with the Act. For example, in some areas, there are incumbent public safety narrowband operations in the FirstNet spectrum, which predate the designation of this spectrum for broadband use. We have solicited public comments on how to address this question. The Act also provides that in the event that any state seeks to exercise the "opt-out" rights that are provided for it under the Act, the Commission is responsible for reviewing and either approving or disapproving the state's opt-out plans based on specific statutory criteria. We intend to provide states and FirstNet with clear guidance on how

that will work before states have to choose whether to opt-out under the Act.

The Commission is also considering how best to implement the T-band provisions of the Act, which require future relocation of public safety systems in the T-Band and auction of the vacated spectrum. The Bureau issued a Public Notice on this issue, received comments over the summer, and is reviewing related matters.

We will work with all stakeholders and our federal partners to ensure that these transitions occur as seamlessly and transparently as possible, and with sufficient guidance from the Commission where it is needed.

We also understand that traditional public safety land mobile radio will remain important during this transition, and we know there is a need to maintain the integrity of these systems, which support mission critical voice communications.

Apart from the tens of thousands of licensing applications and modifications that the staff routinely process, the Commission has several open rulemakings addressing land mobile systems to ensure that they operate efficiently, effectively and without harmful interference. For example, the Commission is considering amending the 700 MHz narrowband spectrum rules to revise narrowbanding deadlines, free up additional channels, and provide more assurance that equipment for use on interoperability channels is, in fact, interoperable.

II. ENCOURAGING THE RAPID DEPLOYMENT OF NG911

Another transition the public safety community is facing can revolutionize the way the public seeks help.

Beyond the provisions addressing FirstNet, the Act directed the Commission to undertake a number of important tasks related to the transition of the nation's 911 infrastructure to Next Generation 911 (NG911). Again, I am pleased to report that the Commission has met all of its obligations in this regard, and has otherwise vigorously pursued action on this topic to aid carriers, consumers and public safety answering points (PSAPs) in advancing the transition.

At the outset, let me emphasize that the transition to NG911 is not only important in its own right, it is also tightly interwoven with the development of the network to be built by FirstNet.

In fact, NG911 and the FirstNet network must be seen as complementary components of an end-to-end broadband ecosystem, in which next generation PSAPs will serve as collection points for data that comes in from 911 callers, telematics providers like OnStar, and others, which can then be disseminated to first responders, likely using the FirstNet network. So when a PSAP receives video of an accident from a witness sending it to 911, it can send the video to the response personnel that need the information quickly and seamlessly. This is the data-rich future for which it is imperative that we lay the foundation now.

The FCC is actively pursuing steps to facilitate the transition to NG911. One of the first and most important of these is to further the development of text-to-911. Text messaging has become a part of the fabric of modern day life. In an emergency, people expect to be able to reach out for help using the same means of communications that they use every day. It turns out that they do just that. California data shows that 75% of calls to 911 are now made on wireless phones. Text-to-911 is now being implemented in some areas and it has enhanced public safety and saved lives. Other data indicates that an increasing number of wireless calls to 911 originate indoors. These developments present challenges including, for example, obtaining accurate 911 wireless caller location on these calls. This is a vital topic on which we held a major workshop earlier this week at the FCC, drawing wide participation.

In 2012, Americans sent more than 2 trillion text messages.[1] Persons with hearing and speech disabilities are among those increasingly turning to text-based applications to stay connected, leaving behind older technologies like TTY in favor of more mainstream and generally accessible formats.

It is natural, therefore, that in an emergency people will increasingly expect to be able to use text as a means of contacting 911. While making a voice 911 call remains the preferred option where possible, there are times and situations where a voice call may be impossible, inadvisable, or both. Therefore, even as we consider the longer path to NG911, we must start by addressing text messaging in the short term.

In December of last year two major public safety organizations -- the Association of Public Safety Communications Official-International (APCO) and the National Emergency Number Association (NENA) -- and the four major wireless carriers – AT&T, Verizon, Sprint Nextel and T-Mobile – signed a voluntary agreement that committed each of the four major carriers to provide text-to-911 service by May 15, 2014, to PSAPs which request such a service. The Commission subsequently adopted rules that became effective September 30, 2013, requiring carriers and certain other text providers to provide a bounce back message to consumers where text-to-911 is not yet available so they know whether their messages have been delivered to 911 authorities.

The Commission is now considering next steps in the text-to-911 proceeding with respect to nationwide implementation of text-to-911. While we do so, some carriers and PSAPs are already deploying text-to-911 in specific states and local jurisdictions. These deployments have been successful, and in a few instances, they have already enabled first responders to successfully resolve emergencies and even save lives. These deployments are also providing valuable experience that will help smooth the broader transition to text-to-911 and NG911.

Finally, I would like to highlight one of the other tasks that the Act assigned the Commission in relation to NG911 -- the task of reporting back to you on recommendations that Congress could implement to improve the legal and regulatory

[1] *See* http://www.ctia.org/advocacy/research/index.cfm/aid/10323 (last viewed Nov. 18, 2013).

framework for NG911 services. You directed the Commission to submit such a report within a year of the Act's enactment, and we did so last February.

I mention the report because it finds that Congress can play a key role in assisting the efforts of state and local jurisdictions as they begin to bring NG911 on line. One of the report's lead recommendations is that Congress should create incentives for states to become "early adopters" of NG911. This would accelerate the NG911 transition in these states while also generating valuable experience with NG911 implementation that other states can follow.

We also recommended that Congress encourage states to establish or empower state 911 boards or similar state-level governance entities to provide technical and operational expertise. The report made other recommendations as well, including recommendations designed to identify areas where Congress could assist in the elimination of legacy state regulations that may be impeding NG911 deployment while providing incentives for states to modernize their laws and regulations to accommodate NG911.

Finally, it is appropriate to mention the successful use of wireless emergency warnings to alert the public of potential emergency situations. In the Warning Alert and Response Network (WARN) Act, Congress laid the foundation for wireless phones to provide geographically targeted alert and warning information to the public, and the FCC has worked hard with the Federal Emergency Management Agency (FEMA), the National Oceanic and Atmospheric Administration (NOAA), industry and others, to make this a reality. This resulted in the launch of the Wireless Emergency Alert (WEA) program in the summer of 2012, which alerting authorities are now using to warn mobile users of imminent danger. Just this past weekend, mobile users in the path of tornadoes in Illinois received tornado warnings from the National Weather Service sent via WEA, and reports indicate that these warnings helped some people get to safety before tornadoes struck. WEA warnings have also helped to recover kidnapped children, evacuate areas during superstorm Sandy, and otherwise alert people to get to safety in an emergency. To date, more than 8,600 WEA alerts have been delivered since the program began.

CONCLUSION

In sum, transition is the watchword. The Commission is dedicated to steward these changes in a responsible and transparent manner, and we will continue to work with all stakeholders to do so. I thank you for your time this morning, and the opportunity to testify before you today.

Mr. WALDEN. Thank you, and thanks to the FCC for their good work in this area, and meeting the deadlines.

We will go now to Mr. Darryl Ackley, who is the Cabinet Secretary for the New Mexico Department of Information and Technology. Mr. Ackley, thank you for being here today, and thanks for your patience. We look forward to your testimony, sir.

STATEMENT OF DARRYL ACKLEY

Mr. ACKLEY. Well, good morning, Mr. Chairman, Ranking Member, members of the subcommittee. Thank you as well for the opportunity to be here today to present on the status of the project in New Mexico in public safety broadband. Excited to be here today. I am the Chief Information Officer for the State of New Mexico, and Cabinet Secretary over the Information Technology Department, appointed in February of 2011 by Governor Susanna Martinez when she took office. I also serve as the representative from the National Association of State Chief Information Officers to the FirstNet Public Safety Advisory Committee, but asked to be here today to update specifically on the activities within the State of New Mexico.

A little bit of background, the IT Department in New Mexico is the enterprise service provider for the State, in traditional domain, but we also operate the Public Safety Land Mobile Radio Communication Network for our State's first responders and officials, to include a fairly large tower asset, and land mobile radio component. We operate that in a chargeback manner, and provide hopefully great service for our citizens in the State.

In 2010 New Mexico was one of the applicants and recipients of a BTOP grant to build out both additional digital microwave infrastructure within the State, but also to deploy a pilot broadband program, LTE, within the 10 megahertz of spectrum that were dedicated for public safety under the Public Safety Spectrum Trust. In 2011, when I took the office, we incorporated that into a comprehensive plan to modernize public safety communications within the State of New Mexico along three areas. One, having a resilient and robust backhaul infrastructure. This is towers, et cetera. The second, to address critical gaps in our State's land mobile radio communications. But the third, and in line with our BTOP grant, to deploy public safety broadband within the State, and we saw these three as being very compatible with one another.

As part of that plan, we began work in earnest on the tower upgrades, which are nearly complete, providing us a digital microwave backbone. At the juncture we were about to deploy in the LTE for the public safety broadband, of course, in 2012 was when the Spectrum Act was passed, creating FirstNet, and opening the D block for use by that entity. Our grant was partially suspended in that regard in the LTE while the FirstNet board was brought into being, while they organized and got moving.

In December of 2012, so about a year ago, we were visited by board members Jeff Johnson and Sue Swenson to review our BTOP program, as they visited all the BTOP waiver recipients. At that time we presented our original plan for a build-out in that LTE spectrum, but also provided some alternative plans to work with the board through, in case they wanted to see some different op-

tions. We presented a pilot project build-out along the Southwest border that we thought could have some impact in our State, but also provide some valuable learning conditions to the board. Then that had quite a bit of resonance, so from that point on we began working with the FirstNet board, as well as with folks at NTIA and FCC to develop that into a pilot project, as well as begin negotiations with the FirstNet board for a lease in the spectrum so that we could begin to build that out.

Over the course of about 6 months we iterated with them, we worked through that negotiation. Of course, you know, any negotiation has its ups and downs. New Mexico very much wanted to make sure that what we had in place would serve our citizens, and our constituents, but also give us flexibility, and, I am sure with FirstNet, give them the flexibility that they needed. I am proud to say we accomplished that. We have a non-exclusive State-wide lease in that spectrum, and are working towards developing the RFP to proceed with the Southwest border project.

We have been granted that lease with three key learning conditions that, in conjunction with the FirstNet board, we developed for that build-out. And those key learning conditions are, one, demonstrating the ability of, you know, cross-jurisdictional interaction by working with the deployed corps in Harris County, Texas. The second being looking at the frequency issues, the spectrum issues, associated with operating on the U.S.-Mexico border, and what that is going to mean on a larger scale as the FirstNet build-out rolls out. And then, third, the opportunity to potentially incorporate Federal users onto that system as we deploy, given the presence of Customs and Border Patrol, Immigrations and Customs, and other Federal operations along that boundary. So, at that point, we are working on publishing the RFPs to start the first phase of this operation, and hope to begin that in the First Quarter of 2014.

With that, my time is about up, and I would love to answer any questions that you have later.

[The prepared statement of Mr. Ackley follows:]

Written Testimony to the House Committee on Energy and Commerce Subcommittee on Communications and Technology

Darryl Ackley – State of New Mexico – 21 November 2013

Synopsis

- New Mexico is executing a holistic plan to modernize Public Safety communications statewide, including infrastructure, land-mobile radio, and digital broadband.
- New Mexico has been actively involved as an early-adopter in the area of Public Safety broadband in the 700MHz spectrum, both before and after the creation of FirstNet.
- As a BTOP recipient, New Mexico remains actively involved in steering the evolution of Public Safety Broadband in the 700MHz spectrum, and represents a sparse, rural State with many unique challenges that must be addressed as part of any nation-wide roll out.
- Subsequent to the passage of the Spectrum Act, New Mexico negotiated a statewide lease in the FirstNet 700MHz spectrum to begin work on a pilot project.

Introduction

My name is Darryl Ackley. I am the State Chief Information Officer for the State of New Mexico. I was appointed by Governor Susana Martinez in February of 2011 as the Secretary of the New Mexico Department of Information Technology. The Department is the Enterprise Information Technology (IT) service provider for the State, to include an oversight and strategic planning component. Among our many duties, we also provide Public Safety Communications in the form of tower infrastructure, backhaul, Land Mobile Radio (LMR) repeaters and radios, and application support. My Deputy Secretary, Jacqueline Miller, also serves as the Statewide Interoperability Coordinator (SWIC), which provides New Mexico with a leadership structure well-suited to supporting Public Safety communications both technically and in terms of governance.

New Mexico has been working with the FirstNet board and with the National Telecommunications and Information Administration (NTIA) on implementing a pilot public-safety broadband network in the 700Mhz spectrum. Prior to FirstNet, the State was deeply involved with early-builder activities in this arena. Presented below is a narrative describing the State's interaction with the FirstNet board to date, and a brief overview of public-safety initiatives within the State.

Background

New Mexico, the "Land of Enchantment", is one of the most rural states in the country. It is home to some the oldest free-standing structures in the Nation. The State's capital city,

Santa Fe, recently celebrated its 400th anniversary. New Mexico has a rich cultural heritage, home to more twenty than Native American tribes and pueblos. Additionally, New Mexico has a rich heritage in the areas of national security, public safety, and defense. New Mexico is host to two National Labs, White Sands Missile Range, three major research universities, and numerous other research development activities and associated industry.

Operating within such a rich cultural, technical, economic, and public fabric requires a truly comprehensive approach. Providing the communication fabric that the State's first responders utilize day-to-day is no different. As the 5th largest geographically, and the 6th least densely populated state in the union, with an incredible geographic diversity, providing the requisite communication infrastructure can be challenging. New Mexico is also prone to disruptive weather events, with several large-scale forest-fire and flooding events this year alone, often in areas with little or no commercial communication infrastructure. As a Southwest border State, New Mexico also operates in a multi-jurisdictional and multi-national environment along the hundreds of miles of international border we share with Mexico.

And yet, New Mexico is working to embrace modernization in the arena of Public Safety communications. There are a number of initiatives underway which are helping drive this modernization, including but not limited to:

- Smart Policing program in the City of Albuquerque;

- Efforts by the State IT Department to better consolidate digital programs such as E911, NG-911, and Victim Notification;
- The Broadband Planning and Mapping initiative being led by the State IT Department; and,
- The Department of Transportation NM Roads Program.

Since 2009, the State of New Mexico has been actively involved in Public Safety Broadband since the initial 10 MHz of spectrum in the 700MHz band was made available via the Public Safety Spectrum Trust. As part of the Broadband Technology Opportunity Program (BTOP), New Mexico was also one of a handful of states to have both funding and authorization to build out a pilot public-safety broadband network. In May of 2010, New Mexico became an FCC approved early builder waiver recipient. The state then received a $55M BTOP grant from the NTIA. This grant, which included a $17M state funded match, was for completing a digital upgrade of a statewide microwave backbone, as well as the initial deployment of 700MHz public safety broadband service in the state.

In 2011, and under the leadership of Governor Susana Martinez, my department adopted a holistic strategy for approving and modernizing public safety, as well as beginning the work under the BTOP grant in earnest. This strategy is aimed at modernizing public safety communication in three related areas:

- **Infrastructure:** Providing a robust and resilient tower and backhaul network for the purposes of supporting reliable public-safety communication, both voice and data.
- **Land-Mobile Radio:** Upgrading and modernizing legacy repeater and radio systems, to include both technical upgrades as well as improvements to governance and interoperability
- **Broadband:** Providing a digital microwave data network for public safety, in addition to helping drive applications and ecosystem.

Additionally, the State has seen this as a strong driver for re-evaluating the manner in which it can provide leadership in terms of interoperability and the provision of shared services to the benefit of all stakeholders.

FirstNet

With the passage of the Spectrum Act in February of 2012, the paradigm was changed nation-wide. A significant victory was the opening of the 'D' block, providing a full 20MHz for a nationwide network. Most significant, however, was the creation of the FirstNet board, a quasi-governmental entity tasked with completing the build out of a nationwide network. For BTOP licensees, this represented an abrupt change. The public safety broadband component of the State's grant was suspended while the FirstNet board was stood up and organized. During this time, New Mexico continued to advocate from its position as an early adopter for the ability to deploy a pilot system.

FirstNet board members Jeff Johnson and Sue Swenson visited New Mexico in the winter of 2012. An in-depth review of the BTOP program to date was performed, along with a discussion around proposed pilot projects. At that meeting, the parties involved agreed that a pilot project along the Southwest border would be worth pursuing pending: the approval of the Board; a favorable ruling in regards to the BTOP funding; and, a successful lease negotiation between the State and the Board for the 700Mhz spectrum. Through strenuous effort, all three of these issues were addressed successfully. New Mexico was granted a non-exclusive statewide lease for operations within the FirstNet spectrum.

With respect to the lease, the process was intense at times and required a substantial amount of iteration. For both parties, the process wasn't without obstacles, though many of these were the result of negotiating with a nascent Federal entity for which the very parameters for negotiation were being pioneered as they were encountered. The State's position was centered around negotiating a lease that accomplished the goals of FirstNet without impinging on the State's ability to drive adoption and operability within the scope and limits of State law. A significant portion of the negotiations were centered on Key Learning Conditions, which were mutually agreed upon, are listed below (as adjusted for readability):

- Utilize the Harris County, Texas, Evolved Packet Core (EPC) to support the New Mexico deployment to address issues arising in connection with sharing a single EPC among multiple States, including governance, technical, user, authentication, backhaul, and other issues.

- Deploy Long Term Evolution (LTE) capability within the U.S./Mexico border area to address spectrum management and use issues arising in the context of limited spectrum availability due to a portion of the available spectrum being allocated on a primary basis to Mexico, including technical, interoperability, interference, application functionality, and other issues.
- Anticipate a significant number of Federal users among its network subscribers, and address issues arising in the context of shared use among Federal and State organizations, including governance, technical, infrastructure, application and other issues

Beyond these minimal learning conditions, the State sees significant value in terms of helping elucidate some of the more subtle and/or practical aspects that FirstNet will face as they work towards their deployment. For one, these are issues that the State would need to address in any circumstance, whether building out such a communication network on its own, or under the auspices of a pilot project in conjunction with FirstNet. Additionally, the State's IT department is already operating land-mobile radio systems as a chargeback agency, under the federal guidelines found in OMB A-87. Best practices and procedures for functions such as rate development, asset capitalization, and governance will need to be evaluated, adapted, and extended as the project develops.

Probably the most significant challenge faced by FirstNet in building out a truly interoperable nationwide public safety broadband network will be designing a means to bring service and coverage to rural and underpopulated areas contemporaneously with

building out in urban areas, as required by the Spectrum Act. From a financial standpoint, there are greater opportunities in urban areas than exist in rural areas for generating revenues to justify a buildout as well as opportunities for sharing existing commercial and public safety assets to help defray the cost of buildout. And yet it is in the vast rural areas of our nation where commercial broadband alternatives are not available that FirstNet's efforts may arguably be most needed. It is a longstanding principle of our nationwide communications network that citizens living in rural areas should have access to the same communications technologies that are available to citizens in urban areas, and this principle is appropriately embodied at the very heart of the implementing legislation establishing FirstNet. As one of the most rural states in our nation, having a population density of about 16 persons per square mile, New Mexico's efforts as an early builder will provide critical information and guidance to FirstNet in achieving a truly ubiquitous, nationwide, interoperable public safety broadband network.

At this point, the State continues to work closely with the FirstNet board and with the NTIA to begin its pilot build out, and is participating in the State and Local Implementation Grant Program (SLIGP) grant process. Again, the State sees Public Safety Broadband as one aspect of a comprehensive modernization effort, as it has since before the inception of FirstNet.

Conclusion

In conclusion, the State of New Mexico considers Public Safety Broadband as one of three pillars in a comprehensive modernization effort. The State is proud of its efforts, both in

working internally to achieve this modernization, as well as externally. Indeed, the State recognizes the importance of the effort that is underway via FirstNet, and feels strongly that remaining actively involved is the best way to achieve an outcome that is mutually beneficial and acceptable. While there are likely to be challenges moving forward, both for the State and for FirstNet, those challenges will ultimately serve to push both public safety officials and technologists to a modern convergence.

Mr. WALDEN. All right, Mr. Ackley, thank you very much. We look forward to learning more about the experience that New Mexico has had. Sounds like it has been a good one. Mr. Davis, we are delighted to have you here. Mr. Stu Davis is a State Chief Information Office and Assistant Director of the Ohio Department of Administrative Services. We are very appreciative that you were able to join us, and we look forward to your testimony too, sir. Thank you.

STATEMENT OF STU DAVIS

Mr. DAVIS. Well, thank you very much, Chairman Walden, Ranking Member Eshoo, and members of the subcommittee. Thank you for the opportunity to testify on FirstNet and the nationwide Public Safety Broadband Network Initiative. My name is Stu Davis. I currently serve as the Ohio State Chief Information Officer, and the Assistant Director of the Ohio Department of Administrative Services. As the State CIO, I lead, oversee, and direct State agency activities related to information technology development and its use. As Assistant Director of DAS, I oversee the Office of Information Technology, which delivers information technology and telecommunications services to State government agencies, boards, and commissions. I also serve as the Chair of the Multi-Agency Radio Communication Systems, MARCS, on that steering committee, which is Ohio's land mobile radio system that supports voice and data communications of statewide public safety and emergency management. I also chair Ohio's Emergency Service IP Network, ESINet, steering committee, focused on Ohio's Next Gen 911 solution.

The Ohio General Assembly had concerns about FirstNet, and passed Senate Concurrent Resolution 15 earlier this year. Specific concerns were around the business plan, the costs the State would bear, either mandated or obligated, the ability to opt-out with no cost if not appropriate for Ohio, to have written assurances that it would meet, exceed current levels of service in the areas of reliability, redundancy, and State-based system control, as well as fair market compensation for access and utilization of State-owned assets in support of network deployment. It called for this subcommittee to continue these meetings, and we commend you for doing so. Thank you.

FirstNet outreach has significantly improved, and is more consistent than we have seen in the past, which is great. We still have questions regarding requirements, user community rules and responsibilities, the overarching business case, and defined businesses and operational models, and, of course, near and long-term funding. We need to have further insight into these components so we can properly plan for future initiatives.

It is important that FirstNet views relationships with the States as a partnership, and that continues. Currently the planning grants available to States are focused on outreach and education. For FirstNet to be successful, they need to focus on the development of those relationships with the State, modifying their approach to be one of engagement, not product marketing to States. An example of partnering would be strong engagement on the requirements, and a definition of roles and responsibilities. It would

make sense to have individual State discussions, and perhaps negotiate these terms, before releasing an RFP to build out FirstNet. If this does not take place, there will be very little time for the States to react and determine the best path forward. If we are not part of those negotiations of those details of a blanket RFP prior to its release, it will be detrimental to both parties.

There are numerous requirements that need to be defined before architecting a solution. This runs the gamut from user, to technical, to operational requirements. It is difficult to architect a solution to undefined user requirements, and without clear expectations. FirstNet needs to be extremely sensitive to the fact that moving full steam ahead on identifying the technical aspects of the system several months before regional outreach positions are in place can be a little risky. Choosing technical specifications in the absence of understanding the needs of the State could also be detrimental to the long-term viability of the network.

We need to know these requirements and understand what the impact of these efforts will have on existing Ohio initiatives. In Ohio, this would be MARCS. It would also be the consideration of other statewide initiatives, such as Next Generation 911, which should be viewed as a component of FirstNet. Several States, including Ohio, have stated that current Next Gen design efforts must integrate with FirstNet in the future. Understanding the impact on MARCS, as well as Next Generation 911, is critical to our planning process.

We would also like to see the business model. I understand the difficulties there, but it is critical for us to be able to understand the sustainability of the effort that we have going forward. Building the cost recovery and usage rates will be instrumental in the adoption of the effort. The answer I get is, build, and ongoing costs will be supported through partnerships with the State, and subscription from early adopters. I don't believe this is sustainable. Someone has to pay for operations while adoption ramps up and takes place.

The concern would be the responsibility for the operational costs, and, more to the point, adoption of MARCS, at $20 a month, gets significant pushback from some of our user community. Volunteer firefighters push back on $240 a year to have an operational radio on our system. How will they pay for both? I would like to better understand these aspects before we can move forward a little bit.

Again, with the capital investment from Federal Government, where is the revenue to sustain the FirstNet operations in each State? The interpretation of public safety use only must be clearly defined. Without the revenue from broad secondary use of excess capacity, the model may not be sustainable.

In Ohio we are working through IT optimization efforts to align all our IT assets, resources, and current expenditures to reduce duplication of effort and increase efficiencies of the benefit to the citizen. A key of this is adoption and leveraging of past investments. We are expending dollars today to support law enforcement and first responders. These past investments, I mentioned MARCS and Next Generation 911, there has to be a path forward to protect those current and previous investments so that these systems are integrated and leveraged. We need to be able to plan and forecast

impacts and direction of current efforts to be able to align with FirstNet. Understanding the operational costs and potential costs to the user community will be directly related to law enforcement and first responder adoption.

I understand that FirstNet will also leverage, or attempt to leverage, existing vertical assets the State currently owns, lease, or is carrying debt on. There are financial, legal, jurisdictional issues regarding use of existing State, local, and private assets. There are numerous bonding and legal considerations that must be thought through for many States.

We continue to have concerns about funding, and it is important to note that, after having said all these things, I am supportive of the concept of the Nationwide Public Safety Broadband Network, and I believe Ohio is uniquely positioned to take advantage of the significant opportunity to coordinate and converge multiple efforts. These efforts include MARCS, as well as the Ohio Next Generation System, and I look forward to the opportunity to partner on this effort and ensure impacts to current initiatives are in alignment with Ohio's direction.

Thank you very much.

[The prepared statement of Mr. Davis follows:]

1 page summary of major points

- Outreach has improved but strategic partnership with the States is imperative
- Business model for sustainable operations
- Ensure the state collaboration keeps pace with the technical outreach to ensure technical solutions fit with state needs

Testimony

Good morning Chairman Walden, Ranking Member Eshoo and members of the Subcommittee. Thank you for the opportunity to testify on FirstNet and the Nationwide Public Safety Broadband Network initiative.

My name is Stu Davis and I currently serve as Ohio's State Chief Information Officer (CIO) and the Assistant Director for the Ohio Department of Administrative Services (DAS). Prior to my role as the State CIO, I served as the State Chief Operating Officer and deputy director of the Infrastructure Services Division within DAS/Office of Information Technology (OIT).

As the State Chief Information Officer, I lead, oversee and direct state agency activities related to information technology development and use. As Assistant Director of DAS, I oversee the Office of Information Technology (OIT) which delivers statewide information technology and telecommunication services to state government agencies, boards and commissions. I also manage IT procurement, policy and standards development, lifecycle investment planning as well as privacy and security management.

The State CIO is also the Chair of the Multi-Agency Radio Communications System (MARCS) Steering Committee - Ohio's Land Mobile Radio system - that supports voice and data communications for statewide public safety and emergency management. I also chair Ohio's Emergency Services IP Network (ESINet) Steering Committee focused on Ohio's Next Generation 911 solution.

The Ohio General Assembly has concerns about FirstNet and passed Senate Concurrent Resolution 15 earlier this year. Specifically,

- The business plan,
- Costs the State will bear – mandated or obligated
- Opt out with no net costs if not appropriate for Ohio
- FirstNet provide written assurances that it will meet and exceed current level of service in the areas of reliability, redundancy, and state based system control.
- Fair market compensation for access and utilization of state-owned assets in support of network deployment.

FirstNet outreach has significantly improved and is more consistent but there are still questions regarding requirements, user community (state, local government) roles and responsibilities, an overarching business case, defined business and operational

models and of course, near and long-term funding. We need to have further insight into key components so we can properly plan for the future.

Partnership versus Customer – It is important that FirstNet views relationships with the states as a partnership. Currently the planning grants available to states are focused on outreach and education. For FirstNet to be successful they need to focus on developing relationships with the states and modify their approach to be one of engagement, not product marketing to states.

An example of partnering would be stronger engagement on the requirements and the determination of roles and responsibilities. It would make sense to have individual state discussions and perhaps negotiate terms before releasing an RFP to build out FirstNet. If this does not take place, there will be very little time for the States to react and determine the best path forward. If we are not a part of the negotiation of the details of a blanket RFP prior to its release, it will be detrimental to both parties.

Planning and Development – There are numerous requirements that need to be defined before architecting a solution. This runs the gamut from user to technical and operational requirements. It is difficult to architect a solution to undefined user requirements and clear expectations. I am hearing conflicting answers to the "requirements versus architected" solution; it appears, albeit from a distance, that FirstNet is trying to fit user and operational requirements into overall pre-defined technical architecture.

FirstNet needs to be extremely sensitive to the fact that moving full steam ahead on identifying the technical aspects of the system several months before regional outreach positions are in place can be risky. Choosing technical specifications in the absence of understanding the needs of states could be detrimental to the long-term viability of the network.

Additionally, the states interpretation of how "public safety use only" has been defined for NPSBN use may not be consistent. The potential business model may not be sustainable in many areas of the country without secondary users of excess capacity.

We need to know these definitions to understand what the impact of this effort will have on Ohio's existing initiatives. Questions like how does this fold into current state Land Mobile Radio (LMR) systems providing "mission critical" voice and data for our public safety and first responders.

In Ohio, this is the Multi-Agency Radio Communications System or MARCS. Additionally, consideration of other statewide initiatives such as Next Generation-911 (NextGen-911) should be viewed as a component of FirstNet. Several states, including Ohio, have stated that current NextGen-911design efforts must integrate with FirstNet in the future. Understanding the impact on MARCS as well Next Generation NG-911 is critical to our planning process. These types of requirements must be considered in the architecting of Public Safety Broadband Network (PSBN) solutions.

Business and Operational Models – I would like to see the FirstNet business model. FirstNet seems to be asking the States to build the business case for them. This is critical to know and understand for the sustainability of the effort. Building the cost recovery and usage rates will be instrumental in the adoption of this effort. The answer I get is build and ongoing costs will be supported through partnerships (with the states) and subscriptions from early adopter/builders and the goal is to reinvest those user fees into construction.

I don't believe this is sustainable model. Someone has to pay for operations while adoption ramps up and takes place. My concern is that the states will be responsible for these lost costs and more to the point; adoption of MARCS at $20 a month gets signification push back from some of our user community. Volunteer firefighters always push back on $240 a year to have an operational radio on our system in Ohio. How will they pay for both? What are the chargeback and cost allocation implications from A-87 guidance? I would like to better understand these aspects before blindly jumping in to the deep end. Again, even with a capital investment from the federal government, where is the revenue to sustain the FirstNet operations in each state? Without the revenue from broad secondary use of excess capacity, the model may not be sustainable unless state and local agency use is mandatory and even then, the adoption ramp up will be an issue.

In Ohio, we are working through an IT Optimization effort to align all our IT assets, resources and current expenditures to reduce duplication of efforts and increase efficiencies for the benefit of the citizens. A key part of this is adoption and leveraging of past investments. We are expending dollars today to support law enforcement and first responders. These past investments include the Multi-Agency Radio Communications System. The path forward must protect our current and previous investments so these systems are integrated and leveraged. Additionally efforts are currently underway for Next Generation 911. This too will be an IP based network. What efforts of FirstNet can be leveraged to support NG-911? Are the technical specifications being taken into account?

Regarding the Nationwide Public Safety Broadband Network, we need to be able to plan and forecast impacts and direction of current efforts, to be able to align with this future effort. Understanding the operational costs and potential costs to the user community will be directly related to law enforcement and first responders adoption of NPSBN.

Leveraging State Assets – I understand that FirstNet will leverage vertical assets that states currently own, lease or are carrying debt on, how will that work? FirstNet is asking for an inventory of existing assets – will FirstNet buy these assets from the state? If they take them over and manage them, what happens to the debt service on these sites, the state owned lands they are on and the depreciation?

Public versus private use is an issue. We currently we have several steps we have to go through just to lease space on our tower sites due to the use of tax exempt bonds to build out MARCS. With FirstNet being a private corporation, how will this work? Additionally, there are financial, legal and jurisdictional issues regarding use of existing state, local and private assets. Will jurisdictions be compensated for access and use? Backhaul? There are numerous bonding and legal considerations that will need to be thought through for many states.

Funding – I continue to have funding concerns...both from the State's perspective as well as the anticipated $7 Billion which from most accounts represents a third of the necessary funding. Funding and the sustainability of a national network will be critical to its adoption and long term success.

It is important to note that I am supportive of the concept of the Nationwide Public Safety Broadband Network. Ohio is uniquely positioned to take advantage of the significant opportunity to coordinate and converge multiple efforts. These efforts include the MARCS' upgrade and Ohio's Next Generation 911 system. I look forward to the opportunity to partner on this effort and ensure impacts to current initiatives are in alignment with our direction.

Mr. WALDEN. Mr. Davis, thank you for your testimony. I think you have summed it up well. We all want it to work, and be affordable, and that is what we are striving to get to.

Mr. Dereck Orr is the Program Manager, Public Safety Communications Research, Office of Law Enforcement Standards, National Institute of Standards and Technology. That is a long title. But we are glad you are here, and we look forward to your testimony, sir. Please go ahead.

STATEMENT OF DERECK ORR

Mr. ORR. Thank you very much. Chairman Walden, Ranking Member Eshoo, members of the subcommittee, thank you for the opportunity to appear before you today to discuss the advancement of public safety wireless communications. I serve as the Program Manager for the Public Safety Communications Research Program, which is a joint effort between the National Institute of Standards and Technology and the National Telecommunications and Information Administration at the Department of Commerce Labs located in Boulder, Colorado.

The Public Safety Communications Research Program serves as the technical lead for several administration initiatives focused on public safety communications. Our longest standing program sponsor is the Department of Homeland Security's Office of Interoperability and Compatibility within the Science and Technology Directorate. The PSCR program is also involved in many of DHS's communications interoperability related programs, including the SAFECOM program within the Office of Emergency Communications. Additionally, PSCR is sponsored by the First Responder Network Authority to advance public safety broadband communication standards, and is developing additional research projects related to public safety broadband communications that the PSCR is uniquely qualified to execute. NIST greatly appreciates as well the confidence that Congress placed in NIST by allocating critical funding for public safety communications research and development in the legislation that established FirstNet.

Working alongside our Federal partners, the PSCR program has played the lead technical role in key advancement in public safety communications over the last decade. In 2010 the PSCR program, in partnership with DHS, deployed in the Boulder area a first-of-its-kind fourth-generation, long-term evolution, 700 megahertz public safety broadband demonstration network. This network was developed in collaboration with industry through cooperative research and development agreements between NIST, NTIA, and over 75 individual industry partners to date. This public/private partnership has resulted in one of the most vendor diverse 4G LTE networks in the world. The demonstration network allows PSCR to test and evaluate key broadband features critical to public safety, including multi-vendor interoperability, indoor, in-building coverage, and extended cell coverage possibilities for rural areas. In addition, future work will focus on priority access and quality of service for the network.

As part of PSCR's modeling and simulation efforts, PSCR conducts performance analysis of advanced communications networks using commercially available and in-house customized modeling

simulation tools. In support of a nationwide public safety broadband network, PSCR develops metrics and tools used to characterize the performance of LTE networks, which will help inform decision-making about network design.

PSCR continues to lead the requirements development efforts for the public safety broadband, working directly in support of the National Public Safety Telecommunications Council. NPSTC's broadband working group has developed requirements documents for mission critical voice, local control, and priority and quality of service that clearly define public safety's expectations of the nationwide broadband network capabilities.

In December 2012 NPSTC delivered the public safety broadband launch requirements to the FirstNet Board of Directors and the Public Safety Advisory Committee. The launch requirements define public safety's expectations for the nationwide network at launch. More recently, NPSTC delivered push-to-talk over LTE requirements to FirstNet. Current requirements efforts focus on the definition of public safety grade as it applies to the nationwide broadband network. These requirements documents are used as the fundamental basis of PSCR's formal standards development efforts related to LTE on behalf of FirstNet and the public safety community. Based upon testing and evaluation, modeling and simulation, and requirements gathering efforts, all of which inform the standards development effort at PSCR, there have been significant advances in the commercial LTE standards specific to public safety.

In December 2012 public safety was identified as the number one priority for the current version of LTE standards being developed within the third generation partnership project, which is the official standards development organization for LTE. This is a major accomplishment, given public safety's limited user base, compared to the worldwide commercial wireless user base. With this added momentum, and as part of the NPSTC mission critical voice requirements, PSCR is addressing the two largest gaps identified in LTE's ability to support mission critical voice capabilities, which are direct mode, device-to-device communications, and group communications. PSCR also has recently launched an effort to standardize mission critical push-to-talk LTE within 3GPP.

And, finally, working in the international standards community, alongside public safety from other countries, will lead to a global public safety LTE marketplace. This should decrease costs, while increasing the availability of advanced features to the worldwide public safety community.

In conclusion, PSCR will continue its public safety driven approach to advancing communications technologies for our Nation's first responders, and we look forward to continuing and expanding our valuable partnerships across public safety, local, State, tribal, and Federal Government organizations, as well as industry. Again, I am honored to be here before the subcommittee today, and I am happy to answer any questions you might have.

[The prepared statement of Mr. Orr follows:]

Testimony of

Dereck Orr
Program Manager
Public Safety Communications Research (PSCR) Program
National Institute of Standards and Technology
Department of Commerce

Before the United States House of Representatives
Committee on Energy and Commerce
Subcommittee on Communications and Technology

Hearing on "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications"

Thursday, November 21, 2013

Chairman Walden, Ranking Member Eshoo, Members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the advancement of public safety wireless communications. I serve as the Program Manager for the Public Safety Communications Research (PSCR) program, which is a joint effort between the National Institute of Standards and Technology (NIST) and the National Telecommunications and Information Administration (NTIA) at the Department of Commerce Labs located in Boulder, Colorado.

The Public Safety Communications Research (PSCR) program serves as the technical lead for several Administration initiatives focused on public safety communications. Our longest standing program sponsor is the Department of Homeland Security's (DHS's) Office for Interoperability and Compatibility (OIC) within the Science and Technology Directorate. The PSCR program is also involved in many of DHS's key communications interoperability-related programs, including the SAFECOM Program within the Office of Emergency Communications (OEC). Additionally, PSCR is sponsored by the First Responder Network Authority (FirstNet) to advance public safety broadband communications standards, and is developing additional research projects related to public safety broadband communications that PSCR is uniquely qualified to execute. The strong partnership among OIC, OEC, FirstNet, and the PSCR program is an excellent example within the Administration of multi-agency coordination and collaboration, and is something of which we at NIST are very proud. NIST greatly appreciates, as well, the confidence that Congress

placed in NIST by allocating critical funding for public safety communications research and development in the legislation that established FirstNet.

Working alongside our Federal partners, the PSCR program has played the lead technical role in key advancements in public safety communications over the last decade. In 2010, the PSCR program, in partnership with DHS OIC, deployed in the Boulder area a first-of-its-kind fourth generation (4G) Long Term Evolution (LTE) 700 MHz Public Safety Broadband Demonstration Network. This network was developed in collaboration with industry through Cooperative Research and Development Agreements (CRADAs) between NIST, NTIA, and over 75 individual industry partners to date. This public-private partnership has resulted in one of the most vendor-diverse 4G LTE networks in the world. The Demonstration Network allows PSCR to test and evaluate key broadband features critical to public safety, including multi-vendor interoperability, indoor/in-building coverage, and extended cell coverage possibilities for rural areas. PSCR is beginning the development of test plans for two vital features of a public safety broadband network: priority access; and quality of service. These features are fundamental to public safety operations because they will allow first responders to have guaranteed access to the network and the required level of network resources needed to do their jobs, such as video transmission or location services.

As part of PSCR's Modeling and Simulation efforts, PSCR conducts performance analysis of advanced communications networks using commercially available and in-house customized network modeling and

simulation tools. In support of the nationwide public safety broadband network, PSCR develops metrics and tools used to characterize the performance of LTE networks. These tools are used to:

- Estimate the resources (e.g., radio sites) required to build out the nationwide public safety broadband network
- Evaluate the performance of LTE technologies
- Provide insights on the performance trends and tradeoffs in order to identify the key factors that affect performance
- Define common performance metrics and a modeling approach to facilitate comparisons of network scenarios and deployments

PSCR continues to lead the requirements development efforts for public safety broadband, working directly in support of the National Public Safety Telecommunication Council (NPSTC). NPSTC's Broadband Working Group has developed requirements documents for Mission Critical Voice, Local Control, and Priority and Quality of Service that clearly define public safety's expectations of the nationwide broadband network capabilities.

In December 2012, NPSTC delivered the Public Safety Broadband Launch Requirements to the FirstNet Board of Directors and the Public Safety Advisory Committee (PSAC). The launch requirements define public safety's expectations for the nationwide network at launch. More recently, NPSTC delivered Push-To-Talk over LTE requirements to FirstNet. Current requirements efforts focus on the definition of "public safety grade" as it

applies to the nationwide broadband network. These requirements documents are used as the fundamental basis of PSCR's formal standards development efforts related to LTE, on behalf of FirstNet and the public safety community.

Based upon testing and evaluation, modeling and simulation, and requirement-gathering efforts, all of which inform the standards development efforts at PSCR, there have been significant advances in the commercial LTE standards specific to public safety. In December 2012, public safety was identified as the number one priority for the current version of LTE standards being developed within the 3rd Generation Partnership Project (3GPP), which is the official Standards Development Organization (SDO) for LTE. This is a major accomplishment, given public safety's limited user base compared to the worldwide commercial wireless user base (10-20 million vs. billions). With this added momentum, and as part of the NPSTC Mission Critical Voice requirements, PSCR is addressing the two largest gaps identified in LTE's ability to support Mission Critical Voice capabilities. PSCR recently launched an effort to standardize Mission Critical Push-To-Talk over LTE within 3GPP. One critical element of PSCR's success in standards development has been coordination with international public safety users and their governments who are also working toward public safety broadband. This will lead to a global public safety LTE marketplace, which should decrease costs while increasing the availability of advanced features to the worldwide public safety community.

Based upon lessons learned from the Demonstration Network and the P25 Compliance Assessment Program, PSCR participates in the global handset test community and has created the capacity for FirstNet-specific devices to be tested for conformance against standards by third party testing laboratories.

In order to help protect the estimated $100 billion capital investment that public safety has made in Land Mobile Radio (LMR), PSCR has been working with DHS to demonstrate the ability to interconnect LMR systems with commercial cellular broadband networks. These bridging system capabilities will allow FirstNet and the public safety community a graceful migration path for public safety's eventual use of LTE for mission critical communications. In addition to this effort, PSCR is working with DHS OIC to test prototype devices delivered to DHS that merge LMR and LTE technologies into one device.

In conclusion, PSCR will continue its public safety-driven approach to advancing communications technologies for our Nation's first responders, and we look forward to continuing and expanding our valuable partnerships across public safety, local, state, tribal and Federal government organizations, and industry. Again, I am honored to be here before this Subcommittee today, and I am happy to answer any questions that you may have.

Mr. WALDEN. Mr. Orr, thank you for your testimony, we appreciate that.

And now, because we have a lot of doctors before our committee, we can't have a hearing without at least a doctor on the panel, Dr. Dennis M. Martinez, Chief Technology Officer, RF Communications Division, Harris Corporation. Dr. Martinez, we are delighted to have you here, and we look forward to your expert testimony.

STATEMENT OF DENNIS MARTINEZ

Mr. MARTINEZ. Good morning, Mr. Chairman, Ranking Member Eshoo, and members of the subcommittee. Thank you for inviting me to testify today on FirstNet, and the advancement of public safety wireless communications. I previously testified before this committee on May 21 of 2011, during the hearing on creating an interoperable public safety broadband network. Last year I served as an appointed member of the Technical Advisory Board for First Responder Interoperability. In that role, I joined leaders representing State and local governments, public safety entities, wireless service providers, and equipment manufacturers in developing the recommended minimum technical requirements to ensure nationwide interoperability for the National Public Safety Broadband Network. These requirements were conveyed by the FCC to FirstNet, and, as required by law, will be incorporated in future RFPs issued by FirstNet.

I am here today to provide this committee with a technical perspective on FirstNet's mission and activities, with the goal of informing the committee on areas of progress since passage of the landmark legislation last year. There are four activities that I will address, pilot projects, standards of development, regulatory policy, and response to FirstNet inquiries.

Since January 2012, Harris has implemented pilot LTE projects in five jurisdictions. Most recently, Harris conducted live demonstrations of a deployable solution in remote Northern California that is not served by commercial broadband networks. These pilot projects utilized public safety broadband spectrum, and were implemented almost entirely at Harris expense, and we received support from the FCC and the FirstNet team, who facilitated and approved short-term spectrum use authorizations.

We had several objectives for launching these projects. First, we aimed at creating a learning experience for public safety entities that wanted firsthand knowledge of the exciting prospects promised by the eventual broadband network. Additionally, we sought learning experiences that would advance our own understanding of how to apply this State of the art commercial technology in a mission critical setting. Our findings were simple, but profound.

First, while there were many public safety entities that currently use commercial broadband networks in day-to-day operations, the prospect of a dedicated network optimized for their mission critical needs is highly valued. In fact, many of these entities are anxious to support deployment of the broadband network in their jurisdiction. Secondly, commercial LTE technology can be configured, through rigorous design practices, to support some mission critical needs today. The key gap that currently exists is mission critical voice. Notwithstanding that, we successfully demonstrated tech-

nology that permits interoperability between legacy and mission critical radio systems, and services that operate over Band 14 LTE.

And that brings me to the second topic area, which is the development of standards that will support mission critical voice on the broadband network and enable nationwide interoperability. Several activities are underway in 3GPP, TIA, and ATIS that are addressing this need. Under the Spectrum Act, FirstNet must represent the interest of public safety users in these standards development activities, and to do so in consultation with the director of NIST, the FCC, and the Public Safety Advisory Committee. Although not explicitly noted in the Spectrum Act, we also believe there is significant benefit for FirstNet to consult and collaborate in this process with private sector entities likely supplying the required products and services that implement these emerging standards.

In addition to the development of standards, continuing evolution of the regulatory framework for FirstNet will be important to its success. As a manufacturer of LTE user equipment, Harris is pleased with the significant milestone that was achieved earlier, when the FCC released the first iteration of Band 14 service rules. These rules are a significant step, and one that is required for OEMs to continue their investment in products and technologies that FirstNet will need in its deployment, and first responders will need in order to operate on the NPSBN. Toward that goal, and in advance of these final requirements, we note that FirstNet has done significant work to require their early build-outs are interoperable, and should be commended for supporting efforts to make procurements for these projects competitive and multi-vendor.

Finally, we commend the FirstNet team on their significant success and progress in their RFI process. That has given us, the private sector, a significant window of visibility into potential requirements for equipment and services that they will procure. As FirstNet completes its State and local collaboration and begins finalization of the technical requirements for the broadband network, we encourage FirstNet to engage the private sector at each opportunity. This is an essential step for continued investment by the private sector in FirstNet, which, in turn, is important for timely availability of products and services that FirstNet will need to procure.

In closing, I once again thank the committee for inviting me to testify on this matter of great importance to the American public. Harris remains eager to support FirstNet, and this committee, to make this happen. Thank you very much.

[The prepared statement of Mr. Martinez follows:]

TESTIMONY OF:

DR. DENNIS MARTINEZ

CHIEF TECHNOLOGY OFFICER & VICE PRESIDENT, PUBLIC SAFETY LTE

RF COMMUNICATIONS DIVISION

HARRIS CORPORATION

BEFORE THE UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON ENERGY AND COMMERCE

SUBCOMMITTEE ON COMMUNICATIONS AND TECHNOLOGY

HEARING ON:

OVERSIGHT OF FIRSTNET

AND THE ADVANCEMENT OF PUBLIC SAFETY WIRELESS COMMUNICATIONS

NOVEMBER 21, 2013

GOOD MORNING, MR. CHAIRMAN, RANKING MEMBER ESHOO, AND MEMBERS OF THE SUBCOMMITTEE. THANK YOU FOR INVITING ME TO TESTIFY TODAY ON FIRSTNET AND THE ADVANCEMENT OF PUBLIC SAFETY WIRELESS COMMUNICATIONS.

LET ME BEGIN BY INTRODUCING YOU TO HARRIS CORPORATION. HARRIS IS AN INTERNATIONAL COMMUNICATIONS AND INFORMATION TECHNOLOGY COMPANY SERVING GOVERNMENT AND COMMERCIAL MARKETS IN MORE THAN 150 COUNTRIES. HEADQUARTERED IN MELBOURNE, FLORIDA, THE COMPANY HAS APPROXIMATELY $5 BILLION OF ANNUAL REVENUE AND ABOUT 14,000 EMPLOYEES — INCLUDING NEARLY 6,000 ENGINEERS AND SCIENTISTS. HARRIS IS A LEADING GLOBAL SUPPLIER OF SECURE RADIO COMMUNICATIONS PRODUCTS AND SYSTEMS FOR THE MILITARY, GOVERNMENT, AND PUBLIC SAFETY MARKETS. HARRIS IS A PIONEER IN THE DEVELOPMENT OF INTERNET PROTOCOL (IP) BASED NETWORKS FOR PRIVATE RADIO AND BROADBAND APPLICATIONS, AND SUPPLIES INDUSTRY-LEADING NARROWBAND, MULTIBAND, AND BROADBAND NETWORKS, SERVICES, AND DEVICES.

I PREVIOUSLY TESTIFIED BEFORE THIS COMMITTEE ON MAY 21, 2011 DURING THE HEARING ON CREATING AN INTEROPERABLE PUBLIC SAFETY BROADBAND NETWORK. AT THAT TIME, I WAS CHAIR OF THE FEDERAL COMMUNICATIONS COMMISSION'S (FCC) EMERGENCY RESPONSE INTEROPERABILITY CENTER (ERIC) PUBLIC SAFETY ADVISORY COMMITTEE (PSAC), SECURITY AND AUTHENTICATION WORK GROUP.

AT PRESENT, I SERVE AS THE CTO OF HARRIS CORPORATION'S RF COMMUNICATIONS DIVISION AND AS VICE PRESIDENT RESPONSIBLE FOR LTE SOLUTIONS FOR PUBLIC SAFETY. MY EXPERIENCE INCLUDES DEVELOPING MARKET-LEADING TECHNOLOGIES WITHIN OUR COMPANY FOR THE PUBLIC SAFETY INDUSTRY AND CONTRIBUTING EXTERNALLY TOWARDS THE DEVELOPMENT OF BOTH PUBLIC AND REGULATORY

POLICY AND TECHNOLOGY STANDARDS THAT SUPPORT THE MISSION CRITICAL NEEDS OF OUR NATION'S FIRST RESPONDERS.

LAST YEAR, I SERVED AS AN APPOINTED MEMBER OF THE TECHNICAL ADVISORY BOARD FOR FIRST RESPONDER INTEROPERABILITY AS ESTABLISHED BY THE SPECTRUM ACT. IN THAT ROLE, I JOINED LEADERS REPRESENTING STATE AND LOCAL GOVERNMENTS, PUBLIC SAFETY ENTITIES, WIRELESS SERVICE PROVIDERS, AND EQUIPMENT MANUFACTURERS, IN DEVELOPING THE RECOMMENDED MINIMUM TECHNICAL REQUIREMENTS TO ENSURE NATIONWIDE INTEROPERABILITY FOR THE NATIONAL PUBLIC SAFETY BROADBAND NETWORK. THESE REQUIREMENTS WERE CONVEYED BY THE FCC TO FIRSTNET, AND AS REQUIRED BY LAW, WILL BE INCLUDED IN FUTURE RFPs ISSUED BY FIRSTNET.

I AM HERE TODAY TO PROVIDE TO THIS COMMITTEE A TECHNICAL PERSPECTIVE ON FIRSTNET'S MISSION AND ACTIVITIES, WITH A GOAL OF INFORMING THE COMMITTEE ON AREAS OF PROGRESS SINCE PASSAGE OF THE LANDMARK LEGISLATION LAST YEAR, WHICH I WILL REFER TO AS "THE SPECTRUM ACT".

THERE ARE FOUR ACTIVITIES THAT I WILL DISCUSS:

(1) PILOT PROJECTS
(2) STANDARDS DEVELOPMENT
(3) REGULATORY POLICY
(4) RESPONSE TO FIRSTNET INQUIRIES

A COMMON CONNECTION AMONG THESE ACTIVITIES IS THE HARRIS PERSPECTIVE ON FIRSTNET'S NEED TO ENABLE A FULL SUITE OF MISSION CRITICAL SERVICES OVER THE NATIONAL PUBLIC SAFETY BROADBAND NETWORK (THE NPSBN). WE BELIEVE THIS IS CRITICAL TO THE SUCCESS OF FIRSTNET AND WILL ADVANCE IDEAS THAT

UNDERSCORE OPPORTUNITIES FOR FIRSTNET TO CONTINUE TO COLLABORATE WITH PRIVATE SECTOR ENTITIES THAT WILL PROVIDE THE TECHNOLOGIES, PRODUCTS, SERVICES, AND EXISTING FACILITIES THAT FIRSTNET NEEDS TO LEVERAGE.

SINCE JANUARY 2012, HARRIS HAS IMPLEMENTED PILOT LTE PROJECTS IN FIVE JURISDICTIONS. MOST RECENTLY, HARRIS CONDUCTED A LIVE DEMONSTRATION OF DEPLOYABLE SOLUTIONS IN A REMOTE AREA IN CALIFORNIA THAT IS NOT SERVED BY COMMERCIAL BROADBAND NETWORKS. THESE PILOT PROJECTS UTILIZED PUBLIC SAFETY BROADBAND SPECTRUM AND WERE IMPLEMENTED ALMOST ENTIRELY AT HARRIS' EXPENSE AND WITH THE SUPPORT WE RECEIVED FROM THE FCC AND THE FIRSTNET TEAM WHO FACILITATED AND APPROVED SHORT TERM SPECTRUM USE AUTHORIZATIONS FOR THESE PILOT PROJECTS.

WE HAD SEVERAL KEY OBJECTIVES FOR LAUNCHING THESE PROJECTS. FIRST AND FOREMOST, WE AIMED AT CREATING AN IMPORTANT LEARNING EXPERIENCE FOR PUBLIC SAFETY ENTITIES THAT WANTED FIRST-HAND KNOWLEDGE OF THE EXCITING PROSPECTS PROMISED BY THE EVENTUAL NPSBN. ADDITIONALLY, WE SOUGHT A LEARNING EXPERIENCE THAT WOULD ADVANCE OUR OWN UNDERSTANDING OF HOW TO APPLY THIS STATE-OF-THE-ART COMMERCIAL TECHNOLOGY IN A MISSION CRITICAL SETTING. OUR FINDINGS WERE SIMPLE BUT NONETHELESS PROFOUND. (1) WHILE THERE ARE MANY PUBLIC SAFETY ENTITIES THAT CURRENTLY USE COMMERCIAL BROADBAND NETWORKS IN DAY-TO-DAY OPERATIONS, THE PROSPECT OF A DEDICATED NETWORK OPTIMIZED FOR THEIR MISSION CRITICAL NEEDS IS HIGHLY VALUED. IN FACT, MANY OF THESE ENTITIES ARE ANXIOUS TO SUPPORT DEPLOYMENT OF THE NPSBN IN THEIR JURISDICTIONS. (2) COMMERCIAL LTE TECHNOLOGY CAN BE CONFIGURED, THROUGH RIGOROUS DESIGN PRACTICES, TO SUPPORT SOME MISSION CRITICAL NEEDS TODAY. THE KEY GAP THAT CURRENTLY EXISTS, AS MANY ARE WELL

AWARE, IS MISSION CRITICAL VOICE. NOTWITHSTANDING THAT, WE SUCCESSFULLY DEMONSTRATED TECHNOLOGY THAT PERMITS VOICE INTEROPERABILITY BETWEEN LEGACY MISSION CRITICAL RADIO SYSTEMS AND SERVICES THAT OPERATE OVER BAND 14 LTE. THIS TECHNOLOGY ENABLED FIRST RESPONDER PARTICIPANTS TO EXPERIENCE A CONVERGED SERVICE – JOINING THE CURRENT LMR SOLUTION WITH TOMORROW'S LTE SOLUTION – AS A PRECURSOR TO EVENTUAL MIGRATION TO THE NPSBN FOR ALL MISSION CRITICAL SERVICES.

THAT BRINGS ME TO THE SECOND TOPIC AREA, WHICH IS THE DEVELOPMENT OF STANDARDS THAT WILL SUPPORT MISSION CRITICAL VOICE ON THE NPSBN AND ENABLE NATIONWIDE INTEROPERABILITY OF THIS CRITICAL SERVICE. SEVERAL PARALLEL ACTIVITIES ARE UNDERWAY IN 3GPP, TIA, AND ATIS, THAT ARE ADDRESSING THIS NEED. UNDER THE SPECTRUM ACT, FIRSTNET MUST REPRESENT THE INTERESTS OF PUBLIC SAFETY USERS IN THESE STANDARDS DEVELOMENT ACTIVITIES, AND TO DO SO IN CONSULTATION WITH THE DIRECTOR OF NIST, THE FCC, AND THE PUBLIC SAFETY ADVISORY COMMITTEE. ALTHOUGH NOT EXPLICITLY NOTED IN THE SPECTRUM ACT, WE ALSO BELIEVE THERE IS SIGNIFICANT BENEFIT FOR FIRSTNET TO CONSULT AND COLLABORATE IN THIS PROCESS WITH PRIVATE SECTOR ENTITIES LIKELY SUPPLYING THE REQUIRED PRODUCTS AND SERVICES THAT IMPLEMENT THESE EMERGING STANDARDS.

IN ADDITION TO THE DEVELOPMENT OF STANDARDS, CONTINUING EVOLUTION OF THE REGULATORY FRAMEWORK FOR FIRSTNET WILL BE FOUNDATIONAL TO FIRSTNET'S SUCCESS. AS A MANUFACTURER OF LTE USER EQUIPMENT, HARRIS IS PLEASED WITH THE SIGNIFICANT MILESTONE ACHIEVED WHEN THE FCC ISSUED THE FIRST RELEASE OF SERVICE RULES FOR THE NPSBN. THESE RULES ARE A SIGNIFICANT STEP AND ONE THAT IS REQUIRED FOR OEMs TO CONTINUE THEIR INVESTMENT IN PRODUCTS AND

TECHNOLOGIES THAT FIRSTNET WILL NEED IN ITS DEPLOYMENT AND THAT FIRST RESPONDERS WILL REQUIRE IN ORDER TO USE THE NPSBN. WE ENCOURAGE CONTINUED WORK BY ALL STAKEHOLDERS TO FINALIZE THIS REGULATORY FRAMEWORK THAT WILL ULTIMATELY ENABLE MULTI-VENDOR, INTEROPERABLE DEPLOYMENTS AT EVERY STAGE, AS REQUIRED BY THE SPECTRUM ACT. TOWARD THIS GOAL, IN ADVANCE OF THESE FINAL REQUIREMENTS, IT SHOULD BE NOTED THAT FIRSTNET HAS DONE SIGNIFICANT WORK TO REQUIRE THAT EARLY BUILD OUTS ARE INTEROPERABLE AND SHOULD BE LAUDED FOR SUPPORTING EFFORTS TO MAKE PROCUREMENTS FOR THESE PROJECTS COMPETITIVE AND MULTI-VENDOR.

FINALLY, WE COMMEND THE FIRSTNET TEAM ON THEIR SIGNIFICANT PROGRESS IN THE RELEASE OF THEIR REQUESTS FOR INFORMATION (RFI). THE RFI PROCESS HAS GIVEN THE PRIVATE SECTOR A SIGNIFICANT AND CLEAR WINDOW OF VISIBILITY INTO POTENTIAL REQUIREMENTS FOR EQUIPMENT AND SERVICES THAT FIRSTNET WILL PROCURE. AS FIRSTNET COMPLETES ITS STATE/LOCAL COLLABORATION AND BEGINS FINALIZATION OF THE TECHNICAL REQUIREMENTS FOR THE NPSBN BUILDING BLOCKS, WE ENCOURAGE FIRSTNET TO ENGAGE THE PRIVATE SECTOR AT EACH OPPORTUNITY. THIS IS AN ESSENTIAL STEP FOR CONTINUED INVESTMENT BY THE PRIVATE SECTOR IN FIRSTNET, WHICH IN TURN IS ESSENTIAL FOR TIMELY AVAILABILITY OF PRODUCTS AND SERVICES THAT FIRSTNET WILL NEED TO PROCURE.

IN CLOSING, I ONCE AGAIN THANK THE COMMITTEE FOR INVITING ME TO TESTIFY ON A MATTER OF SUCH GREAT IMPORTANCE TO THE AMERICAN PUBLIC. AS A PRIVATE SECTOR ENTITY DEDICATED TO THE DEVELOPMENT OF MISSION CRITICAL PRODUCTS AND SERVICES FOR THE U.S. MILITARY AND PUBLIC SAFETY FIRST RESPONDERS,

HARRIS REMAINS EAGER TO SUPPORT FIRSTNET AND THIS COMMITTEE TO MAKE AN INTEROPERABLE NPSBN A REALITY.

THANK YOU.

Mr. WALDEN. Thank you, Dr. Martinez, we appreciate your testimony. We will go to questions now.

Mr. Ginn, in my opening statement I expressed a concern we have heard from a number of potential partners and stakeholders, namely that FirstNet doesn't seem to know what it wants to be. I don't mean that as a personal criticism. It is a question I think I would like to get to Mr. Ackley and Mr. Davis. One State says, we are good to go, and it all worked well. The other State is saying, I am not so sure, and what this is going to mean in the long-term costs and implications.

And so I guess my question would be, can you tell us what is FirstNet's plan to realize this network?

Mr. GINN. Well, that is going to take a few moments. First off, on the principle of working with other States, from our point of view, needs to be a joint effort.

Mr. WALDEN. Um-hum.

Mr. GINN. It should be jointly negotiated. When we reach the point where we have completed the RFP and presented to the States, there will be no surprises in Ohio as to what is in the——

Mr. WALDEN. So let me stop you there for a second, because that was one of the issues Mr. Davis raised, is how that communication on the RFP will take place. Correct, Mr. Davis?

Mr. DAVIS. That is correct. I think what we want to make sure of is that the collaboration piece stays in place, and that those technical documents that go out to——

Mr. GINN. And, by the way, I agree with that. As a——

Mr. WALDEN. OK.

Mr. GINN [continuing]. Matter of fact——

Mr. WALDEN. Good.

Mr. GINN [continuing]. If you look at our work plan for 2014, we are establishing 10 regional offices that complement FEMA areas, and their sole responsibility is going to be working with States in coming up with radio access networks to feed into the national grid. So maybe one of the issues here is his expectation is beyond our ability to deliver. But when you think about, it takes 4 to 8 months to hire a single employee in the Federal Government. You don't get these things done that quickly.

So my comment to Mr. Davis would be, work with us. We want to do this as partners. Hopefully, at the end of this, we will have agreed on a network plan for Ohio. And when it is presented, you will know all the details, even before it is presented——

Mr. WALDEN. So the other issue that I believe you raised, Mr. Davis, was the long-term financial stability of FirstNet, kind of what you are buying into, and what it is going to cost you long-term, right? And what about State assets? Do you think you are going to be asked to put all your assets in the pot and say goodbye to them, and then be part of FirstNet with an open ended cost, potentially, down the road? Is that the concern Ohio has?

Mr. DAVIS. I think it has a variety of different components to it, and I think we just have to work through those things. And——

Mr. WALDEN. Uh-huh.

Mr. DAVIS [continuing]. It is sort of a step-by-step process. And every State is going to have similar issues, in terms of leveraging existing assets, even if it is——

Mr. WALDEN. Uh-huh.

Mr. DAVIS [continuing]. Lease space, and things that we have going on. And phase two of the planning grants that are out there will hopefully address some of those things. But the questions that we get when we go out and do the outreach components within Ohio all come back to, what is the cost? We recognize that we don't know those things today——

Mr. WALDEN. Right.

Mr. DAVIS [continuing]. But the more that we can have a sustainable business model at least—to their process, the better off we are all going to be in the long run.

Mr. GINN. To give you some idea of the complexity of this, 70 percent of the cost of the network is going to be in cell site locations, OK?

Mr. WALDEN. Right.

Mr. GINN. It is a high percentage. It matters in the total economics. If——

Mr. WALDEN. Of course.

Mr. GINN [continuing]. We could get each State and the Federal Government to allow us to use those without fees, it would dramatically reduce the cost of this network, OK? Now, he would——

Mr. WALDEN. Well, that was one of our original ideas, I think, was to build from the State up, and not create a separate set of systems, but——

Mr. GINN. Well, I guess the way I would say that, maybe a little differently, we have to start out with a core that covers the entire United States, and then we have to make sure that——

Mr. WALDEN. Um-hum.

Mr. GINN [continuing]. State systems are comparable——

Mr. WALDEN. Interoperable.

Mr. GINN [continuing]. With connecting into that core, around interoperability, and security, and reliability, and all the other issues that we will mandate.

Mr. WALDEN. Um-hum. So, Mr. Ackley, in the 11 seconds I have left, what gave you confidence in your State to go ahead and enter into this arrangement?

Mr. ACKLEY. Well, Mr. Chairman, I think the fact that New Mexico had done some substantial work in this arena before the passage of the Spectrum Act, so this was something that we were already incorporating into our planning, and working towards. And I think that gave us a position to be able to work with the FirstNet board from some assumptions we had developed early on, with respect to——

Mr. WALDEN. And you are comfortable with the long-term potential cost implications, and the ability to afford participation down the road?

Mr. ACKLEY. Well, Mr. Chairman, I think there are a lot of good points that are raised——

Mr. WALDEN. Um-hum.

Mr. ACKLEY [continuing]. Here that need to be addressed. You know, comfort is something that is going to increase, I think, as these issues are addressed. You know, things such as asset——

Mr. WALDEN. Um-hum.

Mr. ACKLEY [continuing]. Cost allocation and recovery, the——

Mr. WALDEN. Right.

Mr. ACKLEY [continuing]. Usage, the business model, and those sorts of things. I think, from our position, it is something, if we can maintain the involvement as a State, and working with FirstNet on this——

Mr. WALDEN. Right.

Mr. ACKLEY [continuing]. That we can continue to develop that comfort.

Mr. WALDEN. All right. My time has expired, and I am going to turn the gavel over to Mr. Latta, and I am going to recognize Ms. Eshoo for questions. I have to excuse myself to take a meeting. But I want to thank you all, and know that you know we are concerned. Want to make sure this all works for first responders, and for the country. We commend the work that has been done. I know it is a huge startup, and we just want to continue to do our appropriate oversight.

I recognize the gentlelady from California.

Ms. ESHOO. Thank you to each one of you for traveling here, and for your excellent written testimony, as well as the spoken testimony, and for your patience. Inevitably, when we have, what I think, are some of the most important hearings, the bells go off, and you have to wait, so thank you for your patience.

Mr. Ginn, thank you for your leadership. This is a heavy lift, and it is somewhat complicated. It is not as if we don't have any systems in our country. We do. The problem is they are not interoperable. And these systems have been in place longer. Obviously, they have a history. What we are doing now is really rewriting history. And so there is a push and a pull in different places. I understand it. Change is not easy to make, and it is menacing to people that have done it a certain way for a long, long time. I don't hold it against them, but I think the signal is, you know what? We are on the move. This has to change. It has to change because of what our country endured.

So thank you for your leadership, and I think that your credentials from the private sector are superb. And I don't want to say it is good to hear about your frustrations, but it also demonstrates that it is difficult to merge the public and the private. But I have confidence in you, I really do.

Now, in September the FCC, Mr. Ginn, announced, you know, this landmark voluntary industry solution to achieve interoperability in the lower 700 megahertz band. What I would like to know is what steps is FirstNet taking to leverage this opportunity, if, in fact, you can, and do you think that the agreement is going to provide the first responders with more roaming opportunities, and greater redundancy? I am very excited about——

Mr. GINN. Yes. You are talking about the interoperable task force at the FCC that gave us the standards?

Ms. ESHOO. No. This is the voluntary solution that was agreed upon with industry stakeholders. If you are not familiar with it, I can go on to——

Mr. GINN. Yes. No, maybe——

Ms. ESHOO [continuing]. Another question. Yes. No, I can go on to another question. I have——

Mr. GINN. OK.

Ms. ESHOO [continuing]. 2 minutes and 23 seconds, and a trip out to Dulles.

To Dr. Martinez, thank you for being here again. In your testimony you talked about the importance of developing standards for mission critical voice, and that is a very, very important area. Does the absence of such a standard prevent your company from supporting build-out projects? I am not so sure, from your testimony, if that is the case. And, you know, I mean, the examples would be Los Angeles, or the State of New Mexico.

Mr. MARTINEZ. Congresswoman Eshoo, no, it does not. The——

Ms. ESHOO. Good.

Mr. MARTINEZ. [continuing]. Absence of a standard is not a prerequisite to proceed with a BTOP program.

Ms. ESHOO. Um-hum.

Mr. MARTINEZ. However, to the extent that such a program would have a requirement for mission critical voice, then we have to ensure that the implementation of that requirement in a BTOP program would not preclude future compatibility with whatever FirstNet chooses as a mission critical standard.

Ms. ESHOO. So it complicates it, is that what you are saying?

Mr. MARTINEZ. I would say it is a factor that has to be considered, but——

Ms. ESHOO. Um-hum.

Mr. MARTINEZ [continuing]. It should certainly not be a showstopper for proceeding with a——

Ms. ESHOO. Good.

Mr. MARTINEZ [continuing]. BTOP project.

Ms. ESHOO. OK.

Mr. MARTINEZ. And, by the way, not all BTOP projects would necessarily require a——

Ms. ESHOO. Um-hum.

Mr. MARTINEZ [continuing]. Mission critical voice component.

Ms. ESHOO. Good. Back to Mr. Ginn, you know that I have been involved in Next Generation 911, the 911 issues, going back to the '90s, obviously long before our country was attacked. Do you see the Next Gen 911 being integrated into what FirstNet is doing?

Mr. GINN. I absolutely do. As I understand, Next Gen 911, you are not only going to be able to take voice, but you are going to be able to take data——

Ms. ESHOO. Um-hum.

Mr. GINN [continuing]. Photographs, and other capabilities. Well, guess what, LTE is data-centric. It has a great capability to transmit data. And so, the way I see it, very simply, is information coming into the 911 centers can very easily be sent right to a law enforcement officer at a point in the district in seconds.

Ms. ESHOO. That is——

Mr. GINN. So——

Ms. ESHOO [continuing]. Wonderful. So it will be——

Mr. GINN. Yes. I just see us as a real enabler to adding benefits to Next Generation.

Ms. ESHOO. Bravo. Thank you. Yield back.

Mr. LATTA [presiding]. The gentlelady from California yields back, and the Chair recognizes himself for 5 minutes.

And, again, thanks very much for you all being here today. Really appreciate your testimony, and it is very informative because, when we had the hearing earlier this year to find out where we have gone and come from that timeframe.

And, Mr. Davis, if I could ask you a few questions, especially coming from the Ohio perspective? Some of the things that were brought up, especially by the folks that were here earlier this year from Maryland and Virginia, and their concerns, just to get your perspective as to where you think things are, and where they were earlier this year. And in your testimony, when you talk about the partnership versus the customer, and particularly on the partnering, you said it would be stronger engagement on the requirements and the determination of roles and responsibilities. Do you see that things have tightened up, that there is more back and forth between FirstNet and the States, and that you have a contact out there that you can get to all the time?

Mr. DAVIS. Yes, we do. We have made significant progress. FirstNet, in the outreach component, has done an excellent job. Their message is consistent, and there is a point of contact for us. As a matter of fact, I believe we have a meeting on Friday of this week. So the communication piece is moving forward very well, that component of it.

And the point that we just need to make sure we understand is that we are making decision at the State level on a variety of different initiatives that we have going on, Next Generation 911 being one, and the architecting of that. If there are things that we can do that will better position our initiative in Ohio to support FirstNet, and vice-versa, those are the types of activities that we want to talk through.

Mr. LATTA. Well, I think also you mentioned in your testimony the planning and development, especially in the State of Ohio. And the 11 years that I served in the General Assembly, working on the MARCS system at that time, there was a lot of discussion about the cost, et cetera, and also the LMR. Is that being considered and taken in to account, especially for the amount of money that Ohio has invested over all those years, especially, like, in MARCS?

Mr. DAVIS. I think absolutely it is. I think that it is the mission critical piece that we have. There are 1,300 different disparate systems that we are trying to push forward to move into MARCS as a shared service model. Very similar, I would imagine, to some of the things that we are hearing from FirstNet. And we would like to engage and partner in that, because we have partnering tiers that we set up that would be, I think, valuable for FirstNet to understand how we are operating today.

Mr. LATTA. And pardon me for interrupting, but you said you would like to. Are you being taken into those discussions? Because you said like to. Is that that you are or aren't getting that information in those discussions?

Mr. DAVIS. I think those things are starting now. They started about 3 months ago. We didn't get the grant for the planning side through our controlling board process until September. So things in the last month have moved quickly. In the last 6 weeks, things have been significantly better, and that communication is ramping up.

Mr. LATTA. Well, not just wanting to pick on you here, especially in your testimony, you are talking about especially the volunteer firefighters. And the pushback, as you say in your testimony, on the $240 a year to have an operational radio on our system in Ohio. And I tell you, I know, with my 14 counties, and the backbone out there is that volunteer fire department.

And, you know, I go to a lot of chicken barbecues, and pancake days, and fish fries, and for all of the things that those folks are doing out there to protect their friends and neighbors, you know, they just can't take a lot of mandates out there. So, you know, where are the dollars going to be coming from for those folks out there across the State of Ohio, and across the Nation, for these volunteers to pay for this?

Mr. DAVIS. What a great question. It is something we wrestle with all the time with the MARCS system today, as you well know. We are looking at everything that we can possibly do to try to lower those costs as much as possible. A lot of that is economy of scale, and the more municipalities, the more counties that come on board to the radio system will drive those costs down, and make that at least a little bit more affordable.

I know that we are looking at different ways to try to figure out how to crack that volunteer component, because $240 a year doesn't sound like much, but when you have 10 volunteers, that is a lot of money. And at some point in time, those events happen, we need to engage with those people, and it is critical to the response in that area.

Mr. LATTA. OK. Just real briefly in my last 20 seconds, on that economy of scale, when you are looking at the economy of scale, are you talking about, like, for the volunteers across the State, or are you looking at particular areas in the State of Ohio?

Mr. DAVIS. We are looking at the volunteers across the State of Ohio, but we are also looking at the 1,300 different disparate systems out there as they fold in. And we have got quite a bit of success here in probably the last 8 months in getting counties, and their radio systems, into our system and leveraging their assets, and some of the assets that we have, to benefit both the county, as well as the statewide effort that we have going on.

Mr. LATTA. Thank you. My time has expired, and I recognize the gentleman from Illinois, Mr. Shimkus, for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman. Thank you for being here. I, along with Anna, have been working in the first responder issues for a long time, and 911, so we are pleased we are here. Some of us would have liked to have gotten here a different way, but this is the rules of the road now. And so, Mr. Davis, compelling testimony, because your folks are my constituents. I represent 1/3 of the State.

And so, Mr. Ginn, I hope you really take heed to some of these concerns in Mr. Davis's opening, and his testimony. I keep highlighting, and he makes some compelling arguments. And, you know, we work for those volunteer fire departments, or those small communities, and we have to get this right. You have great success in the private sector, and I always wonder when the private sector experts come to government, and how they get chewed up in the bureaucracy. I mean, you gave a great example of the 4 months in

hiring an employee. I mean, that is government, and that makes it challenging.

But your opening statement was right on. You have got to get it built, and you have got to get it built right, and I applaud that focus. I would also add you have got to get it built within budget. And this business model debate that is raised by Mr. Davis, not just at your end, but also down at their end, because I know, in this debate, one of the underlying things was, don't worry, the government will bring you more money if you don't get it right, and I don't think you can assume that.

Mr. GINN. Can I respond?

Mr. SHIMKUS. Yes. Please.

Mr. GINN. Yes. You know, I take the $7 billion as a personal and organizational challenge. And, if you have a moment, let me tell you how I think about it, because——

Mr. SHIMKUS. I want to get to LTE too, so, yes, I do have a moment, but don't——

Mr. GINN. OK.

Mr. SHIMKUS [continuing]. Take my 3 minutes.

Mr. GINN. OK. You know, the first thing you need to understand, what is the cost of the network? And you are going to spend a lot of time trying to drive down the cost of that network, as I was suggesting about free cell sites in States and Federal buildings.

Mr. SHIMKUS. Right.

Mr. GINN. Because that would dramatically decrease the cost of providing the network. You have got a couple other costs. You have got to stand up an organization. We are doing that now. We are putting people in 10 regional offices to work with Ohio and other places. And then we will reach a point——

Mr. SHIMKUS. Let us just go here and say you are going to do your utmost to have an efficient system that is going to be cost-effective, and you are going to try to deploy what has been requested——

Mr. GINN. Yes. And the point I want to make to you is simply this, that if we get to the bottom line, and we are not there, we are going to reiterate the whole process and look to take out other costs. So——

Mr. SHIMKUS. Right. I just raise that because there is a concern, not just at your level, at the local level, and we have got to get the costs right too, otherwise we are not going to be where we want to be.

You did talk about LTE, and the great technology, and the data stuff, but mission critical voice is also an important aspect of this debate. Can you explain FirstNet, this is also for Mr. Orr, on, obviously, the voice aspect of this, that is part of the application with NIST, and where are at with that?

Mr. ORR. So, just to be clear, NPSTC defined mission critical voice, and that is a group of public safety associations, as the ability to talk directly from one device to another, so direct mode, push-to-talk, like public safety uses now with their radios, full duplex voices, which is how we talk on our cell phones right now, where you can talk over each other, group call, so that you talk one to many, talker identification, like caller ID, emergency alerting, so I hit a button, and I get automatic access to the network if I am

in an emergency situation, and audio quality, so that you can actually hear me in difficult environments, like firefighters and police often work in.

The most challenging aspects for mission critical voice right now are really the top three, which are dealing with push-to-talk capability, group communications, and direct mode device-to-device, because those aren't issues that are being dealt with by the commercial community right now. So that is what we are working in LTE, and that is where we have had, actually, very significant progress on the LTE standards. And we are working closely with the other countries around the world that are also deploying their own public safety LTE networks, because every single one of them needs this mission critical voice capability.

So our expectation, at least from a PSCR perspective, is within the next 18 to 24 months, we would like to start seeing prototypes in our laboratories that display this capability, that we can at least start assessing, testing, and, as Chairman Ginn said, reiterating on the standards to ensure that these products someday actually meet the capabilities of the current land mobile radio systems.

Mr. SHIMKUS. Great, and I will just end on this. The Seattle Times, of all papers, wrote an article about the tornadoes that went through my district, and a lot of the Midwest, Ohio and Indiana, and how people's lives were saved through the communication to their cell phones and the like. Obviously, the people didn't have access to that, may not have got as clear a warning as they could have, but we are getting there. But there is concerns about the top down, the business model, and I would hope you work with our local providers, because they are the key to this, making it work.

Mr. GINN. If you take nothing else away from here, you need to understand that I understand that if you don't satisfy your customers, you don't have a business.

Mr. SHIMKUS. Amen. Yield back.

Mr. LATTA. Well, thank you very much. The gentleman yields back the balance of his time. And, for Chairman Walden, and also for Ranking Member Eshoo, we want to thank you again for your testimony today, and your patience when we had to go to vote. We greatly appreciate that.

And, if there is nothing further come before the committee, the subcommittee will stand adjourned.

[Whereupon, at 1:07 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

November 21, 2013

Mr. Chairman: Thank you for holding this important oversight hearing. I believe Mississippi's experience can be a useful example of the challenges facing FirstNet, especially when it comes to cost concerns. Mississippi could have been an early success for FirstNet, but instead the suspended BTOP project, which is approximately 80 percent complete, currently stands as a major missed opportunity for public safety and the state's medical patients.

Like six other recipients, Mississippi's BTOP/LTE grant was suspended in May 2012 by NTIA, through no fault of the State, in response to the passage of the Middle Class Tax Relief and Job Creation Act of 2012. The Act itself does not require any suspension or modification of the BTOP grants, but NTIA expressed concern the networks would not be interoperable. Mississippi agreed to NTIA's interoperable conditions but FirstNet continued to raise additional hurdles.

On September 17, 2013, nearly 18 months after Mississippi's BTOP project was suspended by NTIA and after countless hours of good faith negotiations, the entire bipartisan Mississippi Congressional Delegation hosted a meeting that I attended with Governor Bryant's Chief of Staff, NTIA Assistant Secretary Larry Strickling, FirstNet Deputy Director T. J. Kennedy, and a number of staff members from each organization. We asked for the meeting to give NTIA an opportunity to explain its prolonged suspension of Mississippi's BTOP grant and LTE project, and in hopes that we could help facilitate a resolution of the ongoing negotiations with FirstNet over a spectrum lease agreement.

I believe the state of Mississippi worked diligently to find a path forward that would protect the past and future investments of our taxpayers while immediately providing FirstNet access to a statewide system that would complement FirstNet's future nationwide deployment plans.

This past Friday, November 15, was the deadline for signing an agreement, and while some progress was made, no agreement was reached and therefore, negotiating authority has lapsed. I am very disappointed about this outcome because Mississippi provided FirstNet with infrastructure in place for a statewide deployment and an early success story. The original grant proposal approved by NTIA would have paid for ongoing operations and maintaience via public/private partnerships; thereby not requiring additional federal investments.

My understanding is the fundamental breakdown from the state's perspective was FirstNet's refusal to provide any guarantee that it would acquire Mississippi's entire network when it is ready to deploy in a few years. And FirstNet objected to any public private partnerships, insisting that costs be covered by user fees concerning public safety users. These added costs and lack of certainly put at risk tens of millions in state and federal tax-payer money that had been invested since the BTOP grant was awarded to Mississippi, just a few short years after the devastation of Katrina. The Governor decided he could not be forced to make a bad business decision that leaves our state's taxpayers on the hook while being so restricted by NTIA and FirstNet that no meaningful service can be provided to our first responders.

In my view the biggest loser in the failure of FirstNet to reach an agreement with Mississippi is patients. MEDCOM, a program within the University of Mississippi Medical Center, would have provided a platform where paramedics in rural Mississippi could have live, on-line discussions to ensure that the transport of a patient to the correct medical center was accomplished the first time. Over three hundred ambulances statewide would be able to transmit images, streaming video and patient telemetry to secure hospital portals, greatly improving the outcomes and quality of health care in Mississippi while reducing costs and saving lives.

Mississippi will now work with NTIA on a grant modification that will need approval before the end of this year.

Mr. Ginn, considering how supportive you have been in your public remarks concerning Mississippi's project, I ask that you personally communicate to NTIA the importance of getting Mississippi's project. Thank you.

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED THIRTEENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON ENERGY AND COMMERCE

2125 RAYBURN HOUSE OFFICE BUILDING
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Majority (202) 225–2927
Minority (202) 225–3641

January 3, 2014

Mr. Samuel Ginn
Chairman
First Responder Network Authority Board
1111 Bayhill Drive, Suite 435
San Bruno, CA 94066

Dear Mr. Ginn:

Thank you for appearing before the Subcommittee on Communications and Technology on November 21, 2013, to testify at the hearing entitled "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on January 17, 2014. Your responses should be e-mailed to the Legislative Clerk in Word format at Charlotte.Savercool@mail.house.gov and mailed to Charlotte Savercool, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, D.C. 20515.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Greg Walden

Greg Walden
Chairman
Subcommittee on Communications and Technology

cc: Anna Eshoo, Ranking Member, Subcommittee on Communications and Technology

Attachment

April 28, 2014

The Honorable Greg Walden
Chairman
Subcommittee on Communications and Technology
Committee on Energy and Commerce
House of Representatives
Washington, D.C. 20515

Dear Chairman Walden:

Thank you for the opportunity to testify before the Subcommittee on Communications and Technology at its hearing on FirstNet on November 21, 2013 entitled, "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications."

Attached please find my responses to the additional questions for the record of Members of the Subcommittee. If you or your staff have any additional questions, please do not hesitate to contact me or Edward Parkinson, Director of Government Affairs, First Responder Network Authority, at (202) 482-3785.

Sincerely,

[redacted]

Sam Ginn

Enclosure

cc: Anna Eshoo, Ranking Member
Subcommittee on Communications and Technology

Responses of Sam Ginn to Questions for the Record

April 28, 2014

Answers for the Honorable Greg Walden

1. It has been reported that FirstNet General Manger, Bill D'Agostino, has stated that "At the end of the day, what this will be is a mosaic of different strategies, it'll be a mosaic of different networks." Please explain what is meant by a "mosaic of networks."

When ex-General Manager, Bill D'Agostino, used the phrase, 'mosaic of networks', he was describing the way standard technology and standard interface requirements would ultimately lead to a single FirstNet network. We envision that FirstNet will run the network from a central core that will be connected to the Radio Access Network (RAN) in each state. These networks, which likely will be built with multiple vendors' equipment, will meet each state's unique requirements as they will have been designed through an iterative FirstNet/state consultation process. Although the state requirements may be unique and the equipment may come from multiple manufacturers, FirstNet will set common Long Term Evolution (LTE) standards and common standards for connection to the core to make interoperability a reality. Together, the FirstNet core and the RANs will form the single nationwide network.

2. FirstNet Board member, Jeff Johnson, has acknowledged that FirstNet "fell short on answers to timing and business model questions." This information is critical to the states in their planning. What has FirstNet done to rectify the situation and what work remains? When will this information be available?

The biggest obstacle that we are facing is the lack of employees who are able to develop the answers that states are seeking. At the time of the November 21, 2013 hearing, FirstNet had 19 employees. FirstNet now has 40 employees. We are working as diligently as we can to make additional hires. The FirstNet board has published an executive summary of the program roadmap, a detailed illustration of the state consultation process, and a strategic planning process overview, all designed to enable states to plan for official consultation to begin later this year. As we continue to hire staff, we will be able to facilitate additional requests for information from the states.

3. According to reports, one of the Board members recently stated that the Board doesn't know yet how much users will pay to be part of the network. Has FirstNet developed a cost model or performed any financial analysis to show how much the nationwide network will cost to build, operate, and maintain to ensure financial self-sufficiency and fund upgrades? If so, provide a copy of the cost model or any financial analysis performed.

There are many variables that we are considering but it would be premature to release an end-user cost or publically share the modelling and analysis being conducted until we are further along in the process.

4. FEMA Region 5 Regional Emergency Communications Coordination Working Group (Region 5 RECCWG) submitted a detailed list of questions to FirstNet last February. The Region 5 RECCWG reached out again in June to ask when FirstNet would provide a response. To date, FirstNet has not provided a response to the questions. When will FirstNet provide a response to the Region 5 RECCWG inquiry?

The statute sets forth the requirement for outreach and consultation to be conducted through the states. FirstNet will be initiating official consultation with the states (through the Single Point of Contact) in 2014. This consultation is the first step that must be conducted to develop the state RAN plans. Ultimately, there will be 56 such plans and there will be a significant amount of work that will have to go into each individual plan. The FEMA Region 5 RECCWG's questions will be covered in the official consultation process. In addition, FirstNet has been in discussions with the Region 5 RECCWG and once official state consultation with the states has been initiated, we will hold a webinar for the all RECCWGs.

5. During a recent presentation to state CIOs a spokesperson for FirstNet stated that the opt-out mechanism is "not much of an option." The spokesperson went on to state that "[s]tates have three choices: opt in, stay silent and opt in by default; or opt out, leaving the state responsible to build, operate and maintain its own FirstNet-compliant network." Given your previous testimony before the Subcommittee, does this description accurately describe the choices states have? Please explain.

States will have the option, as described in the legislation, to opt-in or opt-out. FirstNet is dedicated to ensuring that states' rights are respected at the same time that we move forward in building the nationwide public safety network. First and foremost, we must develop each state plan in full cooperation with the state.

Please note that answers for questions 6 and 7 are combined below.

6. When you first appeared before the Subcommittee you testified that based on site visits to every one of the BTOP grantees and discussions with project leaders and the vendors that "we've determined that these projects could provide benefits to FirstNet deployment efforts and generate valuable lessons..." It is clear that some of these projects won't be moving forward because of the inability of FirstNet and the BTOP recipient to execute a lease for the FirstNet spectrum. For each of the instances in which FirstNet was unable to execute a lease with a BTOP recipient, please explain the lease terms that the parties were unable to reach agreement on resulting in the failure of negotiations.

7. Please describe the terms of each of the spectrum leases executed between FirstNet and the BTOP grantees.

FirstNet offered substantially similar terms and conditions in the Spectrum Manager Lease Agreements (SMLA) to all of the BTOP recipients. The leases were drafted in accordance with the Federal Communications Commission's (FCC) rules and regulations. In addition, FirstNet negotiated specific Key Learnings Conditions with each BTOP recipient, for inclusion in its respective SMLA. FirstNet's overarching approach to these negotiations was that any resulting

lease agreements were intended to last only until the states made their decisions on FirstNet's deployment plan under the process set forth in the Middle Class Tax Relief and Job Creation Act of 2012 (Act). These SMLAs were designed so they would not dictate any terms, conditions, or outcomes of that future process.

The basic terms and conditions of these SMLAs are:

- FirstNet agreed to lease spectrum usage rights to operate on the 700 MHz public safety broadband spectrum for the nationwide license that was granted to FirstNet by the FCC. Each lease contained a defined geographic scope of operations. In addition, the parties agreed to comply with the FCC's laws, rules, and regulations.
- The lease term is for a maximum of 5 years. In order to facilitate continuity of service for public safety users on the lessee's LTE network during the implementation of the state's decision on FirstNet's nationwide deployment plan, FirstNet will notify the lessee at least 3 months prior to presenting its plan to a governor so that discussions can occur to maintain the lessee's access to FirstNet's spectrum during that implementation period.
- The agreement is "non-exclusive," meaning that FirstNet can enter into additional agreements or partnerships to further its development of the nationwide network. However, any such partnerships or agreements that FirstNet might enter into during the SMLA term would not interfere with the lessee's services to its public safety entities, nor would they encumber the state in making its decision after FirstNet presents the state with its plan.
- The SMLA assumes evolving standards for technical, security, and applications areas. The lessee is responsible for paying for all costs associated with complying with modifications of the FCC's rules. FirstNet will negotiate on compliance with any other changes due to its adoption of new standards, but it did not make financial commitments to cover such costs at this time due to the Antideficiency Act.
- The leased spectrum is to be used only for public safety communications.
- No spectrum lease fees are being charged to the lessee during the agreement term, in exchange for it performing activities specified in the Key Learnings Conditions. FirstNet and the public safety community will use this information for planning the nationwide network. This does not relieve the lessee from future fees that may have to be paid to use the nationwide network.
- Details of a Key Learnings Conditions plan will be completed within 90 days of the agreement being signed, and the lessee will work with a dedicated FirstNet manager on the scope of the projects, as well as how they will be measured and reported.
- The lessee's LTE equipment may need to be relocated at some future date if FirstNet needs to do so for operational efficiency of the nationwide network. If so, FirstNet will work with the lessee regarding any such exchanges of network infrastructure to facilitate the continuity of service for public safety users on the lessee's system. Also, FirstNet will negotiate the costs associated with such relocation, but it did not make financial commitments to do so today due to the Antideficiency Act.
- Following the state's decision on FirstNet's nationwide deployment plan, the lessee must receive written approval from the governor or his/her designee to have continued access to FirstNet spectrum.
- Once the SMLA has been executed and the lessee has applied to NTIA to lift its partial suspension of the BTOP funding, FirstNet will provide NTIA with its recommendation in

support of that application. The signing of the SMLA does not guarantee this grant funding will be resumed, as that decision must be made by NTIA and the Department of Commerce's Grants office.

FirstNet reached agreements on SMLAs with four BTOP grantees – the Los Angeles Regional Interoperable Communications System Authority (LA-RICS), New Mexico Department of Information Technology (New Mexico), Adams County Communications Center, Inc., (ADCOM) (Colorado), and the New Jersey Department of Treasury (New Jersey). After the leases were executed, FirstNet notified the FCC in accordance with the Commission's rules. The specific Key Learnings Conditions in their agreements addresses the following:

- LA-RICS – exploring secondary responder partnerships in the management and operations of the network;
- New Mexico – use of a remote evolved packet core; spectrum management and network use issues along the U.S./Mexico border and shared use of a state network with significant number of Federal users;
- ADCOM – availability of its network as a real-world test system for the Public Safety Communications Research (PSCR) program or FirstNet; allowing FirstNet and end user device manufacturers to provide user devices for testing on ADCOM's network and providing access to its network for high-level demonstrations of its public safety functionalities; and
- New Jersey – demonstrating the use and capabilities of rapidly deployable assets; conducting emergency management exercises that showcase the capabilities of a deployable system and documenting a Network Operations Center notification approach for the notification of key personnel of important events associated with the network.

(The full text of FirstNet's SMLAs with these BTOP grantees can be found at the FCC's website: http://wireless2.fcc.gov/UlsApp/UlsSearch/licenseAdminSum.jsp?licKey=3422973). Please note that the ADCOM and State of New Jersey SMLAs are not yet filed with the FCC but they will appear at this link once filed.

FirstNet was unable to reach agreements on SMLAs with the City of Charlotte (North Carolina), Mississippi, and Motorola Solutions, Inc. (MSI). Negotiations with Charlotte and Mississippi reached an impasse over the grantees' difficulties in covering their operational expenses during the terms of the lease agreements. Negotiations with MSI reached an impasse over technical and business issues raised by MSI's public safety network management agreement with Bay-RICS.

8. FirstNet General Manager Bill D'Agostino was recently quoted as saying "The BTOPs will kind of close down—[although] those that come through, come through," ... "The next phase for us is to turn our energy toward the whole broad definition of what it takes to opt in and to present a state plan that a governor can accept or make a decision on. Our hope is that there will be some states that are obviously more ready to go than others, and we'll start to move those as quickly as humanly possible. That's what we call early movers." Given this statement, please explain FirstNet's deployment strategy.

The FirstNet operating plan for 2014 and the strategic focus areas within the plan are the enabling steps to get to a plan. We are focused on ensuring that the BTOP projects move forward as designed to provide test cases for the future network. We will initiate official state consultation, which is the process through which FirstNet works with each state and territory towards developing its state plan for RAN development. Our management and technical team will be developing RFPs which have been informed by the RFI process that was conducted in 2013. These RFPs will give industry the guidance it requires to develop different possibilities for us to study and ultimately choose how we will deploy the network.

9. Several of the BTOP grantees had purchased and received equipment for their projects. Some of these jurisdictions have not yet executed spectrum lease agreements with FirstNet. In fact, the City of Charlotte, North Carolina has announced that it was unable to reach an agreement and ceased negotiations. BTOP grantees that are unable to execute spectrum lease agreements will lose funding. Please explain what will be done with the equipment purchased for these projects. Will the grantees be reimbursed for all costs incurred as a result of the suspension of funding and subsequent inability to execute a spectrum lease agreement with FirstNet? Please explain.

FirstNet does not oversee the BTOP grants. However we understand that Motorola, the recipient for the Bay Area Wireless Enhanced Broadband (BayWEB) project in California, did not purchase any equipment with BTOP grant funds; therefore, equipment disposition is not necessary. Costs incurred by Motorola for development of the project have been reimbursed to date. NTIA will continue to review and analyze invoices from Motorola's contractors as those are presented for reimbursement. Those costs that are allowable, allocable, reasonable, and necessary for project implementation will be reimbursed upon review by NTIA and its Grants Office, NOAA.

Mississippi purchased equipment with grant funds and some of that equipment is now in use by Mississippi MED-COM to provide improved medical communications. Some grant-funded equipment was specifically designed to provide LTE service in the 700 MHz public safety broadband spectrum allocation. The State will work with NTIA and its Grants Office, NOAA, to determine the most reasonable and allowable disposition method for that equipment. NTIA will continue to review and analyze invoices from Mississippi's contractors as those are presented for reimbursement. Those costs that are allowable, allocable, reasonable, and necessary for project implementation will be reimbursed upon review by NTIA and NOAA.

While the City of Charlotte did not reach agreement with FirstNet on a spectrum lease, the project remains active. The City is moving forward with a modified public safety broadband project that does not require access to FirstNet's spectrum. NTIA extended the grant award period to ensure that the City has adequate time to complete its modified project. The City did acquire LTE equipment with grant funds from its supplier, Alcatel-Lucent, so that equipment must be disposed of because it will no longer be used on its project.

10. When do you believe that FirstNet will be providing services to first responders?

We do not have any set timeline at this juncture. We are using 2014 primarily as a planning and development year to ensure that the network is a success. By leveraging the BTOP projects we hope to have users on our spectrum as soon as possible.

11. Please explain the role of mobile network solutions in FirstNet deployment strategy?

Mobility will play an important role in the FirstNet network. The FirstNet wireless network will be a mobile-based data network by definition. It will consist of wireless user devices that can be utilized in a mobile capacity connecting through cellular base stations to provide access to the wired data networks requested. The FirstNet network technology is based on LTE, which is an international standards based wireless mobile network technology.

12. Commercial providers, with significantly greater scale than FirstNet have not been able to make buildout in the most rural areas economical. Please explain how FirstNet will deliver service to the most rural areas.

The FirstNet strategy in some rural and wilderness areas will likely be based on the concept of allowing the users to "take the network with them." We are considering vehicular-based systems that are linked to our network via combinations of tall coverage sites and repeaters. We are planning to use the New Jersey BTOP project to explore the use of cells on wheels (COWs), cells on light trucks (COLTs), and systems on wheels (SOWS) to provide local coverage. There are several methods being considered for connecting each of these systems back to the core network, including land-based microwave and satellite backhaul communications. We will need to take into account that first responders will require communications at the instant of arriving on site of a disaster therefore all options are being explored not just mobile.

13. FirstNet is required to establish substantial rural coverage milestones as part of each phase of the construction and deployment of the network. Has FirstNet established such milestones? Please describe these milestones.

FirstNet has not yet established these milestones due to the need for state consultations to help determine the rural coverage needs and the assets available to facilitate deployment in these areas.

14. In your testimony you stated that if the states and the Federal government permitted FirstNet to use cell site locations without fees the cost of the network would be dramatically reduced. Please explain how FirstNet intends to negotiate for these assets.

FirstNet will initiate official state consultation in 2014. This consultation will take advantage of direct interaction with the states using the State and Local Implementation Grant Program (SLIGP) funds to develop an asset inventory within each state. States will have significant input on the design of individual state RANs. It is through these discussions that those decisions will be made.

FirstNet will also be working with federal partners through the Emergency Communications Preparedness Center (ECPC), which will act as the mechanism for all federal communications

and coordination. Through the ECPC, FirstNet will interact and negotiate with our federal partners in identifying federal assets that could become part of the network.

15. The statute provides that once FirstNet completes the RFP process for construction, operation, maintenance, and improvement of the nationwide network, FirstNet is required to provide the governor of each state notice of the completion of that process, the details of the proposed plan for the buildout of the nationwide network in the state and the funding level for the state as determined by NTIA. The state has 90 days after the receipt of such notice to notify FirstNet, NTIA and the Commission whether it will participate in the deployment of the nationwide network in the state or conduct its own deployment of a RAN in the state. Please explain the status of the RFP process. When will FirstNet provide notice to the states?

Currently, FirstNet has published 12 RFIs focusing on the Core, RANs, devices, and applications. The first 11 RFIs received more than 300 responses and more than 25,000 pages of information. It will take us time to analyze this information and develop RFPs; however, our goal is RFP publication in 2014.

16. It has been announced that FirstNet will be launching a website "this fall." Please explain the plan for developing and testing the website. Please identify any contractors that were retained and the total cost of the development and launch of the website. Please attach any agreements with outside firms for the Subcommittee to review.

The FirstNet.gov website is currently online and active. FirstNet worked in collaboration with the NTIA Office of the Chief Information Officer (OCIO) in its development. It is a standard website that provides information to the public about FirstNet. FirstNet Federal staff conceptualized the design and content for the website. NTIA staff provided the technical support to develop and launch the site.

FirstNet did not issue any task orders for contract support specifically related to develop or launch FirstNet.gov. Workforce Resources contractors provided support for drafting content for the website. This work was part of its general contract with FirstNet.

A comprehensive website test plan was developed following the widely-recognized Institute of Electrical and Electronics Engineers (IEEE) publication, *829-2008 - IEEE Standard for Software and System Test Documentation*. Prior to the FirstNet.gov website launch, a variety of end-to-end tests were performed to verify and validate functionality, content, usability, legal and regulatory compliance, accessibility, and performance. In addition, FirstNet leadership worked collaboratively with NTIA's OCIO to ensure sufficient beta testing was performed to resolve any software bugs or other technical problems.

17. Please describe the working relationship between NTIA and FirstNet? Do FirstNet decisions go through NTIA? Does NTIA have an effective veto over FirstNet decisionmaking?

FirstNet is an independent authority within NTIA, and thus FirstNet is both part of NTIA and independent of it, at least with respect to program-related decisions not expressly assigned to NTIA under the Act. The Act gives NTIA specific roles separate from and in relation to FirstNet's roles. For example, the Act requires NTIA to review and approve FirstNet fees to determine that FirstNet's fee structure results in it being self-sustaining in accordance with the Act. FirstNet is not permitted to assess fees without NTIA approval under the Act. NTIA also reviews and determines the funding of FCC-approved opt-out state plans from funds that would otherwise go to FirstNet. In addition, prior to the receipt of auction proceeds, and with respect to FirstNet administrative costs even after such receipt, funding for FirstNet is funneled through NTIA. This funding control should not be used to affect the substance of program decisions. The Act gives the Secretary of Commerce, to whom the Assistant Secretary for Communications and Information reports, the authority to appoint 12 of 15 FirstNet board members. The board members, however, function independently in accordance with the above discussion once appointed.

In addition to the provisions of the Act, practical considerations have required a close working relationship with NTIA. Prior to the hiring of our General Manager and additional staff, FirstNet was entirely dependent on NTIA staff and the Department of Commerce (DOC) for administrative and day-to-day program support. For example, although FirstNet will grow its procurement function over time, for the near term FirstNet must leverage the Department's Office of Acquisition Management for procurement support. Also, prior to hiring its own Chief Counsel, FirstNet received substantial legal support from NTIA's Office of Chief Counsel. These support relationships are provided through an intra-governmental agreement for services. Finally, in addition to the day-to-day working relationships between NTIA and FirstNet staff, NTIA officials attend and participate at board meetings, but not as board members.

While FirstNet will remain dependent on NTIA and the Department for many administrative matters for some time, ultimately, however, as our organization grows, FirstNet should become fully independent of NTIA and DOC with respect to any matters that could reasonably affect substantive program decisions (other than those expressly assigned by the Act to NTIA or DOC). It is the responsibility of all parties involved to effectuate Congress' goals with regard to FirstNet's independence. Both DOC and NTIA have their own express substantive roles under the Act, and the Act's placement of FirstNet within NTIA will continue to result in a close, but independent working relationship with NTIA and the Department to jointly achieve the critical goals of FirstNet's mission.

18. FirstNet will remain a data only network until the 3GPP standards are developed for mission-critical voice over LTE. The Middle Class Tax Relief and Job Creation Act of 2012 directed the National Institute of Standards and Technology to, among other things, accelerate the development of "mission critical voice" and do so in consultation with FirstNet and the Public Safety Advisory Committee (PSAC). Please explain what FirstNet has done in consultation with the PSAC to advance the development of mission critical voice over LTE.

Since November 2012, FirstNet has been participating in LTE standards development via funding provided to the NIST/NTIA PSCR program within the 3rd Generation Partnership Project (3GPP), which is responsible for the creation of LTE standards and specifications. The National Public Safety Telecommunications Council's (NPSTC) Broadband Working Group (BBWG), which develops public safety broadband communications requirements, has created two public safety broadband requirements documents. The first was a Launch Requirements document, which detailed public safety's expectations for FirstNet to deliver at launch of the network. The second document was a Mission Critical Push-To-Talk over LTE Requirements document, which detailed public safety's expectations for mission critical voice on the FirstNet network. Both documents were delivered to FirstNet's Public Safety Advisory Committee (PSAC), which reviewed and modified the documents where necessary before delivering them to FirstNet for use. FirstNet is actively using both of these documents to develop RFI/RFPs and develop standards pursuant to mission critical voice and data over LTE.

19. The FirstNet Board approved a budget of $194 million for Fiscal Year 2014. How much has the FirstNet Board spent to date since it was formed in 2012? How much of these expenditures were paid to outside consultants. For each consultant providing services to FirstNet, please identify the consultant, the date services commenced and the date services ended, whether or not the contract was renewed, the term of the renewed contract, and provide a description of the services provided under the contract.

As of December 31, 2013, FirstNet has obligated $23.3 million and outlayed $18.2 million.

$ in 000s	**Obligations**	**Outlays**
FY 2013	21,127	12,288
FY 2014 (thru Dec-13)	2,141	5,956
Total Spending	**23,268**	**18,244**

Of this spending, FirstNet obligated $11.5 million to contracts with consultants of which it paid $10.6 million. Below is more detail on FirstNet contracts with consultants:

Description of Overall Service	Vendor Name	Service	Type	Start	End	Obligations ($000)	Outlays ($000)	FTE in Contract
Wireless telecommunications subject matter experts with a range of technical expertise including wireless broadband technical planning, wireless communications business and financial planning, wireless telecommunications market research, and state, local, territorial, and tribal outreach.	WORKFORCE RESOURCES	Contract 1	Cost	11/15/12	05/14/13	2,589	2,589	14.1
		Contract 2	Cost	03/18/13	11/17/13	8,400	7,678	28.4
		No Cost Extension	Cost	11/18/13	12/17/13			6.4
					Subtotal	**10,989**	**10,267**	

Conference planning and event management services for a series of regional workshop events held in several locations throughout the US and for board meetings and other conference and events FirstNet may hold over the period of the contracts.	EVENT PLANNING GROUP	Conference planning and event management	Fixed Price	03/01/13	02/28/14	265	265	N/A Fixed Price
Provide advice and assistance to NTIA and the Board in the areas of project management and acquisition in the efforts to establish the FirstNet network.	FUNCTIONALIT, INC.	Labor	Cost	09/20/12	03/21/14	72	72	N/A Shared with NTIA
An audit of FirstNet's FY 2013 financial activity in accordance with the audit and report requirements contained in Section 6209 of the Act.	KPMG L.L.P.	Labor, Travel, and Other Direct Costs	Fixed Price	11/26/13	03/26/14	174	0	N/A Fixed Price

Addendum:

Additional contracts that have been awarded by December 31, 2013, but have not been reflected in the financial system.

Description of Overall Service	Vendor Name	Service	Type	Start	End	Obligations ($000)	Outlays ($000)	FTE in Contract
Support internal and external communications planning and execution for FirstNet by providing personnel with key skills and capabilities.	INFORMATION MANAGEMENT RESOURCES, INC.	Task 1	Cost	12/13/13	12/15/14	950	0	3.0
Provide project management and planning to facilitate outreach for the nationwide public safety broadband network.	E-9 CORPORATION	Task 1	Cost	11/14/13	11/30/214	1,594	0	5.0

Answers for the Honorable Joe Barton

1. In my home State of Texas, Harris County is using live data when operating the public broadband network. As you are aware, the current authority to operate the public safety broadband network expires on Nov 26th and public safety users will no longer be able to operate on that network unless a long-term lease agreement has been executed or a renewal of the Special Temporary Authority (STA) has been granted.

- **Can you give us a status update on the lease agreement and will FirstNet support the renewal of the STA until final approval of a lease agreement can be reached?**
- **What progress has been made during the negotiations to grant Texas a long-term lease agreement? What hesitations does FirstNet have with granting Texas this type of agreement?**

On November 25, 2013, with FirstNet's support, the FCC renewed the STA for Texas' Harris County operations through February 24, 2014. On December 17, 2013, the FirstNet Board adopted a Resolution to extend its negotiations with Texas on a Spectrum Manager Lease Agreement (SMLA) for Harris County through February 24, 2014. The February deadline was extended by an additional 180 days at the March 11 FirstNet Board meeting and we are hopeful that these discussions can result in the signing of a SMLA.

2. It is my understanding that a small number of jurisdictions in Texas (City of Ft. Worth, City of Irving and Randall County) have purchased LTE equipment and that Texas is seeking authority for these jurisdictions to deploy and operate on the public safety broadband network. There are also a few other locations in which Texas is seeking approval to deploy including Austin, Brazos County and the Rio Grande Border. Texas currently has the approval to operate a total of 14 sites, but wants to expand to 84 additional locations.

- **Is FirstNet willing to support the limited deployment of these additional jurisdictions outside of the Harris County deployment?**

FirstNet and Texas have discussed Texas's interest in expanding its public safety broadband operations beyond its existing Harris County operations. In November of 2013, FirstNet provided Texas with a list of questions regarding its expansion plans to help FirstNet evaluate whether it might be feasible to enter into a SMLA with Texas to permit such expanded operations. Texas provided some initial responses to the FirstNet questions; however, FirstNet has asked for additional details and clarification particularly regarding the sustainability of these additional jurisdictions. Texas is currently developing this additional material and this will help greatly as we work towards a possible agreement.

Answers for the Honorable Anna Eshoo

1. In September, the FCC announced a landmark, voluntary industry solution to achieve interoperability in the lower 700 megahertz band. What steps is FirstNet taking to leverage this opportunity? Do you agree this agreement will provide first responders with more roaming opportunities and greater redundancy?

FirstNet is pleased with the agreement in the lower 700 MHz band, which aims to improve interoperability among the commercial carriers, and the opportunities this may provide for public safety in rural areas. However, at this time, FirstNet is focusing its initiatives on the network roll out to ensure it meets its goals of providing services to the public safety community. FirstNet has not yet developed a plan for roaming with commercial partners and therefore is not in a position to respond to whether the agreement will provide first responders using its network with more roaming partners and greater redundancy.

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED THIRTEENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON ENERGY AND COMMERCE

2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6115
Majority (202) 225–2927
Minority (202) 225–3641

January 3, 2014

Mr. David S. Turetsky
Chief, Public Safety and Homeland Security Bureau
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Dear Mr. Turetsky:

Thank you for appearing before the Subcommittee on Communications and Technology on November 21, 2013, to testify at the hearing entitled "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on January 17, 2014. Your responses should be e-mailed to the Legislative Clerk in Word format at Charlotte.Savercool@mail.house.gov and mailed to Charlotte Savercool, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, D.C. 20515.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Greg Walden

Greg Walden
Chairman
Subcommittee on Communications and Technology

cc: Anna Eshoo, Ranking Member, Subcommittee on Communications and Technology

Attachment

**Responses to Questions for the Record to
the Federal Communications Commission from
Hearing entitled "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications" Before the
Subcommittee on Communications and Technology on November 21, 2013**

Questions from Honorable Greg Walden

1. **The Middle Class Tax Relief and Job Creation Act of 2012 (Spectrum Act) required the Commission to create a Do-Not-Call registry for Public Safety Answering Points (PSAP) to address concerns about the use of "automatic dialing equipment which can generate large numbers of phone calls in a short period of time, tie up public safety lines, divert critical responder resources away from emergency services and impede access by the public to emergency lines.. [*sic*] The Commission released a Notice of Proposed Rulemaking (NPRM) on May 22, 2012 and an order on October 17, 2012. When will the registry be operational? Please identify the enforcement actions taken, if any, by the Commission to these complaints. If no action has been taken please explain why.**

Response: The Commission continues to take steps to create the registry to safeguard PSAP phone numbers from autodialled calls, and has sought to do so in a way that is consistent with maintaining the security of these PSAP numbers and optimizes efficiencies and cost savings. Toward this end, we have worked closely with the Federal Trade Commission and its contractor for the National Do-Not-Call registry on ways to effectively and efficiently develop and administer the PSAP Do-Not-Call registry that would not require the FCC to invest in and build its own registry completely separate from that of the FTC. Reflecting the savings from this approach, the Commission has sought sufficient funding levels to establish the registry and for maintenance. The timing and amount of funding will be an important factor in determining when the registry can be completed.

Since February 22, 2012, we have received two complaints to our consumer call center about autodialled calls to PSAPs and staff has been made aware of other complaints about such calls. These incidents primarily involve barrages of calls unleashed against PSAPs as part of schemes to extort money. We have worked with several portions of the federal government, including law enforcement, as well as communications carriers and public safety entities to address these complaints. Separately, the FCC continues to enforce its more general robocalls rules before the registry is operational, and autodialled calls to registered numbers will become an additional offense. The Commission's Enforcement Bureau currently has a number of active robocall investigations which are potentially relevant, although not specifically focused on PSAPs. Given the prevalence of spoofing (i.e., altering the caller ID displayed on a called party's phone) by robocallers, identifying those behind such calls presents particular law enforcement challenges.

2. **The Spectrum Act provides an opt-out mechanism for states intending to opt out of the FirstNet network and deploy their own radio access network. In those instances where a state elects to do so the state must submit its network plan to the FCC for approval. Has the FCC**

taken any steps to establish the process through which a state can obtain approval? Is the FCC coordinating with FirstNet to ensure that a process will be in place before FirstNet provides notice to the states that triggers the opt-out process? When will the process for Commission review and approval of state network plans be established?

Response: The Commission will coordinate closely with FirstNet to ensure that the review process by the FCC of state "alternative plans" is conducted in a timely manner, consistent with FirstNet's deployment plans and associated timeframes. We intend to provide clear guidance on how our process will work before states have to choose whether to opt out under the Act, so that each state can make an informed and timely decision.

3. **The Commission released a Notice of Proposed Rulemaking in June 2012 looking for ways to improve spectrum efficiency and promote greater use of the 4.9 GHz spectrum band. When will the Commission issue an order?**

Response: In March 2013, following the filing of initial comments and replies in response to the Commission's July 2012 NPRM on the 4.9 GHz band, the National Public Safety Telecommunications Council (NPSTC) formed a working group to develop a proposed 4.9 GHz national plan for the FCC's consideration. On October 24, 2013, NPSTC filed a final report on its national plan recommendations. On October 30, 2013, the Commission's Public Safety and Homeland Security Bureau sought comment on the NPSTC report. Comments were filed on November 22, 2013 and replies were filed on December 13, 2013. Based on this record, the Bureau is preparing options for moving forward on this issue.

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

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Minority (202) 225–3641

January 3, 2014

Mr. Darryl Ackley
Cabinet Secretary
New Mexico Department of Information Technology
P.O. Box 22550
Santa Fe, NM 87502-2550

Dear Mr. Ackley:

Thank you for appearing before the Subcommittee on Communications and Technology on November 21, 2013, to testify at the hearing entitled "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on January 17, 2014. Your responses should be e-mailed to the Legislative Clerk in Word format at Charlotte.Savercool@mail.house.gov and mailed to Charlotte Savercool, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, D.C. 20515.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Greg Walden

Greg Walden
Chairman
Subcommittee on Communications and Technology

cc: Anna Eshoo, Ranking Member, Subcommittee on Communications and Technology

Attachment

MEMORANDUM

From: Darryl Ackley, Cabinet Secretary, New Mexico Department of Information Technology
To: Charlotte Savercool, Legislative Coordinator
Date: 1 June 2014
Re: Question for the Record Response

The Honorable Anna Eshoo

Can you elaborate on the lessons that New Mexico hopes to learn by proceeding with the early deployment of its public safety broadband network using Recovery Act funds?

Darryl Ackley --State of New Mexico
Secretary Department of Information Technology, Chief Information Officer

Ranking Member Eshoo, thank you for giving me the opportunity to elaborate on what New Mexico views as important lessons that FirstNet and the public safety community can learn from early deployment on FirstNet spectrum in this State.

As I have previously testified, New Mexico has a non-exclusive statewide lease with FirstNet and has agreed to undertake a buildout along the Southwest border with the approval of NTIA and the use of BTOP funding. There are three key learning conditions built into the terms of the lease---Use of the Harris County, Texas, Evolved Packet Core (EPC); spectrum management along the border; and shared use among federal and state users. There are other lessons, such as rural coverage requirements and sharing of user infrastructure that can be learned in addition to those enumerated in the lease.

Shared Use of an Evolved Packet Core

Use of the Harris County EPC will raise a number of challenges relating to sharing a remotely hosted EPC located outside the State of New Mexico. This arrangement could serve as a model for FirstNet in the eventual design of the FirstNet network in that it is expected that many states will be sharing a remote EPC located outside the state boundaries as the FirstNet system evolves.

New Mexico and FirstNet expect to identify and evaluate the technical, governance and operational issues associated with the sharing of an EPC by different states. A number of critical arrangements, understandings and agreements relating to transport networks, backhaul, access rights, administrative procedures, user identification processes and other issues will need to be reached before the shared use

of the EPC can be implemented. The evaluations and solutions relating to these issues can serve as a foundation for FirstNet in designing its EPC infrastructure for use among different jurisdictions and states.

Spectrum Management Along The Border

The lessons learned from the use of 700 MHz spectrum along the New Mexico portion of the Mexican border will be relevant to the entire United States-Mexican border spanning Texas, New Mexico, Arizona and California. In light of reduced spectrum availability along the border due to existing international band plans, it is important to test and evaluate operational and interference issues along the border.

As an integral part of developing FirstNet spectrum along the border, network and device performance will be tested and evaluated. Various user applications can be reviewed in this reduced spectrum environment to determine feasibility for border operations. Where necessary, technical mitigation strategies relating to power levels, coverage area and other innovative techniques will be studied under the pilot project with the goal of protecting public safety operations from interference. These strategies can later be employed in the buildout of the FirstNet network along the entire Southwest border.

Should it become evident from our testing that further international understandings are needed, the State of New Mexico is committed to working with the United States Department of State and the Federal Communications Commission in support of international understandings or agreements with Mexico to address potential interference and operational issues along the border.

Shared Use by Federal and State Users

The final learning condition set forth under the lease focuses on assessing and developing operational processes and procedures for implementing governance, operations, infrastructure and applications of State and Federal users. The early deployment border project seeks to demonstrate shared use and interoperability of various disparate public safety user groups including local, state and federal agencies. Lessons will be learned relating to governance, access and security.

In working with state agencies, such as the State Police and with federal agencies, such as Customs and Border Protection, New Mexico intends to design a system that will fit the needs of these users. In doing so, valuable insight will be gained into the operational needs and technical requirements of these users. The awareness of user needs gained from this project will be valuable for the buildout of the FirstNet spectrum in general.

In order to accomplish the shared use of the FirstNet spectrum by state and federal users a number of agreements or understandings relating to governance, access, security and operations will need to be reached. These agreements and understandings could become models for FirstNet implementations on a nationwide basis.

Other Potential Lessons

The lessons to be studied under the terms of the lease agreement are by no means the exclusive learning experiences that will be created by this early deployment project. It is likely that lessons will be learned that we cannot now predict. The buildout of this LTE system will provide valuable technical data and insight into real world capabilities of the system and the needs of its users.

Information regarding coverage patterns and associated cost structures for rural areas will be gained from the pilot project and could prove useful for future rural buildouts. It is also expected that sharing of stakeholders infrastructure will be evaluated and if feasible implemented. Sharing of infrastructure could further provide data for future business models and fee structures.

The State of New Mexico looks forward to working with FirstNet and the public safety community that will be part of this early deployment. Thank you.

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
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January 3, 2014

Mr. Stu Davis
State Chief Information Officer
Assistant Director
Ohio Department of Administrative Services
30 E. Broad Street, 39th Floor
Columbus, OH 43215

Dear Mr. Davis:

Thank you for appearing before the Subcommittee on Communications and Technology on November 21, 2013, to testify at the hearing entitled "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions by the close of business on January 17, 2014. Your responses should be e-mailed to the Legislative Clerk in Word format at Charlotte.Savercool@mail.house.gov and mailed to Charlotte Savercool, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, D.C. 20515.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Greg Walden

Greg Walden
Chairman
Subcommittee on Communications and Technology

cc: Anna Eshoo, Ranking Member, Subcommittee on Communications and Technology

Attachment

OhioDAS
Service · Support · Solutions
Office of
Information Technology

January 15, 2014

Charlotte Savercool
Legislative Clerk
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, D.C. 20515

Ms. Savercool,

Thank you for the opportunity to clarify and address additional questions for the record from testimony provided at the hearing entitled "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications," held on November 21, 2013.

Please find enclosed answers to the questions posed by the Honorable Anna Eshoo and the Honorable Henry Waxman.

Thank you again for the opportunity to answer additional questions for the record, and if there are further questions, please don't hesitate to contact me.

Sincerely,

[redacted]

Stuart R. Davis
State CIO/Assistant Director

State of Ohio | 30 E. Broad St. | Columbus, Ohio 43215
Phone 614.644.6446 | FAX 614.644.9382 |

Robert Blair, Director
Stuart R. Davis, Assistant Director/
State Chief Information Officer

Attachment – Additional Questions for the Record

The Honorable Anna Eshoo

1. **When Congress passed the Public Safety and Spectrum Act last Congress, our goal was to address many of the challenges that have faces public safety for decades, including the lack of vibrant competitive marketplace for public safety-grade devices; limited innovation; and exorbitant device costs. Do you believe that your state's first responders will benefit from FirstNet's solutions to the challenges faced by legacy systems?**

Thank you for your question Ranking Minority Leader Eshoo. Yes, we believe Ohio will benefit from FirstNet's solutions and we are supportive of the effort. We are on board with the vision and have been attempting to provide constructive observations and suggestions. Our concerns are with the build and run or operational components of FirstNet. Adoption and use will be critical to the success of FirstNet and our observations, experiences and lessons learned in Ohio may assist in this success. Many of the concerns we raise are being expressed to us from our Multi-Agency Radio Communication System (MARCS) public safety/first responder participants and adopters.

We realize that some of these questions can't be answered at this time, but the States need to be an integral part of the ongoing design effort. We clearly want to be part of the solution and look forward to a closer working relationship with FirstNet. This engagement is necessary to ensure these concerns are heard and addressed so state and local public safety/first responders are appropriately engaged and informed.

The Honorable Henry Waxman

1. **At the hearing, you explained that your state is constantly struggling with how to lower the costs for public safety users to participate in Ohio's Multi-Agency Radio Communications System (MARCS). Following the hearing, I reviewed MSARCS' website and was surprised to see the cost for public safety users to participate. For example, not only are MARCS' subscribers responsible for purchasing and maintaining their own proprietary, costly equipment, but they are also charged an annual $240 service fee. All of this for radios that have minimal data capability and lack full nationwide interoperability. See http://das.ohio.gov/LinkClick.aspx?fileticket=P63AjWGSBVY%3d&tabid=124**

   Let's be clear, FirstNet has the potential to provide public safety users with a number of benefits that they have never had before, including national-level bargaining power and national-level economies of scale. Undoubtedly, FirstNet's users will have significantly lower device costs that what MARCS currently offers. Further, these devices will be standards-based and fully interoperable on a nationwide basis. FirstNet will also deliver technologies that are far more advanced than the products MARCS offers. I hope that you plan to take advantage of this golden opportunity and do everything possible to work with FirstNet to make it a success. That said, could you please explain what steps you plan to take to work with FirstNet to ensure the public safety users in Ohio have access to affordable and technologically-advanced communications equipment and services?

Thank you for your question Ranking Member Waxman. We are supportive of FirstNet and our expression of or concerns are meant to be constructive. Questions regarding the business model, ongoing operational support and funding are questions we receive from state agencies and local government public safety and emergency first responders. Before addressing next steps, we would like to clarify a few issues you raised.

MARCS, Ohio's Land Mobile Radio (LMR) system was originally designed to support secured, interoperable "push to talk" communications for public safety and emergency first responders. It has, and continues to provide an interoperable (to Ohio) 700/800 MHz, P-25 compliant system with limited data capabilities. No one we know of today has this capability on "full nationwide interoperable system."

We provide, facilitate and support numerous public safety and emergency first responders on grants and grant submissions for the purchase of equipment, including radios. We hear little negative feedback regarding the cost of radios and more about the monthly operating fee. MARCS' current business model provides operations and user support for $20 per month per radio subscription or $240 per year. It seems premature to say this is too costly when we don't know or understand what the funding and support model or the subscription rate will be for FirstNet.

Clearly the economies of scale that can be brought to bear from a national perspective are significant and represent a tremendous opportunity. Regarding functionality, the "push to talk" aspect of MARCS has been the largest benefit for adopting the system. As we understand it, this functionality within FirstNet is not currently available and no definitive timeframe has been published. Data needs are evolving and data and data transmission will become increasingly important, but the secured, push to talk functionality will continue to be a critical aspect for public safety and emergency first responders.

Regarding next steps, we are currently in the outreach and education phase of planning for FirstNet. We have been holding a series of meetings with local government and working through our Statewide Interoperable Executive Committee and getting things aligned to support FirstNet and Next Generation 911. We continue to coordinate activities here in Ohio to ensure no surprises come up and we can leverage numerous other initiatives as best we can to support a program as complex and significant as FirstNet. Communication with FirstNet has increased and the discussions around the development of State Plans are very positive.

We are supportive of FirstNet and remain interested and engaged in its success. As Coach John Wooden said, "If you don't have time to do it right, when will you have time to do it over?" We have one shot at getting and doing this right and we firmly believe the stronger the engagement from the States, the better chance of a successful result.

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED THIRTEENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON ENERGY AND COMMERCE

2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6115

Majority (202) 225–2927
Minority (202) 225–3641

January 3, 2014

Mr. Dereck Orr
Program Manager, Public Safety Communications Research
Office of Law Enforcement Standards
National Institute of Standards and Technology
325 Broadway, Mailstop ITS.P
Boulder, CO 80305

Dear Mr. Orr:

Thank you for appearing before the Subcommittee on Communications and Technology on November 21, 2013, to testify at the hearing entitled "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

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Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Greg Walden

Greg Walden
Chairman
Subcommittee on Communications and Technology

cc: Anna Eshoo, Ranking Member, Subcommittee on Communications and Technology

Attachment

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-
OFFICE OF THE DIRECTOR

May 14, 2014

Ms. Charlotte Savercool
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515

Dear Ms. Savercool:

Attached is the National Institute of Standards and Technology's (NIST) responses to the questions for the record from the November 21, 2013, hearing before the House Energy and Commerce Subcommittee on Communications and Technology on *"Oversight of FirstNet and the Advancement of Public Safety Wireless Communications"* in which the NIST Public Safety Communications Research (PSCR) Program Manager, Dereck Orr, testified.

If you have any questions, please contact me at (301) 975-3075.

Sincerely,

[redacted]

Kandy J. Hauk
Congress~~ional and~~ Legislative Affairs

Attached

NIST

The Honorable Greg Walden

1. **FirstNet will remain a data only network until the 3GPP standards are developed for mission-critical voice over LTE. The Middle Class Tax Relief and Job Creation Act of 2012 directed the National Institute Standards and Technology (NIST) to, among other things, accelerate the development of "mission critical voice" and do so in consultation with FirstNet and the Public Safety Advisory Committee (PSAC). Please explain what NIST has done in consultation with the PSAC to advance the development of mission critical voice over LTE. Is NIST consulting with private industry in the development of these standards? If so, please explain.**

Answer:

Public Safety Communication Research (PSCR) staff from both the National Institute of Standards and Technology (NIST) and the Institute for Telecommunication Sciences (ITS) of the National Telecommunications and Information Administration (NTIA), have been participating in Long Term Evolution (LTE) standards development since November 2012 within the 3rd Generation Partnership Project (3GPP) which is responsible for the creation of LTE standards and specifications. These efforts have been focused on developing mission critical voice capabilities for public safety in the LTE standards. Specifically, the focus has been on developing standards for direct mode communications, efficient group communications, and push-to-talk communications. In addition, the National Public Safety Telecommunications Council's (NPSTC) Broadband Working Group (BBWG), which develops public safety broadband communications requirements, has created two requirements documents for public safety broadband. The first was a Launch Requirements document that detailed public safety's expectations for FirstNet to deliver at launch of the network, and the second was a Mission Critical Push-to-talk over LTE Requirements document that detailed public safety's expectations for mission critical voice on the FirstNet network. PSCR staff was involved in the development of both of these documents, which were delivered to FirstNet's Public Safety Advisory Committee (PSAC), who reviewed and modified the documents where necessary before delivering them to FirstNet for use. Both of these documents are being actively used by FirstNet in the development of RFI/RFP's and in the development of standards pursuant to mission critical voice and data over LTE.

NIST works collaboratively with all 3GPP industry members within the standards process to develop consensus-based solutions. In addition, since 2010, the PSCR program, in partnership with the Department of Homeland Security (DHS) Office for Interoperability and Compatibility (OIC), deployed in the Boulder, CO, area a first-of-its-kind fourth generation (4G) Long Term Evolution (LTE) 700 MHz Public Safety Broadband Demonstration Network. This network was developed in collaboration with industry through Cooperative Research and Development Agreements (CRADAs) between NIST, NTIA, and over 75 individual industry partners to date. This public-private partnership has resulted in one of the most vendor-diverse 4G LTE networks in the world and is another example of NIST collaborating with industry to develop new technologies and standards for public safety.

2. **Please estimate to the best of your knowledge when mission critical voice over LTE will be available to users of the FirstNet network.**

Answer:

It is very difficult for the PSCR to forecast when a type of product may become available in the public safety marketplace, given that such a decision will be highly dependent on the independent business decisions made by multiple companies to develop and market such products, as well as public safety's acceptance that the new devices do in fact meet the criteria to be considered public safety mission critical voice compliant.

However, given the rapid advancement in the state of the standards due to significant work by organizations such as FirstNet, PSCR, the public safety community, and numerous industry partners, the PSCR's expectation is that within the next 18 to 24 months we might start seeing prototypes in our laboratories that display multiple capabilities associated with public safety mission critical voice (e.g., direct mode, group communications, and push-to-talk). This will allow us to start assessing, testing and reiterating on the standards to ensure these products meet public safety mission critical voice requirements at a future date.

3. **Please describe how the Public Safety Communication Research (PSCR) Program is structured and funded. Please identify the expenditures of funds by PSCR by program or activity.**

Answer:

The PSCR is a joint program within the Department of Commerce (DOC) between NIST and NTIA ITS headquartered at the DOC labs in Boulder, CO. The PSCR is comprised of approximately 40 staff and contractors from NIST and ITS and is managed overall by a NIST Program Manager and a ITS Deputy Program Manager. Over the last 15 years, the PSCR has used this partnership to leverage the scientific and engineering skills across both agencies to develop dynamic teams of experts to advance public safety communications technologies.

Funding for the PSCR primarily comes from external Federal sponsors. The longest standing program sponsor is DHS OIC within the Science and Technology Directorate. The PSCR has received expanded sponsorship from DHS Office of Emergency Communications (OEC) to provide research, testing, and standards support for OEC's Wireless Priority Services related activities. Additionally, PSCR is sponsored by the First Responder Network Authority (FirstNet) to advance public safety broadband communications standards, and is receiving additional funding in FY14 for research projects related to public safety broadband communications that PSCR is uniquely qualified to execute. The strong partnership among OIC, OEC, FirstNet, and the PSCR program is an excellent example within the Administration of multi-agency coordination and collaboration, and is something of which NIST and NTIA are very proud.

For FY14 the PSCR has currently available the following amounts by sponsor and activity (Note: A portion of these funds will be carried over into FY15 to fulfill period of performance):

NIST: $1,000,000
Period of Performance: Funds expire September 30, 2014

Activity:
- Program Management and Stakeholder Outreach: $650,000
- Future R&D Public Safety R&D Roadmap Development: $240,000
- Other Objects (Equipment and Travel): $110,000

DHS OIC: $4,024,200
Period of Performance: Until September 30, 2015

Activity:
- Modeling and Simulation: $950,000
  - Nationwide network planning
  - LTE Physical Layer Performance Characterization
  - Incident Scenario and Network Performance
  - Infrastructure Failure and Network Resiliency
  - Small Cell Deployments/In-building coverage
- Testing and Evaluation: $2,175,000
  - Land Mobile Radio (LMR) to Public Safety Long Term Evolution (LTE) Interoperability
  - Public Safety Video Quality
  - 700 MHz LTE Demonstration Network
  - Project 25 (P25) Compliance Assessment Program (CAP)
  - Public Safety Audio Quality
- LMR and LTE converged device project for DHS Customs and Border Protection (CBP): $424,200
- Requirements Gathering: $68,000
  - Public Safety LTE Broadband Requirements
- Security: $407,000
  - Identity Management
  - Mobile Applications

DHS OEC: $3,963,000
Period of Performance: Funds expire September 30, 2014

OEC had engaged the PSCR program to support OEC in the development and implementation of Next Generation Network (NGN) Priority Services and to ensure that it is compatible with the Nationwide Public Safety Broadband Network (NPSBN).

Activity:
- Standards Development: $1,000,000

    - Develop an overall standards development approach for NS/EP efforts for the creation of priority services on commercial and private Long Term Evolution (LTE) broadband networks.
- Testing and Evaluation: $950,000
    - Establish an overall test and evaluation testbed framework utilizing existing and/or new broadband equipment and on-site capabilities at the PSCR laboratories to develop, test, and/or verify NGN Priority Services approaches
- Modeling and Simulation: $986,000
    - Develop and enhance modeling and simulation efforts related to the network performance and analysis of NGN Priority Services.
- Stakeholder Engagement and Practitioner Travel: $1,027,000

FirstNet: $5,595,400

Period of Performance: Funds expire April 30, 2015

Activity:

- Standards Development: $2,015,400
    - Direct Mode capability
    - Efficient Group Communications
    - Mission Critical Push-to-talk
- Testing and Evaluation: $1,540,000
    - Priority and Quality of Service validation
- Modeling and Simulation: $1,040,000
    - Radio Access Network (RAN) modeling and simulation
    - Core modeling and simulation
- Other Objects (Equipment and Travel): $1,000,000

4. **Please describe the work performed by PSCR related to FirstNet's deployment of a nationwide public safety broadband network by project or activity. Please describe the status of this work. Please identify the amount of funds expended on this work by project or activity.**

Answer:

The ITS side of PSCR has been funded since November 2012 to perform standards development work in 3GPP for FirstNet. Beginning in FY2014, that work is expanding to encompass additional tasks as outlined in the response to Question #3. Additional information related to the specifics of the three task areas are as follows:

- Standards: Participate in relevant commercial standards development organizations such as the 3rd Generation Partnership Project (3GPP), in consultation with FirstNet. Develop and submit technical standards recommendations to the appropriate FirstNet Board committees. These efforts

will build upon previous PSCR standards development activities. PSCR staff will serve as subject matter experts within relevant standards organizations, in consultation with FirstNet.

- $2,015,400

- Testing and Evaluation: Establish an overall research and development test and evaluation testbed framework at the DOC Boulder laboratories. In consultation with FirstNet, NIST Office of Law Enforcement Standards (OLES) staff within the PSCR will perform research and development testing related to existing vendor products, new cutting edge technologies, possible system architectures, and assessing the common implementation of commercial standards and key first responder features and report those research and development testing results to FirstNet.
    - $1,540,000

- Modeling and Simulation: Provide modeling and simulation support to FirstNet technical staff related to a nationwide deployment as well as state and local network designs. This work will include RAN Modeling and Simulation and Core Modeling and Simulation.
    - $1,040,000

- Equipment, Travel, and Training:
    - $1,000,000

5. **Given FirstNet's mission it can be assumed that the network will likely be a target of cyber attack? Has PSCR been involved in work to develop cybersecurity safeguards for the FirstNet network? If so, please describe.**

Answer:

Cyber security has not been a primary focus of the PSCR in the past, however, through sponsorship from DHS OIC, the PSCR will be undertaking several specific research projects related to public safety security.

Based on the National Public Safety Telecommunications Council's (NPSTC) Public Safety High-Level Launch Requirements released in December 2012, the public safety community expressed their need for a Nationwide Public Safety Broadband Network (NPSBN) to provide capabilities to secure and control access to the network, applications, and data. Some of the security concerns reflected in the high-level launch requirements are (a) securing the network interfaces and data traversing the network, (b) managing the identities of users and devices to control access to the network functionality and data, and (c) protecting network functionality and data from mobile application weaknesses and vulnerabilities.

The 3rd Generation Partnership Project (3GPP), which establishes LTE standards, has specified optional capabilities to secure the network interfaces between mobile devices (UEs) and base

stations (eNodeBs) as well as base stations (eNodeBs) and the core network (EPCs). Since the network interface security capabilities are optional, it is unclear to what extent these capabilities have been implemented in LTE equipment and their ability to support standards based interoperability. In addition, the public safety community has indicated the need to leverage virtual private network (VPN) and mobile VPN (mVPN) technologies to enable secure tunnels between mobile devices and its provisioning organization's network, applications, and data. However, it is unclear the impact VPN technology will have on the performance of mobile devices and the network as well as their ability to support call prioritization. As part of upgrading the PSCR Broadband Demonstration Network, PSCR will work to ensure the LTE network equipment support the 3GPP capabilities to secure the network interfaces. Working with the vendor and public safety communities, PSCR will develop use cases to investigate the ability of LTE equipment to secure network interfaces and support standard based interoperability; and the impact VPN technology has on network performance and call prioritization. The use cases developed can then be used to create test cases for the PSCR Broadband Demonstration Network.

Identity management is a fundamental security requirement used to limit and control access to network functionality and data. The NPSTC high-level launch requirements have several requirements related to identity management, authorization, and access control. One significant public safety requirement is the ability to not only identify a device on the network but the ability to identify a specific user of the device since different users may use the device. There are several different identity management technologies for mobile devices that could be leveraged to support public safety's requirements. These technologies have different form factors with associated benefits and disadvantages. One form factor may work well for a given set of users while that same form factor may not be useful or practical for another set of users. Working with the public safety community, PSCR will document the various identity management technologies for mobile devices, their advantages and disadvantages, and potential applicability to the public safety community.

With the deployment of a public safety LTE network, the bandwidth made available to the public safety community will provide the opportunity for sharing information via advanced applications and services. However, applications provide the opportunity for software weaknesses and vulnerabilities to disrupt network operations and access to information improper authorization. There are several NPSTC requirements related to mitigation techniques to limit and control the malfeasance of vulnerable and/or malicious applications such as using malware/virus scanners, access control techniques, and application management. In addition to these mitigation techniques, application software weaknesses and vulnerabilities could be reduced by using software assurance techniques as part of an applications development lifecycle. PSCR will interact with the public safety, mobile app developer, and test tool communities to ensure public safety security concerns from software based weaknesses and vulnerabilities are included in software assurance tools. In addition, PSCR will develop test suites based on public safety security issues caused by software weaknesses that can be used to exercise mobile application testing tools.

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED THIRTEENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6115
Majority (202) 225–2927
Minority (202) 225–3641

January 3, 2014

Dr. Dennis Martinez
Chief Technology Officer
Harris RF Communications Group
150 Apollo Drive
Chelmsford, MA 01824

Dear Dr. Martinez:

Thank you for appearing before the Subcommittee on Communications and Technology on November 21, 2013, to testify at the hearing entitled "Oversight of FirstNet and the Advancement of Public Safety Wireless Communications."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

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Sincerely,

Greg Walden

Greg Walden
Chairman
Subcommittee on Communications and Technology

cc: Anna Eshoo, Ranking Member, Subcommittee on Communications and Technology

Attachment

HARRIS

HARRIS CORPORATION

RF Communications Division
150 Apollo Drive
Chelmsford, MA 01824
phone 1-978-905-3500

www.harris.com

February 17, 2014

Charlotte Savercool
Legislative Clerk
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

Re: Response to Request for Additional Information; Question from Anna Eshoo, Ranking Member, Subcommittee on Communications and Technology

Question: To ensure that FirtNew doesn't repeat the mistakes of the past, are there specific lessons you've learned that can ensure an open, competitive procurement process?

Answer: Thanks to you and many other Members of this Committee, Congress implemented provisions in the Spectrum Act that can maximize competition, enhance innovation, and decrease costs. The statute requires that devices operating on the NPSBN are built to common standards and meet the interoperability requirements established by the Interoperability Board. This will mitigate the costs and interoperability problems associated in the past with proprietary technologies. Moreover, the statute mandates that NIST must certify that all equipment operating on the NPSBN is interoperable. These elements, along with pro-competitive procurement mandates in the law, can drive a multi-vendor environment that will drive down cost and increase innovation. These are essential elements of a commercial, competitive technology market model that must be adhered to in order to avoid interoperability problems of the past. FirstNet has focused on these provisions in BTOP project activity, and we hope all Members will support their efforts to implement these vital provisions.

Thank you again for the privilege of assisting you on this matter of great national concern.

Sincerely,

[redacted]

Dennis Martinez, Ph.D.
Chief Technology Officer
RF Communications Division
Harris Corporation