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OVERSIGHT OF THE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION AND INNOVATIONS IN INTEROPERABILITY

HEARING

BEFORE THE

SUBCOMMITTEE ON TELECOMMUNICATIONS AND THE INTERNET

OF THE

COMMITTEE ON ENERGY AND COMMERCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

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OVERSIGHT OF THE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION AND INNOVATIONS IN INTEROPERABILITY

THURSDAY, MARCH 22, 2007

SUBCOMMITTEE ON TELECOMMUNICATIONS
AND THE INTERNET,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 9:10 a.m., in room 2322 of the Rayburn House Office Building, Hon. Edward J. Markey (chairman of the subcommittee) presiding.

Members present: Representatives Doyle, Harman, Gonzalez, Inslee, Rush, Eshoo, Stupak, Engel, Green, Capps, Solis, Upton, Hastert, Stearns, Shimkus, Wilson, Fossella, Terry, Ferguson and Barton [ex officio].

OPENING STATEMENT OF HON. EDWARD J. MARKEY, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF MASSACHUSETTS

Mr. MARKEY. Good morning. The subject of today's oversight hearing is the National Telecommunications and Information Administration. In the last Congress NTIA's job description was expanded to include the administration of two new billion dollar grant programs. First, NTIA has been charged with running the Digital TV Converter Coupon Box Program to help ensure that analog televisions will not go dark on consumers after the DTV transition on February 17, 2009. And second, NTIA is responsible for administering the Public Safety Interoperable Communications Grant Program, which will distribute $1 billion in grant payments.

Let me start with the DTV Converter Box Coupon Program. To ensure that millions of televisions do not go dark on February 17, 2009, Congress created a $1.5 billion fund which NTIA will use to distribute two $40 coupons per household to subsidize the purchase of digital-to-analog converter boxes. Yet NTIA recently placed an important restriction on coupon availability. For the first $990 million of the funding, any consumer can obtain a coupon. After that, however, only consumers who live in exclusively over-the-air television households are eligible.

For a transition that has significant consumer education hurdles to overcome, arbitrarily changing consumer eligibility in the midst of the program will simply lead to greater consumer confusion. Moreover, it will unfairly disenfranchise millions of consumers who

subscribe to cable or satellite service but who also possess perfectly functional analog televisions. And let us remember that these televisions, which consumers bought in the tens of millions over the last several years, typically last 15 to 20 years. As a practical matter, the eligibility limitation is virtually impossible to implement.

I would note that NTIA decided not to limit eligibility for the first $990 million because there is no cost-effective means to identify exclusively over-the-air households. In fact NTIA itself, observed that trying to do so would "likely delay reasonable and timely distribution of coupons and result in waste, fraud and abuse." Yet, after the Bush administration's Office of Management and Budget ill-advisedly revised the proposal, NTIA reversed course and limited eligibility for the remainder of the funding. Why? Apparently because the Bush administration is concerned that $1.5 billion may be inadequate.

Chairman John Dingell and I and other Democratic colleagues urged the administration and our Republican colleagues to ensure sufficient funding in the last Congress so that we wouldn't face precisely this situation. If the administration is now concerned enough to restrict eligibility out of fear that funding may be insufficient, it should have to come to Congress and asked for more money. Instead, the administration limited eligibility of the coupons in a manner that may leave millions of Americans with new fishbowls, end tables and doorstops.

I am also not convinced that NTIA's consumer education efforts will adequately inform consumers about the coupon program. To a certain extent, NTIA is limited because Congress itself limited the consumer education funds to a mere $5 million. On the other hand, NTIA has not asked for more funding. Rather, the administration appears to be overly reliant on the Internet and the good graces of industry to get the job done.

Web sites can certainly be a powerful tool, assuming a consumer knows a transition is underway in the first place in order to look for information online. It also presumes that the consumer has a computer. Since the GAO has told us that about one half of the 21 million over-the-air households earn less than $30,000 a year, I think it is a safe bet that the most challenging consumers to reach are the least likely to be surfing the Web for information. In other words, if these households find cable too expensive and otherwise qualify for food stamps, do we really think they own computers?

I note that other groups, including the disability community, have expressed concerns about outreach, notably, the lack of any commitment to provide closed captioning for public service announcements or to offer telecom relay service on consumer education hotlines. And while NTIA has publicly stated that it is collaborating with industry and public interest groups, it has no written public plan for directing the consumer education campaign.

And finally, with respect to the new Interoperability Grant Program, our overarching goal is to ensure that all of the Nation's first responders will be able to communicate in time of crisis. NTIA is the expert agency in telecommunications and in spectrum issues. Congress charged NTIA, not the Department of Homeland Security, with administering this program so we could get some new thinking. We could have sent the money to the Department of

Homeland Security, but we didn't. We wanted NTIA, with its telecommunications and spectrum-based expertise, to fund innovative, cost-effective solutions to interoperability.

We look forward to working with the NTIA to ensure that this is how the program works. Let me turn now and recognize the gentleman from Michigan, the ranking member, Mr. Upton.

OPENING STATEMENT OF HON. FRED UPTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. UPTON. Well, thank you, Mr. Chairman. I want to thank you, and I want to thank our witnesses for testifying today on this very important issue. And I also appreciated, in my tenure as chairman, the bipartisanship, attention and time and support that we received on this DTV transition.

At the heart of this concern was the immediate post–9/11 realization that our mission was to get the long promised 24 MHz of spectrum in the upper 700 MHz band clean to the broadcasters by a date certain and once and for all into the hands of public safety for interoperability. In fact, clearing that 24 MHz was precisely the task which the bipartisan 9/11 Commission and its recommendations to the Congress also recognized as mission critical to our homeland security.

Yet, despite the moral imperative, it still took years of planning, countless roundtables and hearings, discussion drafts and negotiations and addressing fears of turning folks' televisions off, the dark side, to finally get to the passage of the DTV Act last Congress. Individually, each local broadcaster had to invest significant sums, often millions of dollars, to make that transition, not to mention the added energy and insurance costs for operating both the analog and digital facilities at the same time.

And they are ready. Our local broadcasters are to be commended for doing their part. Had it not been for their hard work and sacrifice, this transition would not have been possible. And we worked shoulder to shoulder with public safety to finally clear the major milestone in this mission and even added value by creating the $1 billion public safety interoperability grant program to be funded with cash on the barrel head out of the DTV spectrum auction proceeds.

Of course, while we resolved to clear broadcasters to get the 24 MHz into the hands of public safety by a date certain, this will not happen by simply waving that magic wand. There is a plan in place. It is a carefully calibrated plan to ensure that this DTV transition occurs by a date certain. There may be some things we could do to improve consumer education, for sure, passing the Barton-Hastert-Upton-almost Markey bill, since the Senate stripped some of our provisions.

But make no mistake, if we alter any of the fundamental pillars of the DTV Act plan, like the auction date or the spectrum allowance allocations, we, in fact, will jeopardize the 24 MHz of public safety spectrum and $10 billion in auction proceeds, I think it will be more than that, which fund the billion dollar public safety grant program and the converter box subsidies. The stakes are too high to gamble and we have come too far to risk straying from that well-plotted course.

I would like also to take a moment to touch upon the NTIA converter box program. As a complement to the NTIA plan, cable operators have said that they could provide consumers with a low-cost set-top box that among other things can make digital signals, broadcast signals, viewable on analog TVs. Unfortunately, the FCC's Media Bureau recently denied certain waivers from the integrated set-top box rule, which will have the result of forcing consumers to pay $2 to $3 more each month to lease a set-top box that offers no new features.

And I think that the integration band is a bad idea, but when viewed in the context of the Government's strong interest in promoting an efficient transition to DTV, with minimal consumer impact, it is even worse. We should be looking for ways to make it less expensive, not more expensive, for consumers to make the transition to digital.

I look forward to hearing from our two panels this morning. I am proud that we were successful in not only passing the DTV Act last Congress, but we also provided a helping hand to enable our first responders to better protect the American people. And at this point, Mr. Chairman, I would ask unanimous consent to submit, for the record, along with my colleague and friend, Ms. Harman, the written testimony of Jerry Brito, the senior research fellow at the Mercatus Center at George Mason University, and also in the record, again, with my colleague, Ms. Harman, the testimony of John Peha, professor at Carnegie Mellon University of Electro-engineering, into the record and press releases praising this.

Ms. HARMAN. Will the gentleman yield to me?

Mr. UPTON. I would be glad to yield.

Ms. HARMAN. I am happy to join in this request, but I do want the record to show that I do not agree with some of the conclusions reached in this material, but I do think the record should be as full as possible with respect to some cautions about how we go forward.

Mr. UPTON. With that, Mr. Chairman, I yield back.

Mr. MARKEY. The gentleman's time has expired. Without objection, those materials will be included in the record.

The Chair recognizes the gentlelady from California.

OPENING STATEMENT OF HON. JANE HARMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Ms. HARMAN. Thank you, Mr. Chairman. I didn't realize I had arrived, I guess, before my esteemed colleague over here. Well, thank you. I did, I did. Good morning to all. I have to watch him all the time. Welcome to our witnesses, and apologies in advance for leaving by 10 o'clock because I have to chair another hearing.

Our Nation has a serious interoperability problem, and I am more and more frustrated with our failure to correct it. Five and a half years after 9/11 we are at risk of the same devastating communications failures that killed hundreds of firefighters in the World Trade Center who didn't know the towers had begun to glow red and who couldn't hear the evacuation order issued over police radios located in helicopters flying overhead. The DTV transition and the release of 24 MHz of spectrum for public safety is an unprecedented step in the right direction. As co-author of the Hero Act, which was introduced in 2001, I had hoped this transition

would occur when Congress promised it, in late last year, but now I am determined to be sure it occurs in 2009.

As our witnesses know, spectrum is only half the battle. The next step is ensuring that public safety has the robust networks to communicate during emergency responses, both large and small. The fact that private citizens have access to such networks while police officers, firefighters and EMTs don't is a sad and tragic commentary. Many of the ideas, systems and technologies we will hear about today are promising. They show great promise on the technology side. But we need to ensure that regional systems work together; that local and regional solutions do not bring us farther away from a national solution.

There is a risk that the $1 billion Public Safety Interoperable Communications Grant Program, which may grow even larger if the adds that the Senate made to H.R. 1 become law, there is a risk that it could improve communications operability at the expense of interoperability. This is unacceptable. We don't need a welfare program, we don't need a broadcaster relief program. What we need is a public safety program, and this member of this committee, who is also a member of the Homeland Security Committee, is going to keep on keeping on until we keep that promise to our public by 2009. Thank you, Mr. Chairman.

Mr. MARKEY. The Chair recognizes the gentleman from Nebraska, Mr. Terry.

Mr. TERRY. I waive.

Mr. MARKEY. The Chair recognizes the gentleman from New Jersey, Mr. Ferguson.

Mr. FERGUSON. I waive.

Mr. MARKEY. Chair recognizes the gentleman from Texas, Mr. Green.

OPENING STATEMENT OF HON. GENE GREEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. GREEN. Thank you, Mr. Chairman, and I would like to thank my colleagues, and I apologize because I can't be here because I have an Ethics Committee meeting at 10 o'clock and hopefully we will get our earmarks taken care of so some of us won't be in trouble if we request something for our districts, but I would like my full statement placed into the record.

Mr. Chairman, I want to welcome Mr. Kneuer, and I guess when the transition to digital television was discussed and passed in 2005, I had concerns about it at that time, and I still have those concerns. There wasn't enough money allocated to provide everyone with coupons for a converter box or the standards of the boxes were just released recently, just last week. And I believe the concern I think a lot of us share was taking away public airwaves, which currently carries signals to millions of televisions and selling that spectrum, but we don't know if those folks will still get their television reception.

Up until February 28 you could still go buy an analog television set, and unless we provide folks, like in my district, how they are going to receive that. I have a district that is very low in cable penetration, and as our chairman said, if they don't have cable, they definitely typically don't have computer access. So I am looking for-

ward to NTIA's plan to ensure that people who have analog television sets are notified because of how important television is to us for emergency broadcasting and lots of other things.

Like I said, cable penetration is very low in my district, and the number of homes with Internet access is even lower than that. The taking away of the spectrum ensures that their televisions will not be working on February 28, 2009, and I hope we can deal with that between now and then. I know we need a hard date, but I also know that there is a lot to be done. I have to remember that Congressman Walden from Oregon, about 3 years ago when we first started talking about, it said why don't we make the retailers put a statement on these saying this is the hard date. If you buy this analog TV, you may have to purchase a converter. I don't know where that is at in the process. We need a lot of consumer information, and it is already too late to do that because they can't buy analog TVs now, but let me tell you how many people bought those $200 large analog TV sets.

The Public Safety Interoperable Communications Program is another important part. Having lived through 9/11, Katrina and Rita in the Gulf Coast area, we know we have a patchwork system and the challenge is unique, and unlike commercial use, emergency response systems must work in burning buildings, during natural disasters and under other extreme circumstances. I am concerned without planning and oversight the billion in interoperability grants NTIA is overseeing would do nothing more than purchase new radios for police cars and fire trucks.

And I particularly follow the efforts of my hometown, Houston, which is making efforts to ensure that a state of the art interoperable communications system will provide public service agencies with a reliable system for the foreseeable future. The Houston metropolitan area is comprised of 10 counties, it spans 9,000 square miles, with a combined population of 5.3 million; 41 percent of those folks only reside in the city of Houston within the 640 square miles, the fourth largest city situated almost entirely within the Nation's third largest county.

We have the Port of Houston critical infrastructure and petrochemical area, a large medical center and our commercial assets. Since 2003 Houston has worked to implement a comprehensive plan, not just within the city of Houston, but across the region, and our long-term goal is to migrate to the 700 MHz radio system for the public safety. It will go from not just the Houston area but around the region and cover a 13-county area. That is just one of the problems we have in our country, and I know New York, Newark, everywhere else; LA, Long Beach, you name it, so again, I look forward to NTIA's solution to this and your testimony. Thank you, Mr. Chairman. I yield back my time.

[The prepared statement of Mr. Green follows:]

PREPARED STATEMENT OF HON. GENE GREEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. Chairman, thank you for holding this oversight hearing with the NTIA. I look forward to hearing from the witnesses on the status of the DTV transition and the Public Safety Interoperable Communications Program.

The transition to digital television is something I was opposed to when it was passed in 2005, and I still have many concerns.

There wasn't enough money allocated to provide everyone who needs a converter box with coupons to subsidize those boxes—the standards for the boxes were released late, just last week actually—and the distribution system of offering vouchers in two stages seems too complicated for many consumers to understand without proper notification, which there hasn't been.

It is unbelievable that we are taking away public airwaves—which currently carry signals to millions of televisions across this country—selling that spectrum, and not providing every American person who has an analog television with a voucher so they can keep using their television. Some of these televisions could have been purchased as recently as last year.

I want to hear NTIA's plan to ensure the people who have analog televisions are notified of this program and the consumers who don't have cable, or Internet, are aware of the transition and that these coupons are available.

Cable penetration in the 29th district of Texas, the district I represent, is low. The number of homes with Internet access is low as well. How are these households going to know they need to apply for a coupon that will only cover about two-thirds of the price of a converter box so they can keep using their televisions?

We are taking spectrum away from the American people and not making it right by ensuring their televisions will be working on February 18, 2009.

I don't believe all this falls on NTIA because they have to work with what they were given, which was flawed to begin with, but I am concerned they aren't doing all they can to ensure the households that most need the vouchers will know about them or how to apply for them.

The Public Safety Interoperable Communications Program is another important issue I look forward to hearing testimony on.

The need for more interoperable communications systems has become apparent with 9/11, Katrina, Rita, and other disaster response efforts across the country.

We have a patchwork system that works at times and at other times is unpredictable. The challenges are unique, and unlike commercial use, emergency response systems must work in burning buildings, in natural disasters, and under other extreme, unpredictable circumstances.

I am concerned without planning and oversight, the $1 billion in interoperability grants NTIA is overseeing will do nothing more than go to purchase new radios for police cars and fire trucks.

I applaud the work and monetary investment my hometown of Houston is making to ensure they have a state-of-the-art, interoperable communications system that will provide public service agencies with a reliable system for the foreseeable future.

The Houston Metropolitan Statistical Area is comprised of 10 counties that span nearly 9,000 square miles with a combined population of 5.3 million residents. More than 41 percent of these residents reside within the corporate limits of the city of Houston, a 640-square mile urban area that is the fourth largest city in the Nation, situated almost entirely within the Nation's third largest county.

The region has a high density of critical infrastructure, including the Port of Houston, the petrochemical industry, the largest medical center in the world, and extensive commercial assets.

Since 2003, Houston has worked to implement a comprehensive plan to improve interoperability with adjacent jurisdictions. This plan includes short and long-term objectives that address both tactical and full interoperability.

Houston's long-term goal is to migrate to a 700 MHz trunked radio system for Houston public safety agencies that provides full interoperability with the Harris County regional radio system and State and Federal agencies.

This project will maximize public safety radio interoperability in the 13-county region surrounding the city of Houston and will achieve the highest level of interoperability on the SafeCom Interoperability Continuum, with both a standards-based, shared system and daily use throughout the region.

The city of Houston has achieved tactical interoperable communications but faces multi-million dollar projects to achieve the goal of full interoperability.

Grants should not be distributed in small amounts that patch together old existing technology but should be distributed on a risk-based system with priority given to entities that are investing their own money to create fully interoperable systems.

I hope Secretary Kneuer and NTIA agree that this is the kind of interoperability we need to aim for with this grant program.

Thank you again Mr. Chairman for holding this hearing, and I welcome our witnesses and look forward to their testimony.

Mr. MARKEY. The gentleman's time has expired. Speaker Hastert.

Mr. HASTERT. Thank you, Mr. Chairman. I want to yield back my time, if I could insert my statement into the record.

Mr. MARKEY. Without objection.

Mr. MARKEY. The gentleman from Texas, Mr. Gonzalez.

Mr. GONZALEZ. I will waive.

Mr. MARKEY. He waives. The gentleman from New York, Mr. Engel.

OPENING STATEMENT OF HON. ELIOT L. ENGEL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. ENGEL. Thank you. Thank you, Mr. Chairman, and thank you for holding this hearing, and I want to welcome Assistant Secretary Kneuer to the committee today. I want to add my voice to the frustration that Ms. Harman mentioned in terms of interoperability. Representing New York City and the suburbs, we obviously feel the most pain about what happened in 9/11, and it is very frustrating that so many years later we are really not up to where we should be, and I think we really, really need to move much more quickly on this.

It grieves us, every life that was lost, but obviously there were lives that were lost that didn't have to be if we had had an interoperability system that most of us thought we really had until we learned sadly that we did not, so it is unconscionable, I think, that more than 5 years later we are still not up to where we should be.

But I would first like to start by thanking the Secretary for assisting with New York's eligibility for the Public Safety Interoperable Communications Grant Program. The city of New York has made enormous investments in the 400 MHz portion of the spectrum to ensure reliable first responder communications. There has been some concern that the Department of Commerce's eligibility guidelines could be limited to systems that use the 700 MHz range. I raised this concern with Secretary Kneuer, and he sent me a letter guaranteeing an interpretation of the language to allow systems that do not operate on a 700 MHz range like New York to receive funding, so I want to mention that because I think it is significant.

I ask the Chair for unanimous consent to submit this letter into the record.

Mr. MARKEY. Without objection, so ordered.

Mr. ENGEL. Thank you, Mr. Chairman. I would also like to acknowledge that NTIA has recently awarded funding to the Metropolitan Television Alliance for the first phase of the New York City 9/11 Digital Transition Project. I know that there was some difficulty determining the grant guidance and thank the NTIA for resolving the issue. I must say, though, that I hope, in the future, programs like these don't take quite as long as this one did to administer.

Last week this committee had the opportunity to hear testimony from the FCC Commissioners, and we obviously had opportunity to ask them a number of questions. One issue that I felt was important to address was the status of the DTV transition. Chairman Martin pointed out that the FCC shares the responsibility of educating the consumer about this transition with the NTIA, that it wasn't solely an FCC responsibility. NTIA has been tasked with

the important role of administering the Digital TV Transition Converter Box Coupon Program, a program that, in my opinion, has been severely under-funded and continues to be severely underfunded.

When you look at other countries, other cities, international cities, they are spending much more money for much less people that really have to have this transition, and I don't believe we are spending adequate money for this at all. The thoughtful and responsible implementation of the converter box coupon program is an essential piece of the success of the DTV transition, so with great interest, I want to hear what plans Mr. Kneuer has for the program and most importantly, learning about NTIA's consumer outreach efforts.

Finally, I intend to ask Mr. Kneuer questions regarding NTIA's responsibility to administer the Public Safety Interoperable Communications Grant Program. This program is very relevant to New York and to the United States, and I look forward to learning about the plans for the program, and I thank you, Mr. Chairman.

Mr. MARKEY. Thank the gentleman. Chair recognizes the gentlelady from New Mexico, Mrs. Wilson.

Mrs. WILSON. I will pass, Mr. Chairman.

Mr. MARKEY. Chair recognizes the gentleman from Pennsylvania, Mr. Doyle.

OPENING STATEMENT OF HON. MIKE DOYLE, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Mr. DOYLE. Thank you, Mr. Chairman. Before I begin, I would like to thank Mr. Upton for having the comments of Dr. John Peha, an alumnus of this committee's staff and a professor of electrical engineering and public policy and director of the Center for Wireless and Broadband Networking at Carnegie Mellon University and also a constituent of mine, into the record, so thanks, Fred.

Mr. UPTON. Do you agree with his conclusions, as well?

Mr. DOYLE. Yes, I actually agree with a lot of these conclusions. Mr. Chairman, I also won't be able to make the second half of this hearing, so while I will address my questions for Assistant Secretary Kneuer in a moment, I want to take some time to talk about the second panel.

Members of the subcommittee will recall my commitment to protecting local resources and making sure that decisions are made where they are best made. I worked hard on the COPE Act last year to achieve those results, and I will continue to do so when needed, which is why I am glad we have Mr. Devine on today's panel to talk about his efforts to coordinate Missouri's public safety airwaves for interoperability across the State and with its neighbors.

Spectrum itself is nearly infinite, but in terms of what is usable, what is worth investing in, it is much more limited. When you get up around 90 or 100 gigahertz, it is about as valuable as the London Bridge is in Arizona, which is why we must challenge everyone who uses our airwaves to do so in the most efficient way possible. And that is why efforts to make public safety's communications

interoperable, redundant and more effective are so crucial to our Nation's first responders and ultimately to the American public.

Gone are the days when people who don't understand technology, are given choices between inefficient and expensive dead-end radios. Mr. Chairman, I see our time is short today, but we must take the best of what we have learned from the commercial space, like interoperability and cost-effective technology and merge it with the best of public safety's communications legacy, such as rock solid dependency. And with that, Mr. Chairman, I will yield back.

Mr. MARKEY. The gentleman's time has expired. The gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Mr. Chairman, thank you, and I will just waive.

Mr. MARKEY. The gentlelady from California, Ms. Solis.

OPENING STATEMENT OF HON. HILDA L. SOLIS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Ms. SOLIS. Thank you, Mr. Chairman, and also thank you Ranking Member Upton for holding this very important hearing today. I want to thank the witnesses, also, for being here and providing us testimony later today. I am particularly interested in two specific topics.

First I am eager to hear about the NTIA and what they are doing to ensure that consumers are educated about the digital television coupon program well in advance of the 2009 deadline. Households with over-the-air television sets and no cable or satellite service are disproportionately low-income, Spanish-speaking and in many cases, underrepresented minority groups. I hope that Assistant Secretary Kneuer will address outreach efforts to these households with limited Internet access and in particular, to language barriers that exist and hopefully outline more creative solutions to ensure that these consumers are not left behind in the digital transition.

And then second, I am looking forward to learning more about the public safety interoperability grants to local communities. Many of the cities that I represent in Los Angeles have applied for grants to achieve interoperability with their neighboring communities. In fact, the city of West Covina provided a real life example of the regional interoperability problems they and other cities in the San Gabriel Valley are facing.

Last April the city of West Covina's SWAT Team responded to a bank robbery situation in the city of Baldwin Park, which is neighboring, to assist the city's police. But despite standing right next to each other, the officers could not use their radios to communicate and had to, instead, call in to their respective dispatch centers to communicate. The U.S. Conference of Mayors found, in a recent survey, that over a 1-year period, 44 percent of the cities reported that the lack of interoperable communications made the response to a public safety incident requiring multi-agency response very, very difficult.

And in California, as you know, wildfires and earthquakes are a constant threat to our citizens' public safety, and we can't wait 20 years for the first responders to become interoperable. We have to do more to ensure that all our cities, towns, rich and poor, rural

and urban, are able to achieve interoperability in the near future. Again, thank you for being here, and I look forward to your responses. Thank you.

Mr. MARKEY. All right, the gentlelady's time has expired, as has all time for statements by the subcommittee members. Other statements for the record will be accepted.

[The prepared statements follow:]

PREPARED STATEMENT OF HON. JOHN D. DINGELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. Chairman, thank you for holding this important oversight hearing. The National Telecommunications and Information Administration of the U.S. Department of Commerce is the executive branch's expert agency on telecommunications and information services. As such, it is important that NTIA come before this Committee to offer its insights into the state of telecommunications in our great Nation.

First, I am curious to know what specific policies the executive branch has put in place to serve the telecommunications needs of all Americans. For example, does NTIA believe that everyone in the country has access to universal, affordable, and robust broadband services? If not, what specific action is NTIA taking to fill in the gaps? In the past, NTIA has produced meaningful research into the digital divide and the level of minority media ownership. I would like to know why these efforts have fallen off in recent years.

Second, I am interested in NTIA's stewardship of the digital television transition converter box coupon program. All of us would like to see the transition take place on time. NTIA, however, took more than a year to release rules for the program, and the rules contain a major defect. Ignoring the congressional debate and conventional wisdom about the cost and difficulties with eligibility restrictions, the rules restrict the latter portion of the funding to over-the-air households only. As a result of this short-sighted approach, millions of Americans, whose analog sets will no longer work after the transition, could be denied participation in the coupon program. NTIA's decisions will prove an important measure of how successful the transition will be for American families. If the administration believes it will take additional funding to prevent televisions from going dark by the Government-mandated transition, it should make such a request to the Congress.

Third, I have concerns about NTIA using its role in working with the Internet Corporation for Assigned Names and Numbers (ICANN) to better promote an effective, open, and transparent process for all parties for the governance and security of the Internet.

The second panel in today's hearing addresses public safety communications interoperability. The need for interoperability was vividly displayed during the devastating destruction of the World Trade Center on September 11, 2001. In 2005, as first responders rushed to the Gulf Coast in the terrible aftermath of Hurricane Katrina, the need for reliable communications among first responders from across the country became an immediate and real issue witnessed by all of America.

The Department of Homeland Security has been funding efforts for interoperability for several years. After $3 billion and 5 years, some progress apparently has been made at the local and State level. But I believe not enough progress has been made. We need a more forward-looking and innovative approach to a problem that has persisted for too long.

I thank the chairman for holding this hearing, and I look forward to the testimony of the witnesses.

PREPARED STATEMENT OF HON. ANNA G. ESHOO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Thank you Mr. Chairman and welcome Assistant Secretary Kneuer.

One of the issues your agency has jurisdiction over which is of concern to me is the administration of grants to promote the upgrade of 9–1–1 emergency call centers and the location tracking information they're able to receive from callers in distress.

Along with Rep. Shimkus I'm the House co-chair of the Congressional E9–1–1 Caucus, which works with public safety and industry to promote the adoption of advanced E9–1–1 technology to ensure that all 9–1–1 callers can be located by emergency assistance when they call 9–1–1.

The ENHANCE 911 Act, signed into law by President Bush in 2004, is designed to speed enhanced 911 implementation and improve coordination among all levels

of government by providing funds to address and promote best practices and technology innovations.

The law authorizes $250 million in matching grants for States and local governments, but the last Congress failed to appropriate funds for this important program. As in previous years, the President did not provide funds for the program in his Budget.

Last month the Senate Commerce Committee authorized $43.5 million for the Joint E9–1–1 Program Office as part of the Senate 9/11 legislation, and last week Rep. Shimkus and I wrote to the CJS and Transportation Appropriations Subcommittees requesting funding.

I'm hopeful we'll be successful in securing funding for the E9–1–1 Office this year, and I'm eager to hear what plans are underway to lay the groundwork for the success of the program.

I'm also interested to learn more about the public safety interoperability grant program which you administer along with the Department of Homeland Security.

During the consideration of 9/11 legislation earlier this year, I raised an important issue related to the need to ensure the grant program is not limited solely to new hardware purchases that facilitate interoperability.

I think it's imperative to ensure that the interoperability grants are not solely focused on "equipment" that enables interoperability for voice communications among responders in the field but also IP-based solutions, including providing grants for software, middleware and network-based solutions that enable interoperable voice and data communications among individuals and organizations.

I look forward to discussing these issues with you, and I yield back the balance of my time.

PREPARED STATEMENT OF HON. JOE BARTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. Chairman, thank you for calling this NTIA oversight hearing.

I'll start off by thanking Assistant Secretary Kneuer for releasing the NTIA rules on the digital-to-analog converter box program. The rules were universally applauded by the broadcast, consumer electronics, cable, and retail industries and by me. Under the rules, all U.S. households that feel they need a subsidized converter box may request one or even two, and the cost will be subsidized from the first $990 million allocated to the program. If it becomes necessary to tap the remaining $510 million, only homes that get their television signals exclusively over the air will be eligible. That's to ensure that converter boxes go to those who really need them.

It should not be necessary to access that additional money, however. Broadcasters tell us that only 25 percent of exclusively over-the-air homes and only 15 percent of cable and satellite homes will feel they need a subsidized converter box. Over-the-air homes tend to have two televisions and cable or satellite homes tend to have one television that is not connected to the pay service. Using the broadcasters' projections and the 2005 FCC estimates of the number of over-the-air, cable, and satellite homes, we should need 21.6 million subsidized boxes. We can easily exceed that figure by nearly a million boxes using just the initial $990 million allocated to the program, which can fund 22.5 million converters, including administrative costs. And the consumer electronics industry—the ones actually building and selling the boxes—thinks the demand will be considerably smaller. I'd also like to point out that starting now, anyone who wants to buy their own $60 converter box could accumulate the requisite wealth before the transition date by feeding their piggy banks a dime a day.

Turning to interoperable communications, I urge Secretary Kneuer to continue his focus on the public safety grant program we created in the DTV legislation last Congress. Using NTIA's considerable telecommunications expertise and lessons learned from the mistakes of others, this $1 billion could go a long way to ensuring our firefighters, police and other first responders can communicate with each other—and with us—when we need them most. I was also glad to see that NTIA is consulting with the Department of Homeland Security, as we required, and making the most of DHS's administrative resources to minimize burdens on public safety officials, while retaining ultimate decision-making authority.

I am also eager to hear from our second panel on how we can best maximize that money and the 24 MHz of spectrum we have given to public safety. The proposals appear to require varying degrees of funding, spectrum, and disruption to the balances we struck in the DTV legislation. We must determine which of these proposals, or others, most effectively address the interoperability problem.

I yield back.

PREPARED STATEMENT OF HON. J. DENNIS HASTERT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Thank you, Mr. Chairman.

I would like to welcome the Assistant Secretary for Communications and Information, NTIA's Administrator, Mr. Kneuer, here today. I look forward to getting an update on the converter-box program and to hearing from the second panel on how best to use the money and spectrum allocated to public safety.

As part of the Deficit Reduction Act of 2005, Congress passed the Digital Television Transition and Public Safety Act. It ensures a smooth transition from analog to digital for Americans. It provides up to $1.5 billion to support the digital-to-analog converter box program. I want to applaud Mr. Kneuer for recently releasing rules that will make coupons available to all Americans and for working closely with industry to determine the specifications for the converter boxes, as well as coupon distribution, consumer redemption, and retailer reimbursement.

The DRA also makes $5 million available for DTV consumer education. This was just one of several consumer education provisions in the original language of the legislation. Unfortunately, the other provisions were stripped by the Senate on procedural grounds. Mr. Barton, Mr. Upton and I have introduced H.R. 608, the DTV Consumer Education Act of 2007, to replace these important consumer education provisions. Additionally, I am pleased that the cable, broadcast, consumer electronics and retail industries have launched their own consumer education campaigns.

Additionally, I want to highlight that the DRA freed 24 MHz of spectrum for public safety, as recommended by the 9/11 Commission. It also created a $1 billion grant program to help public safety deploy new interoperable communications systems. This will allow local, county, state, and Federal public safety agencies the ability to communicate with each other across all jurisdictions. To ensure public safety receives these benefits and make our Nation safer, it is critically important to preserve the February 17, 2009, DTV transition date and ensure that the auction proceeds on schedule.

Thank you, and I yield back my time.

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Statement of the Honorable Lois Capps

Subcommittee on Telecommunications and the Internet

Oversight of the National Telecommunications Information Administration and Innovations in Interoperability

March 22, 2007

Thank you, Mr. Chairman.

My questions for Assistant Secretary Kneuer focus on the lack of adequate data on broadband deployment and penetration in our country.

But right now I want to talk about the upcoming digital television (DTV) transition in February 2009.

Unfortunately, consumers aren't being properly educated and aren't getting the opportunity they need to prepare for the transition.

The 109th Congress rejected Democratic plans to send coupons redeemable for converter boxes to every U.S. household.

Instead, households must apply for $40 coupons to keep their TVs working.

It's unlikely that Americans will apply for these coupons unless they know most TV sets will stop receiving over-the-air signals in fewer than two years, and there has been almost no consumer education so far.

I am particularly concerned that vulnerable communities – the elderly, Spanish-speakers, the poor – will be the most difficult for the consumer education program, when it finally gets going, to reach.

The irony is that these are the communities where people are more likely to receive their TV via over-the-air signals.

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There also doesn't seem to be enough money allocated to meet the needs of all Americans who receive analog over-the-air TV.

But NTIA hasn't come to Congress asking for more money.

I don't believe we should means test a program like this, when the reason people will lose their TV signal is because of a government-mandated transition.

I hope that NTIA will review and improve this program.

It took the agency a year to develop rules for the coupon program, and not one converter box has been manufactured.

I hope that this oversight hearing will convince NTIA that it must make sure that Americans don't lose their TV in February 2009, and request from Congress the resources needed to do its job.

Thank you and I yield back.

Mr. MARKEY. Our first witness is John Kneuer, who is the Assistant Secretary for Communications and Information, National Telecommunications and Information Administration. We welcome you, sir. Please begin whenever you feel comfortable.

STATEMENT OF JOHN M.R. KNEUER, ASSISTANT SECRETARY, COMMUNICATIONS AND INFORMATION, NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Mr. KNEUER. Thank you, Chairman Markey, Ranking Member Upton, Speaker Hastert, members of the subcommittee. If my full written statement will be made part of the record, I will just summarize.

Mr. MARKEY. Without objection, your full written statement will be included in the record.

Mr. KNEUER. And I won't summarize my entire testimony, but I do want to talk about three areas of particular interest to the committee and also to the American people.

First, I would like to address the two large programs related to the DTV transition that we have responsibility for: the Public Safety Interoperability Communications Grant Program and the DTV Converter Box Program. I would briefly like to talk about the administration's comprehensive broadband policies and the progress we have been making towards maintaining the most innovative and competitive broadband marketplace in the world.

The Balanced Budget Act of 2005, as amended by the Call Home Act, entrusts NTIA with unprecedented operational and grant making responsibilities. In meeting these responsibilities and implementing these programs, I have been guided by three main tenets: the intent of Congress, as reflected in the plain language of the statute and the CONGRESSIONAL RECORD; the input of the impacted constituencies as developed in our administrative record; and the core expertise and judgment of the experts within the agency.

I welcome this opportunity to engage the committee in a dialog about these programs. I am confident that working together, we can ensure the completion of the DTV transition is a success for all Americans. The most important public policy outcome of the completion of the DTV transition is the delivery of critical resources to first responders. The end of the analog TV transmission will free up 24 MHz of critical spectrum, and the PSIC program will deliver $1 billion in auction revenue to first responders.

As you are aware, NTIA has executed an MOU with the Department of Homeland Security to procure certain grant making capabilities and consistent with congressional guidance to coordinate policies, plans to ensure that this program does not conflict with other ongoing public safety interoperability programs. That being said, the MOU makes it explicitly clear that all final decision making authority, all accountability, reside within the Department of Commerce.

I am personally committed to ensuring that the communications policy and technology expertise of NTIA be brought to bear to ensure that public safety agencies around the country have the flexibility to leverage powerful new technologies to achieve the most efficient solutions to their respective interoperability challenges so

long as these solutions are demonstrably effective. We will continue to work closely with the public safety community across the country and our colleagues across the administration to achieve this goal.

Last week NTIA also published its final rules in the DTV Coupon Program. These rules provide guidance for industry participants, including converter box manufacturers and retailers, as well as for consumers who may choose to participate in the program as their means of effecting the DTV transition. Last week we also published a request for proposal for services for the fulfillment of this important program.

I have been extremely encouraged by the response from industry. Within a day of our rule announcement, at least two manufacturers announced plans to produce set-top boxes and put them in the marketplace with prices around $60. Likewise, the consumer electronics industry, the cable industry, the broadcasters, have announced a broad consumer education campaign to inform and educate consumers about the transition.

With respect to broadband, the President articulated a clear goal for his administration and for this country for universal and affordable broadband by 2007. In furtherance of this goal, we have adopted a comprehensive set of fiscal, regulatory, spectrum and technology policies designed to encourage innovation and investment in broadband services and applications. By deregulating new broadband deployments by incumbents, we have created incentives for new fiber investments in competition with cable.

By making new spectrum available on both a licensed and unlicensed basis, we have been able to innovate wireless broadband services to enter the market. By measuring and studying BPL deployments, it has been possible for BPL to mature into a viable new competitor in many markets in the country.

As a result of these policies, broadband growth in this country has been remarkable. According to the FCC, we added more than 13 million broadband subscribers in the first 6 months of 2006, bringing the total number of broadband lines to nearly 65 million. During that time, deployments of fiber, wireless and broadband power line systems grew by more than 500 percent. With the most competitive broadband over marketplace in the world, we will have the most innovative, affordable and accessible broadband marketplace in the world.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Kneuer follows:]

Testimony of
John M. R. Kneuer
Assistant Secretary for Communications and Information
and Administrator,
National Telecommunications and Information Administration,
U.S. Department of Commerce

Before the
Energy and Commerce Committee
House of Representatives

March 22, 2007

Mr. Chairman and members of the Subcommittee, I am pleased to appear before you today to discuss the activities of the National Telecommunications and Information Administration (NTIA). As you know, NTIA is responsible for the development and implementation of domestic and international telecommunications and information policy for the Executive Branch, for the efficient and effective use of the Federal radio spectrum, and for state-of-the-art telecommunications research, engineering, and planning. In addition, NTIA is responsible for the provision of grants in support of the equipment needs of public broadcasting stations, and, most recently, programs directed by the Deficit Reduction Act of 2005.

Historically, NTIA's primary goal has been to advance the development of e-commerce and enhanced telecommunications and information services, both domestically and abroad. The Deficit Reduction Act of 2005, signed into law in February 2006, changed NTIA's immediate focus significantly. Title III of that Act created a number of new programs to be funded under the Digital Television Transition and Public Safety Fund (DTV Fund) from future spectrum auction proceeds.

Digital Television Transition and Public Safety Act

NTIA's portfolio expanded considerably a year ago with enactment of the Deficit Reduction Act of 2005 (Act). The Act authorizes NTIA to administer a number of new programs that will be funded with the proceeds from the auction of recovered analog spectrum in 2008. Some programs are getting underway this year by using borrowing authority provided in the Act, while the remaining programs will get underway upon deposit of receipts into the DTV Fund.

The most prominent programs getting started this year are the Digital Television Converter Box Coupon Program and the Public Safety Interoperable Communications (PSIC) Grant Program. The Coupon Program will subsidize consumer costs as the DTV transition concludes. Through this program, consumers will be able to request up to two $40 coupons to be used toward the purchase of converter boxes that will convert digital signals for display on over-the-air

television sets. NTIA announced and published the final program rule last week. The final rule sets forth the framework for the Coupon Program and provides guidance for consumers, television converter box manufacturers, and retailers regarding eligibility, responsibilities, and certifications. NTIA also issued a Request for Proposals (RFP) for services in support of the Coupon Program. The services required under the RFP cover three broad functional areas: (1) consumer education and communications, (2) systems processing (e.g., determine consumer eligibility, coupon distribution and activation, certify retailers, and provide training materials), and (3) financial processing (e.g., administer the coupon authorization for redemption and retailer payment process, and perform independent auditing). NTIA will host a Bidder's Conference on March 26, 2007 and offerors must respond to the RFP by April 30, 2007. Close collaboration with the Federal Communications Commission (FCC), the National Association of Broadcasters, and the Consumer Electronics Association, among others, will play an important role in meeting consumer expectations for this Program.

The other major program getting under way in 2007 is the PSIC Grant Program, which is a $1 billion grant program to assist public safety agencies in the acquisition of, deployment of, or training for the use of interoperable communication systems that can use or be interoperable with systems that use the 24 MHz of reallocated public safety spectrum in the 700 MHz band. Grants will be awarded no later than September 30th of this year. NTIA's efforts are driven by the need to achieve a meaningful improvement in the state of public safety communications interoperability, and to provide the maximum amount of interoperable systems while leveraging existing state, tribal, and local radio communications assets. NTIA will use its in-house public safety interoperability expertise in combination with complementary expertise and in-place grant processing operations at the Department of Homeland Security to ensure the timely distribution of grants to our nation's first responders.

In addition, NTIA recently awarded $7,855,000 to the Metropolitan Television Alliance for the first phase of its New York City 9/11 Digital Television Transition project. These funds reimburse the Alliance for costs associated with the design and testing of a temporary digital television distributed transmission system at 3 to 5 sites in the New York metropolitan area. NTIA expects to award more than $21 million in additional funding during fiscal year 2008 to complete the full 20-site system before the digital television transition deadline of February 17, 2009.

NTIA has also begun preparatory work for the Low-Power Television and Translator Digital-to-Analog Conversion program and is on schedule to begin making payments in fiscal year 2008. NTIA estimates that approximately 10,000 facilities may be eligible for this support. NTIA plans to work closely with the low-power television and translator communities to ensure that this $10 million program effectively assists these communities as the February 2009 deadline approaches.

NTIA received additional borrowing authority and program guidance in Title VI of the SAFE Port Act, with respect to the National Alert and Tsunami Warning program that was created in the Deficit Reduction Act. NTIA is negotiating a new borrowing agreement with the Department of the Treasury and has begun consultations with the National Oceanic and Atmospheric Administration and the Department of Homeland Security to provide adequate funding for the new grant and research programs described in the SAFE Port Act.

When spectrum auction proceeds become available in late 2008, NTIA will launch the Low-Power Television and Translator Upgrade Program and the E911 Grant Program along with the Department of Transportation's National Highway Traffic Safety Administration.

Universal, Affordable Access for Broadband

On March 26, 2004, President Bush established a bold goal for broadband in America: "We ought to have . . . universal and affordable access for broadband technology by 2007, and then we ought to make sure as soon as possible thereafter, consumers have got plenty of choices when it comes to their broadband carrier." In articulating this goal, the President captured not only the importance of broadband for our social and economic well being in the 21st century, but the means for achieving it: having the most competitive broadband marketplace in the world.

With the most competitive broadband marketplace in the world, carriers offer a host of technologies that compete on price, speed, added applications, mobility, and other innovations. Consumers will benefit from the ability to choose the broadband experience that best fits their needs and budget, and the best way to facilitate this is to help foster a competitive market.

Now what can be done to encourage this competition? The Administration firmly believes that that the answer is not government mandates or expensive subsidies, but rather unleashing the genius of American innovation and entrepreneurship. To that end, the Administration has adopted a comprehensive set of policies including deregulation, spectrum reform, and fiscal incentives that have been demonstrably effective.

To ensure that 21st century networks are free from overly burdensome regulation, the Administration has supported freeing new broadband infrastructure from economic regulation intended for monopoly phone services. Following this decision incumbent phone companies have announced plans to spend billions of dollars to deploy fiber networks to approximately 20 million homes by 2007. According to the National Cable and Telecommunications Association, the cable industry since 1996 has invested upwards of $110 billion upgrading their networks, which now pass 119.1 million U.S. homes.

The Administration has taken steps to enable new technologies so that consumers can choose from more than just cable and fiber. Working in partnership with the FCC, the Administration has made additional spectrum available for both licensed and unlicensed broadband services. When every mobile phone carrier is also a broadband service provider, incumbent providers will be forced to compete with lower prices and more innovation. By making more spectrum available for unlicensed devices like WiFi and WiMax it will be possible that wireless hotspots will cover more than just coffee shops and home networks, but entire cities, and hard to serve rural communities.

The Administration has also taken the lead to create technical standards that will allow the rapid deployment of Broadband over Power Lines (BPL) while safeguarding existing licensed radio services from harmful interference. This new technology offers the potential for every electrical socket to become a broadband pipeline as well.

As a result of these policies, broadband use in the United States is growing dramatically. Since President Bush entered office, the number of residential and small business broadband customers in the United States has grown by almost 600 percent according to FCC statistics, and more Americans today access the Internet through broadband than dial-up connections. Despite this progress, many would have us believe that the United States is falling behind the rest of the world and is in danger of becoming irrelevant in the new technology-driven global economy. To support this premise, critics of U.S. broadband initiatives point to the fact that the United States has fallen behind other industrialized nations in rankings that measure the number of broadband subscribers per 100 inhabitants.

In fact, the United States is the world leader when it comes to high-speed Internet penetration, as measured by number of lines. For instance, the United Kingdom-based Point Topic released a study in December 2006 noting that the United States had 54.6 million lines as of September 30, 2006, surpassing China with 48.6 million, Japan at 25.8 million, South Korea with 13.9 million, and Germany at 12.7 million out of a total of 263.8 million lines globally.

Moreover, the United States also is one of the countries most suited to harness the power of broadband as shown by two recent global studies. The Global Information Technology Report (GITR) has developed a ranking of 115 economies based on a "Network Readiness Index, or NRI," defined as the "degree of preparation of a nation or community to participate in and benefit from ICT development." In the 2005-2006 study, the United States ranked number one; South Korea rated a distant #14. A second study, by the Economist Intelligence Unit, evaluates economies according to the "extent to which a market is conducive to Internet-based opportunities" in terms of its Economic Readiness Index (ERI). In its 68-country assessment in 2006, the EIU determined that the United States finished second, behind only Denmark.

Spectrum Policy for the 21st Century

NTIA serves as the Administration's principal telecommunications policy advisor and the manager of federal government's use of the radio spectrum. Wireless technologies and services that depend on spectrum provide critical support to federal agency missions that serve the American people and support a wide array of commercial and non-federal government applications that provide economic benefits and protect lives and property. NTIA's goal is to improve American competitiveness by creating a regulatory environment that fosters private sector innovation in telecommunications and to promote efficient and effective use of spectrum by Federal agencies to increase availability of this scarce resource.

To further develop and implement a U.S. spectrum policy, NTIA continues to implement the President's Spectrum Policy Initiative. During this past year, NTIA established the Commerce Spectrum Management Advisory Committee with diverse and expert members who will provide the agency with advice on spectrum reforms that will expedite the American public's access to broadband services, public safety services, and long-range spectrum planning. NTIA also selected the Washington, D.C. Wireless Accelerated Responder Network (WARN), an interoperable, city-wide, broadband public safety network, to evaluate its effectiveness in sharing the radio spectrum with federal, state and local governments during emergencies. NTIA also completed a plan to identify and implement incentives that promote more efficient and

effective use of spectrum and convened a two-day public forum in conjunction with the National Academies of Sciences to discuss how economic incentives could improve U.S. spectrum management practices.

NTIA has also effectively implemented the provisions of the Commercial Spectrum Enhancement Act (CSEA) of 2004 to facilitate the provision of innovative new wireless services to the commercial market. The CSEA created the Spectrum Relocation Fund to provide a streamlined funding mechanism through which Federal agencies can recover the costs associated with relocating their radio communications systems from spectrum bands auctioned for commercial uses. The first use of the CSEA's provisions has worked well. NTIA identified the 1710-1755 MHz band for reallocation to commercial uses, which the FCC then paired with the 2110-2155 MHz band for Advanced Wireless Services (AWS). NTIA timely provided federal agencies' estimated relocation costs of approximately $1 billion to the FCC in advance of the AWS auction. That auction, which concluded in September 2006, raised $13.7 billion in net winning bids. On February 16, 2007, the Office of Management and Budget notified this Committee about the final estimated costs and timelines for federal agencies' relocations. Transfers of relocation funds to the agencies can now proceed to clear the band for new commercial uses.

NTIA has also achieved recent successes in the development of spectrum sharing opportunities that mutually benefit the Federal and commercial users. Research and rulemaking activities have supported innovative solutions to satisfy the growing demand for the spectrum resource. The use of adaptive techniques, such as Dynamic Frequency Selection, that are supported by field measurements conducted by the NTIA lab, is a good example of innovations in sharing. NTIA input into rules to support the use of ultrawideband devices is another example of actions that have enabled extensive new applications for government and commercial users in defense and other security systems.

In addition, our internal process for administering Federal frequency assignments is undergoing a long overdue modernization. Since the modernization effort got underway in 2003, the processing time for serving our Federal agency clients has been reduced over 30 percent.

Advanced Telecommunications and Information Services

During the past decade, the Internet has grown from an emerging communications tool to an essential component of world-wide communications. NTIA undertakes a number of activities to ensure its continued viability, including overseeing a joint project agreement with the Internet Corporation for Assigned Names and Numbers (ICANN) that emphasizes enhanced accountability and transparency in ICANN's decisionmaking, exercising the U.S. Government role for authorizing changes to the root zone file, representing the United States on ICANN's Government Advisory Committee, maintaining the .EDU and .US domain names, and promoting the kids.us domain as a safe space on the Internet for children.

For example, NTIA recently approved a promotional package from NeuStar, the .us administrator, to reduce the annual wholesale price to registrars for all kids.us names from $65 to $6 and to halve the $250 annual content management subscription. NTIA also approved NeuStar's proposed $6 per name rebate program for the first 2500 kids.us names that registrars

enroll during a three-month period and a $125 content review fee rebate for the first 200 content providers that activate kids.us sites during a three-month period. In addition, NeuStar will implement a "Show Your School Spirit" promotion to provide a free one-year content management subscription for the first 200 K-12 public schools that purchase kids.us registrations during the six-month term of the promotion.

NTIA works closely with the State Department and other agencies to further U.S. telecommunications interests in an array of international fora, principally through the International Telecommunication Union and the Organization for Economic Cooperation and Development that undertake such issues as spectrum management, Internet and information security, Internet governance, and telecommunications development. NTIA also assists with bilateral discussions on telecommunications issues between the United States and its government counterparts in other countries.

Conclusion

In conclusion, I want to thank the Subcommittee for its support for NTIA's programs. I will be happy to answer your questions.

Mr. MARKEY. Thank you, Mr. Kneuer, very much. Chair recognizes himself for a round of questions. Mr. Kneuer, your new rules will set aside $990 million for all consumers, whether they have free TV, cable or satellite, in order to qualify for this converter box program. And then after that money is expired, only $510 million is left for exclusively free over-the-air consumers, that is people who don't have cable, don't have satellite. You are saying that the NTIA is committed to this program, but you had to make this decision of slice off the money in this way. If there was another billion dollars in the program, would you have changed unlimited eligibility in the middle of the transition?

Mr. KNEUER. Our analysis was based on the resources that the statute currently provides. The data that we have on the numbers of set-tops, of analog television sets and the potential consumer take rates and the changes in the marketplace seem to indicate that the billion dollars ought to cover the consumers who choose to take advantage of the program. That being said, if the demand for the program exceeds that billion dollars, we did, in fact, shift to make sure that to the extent possible, no household that would otherwise lose television service altogether and wanted to take advantage of this program would be left without those resources.

Mr. MARKEY. So you are saying no home will be disadvantaged?

Mr. KNEUER. What we are saying in the rule is that given the best estimates of current consumer demand, we wanted to make it as unlikely as possible that any household that wanted to avail themselves of this program who would otherwise not receive television through a different distribution medium would have access to the program.

Mr. MARKEY. I understand that, but again, millions of analog sets have been sold in the last several years to people who live in cable and satellite homes. My brother-in-law gave me an analog TV set 2 years ago for Christmas. He didn't know. So it could be that millions of people are left without this converter box being made available to them, and I think that the Congress did not put aside enough money for this program.

Let me move on. It is my understanding that consumers will, that the coupons are going to be available in 9 months. They will be available on January 1, 2008, in 9 months. What level of confidence do you have that the retailers will have converter boxes on their shelves in 9 months so that the consumers can use these new coupons to get the converter boxes?

Mr. KNEUER. Well, I think the response from industry was really immediate. It wasn't the very afternoon that we released the rule, it was the next day that we had multiple manufacturers announcing firm plans. One of the benefits and one of the things that came out of the record, as we developed our record, we had very broad consensus among manufacturers on what would be the most effective standards to adopt. We went largely with the industry guidance, so I think——

Mr. MARKEY. No, see my question is this. On January 1, in 9 months, you are going to make these coupons available. Under your rules, the coupons will only last for 3 months. So here you have the diversity of America up here, from New York City to rural America.

How can you be sure that in 9 months these converter boxes are going to be on the shelves of the stores in all of America?

Mr. KNEUER. The only assurance I have is the expressed intent of industry to take advantage of this program. The program creates a billion dollar market, up to $1.5 billion.

Mr. MARKEY. I understand, but see, my problem is this. Under your rules, the coupons expire in 3 months.

So if, in 9 months, someone has the coupon given to them and they go into their store in rural America, the inner city, and there is no converter box 90 days later the coupon is now worthless and this person with analog——

Mr. KNEUER. I am sorry. I understand the question now. The statute calls for us to make coupons available by January 1. If it turns out that there is a manufacturing difficulty, there aren't boxes there and consumers submit requests into the program, we would not redeem those—deliver a coupon to the customer until we had data from the retailers that there were boxes in place so that consumers don't get a coupon that starts expiring before their box is there.

Mr. MARKEY. Why don't you just give them the coupon and if they want to buy the converter box in the first 3 months or the first 6 months, that it won't expire? Why set a 3-month deadline?

Mr. KNEUER. It is statutory. Three-month expiration is in the statute.

Mr. MARKEY. Do you agree with that?

Mr. KNEUER. It is in the statute. I mean, I think it does make sense to have a limit so that we can track those monies. If a consumer requests a coupon, we now draw down, in our accounting the program, if it sits there, we could be withholding resources to other consumers while somebody has it sitting in a drawer and it is never——

Mr. MARKEY. Again, this statute, which I did not support, it just makes no sense to me. You are going to lead people into complete confusion after a 3-month period. You are going to have people all over America saying I need a converter box, it doesn't work, where do I get another one and your agency is going to be instructed to say that you are not eligible. This statute just isn't well thought out. My time has expired. Let me recognize the gentleman from Michigan, Mr. Upton.

Mr. UPTON. Thank you, Mr. Kneuer, for your testimony. I just want to clarify one thing with Mr. Markey, whose brother gave him that nice TV.

Mr. MARKEY. By the way, my brother-in-law. My brother would never give me a TV.

Mr. UPTON. Thank God for your sister. I don't know that Joe Barton has cable, but you have cable, right? So your analog set will work, so you won't need that converter box, right?

Mr. MARKEY. Not if my analog set is not plugged in, so I think in many homes, in that spare bedroom there is an analog TV set that is not attached to cable.

Mr. UPTON. I am going to call Comcast to make sure you got cable in your bedroom.

Mr. Kneuer, as we debated this issue in the last Congress, it was our belief, and we heard it from the FCC, as well, that we thought

that the amount for the subsidy would take care of the folks that really need the converter box. In essence, $1.5 billion. And you all have come up with a plan, in essence, two levels. Everyone is eligible for up to $990 million expense. And then after that, the 510, the consumer only has to check a box that they do not have cable or satellite, is that right?

Mr. KNEUER. That is right.

Mr. UPTON. I mean that they actually don't subscribe to it. It could be available in that area, but they just say that they don't have it at their house, it is just a check off, and at that point they can get the coupon and go get the box, is that right?

Mr. KNEUER. That is correct.

Mr. UPTON. And there would be nothing to prevent you if, in fact, somehow you reached that $1.5 billion, there would be nothing to prevent the administration from saying well, we have got a supplemental. We know that these things come up all the time. There would be no reason for the administration to say that we might need another $50 million or $20 million or whatever it might be on top of this billion and a half to continue the program if, in fact, we looked at bumping that ceiling, is that not right? Or Congress, of course, could do it without the request, as we are seeing this week with a number of different things.

Mr. KNEUER. One of the things that we were very focused on in the design of this program is being able to collect real time market data on what the demand trends look like; how many consumers are asking for these boxes; what the redemption rate of the coupons looks like, so as we are gathering that data in anticipation of looking at whether or not it is necessary to even request the additional $500 million, we will have real time data, and we will certainly be sharing that data with the Congress as it comes in so we can collectively make decisions about that.

Mr. UPTON. Good. I look forward to that. Now, do you think that the availability of the low cost set-top boxes from the cable operators would enhance your ability to manage the converter box program?

Mr. KNEUER. I certainly think any increased distribution of boxes to consumers from whatever quarter will certainly ease the pressure on the program. There are a number of consumer choices for consumers and how to achieve this transition for themselves and if cable is their choice and there are low-cost cable options, that takes pressure off this program.

Mr. UPTON. Now you said in your testimony that the converter box program was welcomed by the industry. You said it was a very positive response. You heard from, I think you said two different manufacturers that they could hit within the—are there more folks in the industry that you intend to hear from?

Mr. KNEUER. In developing our record, we heard from several manufacturers who expressed an interest in participating in this. So I would expect there will be more than the two.

Mr. UPTON. OK, great. Thank you. No more questions.

Mr. MARKEY. Gentleman's time has expired. The gentlelady from California, Ms. Harman.

Ms. HARMAN. Thank you, Mr. Chairman, and again, my apologies for leaving right after a few questions to chair another hearing. I

want to come back to my rant in my opening remarks, which is that this isn't a welfare program and it isn't a broadcaster relief program, it is a public safety program. I do think it is important that we provide converter boxes, as promised.

I do think it is important that we make sure nobody goes dark, but let us remember that what is most important is that people who live in neighborhoods that could any time now be under attack by terrorists or by some natural disaster get the protection they need from first responders and those first responders can communicate, not just with each other, but hopefully with other neighborhoods or the Federal Government or regional entities in the event of attacks. So that is what we are really talking about and to remind broadcasters, who are one of the reasons or perhaps the reason why we went through this elaborate exercise, also have brothers and sisters and husbands and wives in these same districts, so it is protection for them, as well.

In that spirit, I just want to ask about some timelines for this $1 billion grant. My understanding is you are collaborating with DHS on this program, is that correct?

Mr. KNEUER. That is correct.

Ms. HARMAN. And you have some grant guidance with DHS. I have had conversations with DHS leadership about how all this is going to work because as it looks to me, the guidance is coming out in the summer, and the grants are coming out in the summer, and that doesn't give any time, at least as I understand it, for communities and States to do their best job of putting forward proposals to get the money. DHS has told me that that is not really what is going to happen, and I just want to get you on the record. What they say is going to happen is that the guidance is going to come out in June or July, that some planning money is going to be distributed in September at the end of this fiscal year, but the real grants are going to be made at the end of this calendar year. Is that your understanding?

Mr. KNEUER. The amendments to the Deficit Reduction Act in the Call Home Act that accelerated the timeframe for this program, that the monies need to be awarded by the end of this fiscal year, requires us to design this more as a formulaic kind of program than perhaps we otherwise would have, making it more competitive or otherwise. So the grant guidance that will come out in the summertime will be an announcement of basically the amount of money that each State is entitled to under this program.

Those grants will be conditioned upon the States completing their plans, having demonstrated the ability to say OK, we have identified our existing capabilities, the gaps in our capabilities. We have got a plan to fund those gaps and that they are going to be effective, and so the awards will come out by the end of this fiscal year, but those awards will be conditioned upon the States concluding their plans and having a demonstrated ability to fill the gaps so that we actually do raise the level of interoperability across the country.

Ms. HARMAN. Which means the money will not be transferred at the end of the fiscal year——

Mr. KNEUER. The awards will be made by the end of this fiscal year, and there will be, at that time, a portion of money will be dis-

tributed to help them with the plans, but the actual money goes out as is very typical for Federal grant programs. You get the award, but you don't actually get the check until you have demonstrated that you have met the conditions of the grant. So the monies will go out over a period of time, but the awards will be made by the end of this fiscal year.

Ms. HARMAN. OK. Well, you are the banker, but you are not the guy who makes the decision about who gets the grants, is that correct?

Mr. KNEUER. I am the guy who makes the decision about who gets the grants.

Ms. HARMAN. You are the decision maker. Well, then I would urge again that what we are hopefully funding is not operable communications operability systems, but communications interoperability systems, and the challenge to you and the challenge to people who will testify in panel 2, I am very sorry I am going to miss your testimony, is to figure out how we make it possible to create true interoperability and how we move forward, not backward, and make certain, for example, in the case of near simultaneous attacks around the United States, which is a possibility right now, in that event, we have an interoperable system so that the resources of Federal, State, regional and local entities can all be brought to bear to make certain we offer the maximum protection to citizens.

Mr. KNEUER. I completely agree, and one of the largest areas of progress that we have made over the past number of years is doing a much better job at measuring the problem. This has been an identified problem for a very long time but not very well measured. So now we have the scorecards from the 75 urban area security initiative regions, we will have the State plans. Those scorecards identify the gaps in interoperability. Now, there are always going to be additional operability communication needs for first responders, and they should continue to serve those. This program is intended to fill in the defined gaps in interoperability, and that is what we are focused on.

Ms. HARMAN. Thank you and thank you, Mr. Chairman. This grandmother will be watching.

Mr. MARKEY. The gentlelady's time has expired. The gentleman from Nebraska, Mr. Terry.

Mr. TERRY. Thank you very much, Mr. Chairman. I just need help working through this. On the interoperability side, following up on the questions by my friend from California, I am trying to get my arms around this, my mind around it. I came from city council, and we dealt with some interoperability issues so police could talk to sheriff and police could talk to fire in two different counties. Didn't work out all that well.

But also, since I have come here and we have dealt with this issue in the last couple years, of interoperability, and dedicated these funds, my office has had a parade of different types of technologies parade through that seem to have the magic solution or the silver bullet which seemed to also, then, have an array of, from seemingly affordable price tags to it to astronomical.

So my question is, is on your grants or even a formulary, is there going to be a best practices, what you feel is the best technologies to fill those gaps so we aren't just sending grants to some commu-

nities that have chose, perhaps, the most expensive and perhaps even maybe the least practical technologies out there?

Mr. KNEUER. There are certainly a host of new technologies that are being introduced to address this problem. And to my mind, it really has been one of the benefits of the focused attention of the Congress and the administration and others on this problem, is that the class of market participants who otherwise weren't really thinking about the public safety needs are now getting into the marketplace and presenting new solutions.

In this program, I want first responders in different localities to have the flexibility to choose the solution set that makes the most sense, given their state of incumbent capabilities, but at the same time, while there is enormous promise to many of these technologies, we need to be mindful and careful that they are, in fact, effective and that they don't exacerbate the problem by walling off other systems if somebody picks a creative solution for their jurisdiction and it is incompatible with the neighboring jurisdiction.

And again, I can't underscore enough the ultimate issue is the effectiveness of the solution, not necessarily the efficiency of the solution, although efficiency is important. You don't want to send a fireman into a building with a beta system. It has got to be a demonstrated, proven solution that the public safety community endorses. But there are absolutely a number of efficient and effective solutions that they can choose from.

I don't know that we should be dictating what those solutions are. There is a great scope and breadth of different localities with different needs, and so I am not sure it makes sense for me to be dictating what the best solution is for their needs, but I want them to have the flexibility to choose the best solution for their needs.

Mr. TERRY. It is a difficult position to be in, especially as a free marketeer as I am, but I fear that some communities may be "taken," or on the flip side of that, we are going to be paying for the golden Cadillac when we didn't need to pay that price, therefore leaving other communities without sufficient dollars or a program without sufficient dollars, so I would like to find some way to find a happy medium. Maybe a cafeteria style, a menu list of certified or approved items that they can use and have some assurances that it is workable, that they won't be taken and that we aren't then cheating others so that some communities could have the most expensive program.

Mr. KNEUER. Those are the sorts of things that we do at our labs in Boulder in examining these technologies and giving public safety a sense of these are the things that are out there that work and are effective, and they have a better sense of——

Mr. TERRY. Your labs are in Boulder?

Mr. KNEUER. Yes.

Mr. TERRY. Well, that counts against you, as a Husker. The other question is on the cable boxes. I need to work through, a little bit more, on what Fred brought up and some discussions that we have had from various vendors about the rules making what boxes will be eligible for the program eliminates some of the, what I would say, the lower end or boxes that could be cheaper. First of all, before I ask that, go into that question, specifically, are we assuming that anyone that has cable TV or satellite TV, that their vendor,

their cable or satellite provider will provide them, free of charge, a set-top box so that they can continue to watch the product that they are paying for? And will not be part of this program?

Mr. KNEUER. The subscribers to cable and satellite, for the televisions that they have hooked up to cable and satellite, should have the transition essentially accomplished for them through that service arrangement.

Mr. TERRY. All right. So a voucher, a coupon, whatever we are going to call it, that won't go towards a cable box, a set-top box?

Mr. KNEUER. No.

Mr. TERRY. All right, so it is your understanding, my understanding that it is only for the free over-the-air television set?

Mr. KNEUER. Yes. The coupons are to fund converter boxes that enable a television that is currently receiving signals over the air to continue to receive signals over the air and to convert them to analog for the analog set.

Mr. TERRY. And is it part of your rules of the use of that voucher that it can't be used for the higher end set-top boxes that could be a combination of let us say, a DVD player or a DVR?

Mr. KNEUER. That is right. The statute limits the class of boxes, left it to us to establish the standards for what those boxes are. Our rules have categories of what is eligible, but the things that are not eligible would be things like DVRs, DVDs, video game functionality, anything like that. It has got to be the base functionality to accomplish the digital-to-analog conversion and nothing else.

Mr. TERRY. I have also been told that there can be very basic, small sized converter boxes that could be as cheap as $30, but the rules don't allow that to be done. Are you aware of what that argument——

Mr. KNEUER. No, if market forces bring the prices of a box below $40, then the consumer will present that $40 coupon, they won't have any co-payment. They won't get the change. You don't get to put in a $40 coupon and get $10 back, but if it is $30, that is acceptable.

Mr. TERRY. But the argument was that the criteria set for the set-top boxes don't allow for just the very simple converter boxes.

Mr. KNEUER. They are explicitly designed to fund the simple box that will be inexpensive for the consumer.

Mr. TERRY. Thank you.

Mr. KNEUER. Thank you.

Mr. TERRY. I yield back.

Mr. MARKEY. Gentleman's time has expired. Gentleman from New York, Mr. Engel.

Mr. ENGEL. Thank you, Mr. Chairman. Mr. Secretary, I would like to start with the Public Safety Interoperable Communications Grant Program. I am very concerned that the NTIA has entered into a Memorandum of Understanding with the Department of Homeland Security. NTIA plans to use DHS's resources to help design the grant guidance for the interoperable program. Currently, as we know, DHS determines funding based on a formal rather than a needs assessment.

This has often led to a discrepancy in funding. New York, in particular, often receives significantly less per capita than lower risk

States. It is a source of neverending frustration for us in New York, and I am very concerned that NTIA will follow DHS's current funding formula. So Mr. Secretary, can you tell me, will the NTIA administer funds based on a risk assessment or another funding formula?

Mr. KNEUER. The program is going to be formula based, given the constraints in the Call Home Act. We will, in fact, look to the DHS formula as a starting point. We have talked with them about how best we can look at that formula, see if there are adjustments that can be made. Our intent would be to share those thoughts with Members of Congress, with perhaps focus groups of the public safety community to say these are the kinds of things we are looking at.

But we are working at adjusting the formula to see if we can come up with one that makes the most sense for this program, given that this is a Commerce Department program. It is a different program intended to raise the level of interoperability across the country, but we are using it as a starting point.

Mr. ENGEL. So then you do agree, it is accurate to say that you do agree that a risk assessment would be a more reliable indication of need than the DHS formula?

Mr. KNEUER. I don't know that I would say that the risk formula is the only or the best way to look at this. This is a program designed for everyone. There is, as Ms. Harman was saying, we need to raise the level of interoperability across the country. That being said, there are areas of the country that have much more express needs, but that is why we are going to look at the formula, see if there is a rational way that we can adjust it, and we will be sharing our processes with you as we go through them.

Mr. ENGEL. OK. Well, I want to very, very strongly—and I think I speak for all of New York on a bipartisan basis that we are very frustrated with the DHS formula, and we really think that a risk assessment would be a much more reliable indication of need. It is just 5 years later, just a source of neverending frustration. We know that New York is obviously the biggest target, and why this doesn't happen more quickly is just something that boggles my mind.

Let me ask you this, also. The Deficit Reduction Act of 2005 set aside only $5 million for consumer education for the digital TV transition out of what the Congressional Budget Office conservatively estimated to be $10 billion in auction revenues. That is $5 million out of $10 billion. Many of us on this committee believed at the time that $5 million was woefully inadequate to accomplish the task of educating the American public about the DTV transition and what they need to do to make sure that their televisions don't go dark.

As we get closer to the date of February 2009, my view, shared by many of my colleagues on this side of the aisle, is that $5 million for consumer education is absurdly inadequate. So do you agree with me, that $5 million is insufficient to educate consumers all across America about the DTV conversion? When I mentioned this last week to the Commissioners, they sort of punted on it and said well, it wasn't only their responsibility.

Mr. KNEUER. We are leveraging that $5 million on educating consumers about the existence of this program. I think you rightly underscore that this is a consumer education need and these are the consumers of the cable industry and the consumer electronics industry and the broadcast industry, and they have enormous responsibilities to educate their consumers on the impacts of this transition. They have made announcements and have launched a group working together to expend considerable resources on that.

I am encouraged by the activities they are undertaking. I intend to remain very vigilant of the activities that they are using. We are working closely with them so that we can leverage that broader industry campaign, to leverage our $5 million so as they are educating consumers about the transition, they are also making consumers aware of the eligibility program.

Mr. ENGEL. Well, let me just say, because my time is running out, that I really think that Congress needs to increase funding for consumer education for the DTV transition, and I want to add my voice to what Ms. Solis said before about communities that, households that are most vulnerable to being left in the dark by the DTV transition; non-English speaking and lower income households are the very households least likely to have Internet access, and because you are relying so heavily on the Internet to ensure that consumers learn, I think that is a very, very grave mistake. Thank you, Mr. Chairman.

Mr. MARKEY. The gentleman's time has expired. Chair recognizes the gentleman from Illinois, Mr. Hastert.

Mr. HASTERT. I thank the chairman. I just want to follow up on that. First of all, consumers are the customers, right? And if the cable companies don't keep their customers, they lose revenue, right? So they have a role to play in making sure that these customers, whether they are Spanish-speaking customers or if they are customers, anybody that they have, that they go out and reach them.

So there is an economic impetus there, and so the $5 million ought to be used for other means where you can get people that probably won't be reached by, I would guess be constantly bombarded by the TV set. If you have one of those things on, you keep it on. So I share the concern of my colleagues across the aisle, but I don't think it is quite a concern, because it is just the economics of it. If you don't keep your customers online, you lose revenue.

I want to go back to the agreement on February 16. You and the DHS signed a Memorandum of Understanding to implement the $1 billion Public Safety Interoperable Communications Grant Program. What makes DHS the best agency to work with?

Mr. KNEUER. They clearly have the grant making apparatus and the expertise with regards to the operational needs of the first responders. The SAFECOM office, which has been working on dealing with first responders on their communications needs is housed within DHS. I think the report language of the statute directed us to work collaboratively with DHS to make sure that this program, while separate and housed within the Department of Commerce, is not inconsistent with or in conflict with other ongoing grant making programs within the Department of Homeland Security.

I think there is a recognition that the public safety community has become accustomed to and has systems in place to interface with the Department of Homeland Security for a variety of grants, not just the communications grants. So to any extent possible, they should use a similar process to the one that they are using for other Federal grants.

The plans that have been put in place to identify interoperability needs were submitted to the Department of Homeland Security, so they are the natural partner for us in the execution of this program. But again, to underscore, this remains a Department of Commerce program, and all the ultimate decision making authority resides in the Department of Commerce.

Mr. HASTERT. So the agency that will establish the policy rules to implement the PSIC grant program will be the Department of Commerce?

Mr. KNEUER. We are going to work with the Department of Homeland Security to develop those policies collaboratively, but the ultimate policy decisions remain mine.

Mr. HASTERT. And what is your timetable?

Mr. KNEUER. Under the Call Home Act, the grants need to be awarded by the end of this fiscal year, so we hope to have grant guidance coordinated and distributed sometime in the summer.

Mr. HASTERT. Now, we talk about different technologies that are out there, and you have to make those decisions. What kind of different technologies are there?

Mr. KNEUER. Well, there are the Internet overlay technologies, there are a variety of different service-based solutions that provide very effective, efficient interim solutions, so as you have embedded incumbent infrastructure—Mr. Engel was talking about New York City, where they have got massive investments in the 400 MHz band. They have an ability to have gateways that would allow those 400 MHz systems to communicate with the 700 MHz systems or responding to 900 MHz or others that are those sorts of technologies. So there are a host of different solutions as we pursue immediate interoperable communications capabilities, and then as, in the ordinary course and the replacement of their infrastructure, moving on more towards——

Mr. HASTERT. I represent an area that has three old industrial cities with fairly sophisticated public safety, and then I go out in the rural areas that stretch from the Chicago suburbs all the way out to the Mississippi River, so I got a lot of little towns. Now, those little towns, a lot of times, come to the support of the big ones and vice versa, even though there is a lot of miles, but they also will interact with each other. When it was barn fires, you would get seven communities out there. We don't have barns anymore, but we still have those types of problems. Will those towns, if they pick out different technologies, will those technologies be interoperable? Or must they be?

Mr. KNEUER. As we are considering different technology solutions, the required condition of these different technologies is they all provide interoperable solutions in that they do not exacerbate the problem by closing off a jurisdiction from its neighbors or from others.

Mr. HASTERT. And you will be setting price or cost limits on these technologies, right? Especially community size.

Mr. KNEUER. We would not intend to set cost limits for jurisdictions. There are different solutions in different jurisdictions that are going to be dictated by the facts on the ground, but I don't believe our intent would be to say you can choose a solution but——

Mr. HASTERT. Well, it goes back to my friend from Nebraska, what he was talking about is, I have fire departments that sometimes compete in how much gold leaf they can put on their fire engines. It is a kind of competition. We don't want to get into that type of situation.

Mr. KNEUER. No.

Mr. HASTERT. I thank you. I yield back my time.

Mr. MARKEY. Gentleman's time has expired. The gentlelady from California, Mrs. Capps.

Mrs. CAPPS. Thank you, Mr. Chairman, and thank you, Mr. Kneuer, for your presence with us today. Mr. Kneuer, in my questions to the FCC Commissioners last week, I pointed out that the United States has fallen in world rankings of broadband deployment and access. According to the International Telecommunications Union, we are now 21st in the world in terms of digital opportunity. In 2001 we were in the top five.

But in your written testimony, you say that our Nation is still the world leader when it comes to high speed Internet penetration, pointing to a study that found that the United States had nearly 55 million lines as of September 2006, while South Korea had 14 million lines. Mr. Kneuer, South Korea has 49 million people, about one-sixth as many as we have in the United States.

Do you mean to say that it is acceptable that, according to the study you cite, there are 28 lines for every 100 South Koreans and 18 lines for every 100 Americans?

Mr. KNEUER. I think the question of our broadband status, there are a number of studies that show different rankings. I think it is important to keep them in context. We do, in fact, have the largest broadband marketplace in the world, with more people performing more functions and economic activity online in the United States than anywhere else. That is by no means to say that there isn't more work to be done and that we can't do better. Our goal has been to create an environment for a host of competitive actors in the marketplace, and I think we have been effective in doing that. I believe we have the most competitive broadband marketplace in the world. By making more spectrum available, we have licensed and unlicensed wireless competitors and others.

Mrs. CAPPS. I just want to say, again, repeat that I find it unacceptable. Maybe you don't, but I think it is amazing that the citizens of a country that is half as rich as ours, South Korea, on a per capita basis, are much more likely to have broadband access. I am going to follow that up on a different tack because I think we need to get to the heart of why this is. And I think that your agency is where the President and the rest of the executive branch should turn to for expertise on telecommunication and information policy issues so that good policy can be made.

During the 1990s, for example, NTIA alerted policy makers in the White House and raised public awareness, in every community,

about the "digital divide," and that was a real turning point in the efforts to get broadband to more people. The President has said that we should have "universal and affordable access for broadband" by this year. I think we would all agree with that goal. I surely do. NTIA, however, doesn't have good data as to who in our country has or doesn't have access to broadband.

And you don't know how much people are paying who are lucky enough to have it. Those are questions, I think, that the President, the executive branch, all of us, should have the right to have information about. How can you properly do your job, Mr. Kneuer, as principal adviser on these issues to the President, when you don't know, specifically, who has broadband access in the United States?

Mr. KNEUER. The challenge of coming up with that kind of really concrete data, the census would do these reports, and they were census reports, they were huge samples, and when the reports came out, they gave really good data on a snapshot in time about 2 years old. And given the rapid growth in this marketplace, trying to make policy decisions on data that old really doesn't make as much sense.

Mrs. CAPPS. Let me just follow that up. That gets to the point. Shouldn't the agency you head, NTIA, be doing more to map which areas have broadband and what kinds of broadband they have?

Mr. KNEUER. Doing that in a rigorous way, to go out and to canvass the country, you find that the data you collect, while authoritative, is outdated. So you will create a very good picture of what the broadband marketplace looked like 18 months ago.

Mrs. CAPPS. So you are saying that your agency doesn't have the capability of getting data in real time or close to real time?

Mr. KNEUER. For that sort of broad, concrete consumer activity, no. Not in the time that would be relevant for a decision maker.

Mrs. CAPPS. Do you think it would be a worthwhile goal to find a way to approach that?

Mr. KNEUER. We can always be more granular in our analysis on these, but in a marketplace where, for example, we added 15 million new broadband subscribers in just the past 6 months, any time you start to gather the data, the FCC's numbers come out every 6 months, and they are always considerably out of date. You have always got much, much more rapid activity in the marketplace.

Mrs. CAPPS. I would urge that your agency be the one to try to find a faster way to get this information. Also, the information that you just got, though it may be old, do you know how much people were paying for their access to the broadband, those that were surveyed, even if it was a little bit dated?

Mr. KNEUER. There is some market data on those sorts of things, yes, but again, it is not the level of granularity where you would say in the community the average price is.

Mrs. CAPPS. I would like to hear more information on this topic. Thank you.

Mr. MARKEY. Perhaps you could provide that for the record.

Mr. KNEUER. Sure.

Mr. MARKEY. Thank you.

Mr. MARKEY. The Chair recognizes the ranking member of the full committee, Mr. Barton from Texas.

Mr. BARTON. Thank you, Mr. Chairman. I sincerely appreciate you holding this hearing along with Ranking Member Upton. This is one of the more visible things that we have done in the last several years, the move to an all-digital network, and we are looking forward to February 2009, and it is important that we have an oversight hearing like this to see what the progress is. I want to ask unanimous consent, before I ask my questions, that I can submit several questions for the record for Congressman Radanovich, who can't be here today. He is a member of this subcommittee, but his wife is undergoing chemotherapy treatment and asked that I ask that he could submit some questions for the record.

Mr. MARKEY. Without objection, so ordered.

Mr. BARTON. OK. First of all, I want to commend our witness for getting the rules out on the proposed digital transition. How have those proposals been received now that they have been made public?

Mr. KNEUER. I have been very encouraged by the response of industry and affected constituencies on this. As I said, the manufacturers responded, essentially immediately, with plans to introduce boxes into the marketplace. The retailers who have an interest in participating in this program commended having certainty and the fact that the rules reflected a broad consensus. The broadcasters and the cable industry and the consumer electronics industry have all taken that opportunity to reassert their commitment to work within the framework that we adopted to make sure that the transition is a success, so I was very gratified by the immediate responses.

Mr. BARTON. Do you feel that the deadline for the transition on February 17, 2009, is on schedule? Do you think we are going to be able to meet that?

Mr. KNEUER. I certainly believe that everything we are doing in the program is on track to meet that deadline. And just to underscore again, the public policy benefits that flow from the conclusion of this transition are manifest and very, very significant, and they go well beyond the broadcast industry, by itself. There are the public safety issues, there is our future innovation and competitiveness in the wireless industry, deficit reduction, so it is absolutely critical that that date be met.

Mr. BARTON. As you know, in the reconciliation package that the House prepared, we had a number of information requirements in terms of public awareness and public displays to the old analog television sets. As they are being sold, the last ones off the shelf that got stripped by the Byrd rule in the Senate, so Mr. Hastert and myself and Mr. Upton have introduced a bill, H.R. 608, to put some of those requirements back in the law. Does your agency have a position on that bill?

Mr. KNEUER. I certainly believe what we have talked about earlier this morning. It is absolutely incumbent that the industries that support these consumers educate these consumers and be doing everything they reasonably and possibly can to reach out to their consumers to make them aware of this transition, so anything to that end is a good step.

Mr. BARTON. Now, in my last minute and 25 seconds, let us switch over to interoperability. I think it is fair to say that every-

body on both sides of the aisle is very disappointed and somewhat perplexed that as many years as it has been since 9/11/2001, we still have such a huge interoperability problem in this country. The Speaker was asking you some questions about that.

There have been some proposals, legislative and otherwise, to cut through all that and come up with one national system. Do you have a position on that issue, the broader issue? Is it time to cut the Gordian knot and have a federalized, preemptive national interoperability standard in communications—both in terms of spectrum and also in terms of equipment—so we can end this foolishness that every time we have some sort of a large, regional emergency, we find out that the various law enforcement and emergency response teams can't communicate for whatever reason?

Mr. KNEUER. Well, I think we have finally made significant progress in identifying the gaps. We have actually measured the problem fairly well now, and with the submission of the State plans that will be part of this program, we will have a real sense of how we can fill in each of those gaps. I think the conclusion of this program will go a long way towards raising the overall level of interoperability. I think we also need to remain mindful, however, that these are, at their core, local infrastructure that is put in place and the challenge——

Mr. BARTON. I am about to be cut off. But that is a good excuse 5 years ago. It is a good excuse 4 years ago. It may even be a good excuse 3 years ago, but it is not much of an excuse today because I can guarantee you, if there is another hurricane on the Gulf Coast or a big flood in the Midwest or earthquake in California, we are going to find out that the locals can't communicate, and they are going to blame Congress or the President.

And if they can't get their act together, I hope, Mr. Chairman, you have shown yourself to be a man of decisiveness and action. I am willing, on this issue, to be just as decisive and just as action oriented as you are. If it is the majority's wish, I am a Federalist and I don't believe in preemption, to enact a Federal preemption, every now and then it may be necessary, and this may be one of those times. With that, I yield back and thank you for holding this hearing.

Mr. MARKEY. The gentleman's time has expired. And to the gentleman from Texas, that is why we gave the billion dollars to NTIA and not to the Department of Homeland Security, so they could take action, put a plan in place. They are the experts.

Mr. BARTON. I might also point out, we have an oversight hearing going on downstairs. You guys seem to like to do everything at the same time, so I am going to have to run back down to participate in that, but I will try to come back up here.

Mr. MARKEY. The Democrats like to demonstrate their capacity to be interoperable. The gentlelady from California, Ms. Solis.

Ms. SOLIS. Thank you, Mr. Chairman. I want to go back to my question that I asked earlier, and basically, my understanding is that the Government Accountability Office has reported that 21 million households only have over-the-air television and millions of other over-the-air sets are located in cable and satellite homes. After February 17, 2009, no matter your income level or ethnicity, the only TV signal that you will receive will be digital, and during

the transition time, is it NTIA's responsibility to ensure that all consumers receive information about the coupon program to help consumers purchase low cost technology and to convert from analog to digital? And of the households that only have over-the-air television, as you know, about one-third are Spanish-speaking, and nearly half of those households earn less than about $30,000 a year. Do you really think that $5 million is enough funding to educate all consumers, including low-income, under-represented communities who may not even have adequate access to Internet access right now? Can you please give me an idea how you plan to address that? Also, if you have any efforts ongoing right now with respect to how you are going to deal with some of the Spanish speaking consumers that are now one of the largest populations that are seeking access?

Mr. KNEUER. We currently have a request for proposal for contracts that includes how best to use that $5 million for consumer outreach, and we want to make sure that our consumer outreach efforts are focused on those consumers who are going to be least likely to be reached by the broader industry outreach. There are different Federal standards that measure the foreign language population in a given area, and if that is over a certain level, you should make public information available in that language. The day that we released our rule, we translated our fact sheets and our press releases into Spanish and had them posted on the Department of Commerce's Spanish language Web site, so we are clearly aware of the issue and intend to do everything——

Ms. SOLIS. But what do you do about those households that don't even have access to the Internet? That won't be able to get on the Web site?

Mr. KNEUER. I don't intend to focus our education efforts on the Internet. That being said, the Internet is very powerful and we will take advantage of it, but we are going to——

Ms. SOLIS. But you just said that your advertisement in Spanish was placed on a Web site. So you are making big assumptions is what I am trying to get at.

Mr. KNEUER. Well, the only place we posted our press release was on the Internet for anybody, but we did it both in English and Spanish.

Ms. SOLIS. What about other efforts like radio, radio ads and things like that, I mean, really doing a campaign to reach those hard-to-serve consumers who, I think, would be dying to be a part of this, but because there is no material or data out there, you are going to miss a lot of potential consumers and customers that I think many marketers would really want to benefit?

Mr. KNEUER. I think that is right, and I think the final point you made, that marketers do have an interest in reaching some of these consumers, so I don't anticipate that they will be completely cut off from the ongoing industry campaigns.

Ms. SOLIS. Most Latinos do have telephones in their household. Would it be wise, maybe, to set up some kind of a hotline for them to have access to information of where they could call, a 1–800 number?

Mr. KNEUER. I would expect that our education campaign will include 1–800 numbers.

Ms. SOLIS. And again, would you have staff available, live bodies, not a recording, that would be able to translate or be able to talk to these folks?

Mr. KNEUER. These are all the issues that we would evaluate as part of the proposals that come in to us. Significantly, we are not going to vet this contract on a price basis only. We are looking for the best proposals, and those are precisely the kinds of issues that we would be looking for in the consumer education proposals.

Ms. SOLIS. I would love to be able to work with you closely on that and to make sure that we are really doing a good job of reaching out to the different coalitions, because it isn't just the Spanish speaking, but it is all the other immigrant groups. I also have a large Asian Chinese population that also has very limited access to the Internet and to many of these high tech equipment and gadgets that we now have.

Mr. KNEUER. Absolutely. And we are well aware that we are going to need to take advantage of a host of different agencies and associations and groups that do reach out to others. We would absolutely welcome working with you or any other member of the committee who has thoughts on community representatives who can help us in that effort.

Ms. SOLIS. Thank you.

Mr. MARKEY. The gentlelady's time has expired. The Chair recognizes the gentlewoman from New Mexico, Mrs. Wilson.

Mrs. WILSON. Thank you, Mr. Chairman. I think I have some similar questions to my colleague who just spoke, particularly on the public education campaign, and I wonder, maybe I mis-heard what she said. Is it correct that you only have $5 million dedicated to the public education effort?

Mr. KNEUER. Yes.

Mrs. WILSON. Well, in one media market in the 50th largest media market in the country, we spent half that in a 12-week period between August and November of last year, and I will admit that it was pretty intense, and you might want to spread that out, but I don't see how that is going to work. Can you kind of explain this a little more to me? How are you going to get the word out?

Mr. KNEUER. The $5 million we intend to focus on educating consumers about the existence of this program. As we have said before, the overall consumer education campaign is one that is going to be driven by the industries that serve those consumers. So the cable industry and the broadcast industry and the consumer electronics industry have introduced and launched a widespread public education, consumer education campaign. We intend to leverage our $5 million resource with that broader, ongoing industry campaign, so the overall education of consumers is going to be carried out, by and large, by the industries that serve those consumers.

Mrs. WILSON. I think the reality is those industry sectors are going to be marketing to those sectors that they really care about most, and frankly, the eyeballs that they care about are not necessarily the ones who are going to have the most trouble and most need for converter boxes. I mean, they are business people. That makes sense to me that they would be explaining this.

At the same time, if you are in the Navajo Nation or if you are really just listening to the over-the-air, I don't see that as a real

priority, as a business case, and I share the concerns of some of my colleagues that have been expressed here, and one of the main reasons that I voted against this bill is I think there are going to be a whole lot of people who are going to come home from work on the day these things get turned off in March or April 2009, I can't even remember the date, but I think it is before March Madness but after the Super Bowl, I think that is the way it ended up, and they are going to be really ticked because their TVs aren't going to work and they are not really going to know why and they are not going to know what to do about it, but I can tell you, my telephone is going to start ringing. I think we need to get serious about public education here, not just to the mass market eyeballs that they want to have come and watch the commercials for cars and everything else but to the folks like, in my district, we have one of the largest dependencies in New Mexico on over-the-air broadcasting of any market in the country, and I don't see evidence here that we are serious about this. And I think it is time to ramp this up and really focus on those who are going to need this, because right now I don't see any evidence that this is going to work. Thank you, Mr. Chairman.

Mr. MARKEY. The gentlelady's time has expired. The gentleman from Texas, Mr. Gonzalez.

Mr. GONZALEZ. Thank you very much, Mr. Chairman, and welcome, Mr. Secretary. And I know this course on the February date, which is, I guess, the Valentine's gift from the Federal Government to everybody that is watching TV out there, and I like the thought that we have some program in place, no TV left behind, but I am not sure that is going to work.

And we are concerned, on both sides of the aisle, because the impact, obviously, on our constituents—I keep telling people when these TVs go dark, that is going to be one heck of a welcoming committee I am going to have when I go back to my district, because no amount of publicizing what is going to happen is going to cover everyone. So we have to minimize, and it is really almost damage control.

But I will tell you now and I am going to associate myself with all the comments regarding the inadequacy of what is being done out there by the United States Government, not so much the private sector, because I think they are going to be pretty aggressive about it, but I don't think that we are meeting our own obligation. This is what I have said as far as what I have received because I am a Member of Congress. I have got the FCC telling me what is happening; I have got the National Association of Broadcasters, and they are pretty aggressive; I got my Crutchfield catalog explaining about the TV that I might be ordering from them.

But I haven't really seen any effort being made, and you would say maybe it is too early, but it is not too early. I mean, we really need to start preparing people so they understand. Now, certain individuals are going to be informed simply because they receive statements from cable or satellite as to what is happening. Broadcasters, those individuals that truly are receiving their TV signal over the antennae, over the public airwaves, I am not real sure how we are going to reach them. It is going to be a difficult one.

But nevertheless, I just simply don't think that we are doing enough.

By everyone's calculations, the monies that have been appropriated to provide the coupons will not be sufficient to cover the number of analog televisions out there, and that is a real concern, especially in my district, as well as my colleague, Congresswoman Solis, so having said that, I just don't see that in your remarks, and I apologize because I missed much of your testimony because I was somewhere else for a minute. However, I don't see that there is any initiative forthcoming from the administration to aggressively do its part.

I know the individuals that are going to provide the equipment are going to do such. I know cable and satellite and broadcasters and so on, but I just don't see that there is really a concerted effort that is going to result in what we would like to obtain. And I don't really have a question. I don't want you to think that this is purely criticism. It may be constructive criticism. Let us know what we can do, as Members of Congress, believe me, on our Web sites, in our newsletters, at our town halls. We are putting people on notice. We will do that, but it is not going to be enough.

In an area that is not related, obviously to that particular issue, there is a comment, I believe, in your testimony regarding efforts by the administration in making sure that we have broadband. You say the administration has also taken the lead to create technical standards that will allow the rapid deployment of broadband over power lines, BPL, while safeguarding existing licensees' services from harmful interference. I have not been able to attend all our committee hearings, but I think broadband over power lines, I remember one or two witnesses in the past year or two. What exactly are you making reference to, because that technology is not really promoted in any appreciable degree, so you are referencing exactly what?

Mr. KNEUER. Sure. Broadband over power lines is very promising technology, and for a long time, however, there was a concern that widescale deployments of broadband over power lines would represent an interference problem to radio systems. You send a broadband signal over an unshielded power line and it bleeds off, and it can cause interference. Significantly, there are 57,000 Federal radio systems in the bands that could be subject to that interference.

We conducted a study, using our laboratories in Boulder, to go out and measure all of the test BPL systems around the country, identified the potential for interference and confirmed that there was, in fact, a potential for interference but also went further in the study to show that that potential was one that could be very well understood, easily mitigated and worked with industry to put together saying if you deploy your system the following way, you shouldn't pose an interference concern.

That study was then incorporated into the FCC's rules, which created both now technical and regulatory certainty that BPL could be widely deployed in the marketplace, and I think we are seeing the results of that now. There have been significant announcements in Texas, as a matter of fact, of very widescale broadband over power line deployments.

I think the utility industry is finding the benefit of not just being able to provide the service but putting intelligence into the grid. They can better manage their underlying networks, so I would anticipate that we will see considerable growth in the BPL deployment as a very viable competitive third, fourth, fifth broadband access point into the home.

Mr. GONZALEZ. Yes. And I would join you in that effort because I just think in terms of how we provide it, I think the different manner or method is important. I have not really seen anyone aggressively approach this for whatever reason, and I was just kind of surprised.

Mr. KNEUER. We can share some of that with you.

Mr. GONZALEZ. I appreciate it. I yield back.

Mr. MARKEY. Gentleman's time has expired. The gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. Mr. Kneuer, it is good to have you here. Thanks for visiting with me earlier this year. A couple issues. Please don't deploy a grant program without interoperability standards. I think that is really the basic message that we have here. We have a very successful, through FEMA, the Fire Act grant and a lot of it is technology and radios and communication devices. Our fear is you have heard it. So I would just plead with you, that would be foolhardy and would really be frustrating for all of us here, so if there is one thing is the interoperability issue.

Issue two, I always get frustrated when my colleagues compare us to countries without size, scope and density relations. South Korea is 98,480 square kilometers, with a population of 48 million people. Pretty dense. Easy to connect. California is 411,048 square kilometers with 33 million people. That is a huge, a bigger challenge. And to compare apples and oranges and then take shots at you and California is just one State in the Union.

One of the most connected countries in this world is Estonia. I haven't checked the population of Estonia. They had no infrastructure. They are all cellular, high-speed Internet access. They do all their financial transactions. But they are there because they leapfrog technology, so in your defense, I think we are doing well, and sometimes I think these shots are unfortunate.

I want to go on to the set-top boxes. How many here have free over-the-air TV reception in their home? One. I mean, let me put it that way. How many are not connected either by direct satellite or cable? One, two, three, four. Now, we did this, Ranking Member Upton and I did this in—now, we would kind of expect to hear all of these wealthy, white collar professionals here—we were at a hearing with Bobby Rush on the South Side of Chicago, not known to be in this income bracket, on TV violence and we were in a school auditorium. We asked that same question, I don't know if you asked it, Freddy? There were 400 and some students. Four hundred students. Freddy, how many people raised their hands, saying three out of 400 in inner-city South Side Chicago, only three were receiving their signal——

Mr. UPTON. White Sox fans. And proud they are to be White Sox fans.

Mr. SHIMKUS. So that is why we got to keep these debates in perspective. Real people, real reception of signals, and that is why I follow up with this question. Secretary Kneuer, in 2005 the FCC data estimates that there are 50 million over-the-air homes and 94 million cable and satellite homes. Over-the-air homes tend to have two televisions which, by definition, are not connected to cable or satellite. Cable and satellite homes tend to have one television not connected to their pay service. According to broadcasters, 25 percent of over-the-air homes and 15 percent of cable or satellite homes will feel they need a subsidized box. If you crunch the numbers, that comes out to 21.6 million converter boxes. If that is the case, would the initial $990 million in the program cover the demand?

Mr. KNEUER. Yes.

Mr. SHIMKUS. OK. I want to end up on, if I do have time? And just highlight the .kids issue that Chairman Markey and I worked on years ago. It is still up and running. I think that shows some success because if it was not financial for NeuStar to do that, they had a pull-the-plug provision. However, it is not nearly deployed in the way in which the chairman and I would have hoped to. NeuStar is now lowering their price. What else do you think we can do to get full deployment?

I lowered my expectations. I now have a 14-year old son, and I think our original plan was 13 and under, pretty foolhardy. But I tell you, from my 4-year old, who started when this program started, and now he is 7, it is still a good way for a young child to feel that they are on the Internet and be safe. So what can we do to really encourage further deployment? And I will pledge whatever thing I can use to use the pulpit to help. I do like to put Corporate America and organized labor and all these groups that say they want to be helpful and good stewards on notice that they are not doing it in this provision. So I will let you answer that question.

Mr. KNEUER. I share your frustration with the progress and thank you for your leadership. I know this is something that you have been very interested in. You have come to the Commerce Department, and we have had forums to talk to folks about this. We have been working with NeuStar to lower the prices and to make it more of an attractive proposition for content providers to get on.

The Secretary of Commerce sent out a letter to, I don't know, I think it was 6,000 media CEOs, something like that and the number may be smaller, but it was a bunch, to say this exists, it is out there, you ought to participate. I think it is the bully pulpit reminding people, as they come in and are advocates before us and before the Congress, that this is a resource out there and it is important.

Mr. SHIMKUS. Mr. Chairman, I yield back the balance of my time.

Mr. MARKEY. The gentleman's time has expired. Thank you. The Chair recognizes the gentlelady from California, Ms. Eshoo.

Ms. ESHOO. Thank you, Mr. Chairman. Welcome, Mr. Secretary. Nice to see you again. Back to interoperability. Along with DHS, you are administering a billion dollar interoperability grant program, it has been mentioned before, for public safety. During the debate on the floor of the House on the 9/11 bill, and also when

you came to my office, we discussed it earlier this year, I raised my concerns that the interoperability grants are not solely focused on equipment that enables interoperability for voice communications among responders in the field, but also IP-based solutions, including grants for software, for middleware, for network-based solutions that enable the interoperable voice and data communications among individuals and organizations. I hope you haven't been asked this direct question before, and I apologize for not being here earlier to hear all of the questions asked of you; can you tell us, with some specificity, how you are shaping these grants?

Mr. KNEUER. The statute directs us to fund grants for communications systems.

Ms. ESHOO. So it is pretty broad.

Mr. KNEUER. It is broad enough, and there are certainly components of those systems that go beyond the radio frequency interface, the radio component.

Ms. ESHOO. Right.

Mr. KNEUER. So to the extent that a jurisdiction or a locality is pursuing an interim solution that includes an Internet based component and that Internet based component has software aspects to it, those would be eligible under the program.

Ms. ESHOO. Let me ask it another way. But will you be granting any grants that do not fit the description you just reiterated?

Mr. KNEUER. I would expect that the grants will go towards a variety of different solutions that reflect the variety of the different levels of problems, so there may very well be some solutions that come in that include, as part of the overall interim solution, a software component or an Internet-based component or what have you, so I would anticipate that there will be grants that fund those sorts of programs. There may be others that say we have completed the gap that we have with an additional suite of radios.

Ms. ESHOO. Well, I want to get back to something that Mr. Shimkus said—I think it was Mr. Shimkus—that said when these, if I heard him correctly, that as these grants go out and they are awarded, that they not be focused solely on just the equipment part of it. Otherwise, I think that we are not going to make the kind of progress that I think a lot of members see really must be made, so I keep beating the horse. I think you get the picture.

Mr. KNEUER. Absolutely.

Ms. ESHOO. But I think the instruments that you have at your fingertips really mirror what we are talking about. On page 3 in your testimony, you stated that the administration is committed to ensuring that the consumers have other options for broadband access besides cable and broadband and you also state that "when every mobile phone carrier is also a broadband service provider, incumbent providers will be forced to compete with lower prices and more innovation."

Two of the four national wireless carriers are owned, in whole or in part, by the same incumbent providers. The cable companies have a joint venture with a third national wireless company, and given this cross-platform consolidation, how does the administration plan to ensure that the scarce spectrum resources are used to achieve your stated goal of a third competitive choice for consumers?

Mr. KNEUER. Well, I think our spectrum policies have been focused on getting spectrum into the marketplace so that it can be a competitive alternative. While some of the large carriers, wireless carriers, are affiliated with landline carriers, they compete with unaffiliated carriers. Every wireless carrier is facing competition from at least three unaffiliated wireless partners.

They may not be in direct competition with their affiliated landline component, but that affiliated landline component is certainly facing competition from the unaffiliated wireless carriers, from the cable companies, from satellite companies, from broadband over power lines.

I think we are realizing a cross-platform competitive broadband environment in this country that is in stark contrast to the sort of vertical integration of the broadband platform in most of the rest of the world and it absolutely does bring increased competition, increased innovation and all of the other attendant consumer benefits.

Ms. ESHOO. Thank you, Mr. Chairman. I yield back.

Mr. MARKEY. OK. The gentlelady's time has expired. The gentleman from New York, Mr. Fossella.

Mr. FOSSELLA. Thank you, Mr. Chairman, and good afternoon, Mr. Secretary. Thank you for being here. And as someone, with my colleagues Mr. Engel and Mr. Upton, who helped to create the grant program, let me again underscore as someone who represents New York City the importance of interoperability and proceeding with the grants, but at the same time I recognize there are 50,000 public safety entities and 24,000 public safety wireless systems across the country.

We still have a fragmented system almost 6 years after 9/11, and I know there have been many attempts over the years to create the so-called national standard and always trying to balance where it is with respect to standards and technology. But the fact remains, do you think there should be or the question remains, do you think there should be a universal standard or a uniform standard for the entire country?

Mr. KNEUER. Well, I think standards-based solutions and having standards that individual public safety agencies and communities can build towards is the very vital part of the long range solution. If you look at the SAFECOM continuum on how we progress from, sort of, these disparate systems to tactical, interoperable communications and in the long-term come up with, sort of, completely interoperable communications.

The challenge, though, as you underscored, with the 50,000 different regions selecting a single national solution for them to pursue based on a Federal dictate, you run the risk of having, as an adverse consequence, localities turning off or turning in large pieces of existing infrastructure and replacing it unnecessarily, so certainly standards-based solutions are a key part of the long-term goal.

Interoperability across the country is expressed in the objectives of this program and all the efforts that we are undergoing, but you do have to balance that with the realization that there are different levels of infrastructure and capability in the ground in different areas and that trying to adopt a single solution to all of those doz-

ens and hundreds of thousands of different problems may not be the most effective.

Mr. FOSSELLA. But nevertheless, are we going to get into a potential stalemate in perpetuity? These are just local roadways that will never connect. There are some who suggest that that is equivalent to building a Federal highway system. Everyone has got a little road network in their own urban area, whether it is in New York City or the Mississippi River, at some point somebody has got to make the decision of either we are one country or we are not.

That if we have a regional catastrophe or a national catastrophe, we have the capacity to correspond with each other or we don't. And I just get this sense, and in your testimony, I think you said you finally have made substantial progress in identifying the gaps, which is worthwhile. I think the next question is well, how do we ensure that those gaps are closed soon before the next catastrophe?

Mr. KNEUER. That is the express intention of this program, is to make, as a condition of the award of the grant awards, demonstrate that you have got a plan to fill in those identified gaps. And while localities should have the flexibility to pursue the solution that meets their particular need, the precondition on that flexibility is whatever solution they do choose has to enable future and ongoing interoperability with neighboring regions and other regions. So it may be a different solution, but it is a solution addressing the same problem.

Mr. FOSSELLA. Do you really think that is going to be the potential solution? I mean, to what extent does New York City's metropolitan area extend? To what extent should New York City, that encompasses, say, Long Island and Connecticut and New Jersey, where does that responsibility end, and where does a small town in western Illinois end? I am just curious if the goal is a national interoperable standard or national interoperability ability to communicate, wherein does the local jurisdiction's responsibility end when attempting to obtain this grant?

Mr. KNEUER. Well, I think New York City is sort of the perfect example, that they have got billions of dollars of embedded infrastructure. They have been pursuing their own interoperability solution. It needs a Federal official in operating a grant to say actually, I am going to replace my judgment for yours on your interoperability solution, and you ought to do it this way. However, in achieving their interoperability solution, it is inherent in that solution that their network can now communicate with neighboring jurisdictions who would respond or a regional jurisdiction or a different agency within the same geographic area, so they are achieving those solutions.

Mr. FOSSELLA. OK. My time has expired. Thank you.

Mr. MARKEY. The gentleman's time has expired, although I thank the gentleman for pursuing that line of questioning. I think it is very helpful to us. Chair recognizes the gentleman from Washington State, Mr. Inslee.

Mr. INSLEE. Thank you. How many Americans do receive their signal over the air now?

Mr. KNEUER. Exclusively over the air?

Mr. INSLEE. Yes.

Mr. KNEUER. The estimates are around 15 percent. I have probably the best estimates here, but roughly, exclusively over the air, 18 to 20 million.

Mr. INSLEE. Eighteen to 20 million. How many public service announcements, under your plan, will that 18 to 20 million Americans see prior to this transition?

Mr. KNEUER. Public service announcements paid for by us?

Mr. INSLEE. Yes.

Mr. KNEUER. I have an estimate. But they will, by all reports, be bombarded with this information through the television and through other mediums as part of the broader industry public education campaign.

Mr. INSLEE. Well, how many by you?

Mr. KNEUER. I don't necessarily think that buying ad time on broadcast television, when the broadcasters are already devoting those resources to their own PSAs, would be an efficient use of the $5 million. That being said, we are working closely with the broadcasters so as they are engaging in that campaign and putting public service announcements on television, that those announcements will be referencing our program. I mean, that is the principal way we would expect to leverage this $5 million to a value many times more.

Mr. INSLEE. So you are not buying TV, then?

Mr. KNEUER. No.

Mr. INSLEE. OK. So do you have any sort of reference point of how many PSAs you expect Americans to see?

Mr. KNEUER. At this point, no.

Mr. INSLEE. Can you give me any estimate at all?

Mr. KNEUER. No.

Mr. INSLEE. See, now that is a little disturbing, because people up here, we run for office, and I can tell you, when your neck is on the line you figure out how many times people are going to see your message, and it is a little troubling to me, if you got 18 or 20 million Americans, that the guy in charge of letting Americans know how to do this can't give any estimate at all how often people are going to see this message.

Mr. KNEUER. I would certainly expect that is the level of marketing activity and that expertise. We will leverage some of that in the acquisition of this program, and as I said, I think the industries whose consumers are at stake and the industries that are performing this consumer education campaign are the most expert industries in the world in how to reach consumers and in those sorts of metrics on if you want to be successful how many times you reach somebody.

Mr. INSLEE. So as I understand it, you are pretty much leaving it up to private entities to decide how much Americans get information, is that pretty much what you are telling us?

Mr. KNEUER. We are going to rely very heavily on the impacted industries to perform the education of their consumers, yes.

Mr. INSLEE. Just speaking as one person, I think that is grossly inadequate to fulfill this responsibility to 18 or 20 million Americans, and if you think turning off TVs for people is not such a big deal, I will forward my calls to you when they come. I mean, I would really encourage you to be more scrupulous in trying to fig-

ure out what a minimum penetration level of this message is for those 18 or 20 million and find out a way that you can report to us what that is. Just relying on the hopes that the private sector is going to be able to do this to the right audience and not just the high-profile, high-income, Lexus-buying audience but everybody who deserves to get this message to figure out how to handle this. This is a public obligation. We are depending on you to do that, and I am not satisfied you are doing it at the moment.

Mr. KNEUER. Certainly, some of that expertise is what we are looking to acquire. I mean, the candid answer is that that expertise does not reside within the agency. Contracting for it is part of the program and it is included in our request for proposals.

Mr. INSLEE. What I would encourage you to do is to set a minimal standard of penetration, just like anybody running for public office in America from city counsel to mayor to President were to do and say we are going to get to that level and then figure out how to get there. I don't sense that you have done that yet. I think you are working on a wing and a prayer and a little too much optimism that this is all going to just sort of work out. And I can tell you, if there are only a million people who don't know about this and how to solve it, we are not going to give them John Shimkus's home phone to deal with it. We are going to expect the public government to deal with it. So I encourage you to rethink this. On the PSAs, will you have access for hearing impaired folks on your PSAs?

Mr. KNEUER. Yes, that would be my expectation.

Mr. INSLEE. OK. Thank you. I hope you can give us more information a little later.

Mr. MARKEY. Gentleman's time has expired. The gentleman from Washington State has raised many very important questions, and to the gentleman from Washington State and to everyone else, we are going to have a hearing next Wednesday with the industry officials and the consumer groups who are being tasked here with the responsibility of communicating, and I think they are going to catch quite an earful from the committee members and then I think we will be coming back to you again, Mr. Kneuer.

Chair recognizes the gentleman from Florida, Mr. Stearns.

Mr. STEARNS. Thank you, Mr. Chairman. I just want to make sort of a plug like my colleague from New York mentioned, about the interoperability, and we also have a lot of hurricanes and tornados in Florida, and one recently ripped through my district down in Lady Lake, and so this is an important area for us and I guess maybe you have answered this question, but have you given thought to the eligibility of satellite communications in the grant guidance for NTIA's interoperability program?

Mr. KNEUER. I think, as the events in the Gulf clearly demonstrated, that satellite components can be a very critical piece of underlying operability, and they can certainly be included in part of an interoperability solution, to the extent, as I said, a State or locality, in presenting a plan to fill in the gaps of their interoperability solution had a satellite component as part of that, it would be eligible for funding so long as it was enabled and was a component of the interoperability solution.

Mr. STEARNS. So that would be a yes?

Mr. KNEUER. Yes.

Mr. STEARNS. OK. Let me just move to a little bit, talking about this box that is going to be sold and the education. As I understand it, Berlin has already gone through this transition?

Mr. KNEUER. To my understanding.

Mr. STEARNS. And have you studied how successful they were?

Mr. KNEUER. Yes.

Mr. STEARNS. And did they have any problems? I understand it is small, but it is a demonstration that we can look to, to see how successful it was.

Mr. KNEUER. Well, the transition of that, anyway, is complete.

Mr. STEARNS. It is complete. And what was the set box cost for them? Just approximately.

Mr. KNEUER. I don't recall whether or not they were distributed or whether or not they had what the price level was on them.

Mr. STEARNS. I mean, I think it would be useful for your staff just to——

Mr. KNEUER. Yes, I think they were distributed to people who needed them.

Mr. STEARNS. So they were given free?

Mr. KNEUER. That is my understanding.

Mr. STEARNS. OK. And in their education program, did they start—perhaps you don't know the details, but it would be helpful for us, I think, to say here is a demonstration that has been successful, they did it for free. Who manufactured the box, do you know that?

Mr. KNEUER. No, I don't know.

Mr. STEARNS. No. In their education program did they do mailings or they did television?

Mr. KNEUER. I can get back to you on the broad strokes of what they did in Berlin. The one data point that I think is interesting in the Berlin exercise is that there were a very large number of set-top boxes that went unclaimed.

Mr. STEARNS. That were not claimed?

Mr. KNEUER. That were not claimed. Because consumers chose a different path to the transition that met their own needs without relying on the Government's offer to assist them.

Mr. STEARNS. And why would they not want their set box? They bought it through the supplier of the television?

Mr. KNEUER. I think, just as I would expect in the transition's conclusion in this country, consumers have a variety of choices on how they wish to affect that transition. You can either buy a digital set or a high definition set; you can subscribe to a service; you can avail yourself of this program and get financial assistance for a baseline functionality set-top box. You may go to the marketplace and find a set-top box that includes other components, a DVR or a DVD or something like that, so consumers are going to have a variety of options on how they affect this transition's conclusion that meets their particular needs. And I would suspect that the circumstance was similar in Berlin and that a large number of consumers chose a different path rather than the one that the Government was offering as a means of assistance.

Mr. STEARNS. I think the point I am trying to go to is just what you just made, is it the possibility, some people have complained

this $900 plus million is not going to be enough money but just as you pointed out, in Berlin, that if they are educated early enough, perhaps the consumers will make a selection where they won't need the set box and just like in Germany, not all of them were used, so through this educational process the consumer will make a decision, and he or she might buy a new high definition and say by gosh, I am not going to get the box, and there we go.

And somehow, I am just hopeful that the market and this whole idea of education will ultimately provide the consumer with a choice and he or she will make that choice and not rely upon the Government and then we might, in fact, not even need $990 plus million. That is my point.

Mr. KNEUER. I think there are compelling consumer reasons to make the complete transition to digital, to get a high definition——

Mr. STEARNS. We have seen it in Germany.

Mr. KNEUER. We are selling tens of million of digital and high definition television sets every year. Tens of millions of American households have already completed this transition and they are going to continue to do it over the next 2 years. That being said, this program serves as an option for those households that either require or wish the financial assistance, but if you look at the take rates of other transition options and you take the total number of sets that are out there and the likelihood that the take rate is low enough, that the billion dollars is sufficient, I think, is most of the current market data would suggest that the billion dollars——

Mr. STEARNS. Mr. Chairman, I ask unanimous consent just for 15 seconds to ask him one question.

Mr. MARKEY. Very quickly, please.

Mr. STEARNS. Thank you. Are there any other countries that have transitioned successfully, like the city of Berlin, either large cities or not?

Mr. KNEUER. I don't know of any countries that have completed the transition.

Mr. STEARNS. Large cities?

Mr. KNEUER. Berlin is the only one.

Mr. STEARNS. The only one. Thank you, Mr. Chairman.

Mr. MARKEY. Gentleman's time has expired. I think we should note that Berlin spent $1 million on one city. The program we have for America is $5 million for the whole country. In Berlin they sent a mailer to every home and put ads on all the mass transit, so the scale here, $1 million for one city, $5 million for our whole country of 300 million, it is just going to require us to continue to focus on it.

Chair recognizes the gentleman from Michigan, Mr. Stupak.

Mr. STUPAK. Thank you, Mr. Chairman. Apologize to everyone. I have been running back and forth. We have an oversight hearing going on downstairs. Mr. Kneuer, thank you for being here today.

I am concerned about the Memorandum of Understanding between your agency and the Office of Grants and Training with the U.S. Department of Homeland Security, that it will not adequately advance innovative ideas. And the administration's recent budget proposal just compounds my concerns. The budget, the way I understand it, reads or uses the NTIA funding to offset the administration's proposed $1 billion cuts in public safety grants.

So the administration's budget is completely contrary to Congress and Congress's intent for providing a new funding and new approach to the old issue of interoperability. We have been talking about interoperability ever since the Air Florida crash in 1982. So with the budget process here and this Memorandum of Understanding, I am fearful that the twin goals, more money and new ideas, interoperability will not work or will not become a reality.

So Mr. Kneuer, why do you think Congress gave your agency the grant program to administer and not the Department of Homeland Security right off the bat?

Mr. KNEUER. I would assume it was in some recognition of the communications expertise that we have within the Department of Commerce, but I would also point out——

Mr. STUPAK. So then why would you go to this memorandum? If you have the expertise, why would you shift it to the Department of Homeland Security?

Mr. KNEUER. Because the express guidance included in the management report was that we would work closely with the Department of Homeland Security on a number of areas. The Memorandum of Understanding with the Department of Homeland Security is largely a procurement of services. The ultimate decision making remains within NTIA, in the Department of Commerce. It is an acquisition of their grant making apparatus. It would be grossly inefficient for us to recreate a grant making apparatus for a period to run and expire.

Mr. STUPAK. Well, then what is your vision and goal, then, of the program, then, if you are just going to use them because they know how to do grant programs? So what is your vision, NTIA's vision, of how we are going to do this program here? It is $1 billion.

Mr. KNEUER. Our vision would be to give localities, States, the ability to leverage the most effective and efficient solutions possible to fill in the identified gaps in the scorecards that have been identified and the State plans that are going to be completed.

Mr. STUPAK. Where are the scorecards coming from? Have they been completed? Are they back to your agency?

Mr. KNEUER. These scorecards were completed and have been submitted to the Department of Homeland Security; we have reviewed them, as well.

Mr. STUPAK. So where is the biggest gap in interoperability based on these scorecards?

Mr. KNEUER. The scorecards identify gaps across the SAFECOM continuum, which includes governance and other issues that aren't explicitly related to the SAFECOM link. This program, however, is focused by the statute on the communications functionality.

Mr. STUPAK. OK. Will there be matching fund requirements?

Mr. KNEUER. There is a 20 percent matching requirement.

Mr. STUPAK. Will States like Michigan that have gone ahead and put forth, basically, statewide interoperability, will Michigan still be eligible to access this grant program even though they, the taxpayers, have gone ahead and tried to put forth interoperability in Michigan?

Mr. KNEUER. To the extent there are still identified gaps in the URASI regions and in the statewide plan that is submitted, yes, they would be eligible.

Mr. STUPAK. All right.

Mr. KNEUER. And I would also point out that those contributions that the States are making, those contributions should satisfy the matching requirement.

Mr. STUPAK. All right. In this memorandum it says NTIA, and I am talking about in cooperation with DHS, I am on page 4 of it in case you have it with you, identifies specific meaningful and obtainable investment goals for improving communications interoperability through this grant program. Could you explain that a little bit further, and how are you trying to meet that goal? It is on page 4, subsection (b).

Mr. KNEUER. I don't want to burn up more of your time while they are gathering the MOU so I have it in front of me, but if we can get to other questions.

Mr. STUPAK. All right. Well, while they doing that, let me ask you this. Are you familiar with CoCo Communications that is going to be on the second panel?

Mr. KNEUER. Yes, absolutely. Mark Tucker serves on my Federal Advisory Committee on spectrum.

Mr. STUPAK. What do you think of service-based software products such as theirs?

Mr. KNEUER. I think, as I said, with a lot of these solutions there are a host of new technologies that can solve this problem and that is why we want to make sure that the public safety community is aware of these efficient and effective solutions and that they have the eligibility to take advantage of them, but at the same time we need to be mindful and vigilant that we are making sure they are deploying effective, proven technology. I don't want firemen with a beta system responding to an incident. They need to know it is going to work.

Mr. STUPAK. Well, will grants be available to pay for these service based interoperable solutions today?

Mr. KNEUER. We are finalizing our grant—my expectation would be the report language tells us to do this in a way that is not inconsistent with the ongoing SAFECOM programs, but I want to be a complement to that and make sure that we go beyond that and look at the most effective, efficient solution, so I would certainly expect to try and meet those needs.

Mr. STUPAK. So your answer is yes, then?

Mr. KNEUER. Yes.

Mr. STUPAK. Thank you. Thank you, Mr. Chairman, for your time.

Mr. KNEUER. And I am sorry we didn't have this document. I am happy to follow up on the MOU.

Mr. STUPAK. Thanks.

Mr. MARKEY. Gentleman's time has expired. I may just ask you one final question. Why were the minority media ownership reports that the NTIA used to do stopped?

Mr. KNEUER. I think it was largely a recognition that that data is really the FCC's data and that is where it resides. What we have recently agreed to do with the Commission, the last report that we did sort of became the authoritative baseline of what the level of minority ownership looked like at that snapshot in time. We have now worked with the FCC collaboratively to say OK, let us use this

as a baseline, and now you can go to all of the changes in control, since the last one, and fill in the gaps so that there will now be a lasting living document that can be updated. Every time you have a change in control, you just update the existing database and you don't need to periodically start from scratch and create a new study.

Mr. MARKEY. OK. Well, we are going to be asking you to start up some kind of a program to make sure that we have accurate data working with the FCC that is usable by the committee so that we can have some idea of what the minority ownership is.

Mr. KNEUER. And that is the objective we are trying to meet with that collaborative effort.

Mr. MARKEY. We thank you, Mr. Kneuer, and we expect to be having you back on a frequent basis. You can obviously see the intensity of interest in your agency and the issues that you have responsibility for. With the thanks of the committee, you are now excused.

Mr. KNEUER. Thank you.

Mr. MARKEY. Thank you. Now we will move to the second panel, and the second panel is a very distinguished one. It includes Harlin McEwen, who has served in law enforcement for over 49 years. He is the chairman of the International Association of Police Chiefs Communications and Telecommunications Committee and serves as vice chair of the National Public Safety Telecommunications Council; Morgan O'Brien, who is the co-founder and chairman of Cyren Call Communications, which we will hear much more about shortly; Dr. George Rittenhouse, who has a Ph.D. in physics and a Ph.D. in electrical engineering and computer science. He was one of the driving forces behind the creation of the Wireless Emergency Response Team; and Mark Tucker, who is a lifelong technology entrepreneur, who started the first of four companies at age 18, focusing on developing software for the distribution industry. After analyzing the communications problems encountered by first responders on 9/11, Mr. Tucker launched CoCo Communications, which uses Internet protocol solutions to create interoperability between legacy systems and forward-looking systems. So we thank each of our witnesses on this panel for being willing to participate.

Mr. Rittenhouse, we are going to recognize you first for 5 minutes. If, Mr. O'Brien, you could pass that microphone down to Mr. Rittenhouse and Mr. Rittenhouse, if you could make sure that that microphone is on, we would appreciate it. You are now recognized for 5 minutes.

STATEMENT OF GEORGE RITTENHOUSE, SENIOR VICE PRESIDENT, TECHNOLOGY INTEGRATION, BELL LABS, ALCATEL-LUCENT BELL LABS

Mr. RITTENHOUSE. Good morning, Chairman Dingell, Chairman Markey, Ranking Member Barton, Ranking Member Upton and members of the subcommittee. My name is George Rittenhouse. I am vice president of technology integration for Bell Laboratories at Alcatel-Lucent, one of the world's largest suppliers of telecommunications and networking infrastructure. It is a pleasure to be here today and talk about a critical issue for our public safety community, namely interoperability.

We appreciate the efforts of the chairman and this committee to ensure that the 700 MHz commercial auction proceeds as quickly as possible. We also appreciate the steps the FCC has taken in reviewing the utilization of the upper 700 MHz band and ensuring its timely availability through the auction process. I have a brief opening statement, and then I look forward to answering any questions you may have.

Prompt deployment of a national interoperable mobile communications capability is essential for the public safety community to respond effectively to today's emergencies. This capability must include seamless interoperability across multiple jurisdictions and among all types of first responders, including police, fire, medical personnel and others and support advanced high-bandwidth data applications. Interoperability must also be accomplished cost effectively and use the public safety spectrum efficiently.

The deployment of an interoperable broadband network shared by multiple public safety agencies in the public safety 700 MHz band will achieve each of these objectives. It is important to note that such a network is already being successfully deployed right here in the National Capital Region, across 18 jurisdictions in Maryland, Virginia and Washington, DC. NCR is implementing a regional broadband wireless network in the 700 MHz public safety band.

These efforts demonstrate that it is possible, through the deployment of a single shared regional network, for multiple public safety agencies across multiple jurisdictions to achieve cost-effective broadband interoperability in a spectrally efficient manner.

Let me spend the next few minutes discussing three key ingredients to making this happen. Using the right spectrum, employing the right technologies and centralizing what are now disparate networks. The 700 MHz spectrum is ideal for this deployment. It is already allocated for safety use, thereby avoiding the need for lengthy regulatory proceedings. After the broadcast television licenses expire in February 2009, it will also be unused. As a result, the new network infrastructure can be deployed across the bandwidth without disrupting existing users and without requiring public safety officials to disregard what they have already put in place.

Now let me turn to the technology piece. By leveraging the economies of scale and the R&D investments of the massive commercial market, broadband technologies are extremely cost-effective in urban, suburban and rural deployments. Commercial broadband is uniquely suited to provide first responders with technically superior high-bandwidth data capabilities that are both interoperable and highly cost-efficient.

Compared with wideband solutions and other older technologies, broadband offers spectral efficiencies that approach the absolute theoretical limit, producing superior data rates, a longer range and higher user throughputs. As a result, broadband can carry more than 10 times the data than a wideband network with the same bandwidth. Quite simply, this enables more first responders to send and receive much more data than their current spectrum. Thus, with commercial broadband, public safety will benefit from decades of innovation, as well as substantial economies of scale.

Finally, regarding the network itself, this committee and our Nation's public safety community understand that as a Nation, we need to shift from the prevailing model of regionally coordinated, individually owned and operated public safety networks to networks shared across multiple jurisdictions. While the decentralized approach provides flexibility to individual agencies, this flexibility has had the unintended consequence of fragmenting the use of public safety spectrum and creates a patchwork of incompatible systems that has restrained the development of communications across the regions and across users.

The bottom line is that our Nation's first responders deserve immediate access to interoperable broadband communications capability. The best way to accomplish this goal is by ensuring that the public safety community has access to and the ability to deploy broadband technologies that are already available in the commercial marketplace. The FCC's recent waiver allowing NCR to bring broadband communications capabilities to our Nation's first responders and the public safety 700 MHz band is an important and productive step towards achieving this goal.

We would welcome members of this committee to see for themselves what we can accomplish today with commercially off-the-shelf available technology. I would like to extend, also, an invitation to visit Bell Laboratories and witness some of the advanced research behind this technology. With that, I am happy to answer any questions you may have.

[The prepared statement of Mr. Rittenhouse follows:]

TESTIMONY OF GEORGE RITTENHOUSE,

Good morning Chairman Dingell, Chairman Markey, Ranking Member Barton, Ranking Member Upton and Members of the Subcommittee. My name is George Rittenhouse. I am the vice president of Technology Integration for Bell Laboratories at Alcatel-Lucent—one of the world's largest suppliers of telecommunications and networking infrastructure. Thank you for the opportunity to be here with you today to speak about this issue, which is so critical to the support of our public safety community. I would like to thank the Chairman and this committee for your efforts to ensure the 700 MHz commercial auction proceeds as expeditiously as possible, as well as the FCC for the steps taken to date in reviewing the utilization of the upper 700 MHz band. As you may know, Bell Labs has a rich background in wireless technologies—having first invented the concept of cellular networks back in 1947, and continuing through today with a leading edge research and innovation program in all major areas of wireless networking. I have a brief opening statement, and then I look forward to answering any questions you may have.

Prompt deployment of a national interoperable mobile communications capability is essential to the ability of public safety agencies to respond effectively to emergencies. This capability must include seamless interoperability across multiple jurisdictions and among various types of first responders (e.g., police, firefighters, emergency medical personnel and others) and support advanced and high-bandwidth data applications. Further, such interoperability must be accomplished cost effectively while using the public-safety spectrum in an efficient manner. The deployment of an interoperable broadband network shared by multiple public safety agencies in the Public Safety 700 MHz band will achieve all of these objectives.

Such a shared network is being successfully deployed in the National Capital Region (NCR), which incorporates 18 different jurisdictions in Maryland, Virginia, and Washington, D.C. NCR is in the process of implementing a regional broadband wireless network in the Public Safety 700 MHz band. These efforts demonstrate that it is possible, through the deployment of a single shared regional network, for multiple public safety agencies across multiple jurisdictions to achieve cost-effective broadband interoperability in a spectrally efficient manner. Let me spend the next few minutes discussing three key ingredients to making this happen: using the right

spectrum, employing the right technologies and centralizing what are now disparate networks.

I. The Public Safety 700 MHz Band Is Ideally Suited to Accommodate Interoperable Broadband Public Safety Communications on a National Basis

As the committee is aware, the Public Safety 700 MHz band is ideally suited to support interoperable broadband communications. The spectrum already is allocated for public safety use, thereby avoiding the need for lengthy regulatory proceedings to identify and allocate appropriate spectrum resources. Further, after the broadcast television licenses expire in February 2009, it will be unused. As a result, new network infrastructure can be deployed across the bandwidth without disrupting existing incumbent users of the spectrum and without requiring public safety officials to discard that which they have already put in place. Moreover, 700 MHz spectrum offers favorable radio frequency propagation characteristics that enable enhanced coverage over large geographic areas as well as superior building penetration. This results in substantially lower deployment costs for wide-area deployments when compared with higher frequency public safety spectrum allocations, such as the 4.9 GHz band. In addition, the close proximity of the Public Safety 700 MHz band to commercial spectrum bands on which broadband technologies already are, or soon will be, deployed will facilitate the sharing of commercial network infrastructure and technology between first responders and the private sector, which has the potential to substantially reduce the public safety community's deployment costs.

II. Broadband Technologies Offer Superior Performance at a Lower Cost and Therefore Should be Adopted by the Public Safety Community for Nationwide Interoperability

Now let me turn to the technology piece of the equation. Most importantly, by leveraging the economies of scale and research and development expenditures of the massive commercial wireless market, broadband technologies are extremely cost effective in urban, suburban and rural deployments. Commercial broadband technologies are uniquely suited to provide first responders with technically superior high-bandwidth data capabilities that are both interoperable and highly cost efficient. Compared with wideband solutions and other older data technologies that have been considered by the public safety community for use in the 700 MHz band, broadband offers spectral efficiencies that approach the theoretical limit, superior data rates, long range and higher user throughputs. In addition, all commercial broadband technologies are inherently designed to offer enhanced voice and data interoperability, as well as backward compatibility across prior generations of equipment.

Increased Spectral Efficiencies. Broadband technology allows first responders to make much more efficient use of their existing spectrum. Specifically, broadband technologies enable all available channels to be used in every cell throughout a broadband network, i.e., frequency reuse of one, where the same radio frequency channel is reused across an entire network. As a result, a broadband network can carry more than ten times more data than a wideband network with the same bandwidth, thus allowing more simultaneous users to send and receive more data. Thus, broadband is ideally suited to accommodate the large number of first responders that are likely to respond to a major catastrophe. As a result of broadband's higher aggregate capacity, more data-intensive applications can be accessed by each first responder and a larger number of users can be supported in a coverage area than is possible with other wide area public safety wireless technologies. Moreover, the single-carrier frequency reuse enabled by third-generation broadband technologies eliminates the need for detailed frequency coordination between local, state, and regional jurisdictions.

Higher Data Rates and Throughputs. Broadband technologies also offer the high data rates required to support the advanced, data-intensive applications required by today's first responders. All current commercial broadband technologies offer reliable data rates in excess of 500 kbps. These data rates far exceed the capabilities of currently deployed public safety communications systems and are superior to other data technologies under consideration by first responders. Further, given sufficient spectrum resources, much higher data rates can be supported by the most recent generation of broadband technologies as new higher-bandwidth advanced applications are developed.

Turn-Key Interoperability. Seamless interoperability across both geographic deployments and multiple generations of technology are hallmarks of commercial broadband technologies. In fact, such capabilities are demanded by the commercial wireless market. Accordingly, first responders will be able to travel anywhere in the

country with confidence that their communications equipment will be fully compatible with the networks of other jurisdictions. In addition, because commercial broadband technologies provide a high degree of backward compatibility across prior generations of equipment, public safety agencies will be able to upgrade their communications equipment without stranding previously deployed equipment, disrupting existing users, or reducing overall interoperability. Further, broadband technologies provide native support of packet-switched Internet Protocol (IP) technologies and hence are interoperable with other IP-based communications technologies.

Leveraging Commercial Markets to Reduce Costs. Adoption of commercial broadband technology will enable the public safety community to benefit from the decades of innovation funded by the private sector, as well as the substantial economies of scale available to the commercial markets. Driven by the competitive need to deploy new, revenue-generating services, commercial wireless providers and their technology vendors continually push the cutting edge of wireless technology. By adopting commercial broadband technologies, first responders can leverage the private sector's research and development expenditures, thereby spreading the cost of innovation over a user base that is orders of magnitude larger than the public safety community standing alone. Not only can first responders leverage what commercial providers have developed to date, but they can continue to benefit from the ongoing technology improvements in the fiercely competitive commercial space by aligning themselves with commercial technologies. Also, the standardization required by commercial wireless providers results in massive economies of scale, which can dramatically reduce the cost of network infrastructure and each of the individual components that comprise user devices. Such continually decreasing costs have transformed commercial wireless service from a luxury item affordable by very few in the 1980s to a commodity enjoyed today by over 230 million American consumers. A substantial portion of these economies of scale will benefit the public safety community if commercial broadband technologies are adopted by first responders, thereby providing the greatest benefit to the American people for such efforts as search-and-rescue.

III. The Public Safety Community Should Shift From the Prevailing Model of Regionally Coordinated, Individually Owned and Operated Public Safety Networks To Networks Shared Across Multiple Jurisdictions

This committee understands, as do those in the public safety community, that as a nation we need to shift from the prevailing model of regionally coordinated, individually owned and operated public safety networks to networks shared across multiple jurisdictions. To date, first responder networks generally have been deployed and operated at the local level using a "stove pipe" model in which each local public safety entity manages its individual network and pool of frequencies. Such a decentralized approach does provide flexibility to individual agencies. However, this flexibility has had unintended negative consequences. Most notably, fragmented use of public safety spectrum and a patchwork of incompatible systems has restrained the development of interoperable communications across geographic regions and among various agencies. Further, it has resulted in inefficient use of spectrum. Accordingly, a shift to public safety networks shared across jurisdictions is necessary to promote interoperability.

Our Nation's first responders deserve immediate access to interoperable broadband communications capabilities. The best way to accomplish this goal is by ensuring that the public safety community has access to, and the ability to deploy, broadband technologies already available in the commercial marketplace. Such technologies offer a turn-key solution to the Nation's ongoing interoperability challenges, while also providing the public safety community with the ability to support the most advanced communications applications, i.e., greater spectral efficiencies, higher data rates, and higher throughputs. Further, by deploying shared networks using commercial broadband technologies, public safety can make the most efficient use of its limited financial resources. Such shared broadband networks can enable the public safety community to move from today's disparate and disconnected communications capabilities to an advanced, fully interoperable system seamlessly accessible by numerous agencies and across multiple jurisdictions nationwide. The FCC's recent waiver allowing the NCR to bring broadband communications capabilities to our Nation's first responders in the Public Safety 700 MHz band is an important and productive step towards achieving this objective.

Thank you for your time and attention. I appreciate the opportunity to share with you the work that Alcatel-Lucent and our partners are doing to secure the National Capitol Region. Additionally, I would like to invite all Members of this committee to come and kick the tires to see what we can accomplish today with commercially

available off-the-shelf technology. With that, I am happy to answer any questions you might have.

Mr. MARKEY. Thank you, Mr. Rittenhouse, very much. Next we are going to hear from, again, Mr. Harlin McEwen, who is the vice chairman of the National Public Safety Telecommunications Council. Welcome, sir.

STATEMENT OF HARLIN MCEWEN, VICE CHAIRMAN, NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL

Mr. MCEWEN. Thank you, Mr. Chairman and distinguished members of the committee for the opportunity to appear before you today and to talk to you about a one-time opportunity to dramatically improve public safety communications. I am nursing a cold, so I am a little gruff. I am the retired police chief of the city of Ithaca, New York, and I am also retired as a Deputy Assistant Director of the FBI in Washington, DC. I serve as the chairman of the Communications and Technology Committee of the International Association of Chiefs of Police, a position I have held for more than 28 years.

I also serve as the communications advisor for the Major Cities Police Chiefs, the National Sheriffs', the Major County Sheriffs' and today I am also speaking on behalf of the Association of Public Safety Communications Officials and the National Public Safety Telecommunications Council.

I am pleased to have the chance to discuss with this subcommittee an exciting new opportunity for Congress to take steps that will pave the way to reducing the dependence on local and Federal tax revenues to maintain modern public safety communications systems. That is a proposal for a 700 MHz nationwide public safety broadband network. This proposed network can become a reality only if Congress authorizes creation of a public/private partnership controlled by the public safety community to hold a nationwide license for 30 MHz of spectrum in the upper 700 MHz band and to further authorize public safety to deploy this network pursuant to a public sector/private sector partnership model.

The wireless voice systems that public safety personnel use today are among the most important tools they have to do their job in a safe and efficient manner. However, these systems have, in many cases, been under-funded, poorly maintained and generally not refreshed. As we look to the long-term future, we need to look at new and better ways to improve public safety communications. The implementation of a nationwide public safety broadband network can be the beginning of the end to the problem of public safety interoperability.

We have been asking for funding support for years to help us upgrade and replace mission critical land mobile voice systems that are built by different manufacturers, are of different vintages and are generally incompatible, and in many cases, not compatible, with the P25 standards, which are the only recognized national digital standards for land mobile public safety communications interoperability.

Those who argue that public safety already has enough radio spectrum to meet current and projected mobile requirements are

purposely ignoring the facts concerning public safety spectrum allocations and first responder communications requirements. The facts on spectrum allocations are that public safety has 47 MHz of spectrum that is usable for wide area networks, while the commercial allocations for wireless communications add up to 528 MHz, an amount that is more than 10 times that for public safety.

In regard to the Ninth Notice of Proposed Rulemaking recently issued by the Federal Communications Commission, we have many concerns about the concepts set forth in that proposal. That proposal suggests that a nationwide broadband network could be built using the 12 MHz of spectrum currently allocated for local licensing of public safety wideband systems. This would take away from local licensing control the spectrum long promised for use by local agencies.

In addition, we believe the proposal is seriously flawed by failing to acknowledge the need to have enough spectrum to attract investors to participate in the public/private partnership where private funds would be invested to build such a nationwide network.

I have dedicated most of my professional career to the advancement of public safety communications, and from that perspective I believe this Congress has an extraordinary time sensitive opportunity. Approval of the Public Safety Broadband Trust and a public/private sector partnership will catapult public safety to its rightful place in the forefront of communications capability, while at the same time delivering broadband service to communities, including the rural parts of America that continue to be bypassed by the commercial telecommunications services.

I hope you will share my belief that this is an opportunity that must be seized for the benefit of the entire American public and take quick action to enable it to happen. Thank you.

[The prepared statement of Mr. McEwen follows:]

WRITTEN TESTIMONY OF

Harlin R. McEwen

Chairman, Communications & Technology Committee
International Association of Chiefs of Police (IACP)

Communications Advisor
Major Cities Chiefs Association (MCC)
National Sheriffs' Association (NSA)
Major County Sheriffs' Association (MCSA)

Before the

SUBCOMMITTEE ON TELECOMMUNICATIONS AND THE INTERNET
COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES

March 22, 2007

INNOVATIONS IN INTEROPERABILITY

A One Time Opportunity to Dramatically Improve Public Safety Communications

Thank you, Mr. Chairman, and distinguished members of the Committee for the opportunity to appear before you today.

My name is Harlin McEwen and I have been actively involved in public safety for almost 50 years. My career has been in law enforcement and I also have been a volunteer firefighter. I am the retired Police Chief of the City of Ithaca, New York, and am also retired as a Deputy Assistant Director of the Federal Bureau of Investigation in Washington, DC. I serve as Chairman of the Communications and Technology Committee of the International Association of Chiefs of Police (IACP), a position I have held for more than 28 years. I also serve as the Communications Advisor for the Major Cities Chiefs Association (MCC), the National Sheriffs' Association (NSA), and the Major County Sheriffs' Association. I am the Vice Chairman of the National Public Safety Telecommunications Council (NPSTC) and am a Life Member of the Association of Public-Safety Communications Officials-International (APCO). Today I speak on behalf of all of these organizations.

As you are aware, citizens rely upon their local and state police agencies, sheriffs' offices, fire departments, emergency medical services, and other emergency

services like highway and public works and utilities to come to their assistance wherever and whenever needed. They respond whether it is a crime in progress, a civil disturbance, a building fire, a forest fire, an automobile accident, a health emergency, a natural disaster, or, as we learned on 9/11, a terrorist attack. Today, citizens assume that those first responders will get the call and will have the communications tools they need to address emergencies quickly and efficiently. Unfortunately that is not always true.

I first became a law enforcement officer in 1957 and in my career I have witnessed many changes and advances in law enforcement and public safety communications. However, the advances for public safety have consistently lagged behind the advances of commercial services, primarily because of lack of funding and spectrum.

I want to applaud the efforts of this Committee and the Congress in voting to clear the television broadcasters from the long promised 700 MHz spectrum. This will help us improve public safety radio communications, both operability and interoperability. The major cities and metropolitan areas of this country are still in desperate need of additional land mobile voice channels and are anxiously waiting for this spectrum to become available. Your efforts to designate $1 billion derived from the auction of radio spectrum for public safety communications are also very much appreciated by the public safety community and will be very helpful.

I am pleased to have the chance to discuss with this Subcommittee an exciting new opportunity for Congress to take steps that will pave the way to reducing the dependence on local and federal tax revenues to maintain modern public safety communications systems. That is a proposal for a 700 MHz nationwide public safety broadband network. This proposed network can become a reality only if Congress authorizes creation of a public/private partnership, controlled by the public safety community, to hold a nationwide license for 30 MHz of spectrum in the upper 700

MHz band and further authorize us to deploy this network pursuant to a public sector-private sector partnership model.

I have studied the issue of public safety telecommunications for decades. I have been actively engaged in the efforts of the Federal Communications Commission, other Federal agencies, state and local government entities and individual departments to identify law enforcement communications requirements and provide our first responders with the necessary tools to meet those needs. Substantial time and significant taxpayer dollars have been devoted to those efforts, yet in 2007 the public safety community still is far behind commercial users in terms of wireless functionality. Our public safety users who should have the best, most advanced, and most robust capabilities too often must rely on systems that are inadequate for their needs today, much less the expanded responsibilities with which they will continue to be charged in the future. Without a fundamental change in the way we approach emergency responder communications, specifically without allocation of the additional 30 MHz of spectrum and adoption of the approach embodied in the Public Safety Broadband Trust (PSBT) proposal, I see no reason to ever expect substantial improvement.

The wireless voice systems public safety personnel use today are among the most important tools they have to do their job in a safe and efficient manner. However, these systems have in many cases been underfunded, poorly maintained and generally not refreshed. As we look to the long term future, we need to look at new and better ways to improve public safety communications.

The need for more efficient public safety data systems is growing and this has become the focus of much of our attention as we look to ways for public safety to take advantage of Third Generation (3G) and Fourth Generation (4G) technologies.

The implementation of a nationwide public safety broadband network can also be the beginning of the end to the problem of public safety's lack of interoperability. We have been asking for funding support for years to help us upgrade and replace

mission critical land mobile voice systems that are built by different manufacturers, are of different vintages, are generally incompatible and in many cases not compatible with the P25 standards, the only recognized national digital standards for land mobile public safety communications interoperability.

It is critical to understand that this is a one time only opportunity to solve many of the public safety communications requirements of today and the future. We recognize this is not an easy decision for the Congress. You must choose between solving the public safety communications problem and making sure our citizens have good public services, or allowing the spectrum required by public safety to be auctioned to commercial companies who want to expand their services and increase their profits. It seems simple to us that by your approval of this important step for public safety you will be doing the right thing for America. It will begin to take the burden off the taxpayers who must build and maintain increasingly expensive public safety communications systems.

The benefits from a nationwide public safety broadband network as set forth in the Public Safety Broadband Trust proposal are as follows:

1. Broadband data services (such as text messaging, photos, diagrams, video conferencing, bio-metrics, incident white boarding, and streaming video) not currently available in existing public safety land mobile systems.
2. A hardened public safety network with infrastructure built to withstand local natural hazards (tornadoes, hurricanes, earthquakes, floods, etc) that would include strengthened towers and back up power with fuel supplies to withstand long term outages of public power sources.
3. Nationwide roaming and interoperability for local, state, and federal public safety agencies (police, fire and EMS) and other emergency services such as transportation, health care, and utilities.
4. Access to the Public Switched Telephone Network (PSTN) similar to current commercial cellular services.
5. Push to talk, one to one and one to many radio capability that would provide a back-up to (but not replace) traditional public safety land mobile mission critical voice systems.
6. Access to satellite services to provide reliable nationwide communications where terrestrial services either do not exist or are temporarily out of service.

Those who argue that public safety already has enough radio spectrum to meet current and projected mobile requirements are purposely ignoring the facts

concerning public safety spectrum allocations and first responder communications requirements.

The facts on spectrum allocations are that public safety has 47 MHz of spectrum usable for full mobility broadband while the commercial allocations for wireless communications add up to 528 MHz, an amount more than 10 times that allocated for public safety.

STATE AND LOCAL PUBLIC SAFETY SPECTRUM ALLOCATIONS

Allocation	MHz
VHF Low Band (25-50 MHz)	6.3
VHF High Band (150-174 MHz)	3.6
UHF Low Band (450-470 MHz)	3.7
800 MHz Band (806-821/851-866 MHz)	3.5
800 MHz Band (821-824/866-869 MHz)	6.0
700 MHz Band (764-776/794-806 MHz)	24.0
TOTAL PUBLIC SAFETY	**47.1**

COMMERCIAL SPECTRUM ALLOCATIONS

Allocation	MHz
Cellular	50
Broadband PCS	120
AWS	90
Broadband Radio Services	190
Lower 700	48
Upper 700	30
TOTAL COMMERCIAL	**528**

But even these numbers do not tell the real story or explain why existing public safety allocations cannot be used for broadband operations. Historically, the FCC has allocated individual channels, not contiguous channel blocks, for public safety use. These channels are immediately adjacent to channels allocated for taxicab companies, truck operators and other businesses. The channels typically are no larger than 25 kHz bandwidth and more frequently 12.5 kHz, or a tiny fraction of each 25 MHz cellular system authorization. This allocation approach has permitted numerous governmental entities to secure licenses for localized, individual purposes, but precludes the public safety community as a whole from consolidating enough contiguous channels to deploy 21st century broadband technology networks. There simply is not sufficient contiguous bandwidth to support the text messaging, building diagrams, photos, streaming video and other transmissions that will be as essential to law enforcement officers during these perilous times as the weapons they carry.

While the 24 MHz public safety allocation in the upper 700 MHz band is contiguous, even that spectrum is subdivided in various categories designed for

mission critical voice communications on both localized and state levels, as well as for wideband data applications. And that spectrum allocation, first promised to the public safety community in 1997, was intended to address the unmet needs and identified deficiencies in the spectrum resources available to public safety more than a decade ago. New technologies and new services have since been developed to respond to the ever escalating commercial appetite for more useful and sophisticated mobile communications tools and solutions – and appropriate new commercial spectrum allocations have been made available to commercial network operators to bring those improvements to their customers. Likewise, over the past decade, public safety's needs for access to these advanced technologies, services, tools and solutions has not stood still – although, unfortunately, the amount of appropriate spectrum allocated to meet them has.

Allow me to emphasize these points by example, as the contrast between the spectrum resources available to commercial wireless network operators and to the public safety community could not be more striking. To begin with, commercial cellular and PCS licensees have access to large blocks of contiguous spectrum. Their allocations were specifically designed to support system architectures and technologies that would accommodate vast numbers of customers. To compare the number of subscribers that can be served on a 25 MHz cellular network with the number of police officers that can share a 12.5 kHz bandwidth channel, or even multiple channels, is as meaningful as comparing the size of watermelons to grapes. Compounding the imbalance is the absolute amount of spectrum that has been made available for commercial use in comparison to that which has been made available for public safety uses as detailed above. Just last year, the Commission made another 90 MHz of spectrum of Advanced Wireless Spectrum available for commercial operations, again in large spectrum blocks and expressly authorized for commercial mobile broadband uses.

In fact, it is the success of the cellular/PCS model that has convinced us that public safety must have a 30 MHz spectrum block on which to deploy an advanced

technology broadband network. That model has persuaded us that the public safety community must join together in the Public Safety Broadband Trust, rather than seeking individual licenses for individually designed and deployed systems, if we are to achieve our objective: seamless nationwide roaming capability on a 21st century broadband 700 MHz network that is built and operated to satisfy increasing and demanding public safety requirements.

I stated previously that a nationwide broadband network solution is needed to address both spectrum and funding, and to address them both at the same time and in the same context. The latter is just as critical as the former and requires an innovative approach given the extraordinary costs associated with building and operating a truly nationwide broadband network. Unlike purely commercial systems that have the luxury of limiting coverage to areas of denser population and transportation corridors, public safety users must have communications capability wherever there are people or property to protect. This mandate has the important consumer benefit of ensuring that a broadband network designed to meet public safety needs will be available in suburban and rural communities that remain outside the areas of commercial broadband deployment. However, I have substantial experience in the traditional funding sources for public safety communications and see no realistic possibility that the necessary monies will be made available even to build, much less maintain, operate and routinely upgrade a nationwide network of this scope if dedicated to purely public safety requirements.

The only solution that we consider viable is a public sector-private sector partnership as proposed in the Public Safety Broadband Trust. Under this approach, the PSBT would acquire a 30 MHz license at 700 MHz and would enter into leases of spectrum usage rights with commercial operators who would build a nationwide public safety network that (1) would be paid for by commercial operators using excess capacity, not by the public safety community or the taxpayer; (2) would be licensed and controlled by public safety representatives to ensure public safety

priority access; and (3) would be refreshed with the latest technical improvements, funded by the commercial participants.

We do not support what some would call a "hosted" public safety network. While the term may have somewhat different meanings to different people, at its core it puts mission critical, emergency response communications in a position of dependence with respect to the host commercial provider. Moreover, it undermines or even negates the essential nationwide character of the network. With all due respect to commercial operators that might now express support for hosted systems, there is nothing in the over 20-year history of commercial wireless systems that would validate their reliability or availability for mission critical public safety needs. That is not an arrangement that the public safety community could endorse.

In regard to the 9th Notice of Proposed Rulemaking (NPRM) recently issued by the Federal Communications Commission, we have many concerns about the concepts set forth in that proposal. The 9th NPRM suggests that a nationwide broadband network could be built using the 12 MHz of spectrum currently allocated for local licensing of public safety wideband systems. This would take away from local licensing control the spectrum long promised for use by local agencies. In addition we believe the proposal is seriously flawed by failing to acknowledge the need for enough spectrum to attract investors to participate in a public/private partnership where private funds would be invested to build a nationwide network.

By contrast, the partnership outlined in the Public Safety Broadband Trust creates a symbiotic and balanced relationship, but one in which public safety always remains in control. It represents a win-win opportunity if sufficient spectrum is allocated to accommodate both public safety and commercial usage. Public safety cannot fund this network on its own, but also must be confident that the network is built to hardened public safety requirements with priority access that is adequate to respond to emergencies. Commercial operators will lease the spectrum and build the network to public safety specifications, but only if there is sufficient excess capacity to permit meaningful commercial service on a regular basis. The technical data

supports the conclusion that a minimum of 30 MHz is needed to serve these complementary requirements.

The many public safety organizations and agencies that have supported the PSBT approach recognize that it will require removing some of the 700 MHz spectrum that currently is scheduled to be auctioned. The PSBT proposal includes a plan to make the federal budget whole. The PSBT would raise $5 billion to pay the U.S. Treasury for the spectrum, using the revenues from the commercial users and the assistance of federal loan guarantees similar to those that have been made available to industries such as airlines, pipelines and automobile manufacturers. This financing arrangement would ensure that other federal public safety spending priorities, including the $1 billion for other public safety interoperable communications needs, would not be affected.

Let me add that I and other supporters of the PSBT also endorse the commendable work being done by local and regional organizations. To the extent their efforts bring about public safety communications improvements, it is important work that deserves support. But we must remain mindful that the results will be, at best, a patchwork of improved, but incompatible, non-interoperable networks at a daunting per unit cost. They are doing what they can in light of the regulatory and financial environment in which they must operate, but this nation can and must do better.

I have dedicated most of my professional career to the advancement of public safety communications. From that perspective, I believe this Congress has an extraordinary time sensitive opportunity. Approval of the PSBT and the public/private sector partnership will catapult public safety to its rightful place in the forefront of communications capability while at the same time delivering broadband service to communities that continue to be bypassed by commercial services. I hope you will share my belief that this is an opportunity that must be seized for the benefit of the entire American public.

Mr. MARKEY. Thank you very much, Mr. McEwen. Next we are going to hear from Morgan O'Brien, who is the chairman of Cyren Call Communications Corporation. Welcome, Mr. O'Brien.

STATEMENT OF MORGAN O'BRIEN, CHAIRMAN, CYREN CALL COMMUNICATIONS CORPORATION

Mr. O'BRIEN. Thank you. Good morning, Chairman Markey, Ranking Member Upton and members of the subcommittee. My name is Morgan O'Brien, and prior to forming Cyren Call last year, and Cyren Call is a combination of professionals from the wireless industry and from the public safety community, prior to that I was the co-founder of Nextel Communications.

I am here today to ask for your commitment to the creation of a 21st century state of the art broadband network for the first responder community across America, and here is why. Someone here in this room will need public safety to save their life one day, and possibly someone here in this room already owes their life or knows someone who owes their life to a first responder. And tragically, we probably all know someone who didn't make it, despite the valiant efforts of a policeman, a firefighter, a paramedic or some other emergency responder.

After having consulted with public safety for many years and listening to what they need, last April Cyren Call submitted a proposal to the FCC to create a nationwide network for public safety with heavy emphasis on providing a network that would put public safety in control, in the driver's seat; creating a funding mechanism to build and maintain that network and giving first responders not only a state of the art broadband communications network but a network that is based on a platform that would evolve to support future technological breakthroughs in telecommunications. In plain English, a system that ensures that public safety and first responders have all that they need when they need it.

The debate on the matter of public safety communications has been vigorous, and I think that is saying the least, over the last couple of months. But if we step back for a moment, I would like to draw your attention to a critical point. Among nearly all parties who have voiced an opinion of this subject, there is now broad consensus on the solution for public safety, and that collective wisdom, from a number of voices, agrees that (1) public safety needs must come first; (2) public safety must have a network that meets their communications requirements; (3) there needs to be one national licensee of that spectrum and that any solution must include collaboration between the public and private sectors.

For us it is truly amazing to have seen this evolution of thought and how the public safety community has united around this broad consensus. However, as you undoubtedly know, there are important points that have not been settled which you, as Members of Congress, must come to understand, as well. There is no way to guarantee that this network will be built according to the needs of public safety unless public safety is placed in a position of ultimate authority over the network. And the only meaningful way that this can happen is if public safety is made the licensee of the spectrum assets.

In addition, unless Congress is willing to pay for the construction of this network, the construction of the network, its maintenance and its evolution, and that will cost tens of billions of dollars; unless Congress is willing to pay for that, then I suggest you must include, in your deliberations, considerations that exceed providing just the spectrum. This matter is about spectrum and money; the money to pay for the network that public safety needs. And we believe the Public Safety Broadband Trust Proposal, which is complex and is laid out in detail in our testimony, addresses both of these important issues, the spectrum and the money, and if you don't have both, you don't have a solution.

Let me just take the last moment of my time and make the following point about tense. In the past tense, lives have been lost. Unqualified truth, lives have been lost. It is unanimously believed. Lives have been lost because of failures of public safety communications systems. Past tense, we can't escape it. Present tense, today as we sit here, throughout the country, public safety and the public that they are sworn to protect are at risk because these systems, despite our knowledge of the history of failures, continue to fail and continue to be far less than technology can provide today.

The future. The future is literally in the hands of this committee. This committee has a one time only opportunity to solve this problem. And don't listen to me. My voice is unimportant. The voice to listen to is public safety, which has, in an amazing way, formed a consensus behind this proposal and in a way that I have never seen. Chief McEwen and the other leadership of public safety has endorsed this proposal, this solution. I thank you.

[The prepared statement of Mr. O'Brien follows:]

Testimony of
Morgan O'Brien, Chairman
Cyren Call Communications
before the

Committee on Energy & Commerce

Subcommittee on Telecommunications and the Internet

United States House of Representatives

March 22, 2007

Good morning Chairman Markey, Ranking Member Upton, Members of the Subcommittee. My name is Morgan O'Brien. I am the Chairman of Cyren Call Communications Corporation. Prior to forming Cyren Call last year, I spent eighteen years as a founder of Nextel Communications, Inc. I served most recently as Vice Chairman of Nextel prior to its merger with Sprint Corporation.

Historically, Congress and the FCC have treated the communications requirements of the public safety and commercial communities as separate and distinct. As a result, public safety increasingly has been left behind while commercial service providers have revolutionized the telecommunications capabilities of the nation. We are left with a public safety communications system that is outdated and broken. It has already failed us. It has already cost lives. Now is the time for a new approach. As we face greater and more dangerous threats, the public demands a dependable, 21st century public safety network. We simply cannot wait any longer. The consequences of delay are increasingly dire.

The nation's emergency response providers are being asked to take on ever expanded duties with limited human and financial resources. Improved technology is key to enabling that workforce to keep pace with those responsibilities. This Subcommittee has repeatedly recognized the importance of broadband for the general public. However, the nation's most essential users, the individuals who protect our lives and property, also have an urgent need to access the almost mind-boggling capabilities that can be delivered on an advanced wireless broadband network. We cannot leave public safety out of these discussions any longer. It's time to put our first

responders at the head of the table on this issue. We should shift our focus to what is best for them and fashion legislation that maximizes the benefit for our public safety personnel.

On April 27, 2006, Cyren Call filed a comprehensive proposal with the FCC in which it recommended the creation of a nationwide, wireless broadband network for public safety and commercial use employing an innovative public private partnership and funding method. Our filing precipitated a much needed debate of the broadband communication needs of the public safety community and how those needs can be met. As of today, I think it is safe to say that we have agreement by all parties, including the FCC itself, on the need for a public safety broadband network. We also have consensus that the network must be a national network – with a national license for the required spectrum – and that the viability of this new network requires that it be a private/public sector partnership. Beyond that, there are still disagreements.
The first question is whether the public sector should be the licensee, and sub-auction the spectrum to private entities, as Cyren Call has proposed? Or should a private sector enterprise hold the license subject to public sector encumbrances and obligations? Another important question involves what and how much spectrum is required. Should we use half of the spectrum that we are recovering from analog television broadcasters, as we have proposed? Or should we try to rely, in whole or in part, on spectrum already assigned to public safety, even though it is generally recognized that it becomes very difficult, if not impossible, to find enough suitable spectrum for the network?

These, Mr. Chairman, are the questions we need to answer, and we need to answer them soon. We now have the technology to develop a public safety broadband network that is shared with

commercial services. The public safety community understands that technology and how it can be made to work for them. And it is becoming increasingly clear that our nation's security may depend on getting this done, and getting it done right. In testimony before this Subcommittee last week, Chairman Martin stated that the broadband revolution had ushered in the promised land of convergence for companies and consumers. There can be no excuse for leaving public safety behind in this revolution, particularly not in America. So we look forward to having this debate, and to being part of the solution to this problem. Right now, this year, we have a one-time historic opportunity to improve dramatically and permanently public safety communications. It will *not* come again. In my opinion, and as indicated by the public safety representatives who support this proposal, creating a shared 30 MHz governmental/commercial network at 700 MHz, described more fully below, is the most workable solution. If we adopt this approach we can and will prevent the communication failures of the past.

A shared network on 30 MHz of spectrum is the approach supported by the public safety community. Under this approach, the public safety community would create a single licensee to hold the spectrum and establish the parameters for the network. That entity would be a non-profit corporation, modeled on the Corporation for Public Broadcasting, called the Public Safety Broadband Trust Corporation. The Public Safety Broadband Trust would lease the spectrum to commercial operators using established FCC procedures. The commercial rents from the leases would fund the buildout of the network and the cost of obtaining the license for the spectrum from the FCC.

Perhaps the most controversial part of this approach is that it proposes to use half of the spectrum scheduled to be recovered from analog television services. That spectrum is currently scheduled to be auctioned for purely commercial use by the FCC. That spectrum was chosen for the Public Safety Broadband Trust because of its technical qualities and the fact that it is the best spectrum that is available and suitable for the successful creation of this network. Only by committing suitable spectrum can we bring the "promised land of convergence" to the people who put their lives on the line for ours.

We believe that this approach is the correct one, for the following reasons:

- First, those who protect our lives and property should be using best-in-class, state-of-the-art wireless technology, and all too frequently they are not. Both spectrum and financial limitations act as barriers to that objective.

- Second, the nation's public safety mobile capabilities must be upgraded as the FCC has reported on several occasions over the past few years. The public safety community's expanded responsibilities require a nationwide, interoperable broadband network at 700 MHz. Comments filed by thousands of public safety representatives in response to several recent FCC proceedings confirm that they embrace the idea of a 700 MHz broadband public safety network.

- Third, the realities of local, state and even federal funding constraints make it clear that the public sector – on its own – cannot finance a broadband network with the necessary

geographic coverage and technical capabilities. Indeed, earlier this month, the administration proposed sharp cuts in FY 2008 grants for first responders. And even if such a network could be built with taxpayer dollars – a daunting assumption that requires the availability of tens of billions of dollars for that purpose alone -- the ongoing cost of operating, maintaining and continuously upgrading it to keep pace with technological improvements vastly exceeds available public funding sources.

- Fourth, almost twenty-five years of commercial wireless deployment has also made it clear that no business case has emerged to induce commercial carriers to build out their networks beyond areas of relative population density, even though substantial spectrum has been made available for that purpose. Yet, the individuals in those communities still require police, fire, emergency medical and other vital governmental services. Moreover, they deserve access to the same wireless broadband technology that is transforming peoples' lives and their ways of conducting business in more urban markets.

The considerable time I have spent over the past years listening to police, fire, EMS and other emergency response providers, those serving rural, sparsely populated communities as well as those in major urban areas, has given me a deep appreciation for their truly unique communications requirements. Access to tomorrow's broadband devices will be essential, for example, to enable police officers to have real-time (streaming) video of a crime scene or major disaster as it unfolds. As a matter of principle, first responders must be given the tools, capability, and capacity to communicate what they need when they need it. Giving our public

safety personnel access to that kind of technology would be the 21st century equivalent to providing them with body armor.

Just as important, it is absolutely clear that the nation needs a secure wireless broadband network to meet the needs of the critical infrastructure community, upon which our economy and well-being depend. Their access to a secure broadband network, in times of national threat or emergency, is essential to our nation's security.

At Nextel, I had hands-on experience building a commercial wireless network from the ground up, while also converting operations from analog to digital technology. I know what is required to finance, deploy, operate, maintain and upgrade a top-quality, large-scale wireless network. Even with that experience, I do not underestimate the even greater challenge of building a nationwide broadband network to the more demanding public safety specifications and fully appreciate that the commitment, of necessity, is long-term. But it must be started now and started right. If we want to give public safety the advanced capabilities it needs and deserves, its wireless devices must be developed in conjunction with the right technology platform, not retrofitted to conform to a system built to less stringent commercial standards.

It is the combination of these factors, and our belief that first responders have a right to a communications system that meets the urgent public safety demands of the 21st century, that led to the creation of Cyren Call and the Public Safety Broadband Trust proposal. We've worked with the public safety community in developing the concept of a governmental/commercial shared 30 MHz broadband network at 700 MHz, the license for which would be held by the

Public Safety Broadband Trust. The Public Safety Broadband Trust would consist of representatives of a broad variety of public safety organizations, as well as local, state and federal governmental entities and groups. The Public Safety Broadband Trust would make available for lease to commercial entities usage rights to the licensed spectrum, in exchange for commitments from those entities to build out, maintain, operate and update the network to public safety's specifications and to make appropriate lease payments. In return, those commercial entities would have the ability to offer services to commercial subscribers on the network, using the excess capacity remaining after public safety's communications needs have been met – and, given the 30 MHz of spectrum deployed in the network, the excess capacity (in all but the most extreme public emergency circumstances) available on the network should be adequate to support a sizeable commercial subscriber base. The Public Safety Broadband Trust proposal contemplates that public safety entities would pay for their own subscriber equipment and for network access. However, they would avoid the infrastructure costs that require extraordinary bond or other taxpayer measures, measures that take years to effectuate and, at best, provide individual organizations with equipment that already may be outdated by the time it is deployed, and which then cannot be upgraded for years or decades without additional taxpayer funding. These are delays and shortfalls in technology that our first responders simply cannot afford.

Instead of settling for the status quo, the Public Safety Broadband Trust approach would mirror the commercial approach to network upgrades; public safety technology would be refreshed routinely in accordance with the demands of the consumer marketplace, although always consistent with the Public Safety Broadband Trust specifications as well. Public safety also would enjoy the cost economies of subscriber devices produced in volume for the broader

consumer market, economies that continue to drive down the cost of cell phones and other wireless products.

The result would be a nationwide broadband network available to serve both public safety entities and the general public. This network would be efficient, relevant, accountable, and – best of all – this network would serve the needs of first responders, above all else.

To be clear, this network would not replace existing public safety voice systems, but would provide access to a state-of-the-art mobile broadband network built specifically to public safety standards. On a day-to-day basis, the great majority of capacity would be devoted to commercial usage. While public and private wireless operations traditionally have been viewed as incompatible, the 21st century network contemplated in the Public Safety Broadband Trust proposal permits rational shared use. The first commercial subscribers are likely to be a combination of users such as utilities with more demanding public safety-like requirements and first adopters who want access to the most advanced technology available. However during emergencies, whether of a local, statewide, regional or even nationwide scope, increased access and capacity would automatically be dedicated for emergency response purposes on a scaled basis as dictated by the event. These situations are akin to seeing emergency responder sirens in our rearview mirror on the road – we pull over to the side to allow them to pass quickly. Of course, the rules of the road with respect to preemption would be established in advance by the Public Safety Broadband Trust so that those transmitting less critical communications would know to anticipate some disruption during those events. Those with vital transmissions, network users at the local, state and federal levels, would have immediate, seamless interoperability.

Public safety agencies operating on their own systems in other bands also could be provided with interoperability through IP-based gateway patches that would reside on the network and use its IP backbone resources.

The operation of this network would represent a challenge for commercial wireless veterans and will require careful oversight by the Public Safety Broadband Trust, whose members are not professional network operators. The legislation therefore permits the Public Safety Broadband Trust to hire personnel or enter into contracts with parties that bring skills critical to the network's success. Cyren Call believes it has the qualifications to take on important responsibilities for the network. However, I will state here for the record what I have stated publicly and repeatedly since filing the proposal with the FCC in April 2006: Cyren Call is not asking for a guarantee of **any** ongoing role with respect to the Public Safety Broadband Trust or this 700 MHz spectrum. If the Public Safety Broadband Trust desires assistance with managing the network, the process for selecting appropriate assistance should be competitive, transparent and fair. All such decisions will remain firmly in the hands of the Public Safety Broadband Trust, participation in which will be limited exclusively to public safety and governmental organizations.

Representatives of the nation's police and fire officers have explained to the Committee their critical need for broadband capability on a national scale. They have described some of the functions that cannot be introduced on their current radio systems, but that would be available on a 30 MHz broadband network.

Our first responders are telling us: the 24 MHz already is devoted – in many areas, especially the large population centers – to addressing and remedying public safety communications needs that have been in place for most of the past ten years. Finally gaining access to that spectrum is not enough; we need more to do more. We need more bandwidth to keep Americans safe. Will we ignore their calls, again? Will we allow another catastrophic failure of communication, as happened during Katrina, to occur again? When will we learn that we need to start listening to the people on the ground, the people who deal with the challenges of this issue every single day? They put their lives on the line for us and we owe it to them to put everything we can behind them.

Public safety officers are hampered today by not having access to features such as streaming video, large file downloads (e.g., building diagrams and architectural plans), remote database access and multi-media messaging capability. And these are the capabilities that we already know are needed. The history of telecommunications teaches us that the introduction of improved technologies spawns applications and functionalities even beyond those originally anticipated. Who could have anticipated in 1983 when the first analog cellular system was activated that subscribers in 2007 would be using their "phones" to take pictures, watch television, read e-mails and maintain calendars? It is not possible to envision today all of the uses to which emergency response providers and commercial subscribers will put this broadband network since the only limits will be those of entrepreneurial ingenuity. However, a compelling advantage of this public/private broadband partnership is that public safety at last will enjoy the ongoing technical developments that now are taken for granted by subscribers on commercial

networks. The forces of innovation and improvement that are at work in a competitive marketplace are powerful engines for driving technological advances.

Technical improvements on this order require an appropriate spectrum platform. Yet critics of this governmental/commercial shared network claim that public safety does not need additional spectrum on which to deploy a broadband network. They argue that public safety could meet its needs by using its existing spectrum more effectively.

The proponents of such criticism either are woefully misinformed or are willfully disingenuous about the reality of public safety spectrum allocations. Most public safety spectrum is allocated in individual 25 kHz or 12.5 kHz channels. These channels are but a fraction of the spectrum awarded to each cellular and PCS licensee and, even then, are not contiguous to one another. Under rules and procedures established by the FCC, they are interleaved with channels used by a variety of non-public safety entities and must coexist with them. Even if the FCC were inclined to displace all existing public safety operations on this shared spectrum, those individual channels could not be cobbled together to create a block of contiguous spectrum adequate to support a broadband network. Suggesting otherwise is a deliberate attempt to mislead Congress and this Subcommittee. The fact that this fiction originated from CTIA, the organization representing the wireless carriers who have made no secret of their appetite for the spectrum in question, speaks volumes.

The public safety community also has stated that even the 12 MHz of contiguous public safety spectrum at 700 MHz proposed by the FCC for a nationwide broadband network is entirely

inadequate for that purpose. They have determined that it would not provide enough capacity to accommodate all governmental broadband usage, much less provide excess capacity that would attract commercial partners.

It is for precisely these reasons that the public safety community has embraced the fundamental premise of the Public Safety Broadband Trust legislation – a partnership of governmental and commercial interests, joined by their common interest to create and operate this 30 MHz broadband network. This proposal is the only economically realistic vehicle for delivering broadband capabilities to local, state and federal public safety users as well as to the American people that live beyond the outposts of current commercial wireless deployment. If there is a better answer, one that addresses all of the technical and economic factors that must be integrated to produce a workable solution, its proponents should be here, before this Committee, so that their proposal could be tested for cohesiveness and validity.

The needs of public safety are urgent and immediate. They should not be deferred in the hope that this problem will resolve itself or that an easier solution will emerge. They most certainly should not be denied because of a previously enacted Congressional auction schedule, especially when reallocating a portion of the spectrum for this joint public safety/commercial use will neither prevent or delay the auction of the balance of the spectrum or put at risk any of the programs and allocations originally expected to be funded solely by auction proceeds.

Last week's oversight hearings also reaffirmed that this Subcommittee and the FCC consider ubiquitous broadband deployment one of the fundamental challenges for our nation's

telecommunications policies. There is no question that state-of-the-art broadband technology should be delivered to all of our citizens, not just those in the more densely populated communities that support purely commercial deployment. In fact, a growing debate centers on the role of the Universal Service Fund (USF) and how it can provide incentives for an expansive broadband deployment. Clearly, the USF requires some additional review in this regard as broadband does not currently fall under the auspices of the USF program. These concerns were also expressed last week by your Members and the FCC leadership.

The shared governmental/commercial network proposed in the Public Safety Broadband Trust legislation represents a solution that requires neither additional governmental incentives nor USF monies. Chief McEwen has explained the financial structure of the Public Safety Broadband Trust legislation. He has described how the federal treasury will be compensated for the 30 MHz of spectrum that would be allocated to the Public Safety Broadband Trust rather than auctioned.

The success of this approach is dependent upon two factors. First, the network must be conceived, organized and operated as a nationwide system to assure that operations in more commercially attractive markets such as Los Angeles and New York will be paired, either physically or financially, to enable construction and operation of the same network, providing the same broadband capabilities to public safety personnel and residents, in rural areas of California, Kentucky, Michigan, Mississippi, Nebraska, New Mexico, Oklahoma, Oregon, Tennessee and Texas. The network must operate on the principle of coupling access to prime spectrum usage rights in commercially desirable markets with the obligation to build and

operate, or to contribute to the construction and operation of, the network in more sparsely populated and underserved markets. If not, it will be bound by the same economic barriers that, to date, have defined the geographic coverage of commercial wireless systems. Indeed, one of the Public Safety Broadband Trust's greatest challenges will be balancing public safety coverage requirements with the implacable economic realities of network costs.

Second, there must be sufficient capacity to support governmental usage while still attracting commercial interest. The former dictates that the network be built to hardened public safety specifications, substantially beyond the requirements of a typical commercial system, and that it have truly nationwide coverage through a combination of terrestrial and satellite service. The cost of deploying such a network is substantial. The commercial operators who will be building, maintaining, operating and improving it pursuant to their lease arrangements with the Public Safety Broadband Trust must be confident that there will be sufficient commercial capacity to support significant usage by a commercial customer base large enough to justify their investments.

Let me share with you a summary of the analysis that suggests 30 MHz is the **minimum** needed to support a viable network of this scope.

- Terrestrial Coverage Cost: Public safety must provide services wherever there is public to serve. The proposed nationwide public safety broadband network is assumed to require a terrestrial build to 99.3% population coverage. The favorable propagation characteristics at 700 MHz help reduce the costs of network construction, operation and

maintenance *vis-à-vis* building out in a higher band, but even with the 700 MHz coverage advantages, it still is estimated that approximately 37,000 cell sites will be needed to achieve this level of extensive, beyond commercial coverage, terrestrial network footprint.

- Satellite Coverage Cost: Although the terrestrial buildout would cover 99.3% of the population, approximately 35% of the nation's land mass would not receive service from terrestrial sites. To ensure that public safety providers and the general public scattered throughout these sparsely populated areas nonetheless would have coverage, and to guarantee a level of nationwide redundancy in the event of a catastrophe along the lines of Hurricane Katrina, satellite coverage will be an essential part of the network. Both terrestrial and satellite capabilities would be built into handsets so that emergency response providers will develop a full familiarity with both as part of their day-to-day radio operations.

- Hardened Network Cost: The occasional dropped call or network outage is an inconvenience, not a catastrophe, for a commercial subscriber. When a police officer or firefighter or EMT loses communications, a life may be lost. Because of the responsibilities its personnel shoulder, public safety agencies require their communications systems to be built to significantly higher standards of reliability and redundancy than are the norm in commercial networks. Each of these elements adds cost to the network.

- Operational/Maintenance/Upgrade Cost: Economic analyses often focus on the cost of initial network deployment and fail to calculate the very substantial ongoing expenses associated with operating, maintaining and upgrading wireless systems. In fact, those costs can dwarf buildout expenses even when the upfront investment is significant. A 37,000 plus site network providing advanced capabilities to tens of millions of public safety and commercial subscribers will have very significant operational and maintenance costs. Refreshing the network with technology upgrades as dictated by the marketplace and consistent with Public Safety Broadband Trust specifications will require additional financial commitments on the part of the commercial operators.

- Estimated Usage: The history of wireless communications is that subscriber usage invariably exceeds estimates. The spectrum efficiencies gained when improved technologies are introduced permit new applications that themselves prompt additional system utilization. The impact on network usage when public safety leapfrogs from voice-centric communications to streaming video and other bandwidth-consuming applications will be extraordinary. And the data applications that drive broadband usage will only expand once this next generation network is deployed. The viability of the network will depend, among other factors, on ensuring that it has sufficient capacity to support these more capacity-consuming applications while maintaining a public safety grade blocking rate.

- Required Rate of Return: Commercial operators have a financial obligation to their investors and/or shareholders. The potential rate of return associated with the shared

governmental/commercial network described herein must justify the investment required to fund the elements identified above. This requires that the network those operators commit to build, operate, maintain and upgrade will generate capacity that is adequate to accommodate local, state and federal government usage with enough excess capacity to support an economically remunerative commercial subscriber base as well. There is no viable business case for a shared 12 MHz nationwide broadband network. 30 MHz is the minimum allocation that will satisfy this purpose.

By scheduling this hearing, this Committee already has demonstrated its seriousness of purpose with respect to public safety communications requirements. It has been apparent for some time that the traditional response to a worsening situation - piecemeal financing of individual, incompatible systems serving individual needs - is prohibitively costly to taxpayers and does not address what clearly is a systemic problem.

The solution endorsed by the public safety community, creation of the Public Safety Broadband Trust and the assignment to it of a license to 30 MHz of 700 MHz spectrum that is particularly well-suited and designated specifically for deployment of a nationwide, advanced technology, interoperable, and secure wireless broadband network shared by governmental and commercial users, represents a unique opportunity to address both public safety and rural broadband needs. But time is not on the side of those who support this initiative. Its opponents recognize that actions taken by prior Congresses mean that the clock continues to tick down toward the auction deadline for this 700 MHz spectrum. A failure to act promptly will eliminate this solution by

default and rob Congress of the opportunity to engage in reasoned decision making on this vital national issue.

I urge Congress to embrace the comprehensive approach set out in the Public Safety Broadband Trust legislation and endorse a public/private partnership that will deliver wireless broadband service to all of the American public and provide public safety with the telecommunications capabilities needed to protect the safety of our citizenry. If your life or the life of anyone you know has been saved by a first responder, you know the importance of what we're discussing today. They show up to do their jobs, no questions asked. Now it's time to do yours. We put our faith and trust in our elected representatives to make the right decision, to put the health and safety of the people ahead of the lobbyists and special interests who have their own priorities.

Just as our first responders are accountable for the trust you place in them, you must now demonstrate your accountability for the faith they've placed in you. The consequences of the wrong action or of inaction will weigh heavily on each and every one of you. I implore you, on behalf of the first responders and on behalf of those they work to save and protect, to act correctly and to act quickly.

Mr. MARKEY. Thank you, Mr. O'Brien, very much. Our next witness is Mr. Steve Devine. He is patrol frequency coordinator for the Missouri State Highway Patrol and the Communications Division, and he is chair of the National Association of Regional Planning Committees. Welcome, sir. Whenever you are ready, please begin.

STATEMENT OF STEVE DEVINE, PATROL FREQUENCY COORDINATOR, MISSOURI STATE HIGHWAY PATROL COMMUNICATIONS DIVISIONS AND CHAIR OF THE NATIONAL ASSOCIATION OF REGIONAL PLANNING COMMITTEES HIGHWAY PATROL, GENERAL HEADQUARTERS.

Mr. DEVINE. Good morning, Chairman Markey, Ranking Member Upton and members of the committee. Thank you for providing me the opportunity to share my thoughts today on the important topic of communications interoperability and how important it is to our Nation's first responders. I have been employed by the Missouri State Highway Patrol in their Communications Division for over 21 years and serve as their patrol frequency coordinator. My main duty, at the State level, is to support the communications needs of Missouri's first responders, coordinate their use of radio spectrum and promote the cause of effective spectrum management and regional planning throughout the State.

Missouri, like many other States, has diverse public safety communications needs due to sparsely populated rural areas and heavily populated urban metropolitan areas. It is from this experience that I hope to convey to you some of the reasons public safety interoperability is so difficult to achieve, why we are where we are today with regard to interoperability and immediate cost-effective steps that can be taken to further this goal. There are three points I would like to share with you today that Missouri thinks can be important to furthering interoperability.

First, flexible software-driven technologies are on their way to assist in repairing some of the legacy disparate frequency band allocations that currently exist in public safety. Public safety radio licensing and spectrum acquisition can be a complicated process with many choices. Actually, many feel that there are too many choices for local agencies when it comes to meeting their communications needs and having that number of choices has contributed, to some degree, to a lack of interoperability.

While agencies may have coverage requirements that are dissimilar, if they build systems in different radio bands today they would not be able to communicate with each other without additional tools. In addition, agencies strive for, as mentioned earlier, operability initially in their communications goals, which is the ability for them to communicate effectively with their own personnel before they even consider what agencies around them are doing.

With multiple radio frequency bands to choose from, quite often the choice for each frequency band an agency builds their communications needs on is based on cost and historical perspective and not necessarily on what band would be the most technically suitable or one that best promotes interoperability within a community. This process leads to the creation of independent, stand-alone networks that cannot intercommunicate and islands of non-inter-

operable systems operating on disparate bands, which lead to the inability of first responders within a community to communicate.

There are at least nine existing public safety radio bands that can be licensed on today by public safety. In some instances, agencies that use the same band as another can also be obstructed by a manufacturer's proprietary protocol, blocking agencies from communicating with each other when necessary. Hopefully, the acceleration of the Project 25 standards process will eliminate the proprietary issues and result in clearly defined terms for what the interoperability platform should be and the new frequency agile software based radios can soon be utilized as a tool to bridge existing gaps between frequency bands.

While both these issues can be addressed, there will be no rise in the interoperability quotient within these communities using these devices unless they are accompanied by an overarching strategy and a regular interoperable dialog at the Federal, State, county and local level. The Department of Homeland Security has rightly required statewide interoperability plans to be developed and provided to them by the fall of this year from each State and territory. The requirements for such plans is a much needed move in the right direction, since any nationwide interoperability plan using the system of systems approach will really become a national book, with each State and territory providing its own chapter of that book.

These plans will begin to provide a snapshot of the overall national interoperable landscape that is long overdue. No one initiative can provide more of the information required in facilitating interoperability than the Federal Government requiring each State to document and make available its interoperable vision and corresponding communications initiative. This national architecture can have several benefits. It can require local agencies to acknowledge a State's wide area strategy when applying for grant funding and also provides them information as to what communications initiatives their neighboring communities utilize.

In Missouri, for example, with Missouri having eight adjacent States, it is critical Missouri's plan be shared with its neighboring States: Illinois, Kentucky, Tennessee, Arkansas, Oklahoma, Kansas, Nebraska and Iowa, to ensure across border interstate response and to acknowledge differences and consistency between bordering agencies. The NTIA, with support from the Department of Homeland Security, should also provide State spectrum management training consistent with conclusions reached from a June 2004 NTIA report that identified the lack of prioritization on public safety spectrum planning at the State and local level.

Achieving a degree of interoperability we all feel is necessary requires planning and long-term commitment, accompanied with responsible and realistic equipment purchases. Interoperability is as much a human problem as it is a hardware problem. In the past, NTIA provided State spectrum management training, which is no longer offered to State and local users but remains in place to provide spectrum management to developing nations. In many areas, providing States this training will allow good, consistent interoperable best practices to be distributed across the Nation and will lay

the foundation necessary for interoperable communications to flourish within a long-term interoperable strategy.

Public Safety Interoperable Communications Grant Program funding is dedicated to interoperable communications and should be dispersed to local agencies only after it has been proven and agreed upon by both the State and DHS that the application works with and recognizes the same goals and objectives consistent with the respective State interoperability plan.

With the public safety grant awards due by September 30, and the States required to submit plans at the same time, there is a fear in the public safety communities there will not be sufficient time to ensure the applications submitted with the wide area plan developed in that State.

I know I am out of time. Thank you, Mr. Chairman. I hope the rest of my testimony can be submitted.

[The prepared statement of Mr. Devine follows:]

Statement of Stephen T. Devine
Missouri State Highway Patrol

Prepared statement for House Committee on Energy and Commerce, Washington DC

March 22, 2007

Good Morning, Chairman Markey, Ranking Member Upton and Members of the Committee. Thank you for providing me the opportunity to share my thoughts today on the important topic of communications interoperability and how important it is to our nations first responders.

I have been employed by the Missouri State Highway Patrol Communications Division for over 21 years and currently serve as Patrol Frequency Coordinator with its Communications Division. I also chair the Missouri Statewide Interoperability Executive Committee (SIEC), a body formed in 2001 at the recommendation of the Federal Communications Commission to promote the implementation and administration of 700 MHz interoperability channels as well as other interoperability issues. My main duty is to support the communications needs of Missouri's first responders, coordinating their use of radio spectrum, and promoting the cause of effective spectrum management and regional planning throughout Missouri. Missouri, like many other states, has diverse public safety communications needs due to sparsely populated rural areas and its heavily populated urban metropolitan areas. My position has grown to one of an overall public safety communications resource for

Missouri, sponsored by State Government and I have peers across the country providing the same service to the first responder community in their states. It is from this experience that I hope to convey to you some of the reasons public safety interoperability is so difficult to achieve, why we are where we are today with regard to interoperability and immediate cost effective steps that can be taken to further this goal. There are three points that I would like to share with you today that Missouri thinks can be important to furthering interoperability.

1. **First, flexible software driven technologies are on their way to assist in repairing some of the legacy disparate frequency band allocations that currently exist.**

Public safety radio licensing and spectrum acquisition can be a complicated process with many choices. Actually, many feel there are too many choices for local agencies when it comes to meeting their communications needs and that having the number of choices has contributed to a lack of interoperability, in some cases. While agencies may have coverage requirements that are dissimilar, if they build systems in different radio bands they would not be able to communicate with each other without additional tools. In addition, agencies strive for "operability" initially in their communications goals, which is the ability for them to communicate effectively with their own personnel before they ever consider what agencies around them are doing. With the exception of regional planning committees established by the FCC to manage locally spectrum use in the 700 and 800 MHz bands, today's licensing and frequency coordination process requires no input from the applicant as to their long-term communications strategy or how they

intend on talking to neighboring agencies. With multiple radio frequency bands to choose from, quite often the choice for which frequency band an agency builds their communications needs on is based on cost and historical perspective and not on what band would be most technically suitable or that best promotes interoperability within a community. This process leads to the creation of independent, stand alone networks that cannot inter-communicate and "islands" of non-interoperable systems operating on disparate radio bands which lead to the inability of first responders within a community to communicate with each other. There are at least nine (9) existing public safety radio bands an agency can be licensed on today. In some instances, agencies that use the same band as another can be obstructed by a manufacturer's proprietary protocol, blocking agencies from communicating when necessary. Hopefully, the acceleration of the Project 25 standards process [1]will eliminate these proprietary issues and result in clearly defined terms what the interoperability platform should be and new frequency agile software based radios, capable of operating on multiple public safety frequency bands, can soon be utilized as a tool to bridge existing gaps between frequency bands. While the current paradigm in which we find ourselves can be mitigated somewhat by the introduction of these flexible devices and the completion of the standards development process, there will be no rise in the interoperability quotient within communities using these devices unless they are accompanied by an overarching strategy and a regular interoperable dialogue at the Federal, State, County, and Local level

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[1] Project 25 (P25) is a standard for the manufacturing of interoperable digital two-way wireless communications products. Developed in North America under state, local and federal representatives and Telecommunications Industry Association (TIA) governance, P25 is gaining acceptance as a public safety standard. The published P25 standards suite is administered by the Telecommunications Industry Association.

2. **The requirement and subsequent publication and distribution of statewide interoperable communications plans are critical to arriving at nationwide interoperability.** The Department of Homeland Security has rightly required Statewide Interoperability Plans to be developed and provided to them by the fall of this year from each state and territory. A workshop is taking place this week in Los Angeles providing representatives of states the guidelines for such plans. In 2003, the National Coordination Committee's (NCC) Interoperability Working Group on Rules, Policy and Spectrum Planning, for which I served as Chair, recommended the requirement of statewide plans and that grant funding be directed to initiatives consistent with those plans. The Department of Homeland Security requirement for such plans is a much needed move in the right direction since any nationwide interoperability plan using the "system of systems" approach will really become a "national book" with each state and territory providing and updating regularly its own "chapter". In the most optimistic scenario, this "book" will be a living document and available to users, advocates and funding sources to ensure interoperability is achieved nationally. These plans will begin to provide a snapshot of the overall national interoperability landscape that is long overdue. Submitted plans should be updated regularly by states to reflect any changes in a states "landscape". No one initiative can provide more of the information required in facilitating interoperability than the federal government requiring each state to document and make available its interoperability vision and corresponding communications initiatives.

State plans can also ensure that a responsible strategy for developing interoperable communications within each state, county and locality stays on track from a national perspective. This national architecture can have several benefits: It can require local agencies to acknowledge a states wide area strategy when applying for grant funding and also provide them information as to what communications initiatives their neighboring communities utilize. Statewide interoperability plans contributing to a national scope can also be beneficial to states and bordering regions. For example, with Missouri having eight (8) adjacent states, it is critical that Missouri's interoperability plan be shared with its neighboring states (IL, KY, TN, AR, OK, KS, NE, IA) to ensure cross border inter-state response and to acknowledge differences and consistency between bordering agencies. In many instances agencies don't have to do exactly the same thing to effectively communicate during a mission critical incident, but they cannot be unaware of what responders, from either within or outside a state, are using to meet their daily communications needs. As Hurricane Katrina showed, disasters know no state border and wide area response plans should take the capabilities of neighboring states responders into account to ensure that emergency response plans and those planning communications consider multiple states, when necessary.

The NTIA, with support from the Department of Homeland Security, should provide states spectrum management training [2]consistent with conclusions reached from a June 2004 NTIA report that identified the lack of prioritization on public safety spectrum planning at the state and local level. Achieving the degree of

[2] Spectrum Policy For the 21st Century-The Presidents Spectrum Policy Initiative: Report 2 "Recommendations from State and Local Governments and Private Sector Responders" Section 3 Recommendation 4

interoperability we all feel is necessary requires planning and long-term commitment, accompanied with responsible and realistic equipment purchases. Interoperability is as much a human problem as it is a hardware problem. In the past, NTIA provided state's spectrum management training, which is no longer offered to state and local users but remains in place to provide spectrum management to developing nations. In many areas, providing states this training will allow good, consistent interoperable "Best Practices" to be distributed across the nation and will lay the foundation necessary for interoperable communications to flourish within a long term interoperable national strategy.

3. The Public Safety Interoperable Communications Grant Program funding is dedicated to public safety interoperable communications and should be dispersed to local agencies only after it has been proven (and agreed upon by both DHS and each state producing a plan) that the application works with and recognizes the same goals and objectives consistent with the respective state interoperability plan. With public safety grant awards due by September 30, 2007 and states required to submit interoperable plans to DHS within the same time frame, there is a fear in the public safety community that there will not be sufficient time to ensure that applications submitted are consistent with the wide area plan developed in that state or region. Many feel that adhering to the September 30, 2007 date will not allow for the most effective distribution of these funds due to the time frame of the grant awards coinciding with the due date of the state plans.

If the September 30, 2007 congressional deadline must be met for the Public Safety Interoperable Communications Grant Program, perhaps having the monies held by each state for up to six (6) months before distribution to local applicants is appropriate until DHS has had sufficient time to review both the state plan and the application. Missouri feels it is important that DHS be provided a clear definition as to what the Missouri interoperable communications strategy consists of before awarding grant dollars to support communications initiatives within Missouri and that a regular dialogue should be created between each state and DHS to ensure that the interpretation of each state plan by DHS is the same as how it is envisioned at the state level. We feel the same concerns as are being voiced by other states. There is a substantial amount of ongoing dialogue regarding interoperability within and between states regarding public safety interoperability that has not gotten to Washington, D.C. yet, and it needs to in the form of these plans.

New public safety applications and capabilities involving broadband communications, IP technologies and flexible radios and spectrum sharing opportunities with commercial providers where appropriate are all in public safety's future. Without dialogue and cooperation between first responders, the ability of these new technologies to assist in achieving the degree of interoperability necessary to protect those served by first responders will always be hampered. Fortunately, the necessary "Best Practices" to promote interoperability are inexpensive and doable. It just takes commitment from all levels of government and the implementation of a long-term process aimed at improving interoperability between the nations first responder community to succeed.

In conclusion, interoperability in the public safety community starts and ends at the local level but must be a coordinated effort if it is to be successful. Currently, the freedom offered to state and local agencies to implement new communications capabilities in any fashion they deem appropriate often inhibits the very interoperability we seek due to each agency's interpretation as to how communications are best implemented in their community. Consistently promoting the use of proven, positive guidelines and requirements into the public safety community without ensuring the requirements are implemented can inhibit interoperable communications development. Public safety is looking for direction and support from policymakers and those providing funding mechanisms to accomplish these goals. Supporting the communications needs of local, county, state and federal users cannot be accomplished without an ongoing public safety interoperability dialogue in each state that includes the local, state and federal government.

Again, thank you for your time today Mr. Chairman and I look forward to answering any questions the Committee might have.

Stephen T. Devine, Missouri State Highway Patrol

Mr. MARKEY. Thank you, Mr. Devine, very much. And all of your testimony will be included in the record. I will advise the panel right now that there are three roll calls on the floor of the House of Representatives at this time, so I will have to recess this hearing for approximately 25 minutes, at which point we will reconvene, and we will recognize you, Mr. Tucker, for your opening statement, and then we will go to questions of the panel from the subcommittee members. So the panel stands in recess until approximately 10 past 12:00.

[Recess.]

Mr. MARKEY. We have a little bit of a window right now, but I think we can use it to complete the hearing. We will next hear from our final witness and then go to questions from the subcommittee members. That witness is Mark Tucker, who is chairman of CoCo Communications from Seattle, Washington. Welcome, Mr. Tucker. Whenever you are ready, please begin.

STATEMENT OF MARK L. TUCKER, CHAIRMAN, COCO COMMUNICATIONS

Mr. TUCKER. Thank you, Chairman Markey, Ranking Member Upton and members of the committee. Thank you for inviting me here today. My name is Mark Tucker, and I am CEO of a company called CoCo Communications. In the interest of time, I will submit my written testimony and just provide a summary, summary remarks.

Over the past 5 years it has been my privilege to lead the effort to CoCo in developing new technologies for the public safety community and deploying solutions that solved interoperability problems. I am happy to announce that today there is a live network in operation in Dallas, Texas, connecting local, State and Federal responders together that is always on, and it is emergency and disaster ready.

The significance of this network is that it is a subscription service. Users pay a small monthly fee to connect their existing radios, cell phones and computers together. There is no need to replace equipment, and there is no additional spectrum required. Using this innovative approach, a cost-effective national solution to the interoperability problem is at hand. Thank you, and I look forward to answering your questions.

[The prepared statement of Mr. Tucker follows:]

Testimony

Of

Mark L. Tucker

CEO CoCo Communications Corporation

Before the

United States House of Representatives

Committee on Energy and Commerce

Subcommittee on Telecommunications And The Internet

Hearing on the "Oversight of the National Telecommunications Information Administration and Innovations in Interoperability."

March 22, 2007

Mark L. Tucker

I. Introduction

Good morning, Chairman Markey, Ranking Member Upton and Members of the Subcommittee. My name is Mark Tucker. I am the CEO of CoCo Communications Corporation. Over the last 5 years I have had the privilege of leading the efforts at CoCo Communications, which is at the forefront of technological development and pioneering an operational commercial service focused on solving the very difficult problem of achieving interoperability for the nations first responders. I know the problem intimately and have analyzed it from many angles; operationally, technologically, economically, socially and practically. Thank you for the opportunity to testify today on this important topic and giving me the chance to share some of these insights with you.

Today this Subcommittee has an opportunity to have an impact on a serious public policy issue facing our country. The country is at an inflection point, where the public policy process can help drive innovative solutions so that the emergency response community can have access to and leverage the latest advances in technology – that exist today.

Communications interoperability is not a spectrum issue. It is not a technology issue. And it is not an infrastructure replacement issue. With these barriers down, it is now fundamentally a leadership issue. This Subcommittee, by providing the policy direction necessary to structure the new Public Safety Interoperable Communications Program (PSIC) can serve as a catalyst that will accelerate the projected timeline for solving the problem.

Taking action now will help the country meet the urgent requirement for a national solution. One that is always on. One that is affordable by all agencies. And one that is emergency and disaster ready. This approach will establish the adoption of complimentary innovative communications solutions.

II. Background

`Interoperability has existed for decades and will require continual improvement as best practices and technology evolve. Post 9/11, the problem gained worldwide attention and became a national security focus. It is now a requirement to have multi-agency coordinated response capabilities, which are critical to the war on terror as well as responding to natural disasters. The mission scope of emergency responders has expanded tremendously to meet these new challenges. Collaboration between agencies and groups on a local, state and federal level has become an important responsibility for each individual as part of the new Homeland Security chain of command.

III. The Interoperability Problem

To meet these post 9/11 requirements, local, state, federal agencies and critical infrastructure providers such as health, utilities and transportation must be able to communicate together more efficiently on a day-to-day, incident and major disaster basis. The main obstacle to this becoming a reality anytime soon lies in their standard method of communication, the land mobile radio. The land mobile radio system was originally designed to meet a specific responder team or agencies' internal voice communication needs and was only intended for inter-group communications and specifically not designed to support intra-group or multi-agency communications. This has led to each responder group or agency procuring and operating their own land mobile radio system to meet their internal voice communication needs.

Over the course of many years, thousands of land mobile radio systems have been built across the country with each one fulfilling a specific agency's voice communication requirement in a limited geographic area of operation. The result is many separate systems with limited coverage areas utilizing different frequencies. To compound the problem further, the systems were built using closed proprietary hardware technology and the industry became monopolized by one dominant player, Motorola, who is estimated at having over 80% market share. Motorola has used their market dominance to perpetuate this owner / operator / obsolescence business model which requires every town, city,

county, state and federal agency, utility and transportation provider to build and operate their own infrastructure network. This results in extremely high capital expenditure costs and operational support until the life of the network is depleted and the whole process starts over. This business model has resulted in the state of public safety communications today- where hundreds of billions of dollars have been invested in thousands of land mobile radio systems that were not designed to support multi-agency collaboration on a local, regional or national scale.

IV. What Is Needed

The need for improved public safety communications is clear. Regardless of the form the solution takes one thing is certain: the fix will require leadership from all levels of government. This includes the executive and legislative branches, governors, state emergency management leaders, mayors, county executives, police and fire chiefs in every jurisdiction across the country. Leadership drives innovation and makes overcoming challenges possible. When a solution exists, vision and encouragement is often the only missing ingredient.

V. The Solution is a Subscription Service

One proven solution to this problem is a secure overlay software technology that enables a Subscription Service model by creating a network of networks. This approach allows legacy and new networks to work together in a secure, synchronized, and controlled manner. This methodology is similar to how telecommunications systems and the Internet allow us to connect to one another. The requirements to do this are more challenging than what the Internet Protocol can support which is why the CoCo Protocol was created. The CoCo Protocol is a next generation cryptographic overlay mesh protocol that connects devices and networks together in a secure way controlling the traffic between various underlying networks that is self healing if any piece fails and is optimized for the mobile environment.

The Subscription Service model will maximize the billions of dollars already invested in existing land mobile radio systems by connecting them all together to form a single interoperable network that is accessible for a small monthly fee. A national network built out of the sum of the parts will still allow each local, state and federal group to decide what type of communications requirement best meets their own internal mission needs while ensuring that the common goal of interoperability to support coordinated multi-agency response is achieved.

VI. National Interoperability Service Model

Through DHS grant funding and the support of NTIA, this concept has become a reality and the country's first National Interoperability Subscription Service is operational in Texas and expanding. Subscribers use their existing land mobile radio equipment to communicate with each other and pay a small monthly fee. In addition to securely tying together the radio systems, the service leverages our national telecommunications assets and provides responders with the ability to also access live video and securely share data. No infrastructure needed to be replaced nor was any new spectrum required. Network expansion is scheduled to begin this summer in two additional major metropolitan areas.

VII. Conclusion

This Subcommittee and the formation of the PSIC Program represent an opportunity to accelerate the pace for solving an important national problem. Innovation combined with leadership will continue to be the cornerstone principal that has allowed our country to solve complex challenges. We look forward to a continued dialogue on this important national issue.

Thank you, I welcome your questions.

Mr. MARKEY. Thank you, Mr. Tucker. Believe it or not, you have just won the award for the shortest testimony of any witness in the history of Congress. The Chair will recognize himself for questions.

Mr. O'Brien, can you talk about the nexus between your plan, local first responder interoperability, and coordination with regional or Federal agencies? In a flu pandemic, for example, take a flu pandemic and walk us through what your system would be able to do.

Mr. O'BRIEN. In a flu pandemic, once our network, as proposed, was constructed and operating, all of the responders to that flu pandemic, without regard to whether in advance of the pandemic it was identified who needed to be part of the response group or how many response groups there needed to be, would automatically be intercommunicating at whatever level was considered desirable.

An important point to make is with the system, the broadband system that we are proposing, that communications would not be limited, as is today usually the case, just to voice, it would include the ability to transfer data files at high speed and also to transmit video from person to person anywhere, from anywhere to anywhere. So the vision is a broadband network capable of supporting the highest quality of video, data and voice services to anyone from anyone at device prices that would be a fraction of what today's public safety devices are.

Now, to make sure we make an important distinction, most of today's current public safety systems, of which there are many thousands, are voice centric, and they are mission critical voice. The need to have those systems interoperate, such as the kind of technology that Mark Tucker was just describing, that is not rendered moot by our type of system, certainly not in anywhere like the near term timeframe, so there is a necessity, there seems to be an urgent necessity to connect existing mission critical voice systems even as a next generation network, such as the one we proposed, begins to come online.

Mr. MARKEY. OK. Mr. Tucker, how would you respond to that?

Mr. TUCKER. I would respond to that, at scale, the network that we have live down in Texas, if that were a nationwide system and actually CDC is a participant on that network, what the network allows is for cell phones to talk to radios, radios to talk to laptops, and it supports voice, video and data. And so the authentication mechanisms happen whenever there is an agency that turns something on, they have got ticker access.

For example, in this pandemic example, whoever noticed the pandemic, whether it comes from a hospital, which we have a number of hospitals coming online, would issue a particular ticker just like you see on CNN, except for it is private and used for a responder, used to communicate between responder groups. And so just having that notification ability could allow other hospitals around the country to basically start looking out for these types of flu symptoms earlier, as well as they can start to issue data communications for what to do; where you are going to start setting up triage centers.

Is the VA going to become involved and what is the National Guard going to be called into play and so the ability to have a nationwide vision, and the ability to have communications which are

interoperable both at the voice level but also at the data level and the video level is very important so that information can flow up from the local to the State to the Federal, as well as information disseminated down from the Federal, State to local. So that is exactly what our system allows.

Mr. MARKEY. All right, thank you. Mr. Devine, Mr. McEwen, you are the public safety people on the panel. The FCC is considering several plans for the spectrum the broadcasters are vacating, the so-called broadband optimization plan, the Frontline plan and others affect the frequency band plan or license requirements for the 700 MHz auction. Do you support any of these plans? Do you agree that the FCC should decide these issues prior to the auction?

Mr. MCEWEN. Well, you have asked about two different proposals. One is the broadband optimization plan. Let me address that first. The public safety community that I represent, all of the national organizations have strongly endorsed that plan because of the benefits to the public safety community.

There are issues along the Canadian border that need to be addressed, that that does a good job of solving, so there are many different reasons, I won't go into them in great detail, but the broadband optimization plan is something we feel would be very beneficial to public safety. That has to be acted upon by the FCC fairly soon because of the implications it would have with the auction that is coming up.

Now, on the Frontline proposal, I will just answer that one. We have not taken a position on that because it has just been recently proposed, and we are still studying that. In fact, some of us met with the Frontline people just yesterday.

Mr. MARKEY. OK. And do you want the FCC to resolve these issues before we auction off the spectrum?

Mr. MCEWEN. I don't see any way around it. I mean, I think they have to be. Keeping in mind, now, that our proposal for the Public Safety Broadband Trust is dependent upon there being a change in the auction rules, so of course, that again has to be resolved if you are going to do that.

Mr. MARKEY. I apologize to you, Mr. Devine. My time has expired. Let me turn and recognize the gentleman from Michigan, Mr. Upton.

Mr. UPTON. Thank you all. Mr. McEwen, just to follow up on that, we heard from the FCC, I believe it was last week, and they are beginning to write these rules and that they are hoping that they will be in place in just a few months so that they can actually go to market and be able to get the interest that they think that they need to do.

Mr. Tucker, Mr. Rittenhouse, I just want to follow up a little bit on what Mr. Markey said and that is Mr. O'Brien stated in his testimony that 12 MHz would not be enough capacity to accommodate the broadband usage, and I just wondered if you agree with that or not. Mr. Tucker, Mr. Rittenhouse.

Mr. TUCKER. Yes, capacity is always good, so the more capacity that you have out there for public safety, the better. Is that enough for broadband? I guess that depends if you could leverage existing other broadband technologies. And in the case of a system like CoCo, you can leverage Verizon Wireless system, Cingular system.

You can leverage Clearwire system, and so as you begin to aggregate the amount of bandwidth, the actual amount increases for usage, and so that is kind of our position, more bandwidth is good and more capacity is good. As it relates to the statement of is it enough or not? I am not quite sure how to answer that.

Mr. UPTON. Mr. Rittenhouse.

Mr. RITTENHOUSE. Yes, I would just further state that mapping this into a spectrum issue is again complicated, but just as a point of reference, most wideband data networks today that are commercially deployed, supporting the entire country, do it within about 5 MHz. That is just a reference point.

Mr. UPTON. And Mr. O'Brien, I did appreciate the visit that we had a couple weeks ago, and we had covered a lot of ground then. I just have a question. Under your plan that would have the Congress authorizing this, since this is the new plan, the $10 billion in Government-backed loans, what happens if there is a default?

Mr. O'BRIEN. We think one of the great advantages of our plan is that the license stays in the hands of the Government throughout the process, and therefore you never have any of the horribles that stem from those kinds of situations. When licenses fell into the bankruptcy process, such as the Nextwave, the point I want to stress is that we are looking at, in the case of legislation that we have been working on with public safety, we are looking at doing everything necessary to offset the budget shortfall that would take place if this spectrum were moved into the Public Safety Broadband Trust and to use proceeds from raising funds in the capital markets but looking for Government loan guarantees to keep those borrowing costs to the lowest possible number, getting the right balance of Federal assistance in what we think is a worthwhile plan and using the capital markets which are so abundant at this point with capital.

Mr. UPTON. Thank you. I yield back.

Mr. MARKEY. Gentleman's time has expired. The gentleman from Washington State, Mr. Inslee.

Mr. INSLEE. Thank you. Mr. Tucker, thanks for making the trip. I make it every Monday and Friday, so I appreciate you coming out.

Mr. TUCKER. Thank you very much.

Mr. INSLEE. I am sorry I came in in the middle of your testimony, but could you expand on what sort of you see as the Federal need to allow this service-based, subscription-based interoperability to occur? Is it a designation of a particular standard? Is it a registration process? What is it, from the Federal Government, that could assist that development?

Mr. TUCKER. Well, I think that just market forces and the cost effectiveness of allowing a service where you don't have to make additional capital infrastructure investments will win out over the market over time. But I think what the country needs to do is come up with a national vision for interoperability, a direction that is a national direction set by the Federal Government to say this is the direction and this is the vision where we are headed.

I think that will benefit all solutions. I think it will benefit State and local folks. Not so overreaching that an individual police department or a fire department can't make their own choices for

their main communications, but something that governs or provides a direction so that everybody can move towards the ability to talk with each on a local, State and Federal basis. So I think that allowing this billion dollars to be used for innovative approaches and to really measure what the outcomes are is something that the Federal Government can do and something that this committee is looking at and is very instrumental.

And I believe that at some stage where technology lies, where the state of infrastructure lies and the state of communications, that it is going to require Federal, State and local leadership, collectively, to solve the problem.

Mr. INSLEE. And where would that manifest itself most, most concretely, with the Federal Government? I mean, a vision statement, we can pass a bill, here is our vision. How does it actually, where the rubber meets the road, where would that be implemented?

Mr. TUCKER. And this is my opinion. Just looking at the different agencies, because we are talking about not only Homeland Security agencies, we are talking about DoJ agencies, we are talking about transportation agencies. HHS is involved. I think with Assistant Secretary Kneuer is a great place to put that responsibility, to come up with a vision statement to basically say this is the direction for interoperable communications.

I think Homeland is doing a good job at focusing on OK, what do responders need, how do we get there. But I think that what we are really dealing with is we have got these islands of communication, that are these radio systems that aren't connected. It looks just like the Internet did when it started. It looks just like the cell networks, where there were pockets of coverage.

And what the U.S. Government did a good job of is providing not competition, but a road map to basically allow competition to flourish and to allow a direction so that eventually technology could create connectivity across all these islands. Basically, we need interoperability to build bridges between all these separated islands right now. And I think that there needs to be somebody who is setting that vision, federally.

Mr. INSLEE. I noticed in your testimony you indicated this is most, the biggest penetration is in Texas.

Mr. TUCKER. Yes.

Mr. INSLEE. Why is that? Is it happenstance?

Mr. TUCKER. That project was actually born in the Office of Homeland Security out of the Office of the CIO, and they took a look at the CoCo protocol with its advanced features to create an open architecture out of the existing parts, and they decided to utilize a test bed somewhere in the country, and for whatever reason, Dallas was selected because there was an airport very close to a city, and we could basically utilize the network for a number of critical infrastructure points as well as for first responders, and the governor of Texas got behind it, and that trial was successful, and that has led to the launch of the service network down in Dallas, which is expanding.

Mr. INSLEE. Can you give us some idea how many services are involved right now? How many police departments or fire departments?

Mr. TUCKER. There are about nine different local, State, Federal groups involved, connecting about 5,000 local devices and then statewide, about 10,000.

Mr. INSLEE. Thank you. Thanks for being here.

Mr. TUCKER. Thank you.

Mr. MARKEY. The gentleman's time has expired. Mr. Devine, let me ask you a question. Do you believe that the National Interoperable Public Safety requires a single network, or should it be a network of networks that all work across each other?

Mr. DEVINE. I think, Mr. Chairman, the system of systems approach is what SAFECOM and DHS had identified early on that in order to really get our arms around this, we were going to have to acknowledge what exists today and realizing we just can't wipe the slate clean and go out and build something. It doesn't happen overnight, and physically, it is probably not in our interests, as well, at least to some degree. But I think a system of systems approach is necessary, and like I indicated, there is multiple bands, there is multiple protocols.

But I think what we have to focus on is the end capabilities, not what all of those systems are made up of, but what comes out of them and that to be consistent nationwide is what we have to look at. If what comes out of the systems is consistent and interchangeable and subsequently interoperable, how they do it internally becomes still critical to the end goal but less important because right now we don't have that.

Mr. MARKEY. So you are saying even if more spectrum is provided, there is no guarantee that there will be seamless interoperable communications amongst all of these networks? Or is it guaranteed? Is there a guaranteed result that the more spectrum we put out there the more likely it is seamless and working across?

Mr. DEVINE. It is not my opinion that throwing spectrum at a problem is the sole solution. As I indicated, I think anybody who does anything without acknowledging that existing landscape that exists is not going to be successful. You have to acknowledge where everybody is. We have to be committed and aggressive and say here is our vision, here is our end point. Everybody is going to arrive at it from a different perspective. Here is where we are going to be. It is going to take *X* number of years, and we are going to commit ourselves to it and go there. And during that, we make sure the capabilities, not the frequency bands or the protocols or any of the other specifics are the driving factor, it is the capabilities in the end use.

Mr. MARKEY. OK, great. Let me ask each one of you.

Mr. MCEWEN. Could I respond to that, too?

Mr. MARKEY. Yes.

Mr. MCEWEN. Quickly. I think the answer to your question is obvious. I mean, for the last, since 9/11 you have been throwing money to us, at our request, and we have been trying to solve that problem of tying together the systems, the systems of systems approach, and we have made some progress, but it is a long ways off from a solution. And I think you just got to recognize the fact that many of us have realized that this just isn't going to ever get to where you want to get, and that is why I am suggesting a different approach.

Mr. MARKEY. OK, great. Here is what I am going to ask each one of you, to give me your 1-minute summation of what it is that you want our committee to remember as we are going forward over the next several months. We will go in reverse order of the opening statements. You didn't give one, Mr. Tucker, but if you would, please give us your 1-minute summary.

Mr. TUCKER. Thank you, Mr. Chairman. I think that the billion dollars in interoperability grants are very, very important to the country. I think it is important that these be distributed for innovative approaches, and I think that getting them into the field this year on schedule is extremely important, so anything that can be done to assist that would be great. I think that long-term, we have got to set a national vision for interoperability. I don't think you can just say give us your plan and let us look at your plan. I think there has to be some vision that is set so that people understand how to adopt and how to get from here to there. And I think that if the committee could take a look at how to do that, I think that would be time well spent. Thank you.

Mr. MARKEY. Thank you. Thank you, Mr. Tucker. Mr. Devine.

Mr. DEVINE. Thank you, Mr. Chairman. I agree with Mr. Tucker. I think a vision has to be set. We have to be ready to endure all of the difficulties in arriving at it, but I think we have to set that, and we have to work towards it. We can't let the expenditures from this billion dollars lead towards the paradigm which has brought us to today. We have to make sure that these dollars are spent towards what moves us forward to our eventual end point. With regard to what the FCC is working with with band realignment, Chief McEwen and myself were part of the original committee that created the band and put it in its place when the DTV transition was uncertain.

Now if we had to do it all over again and that was a certain date, we would aggregate those channels and make it more cost-effective and make the technologies more conducive to each other, so that with regard to the broadband optimization plan, we feel that that is conducive to that. So I think that the FCC's broadband vision should be consistent with the deployment of these grant funds. And thank you again.

Mr. MARKEY. OK, great. Mr. O'Brien.

Mr. O'BRIEN. Thank you, Mr. Chairman. Without question and without any hesitation, each day entrusts ourselves and our lives and our safety and loved ones to public safety first responders. We suggest that this committee do the same thing for public safety communications going into the future and listen to the voice of public safety, and it seems to us that voice is clear that a new approach is necessary; the old approach does not work. And if this committee fails to take action and the one and only spectrum opportunity that is on the horizon escapes us, then by inaction the committee will have made a decision one way or the other. The decision is clearly yours, the decision to listen to the voice of public safety and address this concern in a way that combines spectrum and funding. And without that combination there will be no progress. Thank you.

Mr. MARKEY. Thank you, Mr. O'Brien. Mr. McEwen.

Mr. MCEWEN. I think several members of this committee, today, this morning, indicated that they are looking for a nationwide solution for interoperability, and I think that is the basis for what I have been talking about here today. We are only asking for half of the spectrum that is to be auctioned, that is 60 MHz is to be auctioned; we are asking for half of that. This would be managed by the public safety community. That is a very critical issue because from our perspective, the only reason that we support this is because we would be in control, not Morgan O'Brien, not some commercial company.

The spectrum that we are asking for would still be owned by the Government. Mr. Upton has asked a very good question, that is what happens if this falls out? You still own the spectrum. If it all failed, if everything failed, which I don't believe it will, you own the spectrum, now you can auction it and still make the same amount of money, maybe more. But the point is that that is your fallback.

And the last thing is that this is a taxpayer relief proposal. I mean, we have been asking you for funding for years, and we are suggesting there is a different paradigm. Let us go to somebody like a Morgan O'Brien or whoever and let them invest their money to build the solution and take that monkey off your back and our back. Thank you.

Mr. MARKEY. Thank you, Mr. McEwen. Before I recognize you, Mr. Rittenhouse, I have to leave the hearing right now. I am going to turn the chair over to Congresswoman Capps from California for her to ask her questions, and then the hearing will adjourn, but we thank all of you for your testimonies today. Mr. Rittenhouse, please give us your final.

Mr. RITTENHOUSE. Sure. Thanks to the leadership of this committee, we all recognize the importance of public safety. The two things that I want to leave you with are first of all, to give our first responders the same type of technology capabilities that are enjoyed by most Americans today. That is the least we can do for the public safety community. The second thing I want to leave you with is interoperability. In the commercial market we face interoperability every day. Of course, when you leave here and arrive at another airport, you expect your cell technology to work. It has always been interoperable, not just geographically, but across generations, as well. Technology continues to move forward, and we have to maintain that backward compatibility. So the issues that are perhaps new to public safety are not new to the commercial providers, as well. Thank you.

Mrs. CAPPS [presiding]. Thank you, each of you, and I know you have given your summary statements, but since I wasn't able to come until now, I beg you to extend your time another few minutes so that I can enter into this discussion. I am really pleased with this panel's presence here today to talk about these very important concerns of public safety. I have been involved in public safety all my life.

I am particularly interested, Mr. Tucker, and I know you delved into this a little, but I am hopeful that you can explain now, for a few minutes, a little more about the software-driven interoperability service that your company has developed in Dallas. I found it very intriguing, and as I understand it, CoCo Communications

actually does connect local, State and Federal public safety agencies and even Southwest Airlines.

Mr. TUCKER. That is correct.

Mrs. CAPPS. And I think this is remarkable that you have a subscription service that is a network of networks so they can talk to each other and don't even have to buy any new equipment. This sounds, to me, too good to be true. Maybe you can use a couple minutes to talk about that.

Mr. TUCKER. Great. Well, thank you very much. In a nutshell, what is going on is we have got these islands of communication that don't communicate together, just like before the Internet we had all these computer systems that didn't talk together. They were islands of computer networks. And so what the Internet allowed is it allowed a service; you put in a DSL, you put in a cable box and you can connect your network to, call it a cloud of connectivity and you can have communications from one computer network to another.

The same thing is possible in what's running down at Love Field using the CoCo protocol, which is a new technology that is optimized for communications at the edge dealing with DoD grade security so National Guard can connect to a local fireman. And the key is, is to allow this same type of connectivity to occur that occurred that built the Internet, which basically created a master connectivity system where all the systems can now talk together.

And so that is what is live now in Dallas, and the service model is such that instead of rip and replace or pulling systems out and rebuilding with new systems, you can take your existing system, just like you could take your existing computer networks, back before the Internet, and you could basically just provide a service to connect them.

It is a little bit more complicated than just connecting a computer service because you have got radios to deal with, you have got the ability to have the secondary device of a responder, which is a cell phone, to communicate to the radios and then have both of those devices communicate back to laptops and the computer networks. And so the ability to share voice, video and data that allow interoperability on all three of those levels is what has been achieved.

And so the impact of what that is, is it is basically, you can create a nationwide system of systems approach using subscription model where service providers can go out and provide that connectivity just like an ISP, an Internet Service Provider, would go out and provide connectivity to a commercial entity.

Mrs. CAPPS. I can ask you a lot of questions just about how that works, but I want to get specific in terms of its applicability. What would happen when there is an interruption in Internet service or something goes wrong and also, in addition to that, would this system work in a chaotic situation such as, I come from earthquake country out in California, or God forbid, something as drastic as 9/11?

Mr. TUCKER. Right. And that is why it is a little bit harder than just connecting to the Internet and connecting computer networks, and so the key is convergence; convergence of the infrastructure assets where you take different radio systems that allow convergence

through the terrestrial backbone, phone companies' networks, but you also need to be able to be emergency ready, which means you need to use the cell carrier networks, as well as the radio assets, and if you start to see networks going down, which is what the CoCo protocol controls, the routes and the change basically occurs so that communication can happen.

So even if you lose your terrestrial networks, you can still put a laptop up, connect radio to that laptop and you can have your radio devices that are battery powered, even if all power is out, still communicate on the scene. And then if you have any satellite link, the protocol will direct things to a satellite link and connect back to another part of the country that still has power. And so the key with public safety is to deal with connectivity, not just on a terrestrial basis, but that is important, but also allow for a convergence to happen wirelessly, locally and also at the service level.

Mrs. CAPPS. Is this what you mean by self-healing?

Mr. TUCKER. That is correct.

Mrs. CAPPS. So that all three of those levels, if one is disrupted, then the other two carry on while that one disrupted fixes itself?

Mr. TUCKER. That is correct. Now, when all the batteries are gone and the power is out and every network is down and your last battery runs out of your radio and your power goes down, your generator goes down, connecting to your satellite, there is going to be no communication, but what this network allows is the strength of allowing different networks to fail and still enable emergency communications and be disaster communications ready.

And the other key is, is that the network is always on so that it doesn't take, on the scene of an incident, to connect the radios together and say OK, all five responder groups can now connect locally. It allows the network to always be on so that information sharing can occur on a day-to-day basis, which is what is happening down at Dallas.

Mrs. CAPPS. I know that my time is up, and since I am in the chair, I have no excuses for extending, but I was hoping, maybe just for half a second, Mr. McEwen or Mr. Tucker or Mr. Devine would like to comment on this and not pushing one product as much as on the system that is being discussed. Or anyone? Then we will close.

Mr. DEVINE. Yes. As a general idea, I think the proposal, the concept is interesting. My question would be, and I have never met Mark, but would ask if there is a standard specifically for that protocol or is that a proprietary device, and it is very possible that it is. And from a market perspective, I don't know how that will work, but the idea of leveraging some of the other assets that are existing around you, when your radio doesn't work, you will be able to borrow that, is certainly a noble one.

Mrs. CAPPS. We will have to go into that at another time. Anybody else have a final comment on that or a question or a concern about it?

Mr. MCEWEN. Not in half a second.

Mrs. CAPPS. I know. I apologize, but I think we do have a fruitful discussion to start another hearing on, and with this, we will have this hearing adjourned, and thank you all for your participation.

[Whereupon, at 12:54 p.m. the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

June 28, 2007

The Honorable John M. R. Kneuer
Assistant Secretary for Communications and Information
Department of Commerce
1401 Constitution Ave., N.W.
Washington, D.C. 20230

Dear Assistant Secretary Kneuer:

Thank you for appearing before the Subcommittee on Telecommunications and the Internet on Thursday, March 22, 2007, at the hearing entitled "Oversight of the National Telecommunications and Information Administration and Innovations in Interoperability." We appreciate the time and effort you gave as a witness before the Subcommittee.

Under the Rules of the Committee on Energy and Commerce, the hearing record remains open to permit Members to submit additional questions. Attached are questions directed to you from certain Members of the Committee. In preparing your answers to these questions, please address your response to the Members who have submitted the questions and include the text of the Member's question along with your response. In the event you have been asked questions from more than one Member of the Committee, please begin the responses to each Member on a new page.

To facilitate the printing of the hearing record, your responses to these questions should be received no later than the close of business **Thursday, July 12, 2007**. Your written responses should be delivered to **316 Ford House Office Building** and faxed to **202-225-5288** to the attention of David Vogel, Legislative Analyst/Clerk TI. An electronic version of your response should also be sent by e-mail to Mr. David Vogel at **david.vogel@mail.house.gov** in a single Word formatted document.

Thank you for your prompt attention to this request. If you need additional information or have other questions, please contact David Vogel at (202) 226-2424.

Sincerely,

JOHN D. DINGELL
CHAIRMAN

Attachment

cc: The Honorable Joe Barton, Ranking Member
Committee on Energy and Commerce

The Honorable Edward J. Markey, Chairman
Subcommittee on Telecommunications and the Internet

The Honorable Fred Upton, Ranking Member
Subcommittee on Telecommunications and the Internet

The Honorable Bart Stupak, Member
Subcommittee on Telecommunications and the Internet

The Honorable Jay Inslee, Member
Subcommittee on Telecommunications and the Internet

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Communications and Information
Washington, D.C. 20230

JUL 13 2007

The Honorable John D. Dingell
Chairman
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Dingell:

Please find enclosed answers to the questions posed by Representative Stupak and Representative Inslee regarding the March 22nd hearing before the Subcommittee on Telecommunications and the Internet entitled, "Oversight of the National Telecommunications and Information Administration and Innovations in Interoperability." I welcomed the opportunity to testify before the Subcommittee and appreciate the continued interest of its Members in these important matters.

If you have any questions in the future on issues related to the Program, please do not hesitate to contact me or Jim Wasilewski, NTIA's Acting Director for Congressional Affairs, at (202) 482-1551.

Sincerely,

John M. R. Kneuer

Enclosure

cc: The Honorable Joe Barton, Ranking Member
Committee on Energy and Commerce

The Honorable Edward J. Markey, Chairman
Subcommittee on Telecommunications and the Internet

The Honorable Fred Upton, Ranking Member
Subcommittee on Telecommunications and the Internet

The Honorable Bart Stupak, Member
Subcommittee on Telecommunications and the Internet

The Honorable Jay Inslee, Member
Subcommittee on Telecommunications and the Internet

QUESTIONS SUBMITTED BY THE HONORABLE BART STUPAK

Public Safety Interoperable Communications Grant Program

QUESTION: On page four of the Memorandum of Understanding signed by the National Telecommunications and Information Administration (NTIA) and the Department of Homeland Security (DHS) to implement the Public Safety Interoperable Communications (PSIC) Grant Program, it is stated that "In cooperation with DHS, NTIA shall: identify specific, meaningful, and attainable investment goals for improving communications interoperability through this grant program." Detail what NTIA has done to meet this requirement.

ANSWER: NTIA has been leveraging its expertise in communications technologies to ensure that public safety agencies have access to a wide array of interoperability solutions. The program will give priority to projects that invest in advanced technological solutions to help improve public safety interoperable communications. By investing in emerging and next generation technologies, such as voice or radio internet protocol, broadband voice, data, or video applications, and network interconnect technologies, NTIA will help to improve public safety interoperability.

In our development of the PSIC grant guidance, NTIA has identified meaningful investment goals to improve communications interoperability. The first investment goal is to fund the gaps identified in the Statewide Communications Interoperability Plans (Statewide Plans). By developing the Statewide Plans and filling the gaps identified in those plans, NTIA believes we will fund projects that achieve meaningful impact for public safety interoperability, and more importantly we can take into account the current state of communications and numerous challenges throughout the Nation to improve communications between first responders. Further, through this program, NTIA must also promote efficient and effective use of spectrum and consider spectrum efficiency as a priority in evaluating grant applications under this program.

QUESTION: What are NTIA's vision and goals for the PSIC Grant Program?

ANSWER: NTIA is committed to establishing a sensible grant program that meets the statutory requirements set forth by Congress. We hope to achieve meaningful improvement in the overall state of public safety interoperable communications and to fill the interoperability gaps identified in the Statewide Communications Interoperability Plans. We are encouraging public safety organizations to adopt advanced technological solutions, improve spectrum efficiency, and use cost-effective measures.

QUESTION: What is the status of the grant guidance for the PSIC Grant Program?

ANSWER: NTIA intends to release the grant guidance and funding allocations in July 2007.

QUESTION: At the hearing, you indicated that service-based and software-based interoperability solutions would be eligible for funding under the PSIC Grant Program. Please confirm this statement.

ANSWER: The PSIC Grant Program affords NTIA an opportunity to design a program for communities to use technological solutions to improve public safety interoperability. NTIA is committed to exploring the use of available technologies, including service-based and software-based solutions, to advance overall public safety interoperability, as long as those technologies will enable first responders to interoperate with the 700 MHz band.

QUESTION: Steven T. Devine of the Missouri State Highway Patrol testified at the hearing that NTIA used to help States develop spectrum management plans and recommended that NTIA begin this practice again. Please explain how NTIA provided technical assistance and guidance to State spectrum management in the past. Why did NTIA terminate this assistance? What benefits could NTIA provide States if they reinstituted this assistance?

ANSWER: For a brief time during the 1980s, NTIA's Office of Spectrum Management (OSM) taught spectrum management classes to State and local officials. Once a year, NTIA offered a week-long seminar in spectrum regulation, policy and processes. NTIA discontinued the course due to limited availability of qualified trainers and funding, and an increasingly high demand by the federal agencies for training for their spectrum managers. To the extent that State and local spectrum managers could benefit from spectrum management training, it would be more appropriate for the Federal Communications Commission (FCC) to conduct this training as the FCC licenses these entities.

QUESTION: The P25 standard for digital radios has been evolving for years. What are the pros and cons for developing similar standards for mesh, patching, and other software/IP-based solutions? Do you support developing standards for software/IP-based solutions?

ANSWER: Many of the same advantages in developing standards for Project 25 also apply for mesh networking, patching radio systems together, and the development of other software/IP-based solutions. One of the primary advantages for developing standards in these areas is multi-vendor interoperability in an open market place. Another significant advantage is market place scalability. Where standards exist, multiple manufacturers typically exist, which creates a competitive environment. The public safety community clearly benefits from market place scalability based on reduced cost and enhanced feature sets. While there are other advantages, the two discussed are the most important.

A disadvantage of standards development, from a public safety perspective, is the time involved. The development of consensus standards is a time consuming process. While this disadvantage is important, in the Public Safety community it typically is outweighed by the advantages

previously mentioned. With regard to the P25 standards development timeframe, the participation of additional large Land Mobile Radio vendors in the last 3-4 years has led to the accelerated development of the key remaining interoperable interfaces in the last year.

NTIA supports the development of standards for software/IP-based solutions. There are several such efforts currently underway in these areas for Public Safety use. One example is the development of a Voice over IP bridging implementation profile, which defines the standards, parameters, and values necessary for Public Safety to purchase different Voice over IP bridging solutions from multiple vendors, garnering interoperability based upon the profile. Additionally, an effort to develop an open standards based mesh networking protocol is currently underway, where partnerships with the academic community are being leveraged.

Lastly, in the development of standards for mesh networking, patches, and other software/IP-based solutions, the Public Safety community is intent on leveraging commercially available technology. In addition to realigning the advantages identified above, the use of commercial technology may also mitigate the time disadvantage by using or modifying standards that have already been developed for the much larger consumer market.

QUESTIONS SUBMITTED BY THE HONORABLE JAY INSLEE

Public Safety Interoperable Communications Grant Program

QUESTION: Will "subscription based services" be eligible to receive grants from the Public Safety Interoperable Communications Program (PSIC)?

ANSWER: The PSIC Grant Program affords NTIA an opportunity to design a program for communities to use technological solutions to improve public safety interoperability. NTIA is committed to exploring the use of available technologies, including service-based and software-based solutions, to advance overall public safety interoperability, as long as those technologies will enable first responders to interoperate with the 700 MHz band.

Written Testimony of
Jerry Brito, J.D., Senior Research Fellow
Mercatus Center at George Mason University

Submitted to the
Committee on Commerce, Science, and Transportation, United States Senate
Subcommittee on Telecommunications and the Internet

March 22, 2007

Mr. Chairman and Members of the Committee:

I appreciate the opportunity to enter written testimony into the record of the Committee's hearing on first responder communications. I am a research fellow with the Mercatus Center, a 501(c)(3) research, educational, and outreach organization affiliated with George Mason University.[1]

As part of the Mercatus Center's ongoing program to assess the costs and outcomes associated with regulation, we recently held a symposium on public safety communications interoperability. The full proceedings of the symposium, including video of the event and copies of the four papers presented, are available at the Mercatus Center website. The papers that were presented will be published in a forthcoming edition of the Federal Communications Law Journal. I am the author of one of the studies and it is the basis for much of my testimony.

I. Introduction

In an ideal world all first responders should be able to communicate with one another whenever the need arises. Unfortunately, however, agencies and jurisdictions that should be able to talk to each other often cannot. The reason is that their communications systems are not interoperable. That is, because they use different frequencies or transmission standards, one agency's radios cannot receive or transmit messages to another agency's radios. A 2004 survey by the U.S. Conference of Mayors found that about a quarter of cities polled did not have a communications link between their police and fire departments.[2] More than 80 percent reported that they did not have the capability to communicate with FEMA, the FBI, and other federal agencies.[3] Forty-nine percent of cities said they are not interoperable with

[1] This testimony reflects only my views and does not represent an official position of George Mason University.

[2] THE UNITED STATES CONFERENCE OF MAYORS, INTEROPERABILITY SURVEY: A 192-CITY SURVEY 6 (2004).

[3] *Id.* at 7.

the state police, and 44 percent reported an accident within the preceding year in which a lack of interoperable communications made response difficult.[4]

Despite the resources that have been dedicated to it, the interoperability problem persists. To find a long-term solution that enables completely interoperable communications between all necessary emergency responders, we cannot be limited in our thinking by the current system of public safety spectrum allocation, funding, or acquisition. Conventional approaches to interoperability include patching two or more incompatible radio systems using a gateway,[5] or simply encouraging agencies to better coordinate their radio deployments without clear incentives for them to do so. These approaches are born out of practicality and encompass eminently sensible steps that can and should be taken immediately to improve interoperability. However, while there is a pressing need to address the short-term demands of first responders, a more important is the "wholesale assessment of long-term spectrum needs" and policy.[6] Our common goal should not be to determine how existing systems can be tweaked to allow a modicum of increased compatibility, but rather to rethink public safety spectrum policy so as to achieve national universal interoperability.[7]

II. Causes of the Problem: Balkanization

To its great credit, the FCC recently acknowledged that the current system of assigning spectrum licenses to individual jurisdictions helps create an environment of balkanized and incompatible radio systems.[8] In fact, that policy is the root cause of the interoperability problem because it causes a collective action problem.[9]

The term collective action refers to activities that, in order to be successful, require two or more persons or entities to coordinate their efforts.[10] Collective action is therefore

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[4] *Id.* at 8.

[5] In telecommunications, a gateway is a network node that allows interfacing with another network using different protocols. In essence, two networks are patched together at a gateway, which translates the differing protocols.

[6] FEDERAL COMMUNICATION COMMISSION, REPORT TO CONGRESS ON THE STUDY TO ASSESS THE SHORT-TERM AND LONG-TERM NEEDS FOR ALLOCATIONS OF ADDITIONAL PORTIONS OF THE ELECTROMAGNETIC SPECTRUM FOR FEDERAL, STATE, AND LOCAL EMERGENCY RESPONSE PROVIDERS 3 (Dec. 19, 2005) [hereinafter Needs Report].

[7] One of the findings contained in the FCC's resent report to Congress on the communications needs of public safety is that "[e]mergency response providers would benefit from the development of an integrated, interoperable nationwide network capable of delivering broadband services throughout the country." Needs Report at ¶ 2. *See also* Needs Report at ¶¶ 12, 17, & 19.

[8] *Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010*, Ninth Notice of Proposed Rulemaking, 21 FCC Rcd 14837 (2006) [hereinafter "Ninth NPRM"] at 6.

[9] Jerry Brito, *Sending Out an S.O.S: Public Safety Communications Interoperability as a Collective Action Problem*, FED. COMM. L.J. (forthcoming 2007), *available at* http://papers.ssrn.com/abstract=960769 (explaining that the interoperability problem is a collective action problem).

[10] TODD SANDLER, COLLECTIVE ACTION: THEORY AND APPLICATIONS 1 (1992).

group action meant to further the interests of the group.[11] A collective action problem is simply a situation in which the rational course of action for the individual members of the group does not coincide with the group-oriented course of action necessary to obtain the "collective good."[12] As a student of the collective action problem has summarized, "individual rationality is not sufficient for collective rationality."[13]

In his seminal work, *The Logic of Collective Action: Public Goods and the Theory of Groups*, economist Mancur Olson showed that large groups usually do not act collectively absent outside compulsion or an independent inducement to individual group members.[14] The problem of public safety interoperability is a classic example of the collective action problem that Olson described.[15] We can apply Olson's theory of groups to public safety communications to show that although interoperability might be in the common interest of all public safety entities, individual entities have little incentive to assume the costs of achieving it.

We often assume that if a group of individuals has a common interest, they will work together to achieve their common goal. One of Olson's greatest insights was that the size of a group determines whether its individual members will act collectively. Small groups have a better chance of acting collectively for two reasons. First, an individual member of a small group may be better off if the collective good is provided even if she has to bear its entire cost.[16] That member will therefore undertake to provide the good herself even if she cannot exclude others from its benefits. Olson called such groups "privileged."[17] Second, in a sufficiently small group, if one member stops contributing for the collective good, the cost to the other members will rise noticeably such that they might refuse to continue making contributions themselves, and the collective good would no longer be provided.[18] Realizing that this would be the outcome, a member of a small group that values the collective good more than his contribution will likely continue to contribute. Olson called these groups "intermediate" groups.[19]

Members of a large group, however, may share a common interest in the collective good but nevertheless fail to coordinate. Olson called these large groups "latent" groups because they have the potential to be spurred to collective action either through compulsion or individual incentive. He explained:

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[11] *Id.* at 1.

[12] *Id.* at 3-4.

[13] *Id.* at 3

[14] MANCUR OLSON, THE LOGIC OF COLLECTIVE ACTION 2 (1965).

[15] Viktor Mayer-Schonberger, *Emergency Communications: The Quest for Interoperability in the United States and Europe*, 7 INT'L J. COMM. L. & POL'Y 2 (2002/2003) at n.89 and accompanying text.

[16] OLSON, *supra* note 14, at 49-50.

[17] *Id.* at 49-50.

[18] *Id.* at 44.

[19] *Id.* at 50.

> [The "latent" group] is distinguished by the fact that, if one member does or does not help provide the collective good, no other member will be significantly affected and therefore none has any reason to react. Thus an individual in a "latent" group, by definition, cannot make a noticeable contribution to any group effort, and since no one in the group will react if he makes no contribution, he has no incentive to contribute. Accordingly, large or "latent" groups have no incentive to act to obtain a collective good because, however valuable the collective good might be to the group as a whole, it does not offer the individual any incentive to pay dues to any organization working in the latent group's interest, or to bear in any other way any of the costs of the necessary collective action.[20]

The group for our purposes is the universe of all potentially interoperable public safety entities. The collective good is interoperable communications. This means that every member of the group—i.e., every public safety agency—would presumably benefit from interoperability and it is thus a goal they all share. However, the group is very large and thus latent. There are about 50,000 potentially interoperable public safety agencies in the United States[21] comprising an estimated 2.2 million personnel.[22] Applying Olson's theory, we see that no single public safety agency can make a noticeable contribution to a group effort to achieve interoperability, and since no one in the group will react if another agency makes no contribution, public safety agencies have no incentive to contribute. Olson also pointed out that the larger a group is, the higher the cost of organizing the group will be, and therefore "the smaller the fraction of the total group benefit any person acting in the group interest receives, and the less adequate the reward for any group-oriented action[.]"[23]

We can therefore see that the collective action problem exists because there are about 50,000 public safety agencies independently building their own communications networks. This balkanization of public safety networks is a result of the federal spectrum policy doling out licenses to each of those agencies. The effect of this policy is that each recipient of a public safety license—that is, each agency or jurisdiction—must build out and operate its own communications system. This arrangement has the advantage of letting each agency or jurisdiction tailor its radio system to its own unique needs.[24] At the same time, however, it has the effect of creating a large "latent" group of over 50,000 licensees. Absent

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[20] *Id.* at 50.

[21] The number of public safety agencies in the U.S. has been estimated to be around 50,000, although an exact number is not available. *See* Sen. John McCain, *Floor Speech On Interoperable Communications For Public Safety Officials* (Sep 13, 2005) *available at* http://mccain.senate.gov/index.cfm?fuseaction=Newscenter.ViewPressRelease&Content_id=1607 (estimating the number at 50,000; WILIAM L. PESSEMIER, TOP PRIORITY: A FIRE SERVICE GUIDE TO INTEROPERABLE COMMUNICATIONS 11 (International Association of Fire Chiefs 2006) (estimating the number at over 50,000); Mayer-Schoenberg, *supra* note 15, at n.33 and accompanying text (estimating the number at almost 60,000).

[22] PUBLIC SAFETY WIRELESS NETWORK, *A Priority Investment for America's Future* 5 (1999).

[23] OLSON, *supra* note 14, at 48.

[24] JON M. PEHA, FROM TV TO PUBLIC SAFETY: THE NEED FOR FUNDAMENTAL REFORM IN PUBIC SAFETY SPECTRUM AND COMMUNICATIONS POLICY 5 (New America Foundation, Wireless Future Program Working Paper No. 15, Oct. 2006).

coordination, these independent public safety licensees will not interoperate with the other licensees in the group. As we have seen, members of large groups lack an incentive to coordinate, and public safety agencies also often face disincentives as well. As a consequence, they build custom systems independently of each other, and these systems generally do not interoperate.[25]

The balkanization of public safety communications is not only an impediment to interoperability, but also results in pure waste. This is because thousands of uncoordinated, independent communications networks use more spectrum and equipment than if a coordinated approach were employed. For example, public safety spectrum licenses can only be assigned for a particular band with a certain number of channels.[26] A small agency with only a few officers would nevertheless be given such an assignment even if they did not use all the capacity.[27] In contrast, a family or a small business can purchase only the number of mobile communications handsets it needs from a commercial provider thereby leaving the rest of the available channels to other consumers.

Carnegie Mellon engineering professor Jon Peha has calculated that the number of antennas deployed by public safety entities nationwide correlates less with population or geographic area than with the number of political jurisdictions.[28] This means that more antennas are put up, and more spectrum is used, than is necessary to cover an area simply because local agencies and jurisdictions do not coordinate to share antennas and spectrum. Peha also points out that "the number of antenna towers, base stations, and repeaters used by a public safety agency are largely independent of the number of responders using that agency's wireless system where this number does not exceed 100, and 85% of US public safety agencies support no more than 100 users."[29]

In contrast, a commercial network operator will not employ more spectrum or equipment than necessary to produce a given amount of communications capacity at a certain quality level.[30] Commercial management of spectrum has been shown to be consistently more efficient than government management.[31] Unlike public safety users, commercial carriers have an incentive, as well as greater freedom, to combine into larger

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[25] PEHA, *supra* note 24, at 5.

[26] Jon M. Peha, *How America's Fragmented Approach to Public Safety Wastes Money and Spectrum*, PROC. TELECOMM. POLICY RESEARCH CONF. 8 (Sep. 2005) *available at* http://web.si.umich.edu/tprc/papers/2005/438/Peha_Public_Safety_Communications_TPRC_2005.pdf.

[27] *Id.* at 8.

[28] *Id.* at 8.

[29] *Id.* at 8 (citing Booz, Allen & Hamilton, *Cost Study Data Characterization Report*, The Public Safety Wireless Network (PSWN) Program, Feb. 1999.).

[30] Mark M. Bykowsky & Michael J. Marcus, Facilitating Spectrum Management Reform via Callable/Interruptible Spectrum, PROC. TELECOMM. POLICY RESEARCH CONF. 15 (Sep. 13, 2002) at 9-10, *available at* http://tprc.org/papers/2002/147/SpectrumMgmtReform.pdf.

[31] *See* Gerald R. Faulhaber & David Farber, Spectrum Management: Property Rights, Markets, and the Commons (unpublished manuscript on file with author) *available at* http://assets.wharton.upenn.edu/~faulhabe/SPECTRUM_MANAGEMENTv51.pdf.

and more efficient networks.[32] Public safety agencies do not have the same incentives because they do not face the true cost of spectrum. One reason they do not face the true cost of using spectrum is that they receive their spectrum for free. In addition, they cannot sell or lease it. If they could sell or lease the spectrum, they would have to take into account what economists call the "opportunity cost" of using the spectrum: the revenues they would give up by using the spectrum themselves instead of letting someone else use it.

For example, as the price of a good decreases, its consumption increases. Because public safety agencies are faced with an artificially low opportunity cost they will be induced to use more spectrum than would otherwise be efficient and therefore waste spectrum.[33] In contrast, public safety agencies face correct opportunity costs when it comes to patrol cars and guns. Instead of direct gun or car subsidies, police departments are given budgets that they then use by weighing the money's alternative uses.[34] Faced with alternative uses for a budget, a police department will presumably not buy more guns or cars than it needs or can use.

Assigning licenses to end-user agencies also generates waste because public safety agencies do not have a "comparative advantage" in designing and building communications systems. Economist Thomas Hazlett has likened the current public safety spectrum policy to "shipping each police department tons of steel, plastic and rubber to make them responsible for constructing their own patrol cars."[35] More aptly, it is like shipping them the materials and then letting them contract with Ford or Toyota to build for them a custom-tailored car. Most public safety agencies will contract with communications services firms like Motorola to build their custom system. This is inefficient because it inhibits firms from achieving economies of scale. While Ford can build thousands of one car model cheaply, if it had to design and build only 300 squad cars, those cars would no doubt be much more expensive. The same applies to radio communications. While a mobile carrier such as T-Mobile has millions of customers on its network over which to amortize an investment in an advanced network, the typical police department has fewer than a hundred officers.

III. Solutions: Commercial Provision, Shared Use, and National Provision

There are ways that a collective action problem can be overcome or avoided altogether. Mancur Olson posited that members of a latent group could be induced to rationally act in a group-oriented way only through a "separate and 'selective'" incentive.[36] By this he meant that a new incentive would be required that "operates, not indiscriminately, like the collective good, but rather *selectively* toward the individuals in the group."[37] Olson

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[32] Thomas W. Hazlett, *Is Federal Preemption Efficient in Cellular Phone Regulation?*, 56 FED. COMM. L.J. 155, 201-202 (2003).

[33] Bykowsky & Marcus, *supra* note 30, at 10

[34] Joshua Marsh, *Secondary Markets in Non-Federal Public Safety Spectrum*, PROC. TELECOMM. POLICY RESEARCH CONF. 8 (Sep. 2004) at 8, *available at* http://web.si.umich.edu/tprc/papers/2004/384/tprc.pdf.

[35] Thomas W. Hazlett, *Katrina's radio silence*, FINANCIAL TIMES (Oct. 24, 2005).

[36] OLSON, *supra* note 14, at 51.

[37] *Id.* at 51.

called latent groups that acquire a collective good through selective incentives "mobilized" because they have been stimulated into action.[38]

Consumers who want to utilize wireless communications could conceivably license spectrum and build their own radio systems. If they did this they would have to coordinate their actions in order to talk to each other. However, this is a nonissue because consumers have an incentive to simply subscribe to an existing wireless network, both because it is cheaper than building a new system from scratch and because subscribing to a network gives you access to everyone else on that network. Any collective action problem is thus avoided because the *individual rationality* (choosing the cheapest and most effective alternative) coincides with the *collective rationality* (interoperability). The individual incentive in this case is provided by commercial wireless carriers who themselves have an incentive to offer the right mix of price and quality to consumers.

Commercial provision of first responder communications is therefore a viable solution to the collective action problem that results in a lack of interoperability. It is technically and practically feasible for a private firm to create a network on which it leases communications capacity to public safety agencies, much like commercial wireless phone carriers sell subscriptions to consumers. A public safety agency might join such a network if it was offered a selective incentive, such as lower costs, better quality, or some other benefit that it could internalize. Public safety agencies that subscribe to the same network would be interoperable by virtue of being on the same system. An interconnection requirement could ensure interoperability among the subscribers of different networks.

A private sector national network for public safety is not an untested idea. In the U.K., the national network that supports police, fire and over a hundred other public safety services is owned and operated by O2, a private firm.[39] Many of Iowa's first responders, including the Polk Country Sheriff's Office—which serves Des Moines—subscribe to the RACOM Network, a privately owned wireless network.[40] The network is completely interoperable, which means that any user on it can talk to any other user. Most public safety agencies in RACOM's service area—such as the Sioux City police and fire departments—use RACOM's network for their communications. However, the network also carries communications from many commercial customers, such as private roadwork contractors and industrial plants, including those of John Deere and Rockwell Collins. Utilities, such as gas, water, and electric, also subscribe to the RACOM network. Today, the RACOM network carries traffic from about 10,000 radio units, 70 percent of which belong to public safety users. Fifteen percent of the users are utilities, and the other fifteen are private enterprises. The network handles over 50 million voice calls a month over 100 individual tower sites.

Several start-up companies, including Cyren Call and Frontline Wireless, have proposed plans to deploy national public safety broadband networks along these lines. The

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[38] *Id.*

[39] General information about this venture is available at http://www.airwaveservice.co.uk.

[40] General information about RACOM and its network is available at http://www.racom.com.

FCC has also begun a proceeding to 12 of the 24 MHz of public safety spectrum in the 700 MHz band for a national public-private broadband network. All of these plans should be commended for leveraging the private sector to solve the interoperability problem. Each proposals has similar features:

- Each would create a national network rather than balkanized local services.
- Each would allow private companies to build and operate the network.
- Each would allow the resulting network to be shared by first responders and commercial users, with public safety having priority access.

This is exactly the approach that will help overcome the interoperability problem. Any successful policy will embrace those market-oriented characteristics in order to provide the right incentives to both commercial carriers and first responders. However, each of the individual proposals has certain drawbacks that should be noted.

Cyren Call's proposal, for example, asks Congress to allocate half of the spectrum now slated for auction in the 700 MHz band to public safety. The plan then calls for a National Public Safety Broadband Trust to purchase a license to the spectrum, not at auction, but for a flat rate and backed by government loan guarantees. The trust would then contact a private network manager who would in turn subcontract build-out of the network. Under this plan, not only would the federal treasury lose out on the likely greater revenue an auction would generate, but, more importantly, consumers would do without the new services and lower prices that commercial carriers would offer if that portion of the spectrum were sold at full market value.

As we have seen, however, public safety does not need more spectrum, what it needs is reform that changes how the spectrum already allocated to it is used. As Jon Peha's studies have shown, public safety agencies severely underutilize the spectrum now assigned to them. What's more, one recent study calculated that public safety has almost 100 MHz of spectrum allocated to it nationwide—more than any of the national cell phone carriers—much of it now unused.[41] Rather than halve the amount of spectrum that will be available for flexible use a result of the digital television transition, Congress should consider allowing private sector development on *existing* public safety spectrum.

To build a shared public safety-commercial network, Frontline Wireless's plan would pair the 12 MHz of public safety spectrum in the 700 MHz band that the FCC is now considering for a national broadband network with an adjacent block of 10 MHz now slated for auction. To its credit, Frontline proposes that the 10 MHz block be auctioned as scheduled. An auction is preferable to an outright grant of a license or sale at a flat rate (as Cyren Call has proposed for the spectrum it seeks) because it helps ensure that the license is awarded to the company that values it the most and that can generate greatest economic

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[41] PETER CRAMTOM ET AL., IMPROVING PUBLIC SAFETY COMMUNICATIONS: AN ANALYSIS OF ALTERNATIVE APPROACHES (Criterion Economics, LLC, Feb. 6, 2007) *available at* http://criterioneconomics.com/docs/Improving_PublicSafetyComm_020507.pdf.

benefit. Auctions are also a fair and transparent means of spectrum allocation that avoids wasteful "beauty contests."

However, Frontline's plan calls on the FCC to reallocate the 10 MHz block in question to include a public safety obligation to build out a national first responder network. Such an obligation would doubtless depress the price the spectrum block would otherwise fetch at auction without such restrictions. Again, why give more spectrum to public safety when it already has a large amount it does not use efficiently? Instead, Congress should consider auctioning licenses, with conditions like those proposed by Frontline, for spectrum already allocated for public safety use. At the very least, if spectrum now slated for commercial auction is reallocated for public safety use in the manner suggested by either Cyren Call or Frontline, the government should identify an equal amount of existing public safety spectrum that can be auctioned commercially once the new public safety networks are built.

The plan the FCC has proposed in its recent rulemaking proceeding would license 12 of the 24 MHz of public safety spectrum in the 700 MHz band to a non-profit entity that would build out a national broadband network and offer service to first responders on a fee-for-service basis. The licensee would also be allowed to offer commercial services over excess capacity on a preemptible basis. Again, this proposal is laudable because it embraces the ideas of creating a national license and allowing spectrum to be shared by public safety and commercial users. However, the FCC proposes "that no commercial interest may be held in the national license or licensee, and that no commercial interest may participate in the management of the national license."[42] This is similar to the Cyren Call plan, which would make a "public safety trust" the licensee. This feature of the FCC's plan is odd since there are several commercial communications companies with the comparative advantage and expertise in designing, building-out, and maintaining wireless broadband networks. A for-profit mission and quality service to first responders should not be considered mutually exclusive ideals. As we have seen, private firms such O2 in the U.K. and RACOM in Iowa successfully provide first responder communications over private networks.

Finally, all of the proposed plans suggest building a single national broadband network for public safety. A single provider will not face the same incentives to provide quality service or to innovate that it would if it was competing with other carriers for first responder subscribers. A centralized network means a single choice for first responders. If they are unhappy with service or prices, unlike consumers, they will not have the option to take their business to another network.

V. Recommendations

Instead of a "centralized"[43] monopoly licensee, we should consider *competing* commercial public safety licensees. Competition among two or more national public safety broadband networks would not only give first responders a choice of provider, it would spur

[42] Ninth NPRM at ¶ 27.

[43] The FCC's plan calls for a "centralized national approach" to first responder communications. Ninth NPRM at ¶ 3.

technological innovation and would ensure that prices are kept in check. Competition among the national wireless phone networks has conferred these benefits on consumers, so it is only right that first responders benefit from the same forces.

Private commercial provision of public safety communications is not only possible, but also efficient and, most importantly, addresses the collective action problem that is the main impediment to interoperability. As RACOM, O2, and their subscribers make evident, public safety agencies can effectively purchase the communications capacity they need from private networks without having to build and maintain their own custom systems. Users of a shared network are interoperable by default. Additionally, as RACOM—and to a lesser extent O2—demonstrate, public safety users can successfully share a network with private commercial users thereby broadening economies of scale.

The structure of an ideal commercial shared-use public safety communications system would be much like today's wireless telephone network, with multiple competing national carriers that all interconnect. Instead of creating one centralized national network, we should consider issuing two or more spectrum licenses subject to certain public safety obligations, including interconnection and prioritization. Issuing two or more licenses—perhaps using all 24 MHz of public safety spectrum in the 700 MHz band—would avoid the establishment of a strong incumbent monopolist. Ideally, these licenses would be assigned by auction to avoid rent seeking, as well as to potentially raise funds for public safety to use to pay for service.

If achieving interoperability is the ultimate goal, then requiring interconnection among competing carriers is crucial. It is conceivable that shared-use networks would voluntarily interconnect, if only because commercial users of the network might demand the benefits of increased network effects.[44] However, because interoperability will be the prime objective of a new policy, interconnection should be required between all licensees. Another key requirement to which competitive public safety licenses should be subject is prioritization—giving public safety users priority over commercial users in shared networks. This can be achieved either by a term in the spectrum license, or through terms in a contract for service. Because the spectrum at issue is allocated for public safety, a license term would be more appropriate.

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[44] Gerald W. Brock, *Interconnection Policy and Technological Progress*, 58 FED. COMM. L.J. 445, 452 (explaining that the Internet is unregulated but interconnected).

Hearing on
Oversight of NTIA and Innovations in Interoperability

Statement of
Jon M. Peha
Professor of Electrical Engineering and Public Policy, and
Associate Director of the Center for Wireless & Broadband Networking
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Before the
Subcommittee on Telecommunications and the Internet
House Energy and Commerce Committee
US Congress

March 22, 2007

Members of the Committee,

I applaud you for holding a hearing on this important topic. The communications infrastructure used today by American first responders is disgracefully inadequate, especially in view of threats to homeland security since 9/11. Congress could change that.

When public safety communications systems fail, people can die. We have seen this occur after the 9/11 attacks, after Hurricane Katrina, and in countless large and small emergencies throughout the country. Many of these tragic failures are avoidable.

In addition to suffering from much-discussed interoperability problems, the communications systems used by public safety are less dependable than they should be, less secure than they should be, and less spectrally efficient than they should be. Ironically, they are also more expensive than they should be, which means tax-payers pay extra for systems that are unnecessarily prone to failure [1].

The fact that public safety's spectrum use is far less efficient than commercial cellular has prompted some to argue that public safety should get no more spectrum. However, until the federal government addresses the cause of these inefficiencies, it must feed public safety's inevitable growing hunger for spectrum. Addressing the cause may involve allocating more spectrum, establishing policies so the new spectrum is used efficiently, and later reclaiming some existing allocations.

The basic problem is that decisions about public safety communications are left to tens of thousands of independent local public safety agencies. Despite the many bright and dedicated professionals working for these agencies, it simply is not possible to build a dependable, cost-effective system this way. First responders should have a single nationwide broadband communications system [2] with technology that is based on open standards. This requires federal leadership.

Lack of resources is not the biggest barrier to a nationwide system for all first responders. Congress has funded many grant programs, but this money tends to be used to prop up existing systems rather than develop a far more effective system, so there has been little progress. Other federal funding and spectrum are going to the Integrated Wireless Network (IWN) [3], a costly nationwide system for federal first responders that does nothing for state and local first responders.

The digital television transition provides an outstanding opportunity for effective action, as public safety will have a band that is unfettered by outdated technologies and policies. If the right policies are put in place, this spectrum can support a nationwide system that is good enough to replace many of today's municipal systems. Local agencies could migrate to this nationwide system over time. This will ultimately end technical interoperability problems. In the long run, it will save both money and spectrum, thereby making some valuable spectrum that is currently used inefficiently by public safety available for commercial use.

A variety of approaches have been proposed for the creation of a nationwide public safety communications system (as summarized in [4, 5]). Two stand out for attention here. One is to build a nationwide system primarily for emergency responders, perhaps in half of the 24 MHz of television spectrum already allocated to public safety [6]. A federal agency would define the architecture of this system, regardless of whether the system is run by this federal agency, or by many state or regional organizations. This use of public safety's new 24 MHz allocation would require action from the FCC, but (as described further in [7]) such action is roughly consistent with the current FCC proceedings. This approach also requires action and funding from other federal agencies, and therefore legislation from Congress.

The other reasonable approach is for a commercial company (or companies) to build out infrastructure that serves both first responders and the public. This may be quite efficient because public safety needs access to significant capacity during large-scale emergencies, but most of the time their needs are modest, and others can use this capacity. In effect, a commercial company would get access to valuable spectrum at a reduced cost in return for obligations to serve public safety, and thanks to the efficiencies of sharing, it is possible that everyone benefits from the substantial savings. However, this approach also carries a substantial risk. If policy-makers are not careful, spectrum will be allocated to commercial companies at a huge discount, with little benefit to public safety. Unless strong build-out requirements are imposed *before* licensing, commercial companies may only serve the most populous areas. Assigning this spectrum to a commercial company or to a well-intentioned public trust without an explicit commitment to serve first responders

throughout the country would be a high-risk gamble. In addition, commercial companies may fail to meet the strict dependability, security, and coverage requirements of public safety, or these companies may raise public safety fees to an unacceptable level.

The real question is whether a reasonable local agency would benefit by giving up its old communications system to use the new one. A local police chief would be foolish to give up his own communications system in favor of a commercially-run nationwide system unless price and quality are guaranteed to be reasonable, not just at the time of the change, but indefinitely. Once this police chief has made the switch, he cannot go back.

Companies like Cyren Call [8] propose to create an infrastructure that would serve both first responders and paying customers. There are many good ideas in the Cyren Call proposal, and it deserves serious attention. However, the proposal in its current form does not provide enough protection for a local police chief to make this his department's primary communications system. If the company fails to meet public safety requirements, neither the police chief nor the FCC nor a public safety trust can take serious action, except to revoke the license and leave the police with no communications services at all. Thus, these proposals will not solve the fundamental problems of public safety.

I have proposed a policy that could solve this problem (as presented in greater detail in [7]). A commercial carrier would get an unusually long spectrum license, and broad latitude to serve the public for a profit with infrastructure operating in this spectrum. The carrier would also be obligated to serve public safety on the same infrastructure, while meeting strict standards on coverage, dependability, security, and price. Moreover, representatives of public safety may change these standards over time, as technology and needs change. If the company is unwilling or unable to meet these standards, then when the license expires, the company may be forced to surrender its spectrum and its infrastructure to the next operator with no disruption in service. This new operator might be the highest bidder in a new auction for the expiring license. This method of replacing a company that is not meeting public safety's needs make it possible to enforce standards.

To conclude, I urge Congress to pass legislation that would yield a nationwide broadband communications system for first responders. There are two reasonable ways to do this. A system serving emergency responders could be deployed in spectrum already intended for public safety if Congress establishes and funds a federal program to do so. In the long run, this will save tax-payer dollars, save spectrum, and save lives. Alternatively, this could be accomplished by giving commercial companies access to a larger block of spectrum on the condition that they serve public safety as well as the general public. This approach can only work if strong build-out requirements are imposed before the spectrum is licensed, if requirements on price, coverage, dependability, and security are established and periodically revised, and if strong mechanisms are established that allow some federal agency to rigorously enforce these standards with no risk of disrupting services to public safety.

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[6] J. M. Peha, "Protecting Public Safety With Better Communications Systems," *IEEE Communications,* Vol. 43, No. 3, March 2005. www.ece.cmu.edu/~peha/safety.html

[7] J. M. Peha, *A New Proposal for a Commercially-Run Nationwide Broadband System Serving Public Safety*, Comments in Federal Communications Commission PS Docket No. 06-229 and WT Docket No. 96-86, Feb. 7, 2007. www.ece.cmu.edu/~peha/safety.html See appendix 1.

[8] M. E. O'Brien, Cyren Call, *One Nation Indivisible Building a Next Generation Wireless Network for Public Safety,* Before the FCC in the matter of Reallocation of 30 MHz of 700 MHz spectrum From Commercial Use, April 17, 2006, www.cyrencall.com/downloads/CyrenCall_PetitionRulemaking.pdf

APPENDIX 1

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	)	PS Docket No. 06-229
	)	WT Docket No. 96-86
Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010	)	

A New Proposal for a Commercially-Run Nationwide Broadband System Serving Public Safety

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February 2, 2007

1 Introduction

Chairman Martin and the Federal Communications Commission (FCC) deserve great praise. Through this notice of proposed rule making (NPRM) [3], the FCC wisely reiterates [2] its support for the goal of establishing an "integrated nationwide interoperable network capable of delivering broadband communications" [3], and the FCC implicitly acknowledges that US policy-makers must consider new and different approaches to reach that important goal. As I [6-10] and others have been arguing for some time, there are serious deficiencies in the communications systems used by first responders, and instead of merely expending more limited resources on a poor system, we should enact fundamental reform.

The FCC proposes a basic approach that has great promise, but also potential dangers. This paper will discuss issues that deserve serious attention, and it will propose a new policy that is consistent with many aspects of this NPRM, but has extensions and modifications that would increase the chances of success, and eliminate much of the risk.

While the FCC clearly plays a critical role on this issue, no one government agency has the resources and authority needed to make all of the necessary changes. There should be a concerted effort from multiple federal agencies, as well as state and local organizations. By sad necessity, the FCC is proposing in this NPRM to act alone in this NPRM, and that limits the options available. However the FCC has begun an important process, and we can hope that others will follow the FCC's lead. This paper will also address some of the areas where other federal agencies could make critical contributions, perhaps initiated by an act of Congress or leadership from the Administration.

2 The Model for Success

This NPRM concerns 12 MHz of spectrum intended to improve public safety. Consequently, the goal should be to deploy a system in this band that is so effective that public safety agencies will choose to use it as their primary communications system. Over time, municipal agencies will be able to abandon their current systems and their current technology in favor of the new nationwide system operating in this band. In the process, they will free up valuable spectrum, much of which is being used inefficiently, for other uses. To achieve this, we must accept as constraints that the quality of the nationwide system must be better than today's public safety systems, and the total annual cost paid by municipal public safety agencies using the nationwide system must be less than today's total costs [10].

If first responders merely use the systems deployed in this band to supplement their current communications system, the policy should be deemed a failure. This is not to say that supplementing current systems is bad. As I have discussed in greater detail elsewhere [9, 10], first responders in a given location should often have access to multiple wireless systems. In most cases, there would be one *primary* system, which can

support mission-critical voice communications that meet public safety's rigorous standards. There may also be one or more *secondary* systems, such as commercial cellular, municipal wifi, or satellite, which need not meet the same requirements for characteristics such as coverage, dependability, and latency, but are very useful nonetheless. There are many advantages to expanding the number of secondary systems available to public safety, including dependability, coverage, and expanded capabilities. This should be done by making commercial spectrum and commercial infrastructure more accessible to public safety, e.g. by giving municipal agencies greater latitude to make use of any commercial services that happen to exist in the area, or by encouraging public safety and commercial carriers to use compatible technologies in near-by spectrum bands [9] . However, for any initiative that consumes the limited spectrum intended to improve today's public safety communications systems, we must demand far more. The FCC must take explicit steps to insure that the systems deployed in this band will be primary systems for public safety.

A variety of approaches have been proposed for the creation of a nationwide public safety communications system that is good enough to be a primary system [9, 10]. Two stand out for attention here. The simplest would be for a government agency such as the National Telecommunications and Information Administration (NTIA), the Department of Homeland Security (DHS), or the Department of Justice (DoJ) to build a nationwide system for emergency responders (and perhaps some other government personnel), as proposed in [8]. This option is roughly consistent with this NPRM; the license would simply be granted to a government agency, and not to a non-profit organization as discussed in the NPRM. However, it may be possible to serve public safety well at much lower costs by allowing emergency responders and commercial users to share the same infrastructure. In effect, a commercial company will get access to valuable spectrum at a reduced cost in return for obligations to serve public safety, and thanks to the efficiencies of sharing, it is possible that everyone benefits from the substantial savings. In this paper, we propose an approach through which the FCC and other agencies should seek ways to exploit the potential advantages of sharing. This approach is also roughly consistent with the current NPRM, but some changes would be needed.

3 The Fundamental Challenge

As discussed in [9, 10], there are pros and cons to an infrastructure that serves both public safety and commercial users. One big advantage is based on the fact that first responders need significant capacity during large emergencies, but most of the time, their communications needs are small [1]. Thus, if a system is dedicated to first responders exclusively, a great deal of capacity will sit idle much of the time. Sharing would make this capacity available to the public. Commercial carriers would be far more effective at serving the public than government entities, and the potential revenues from serving the public could motivate commercial companies to pay much of the cost of building out an infrastructure that also serves emergency responders.

The biggest disadvantage of a commercial company that serves both groups is that there may be conflicts between protecting public safety and maximizing profit, especially when most of the company's revenues come from commercial users rather than public safety agencies [9, 10]. If there is significant risk that the company will not serve public safety adequately, public safety agencies would be foolish to give up their primary systems, which means the policy will fail.

Why might there be a conflict between serving public safety and maximizing profit? First, the company may choose to serve only the most populous parts of the country, where there are more paying customers. Second, the company may overcharge public safety. This NPRM would allow the company to charge public safety on a fee-per-use basis. Once a public safety agency abandons its existing system and relies on the commercial company for service, there is no limit to what that company could charge; sending firefighters into burning buildings without communications services would not be an option. Moreover, even if the provider offers services to public safety for free, this does not solve the problem. The company may still offer a service that does not meet costly public safety requirements for coverage, dependability, security, or other vital features, and the public safety agency that has adopted this as its primary system would have no recourse. We cannot place an unregulated for-profit monopoly in charge of critical infrastructure.

These potential advantages and risks associated with shared infrastructure have two important implications. First, the FCC and others must take steps to insure that the licensee of this band will have sufficient incentive to meet the needs of public safety. Second, there is a possibility that it is not possible to craft adequate protections for public safety without discouraging commercial companies from participating. The FCC should therefore maximize advantages to the licensee to the extent possible without harming public safety. Moreover, the FCC make sure that if this turns out to be the case, the spectrum will still be available to be used in another way, like creating a nationwide system run by a federal agency exclusively for emergency responders. In other words, if licenses are offered for systems that serve both public safety and commercial users, then either the systems must be adequate for public safety, or the license should not be assigned at all. This means that a licensee must accept meaningful requirements for build out and other factors.

To summarize, an effective policy must

- guarantee that infrastructure operating in this band covers most of the country, and is of sufficient quality to serve as a primary system for public safety.
- if possible, offer sufficient profit potential to commercial companies who build and operate this infrastructure that they want the opportunity.
- insure that if the two points above are incompatible, no license is issued that allows spectrum to serve both public safety and commercial users.

4 Can a Non-Profit Organization Protect Public Safety?

As the previous section shows, it is not sufficient to state requirements that a licensee must meet initially. If public safety agencies are going to accept the nationwide system as a primary system, they must know that price, coverage, dependability, and security will remain of sufficient quality, even after the initial license expires. Moreover, requirements must change over time. For example, in 20 years, first responders may need access to much higher data rates than they do now, or coverage in areas that are of little importance now. Among other things, updating these requirements over time will require ongoing oversight by some entity that listens to the needs of public safety and seeks only to advance the public interest.

In this NPRM, that entity would be a non-profit organization to which the spectrum license is assigned. In essence, the FCC would be outsourcing the job of managing the spectrum to this non-profit. There are certainly advantages to outsourcing these functions, but there are also serious risks. After all, this organization will oversee the deployment of infrastructure that is worth billions of dollars. Every move it makes will be scrutinized by equipment vendors and potential service providers. Its leadership must be strongly motivated to serve the public interest, while countless Fortune 500 companies try to influence its decisions. Finding an appropriate method to select leaders with this motivation will not be easy. Moreover, decisions of this organization must be transparent to the public, in many of the same ways that the FCC's decisions are transparent. If the organization will have vast management powers, as opposed to an advisory role while authority remains with the FCC, the organization must commit to an appropriate method of filling leadership positions, and transparency, to be eligible for a license. There is no question that a non-profit representing public safety interests could play an important role in this band, but the decision to give this organization broad discretion to manage the band should not be taken lightly.

There is another potential challenge. As discussed in Section 2, infrastructure should only be deployed in this band if it can be deployed throughout much of the country. This is relatively easy to insure if the licensee accepts strong build-out obligations. However, the non-profit organization cannot be sure that such obligations will be met, since it is not putting up the capital to build the system. The situation is not impossible. The non-profit might be given one year to make the spectrum available to one or more carriers who will actually build the infrastructure, and these carriers will agree to a build-out schedule that collectively meets the FCC's requirements. If the non-profit is not able to do this, then all contracts become null and void, and the non-profit surrenders the license. Once again, it is possible for a non-profit to play this role rather than the FCC, but it is not simple.

The FCC should have a good reason to make this non-profit the licensee. I will propose one such reason in the next section.

5 A New Way to Protect Public Safety

In [9, 10], I suggest a variety of ways to motivate commercial companies to meet the long-term needs of public safety, even when most of their revenues come from commercial customers. The one that would offer public safety the strongest protection would work as follows. A commercial company competes in an auction for a license to operate in the band. The license includes build-out and other requirements to insure the needs of emergency responders are met for the duration of the license. The company is also free to serve the public over the same spectrum and infrastructure. There are limits on the fees that the company can charge to public safety, but no limits on the fees charged to others.

The license is unusually long-term, perhaps twenty years. Several years before the license expires, the non-profit representative of public safety may establish new requirements that will become effective after the license is renewed. If the requirements are too strict, the licensee may worry about long-term profitability. In this case, it simply will not seek renewal, and the license is auctioned again. In this case, when the license expires, the first licensee must surrender the infrastructure to the new licensee. Public safety is never at risk in this approach.

Two issues must be addressed for this approach to work. First, there must be a legal mechanism through which the infrastructure can be reclaimed from the company that first built it. It is not clear to me whether the FCC would have the legal authority to take possession of this property. (This is an area that deserves further investigation.) If not, the non-profit organization proposed by this NPRM could certainly become the legal owner of infrastructure built in this band, as well as the licensee.

The second issue is that commercial companies must have sufficient incentive to build infrastructure knowing there is a chance that they could lose the infrastructure in around twenty years. For this to be true, revenues during those twenty years must cover the cost of building the infrastructure, plus an acceptable rate of return on investment. This is a topic that deserves further analysis, and as described in the next section, an area where Congressional action could be invaluable.

Although the derivation is not yet public, Cyren Call alleges [4] that if 30 MHz were available, revenues would be sufficient to build infrastructure in just 63.5% of the country (and 75% of the continental US). With only 12 MHz, clearly the area covered would be significantly less. If this is truly the best we can expect from sharing, then it might be possible to achieve more without sharing, i.e. by auctioning the majority of the spectrum at 700 MHz that will become available through the digital TV transition, and using the proceeds of the auction and the remainder of the spectrum at 700 MHz to build a system that serves only emergency responders. However, I remain hopeful that it will be possible to achieve more. Further analysis is needed to answer such questions.

6 Why and How Congress and Federal Agencies Should Act

For sharing between public safety and commercial users to work, there must be sufficient incentive for a commercial carrier to build infrastructure. As discussed above, that may or may not be the case under the conditions discussed in this NPRM. It is possible to vastly improve the terms in several ways, at least with the help of other federal agencies, and perhaps an Act of Congress.

There are a number of simple ways to make this arrangement more attractive to commercial companies. One is to increase the amount of spectrum available, possibly drawing either from the 24 MHz already allocated for public safety or from the spectrum that is currently headed for auction. This additional spectrum would allow carriers to reduce infrastructure costs by building fewer towers in populous areas, or increase revenues by expanding services offered to the public, or a combination of the two.

A second way to turn an unprofitable arrangement into a profitable one is to offer a subsidy to the company that will build infrastructure serving first responders. The initial spectrum auction could provide the perfect opportunity. As an example, consider the case where the FCC has authority to distribute up to one billion dollars, but only if needed. The right to use the spectrum can then be auctioned, where the first bid must be greater than or equal to -1 billion, which means the bidder is willing to meet the build-out obligations for a subsidy of one billion dollars. As the bids increase, bidders are agreeing to accept a smaller subsidy, and when the bids exceed 0, the bidders are willing to pay for the privilege.

A third approach is to give subsidies to municipal public safety agencies that use the new nationwide system. The federal government would cover the costs of transition [10] by paying for the first mobile handsets that operate in this band. This helps the public safety agencies, and the carrier. The sooner these agencies can purchase new handsets, the sooner they will begin to subscribe to services offered over the new nationwide system.

A fourth approach might be to guarantee that revenues from first responders never fall below a given threshold, even in the early years, as long as build-out milestones are met. This insurance policy may cost the federal government nothing, but the revenue certainty is of great benefit to a company that is contemplating a large capital investment.

There is already funding for these purposes, if the federal government chooses to spend it this way. For example, in late 2006, the lame duck Congress instructed NTIA to spend $1 billion for first responder communications, and it is not yet determined how those funds will be spent. Furthermore, the Departments of Justice, Treasury, and Homeland Security plan to spend $3 to $30 billion on a nationwide communications system known as the Integrated Wireless Network (IWN) that will serve first responders, but only the tiny fraction that work for the federal government. As discussed in [9, 10], those funds could instead fund a system that serves all first responders, and this NPRM combined with the policies described above would be an excellent vehicle.

The NPRM asks whether federal users should be allowed to use the nationwide system. Note that allowing those federal employees who would be served by IWN to use the new nationwide system would improve interoperability between federal, state, and local agencies, and it may facilitate a cost-saving reallocation of funds. There are probably other significant opportunities to serve federal agencies and save money as well. This possibility deserves further investigation.

7 The Objectives for a Nationwide System

The objectives stated in this NPRM (Section III A) are all extremely important. As it states, first responders need *nationwide interoperability*, *cost effectiveness*, *robustness* and *efficient spectrum use*. As discussed at length elsewhere [7, 9, 10], all four of these important objectives are best met with a system that is based on a consistent architecture nationwide, and a specific design that is intended to cover a large geographic region. Thus, we must move past the thousands of separate municipal systems of today. The nationwide license proposed here would help.

This NPRM also correctly calls for *broadband* and a *flexible modern architecture.* First responders clearly deserve access to new applications that will require wideband or broadband on the wireless link, and there are great advantages to an IP-based broadband backbone that interconnects both new and legacy wireless systems.

However, I include one more objective on this list: *security* [9, 10]. Particularly in an age of terrorism, communications systems for first responders may become a target. Thus, they probably need stricter security standards than today's commercial systems. Features should be available when needed to protect communications, e.g. encryption, authentication, and mechanisms that defend against denial of service attacks. Physical security for towers, interconnection points, and other critical components is also important. Thus, those who build infrastructure in the new band should also meet stated security standards.

8 License Requirements

To serve as the primary system for public safety, the nationwide system must meet all objectives as well or better than today's systems do [10]. As discussed above, this includes coverage, nationwide interoperability, dependability/robustness, and security.

Furthermore, the nationwide system should be capable of providing all essential services, including voice. It is reasonable for the NPRM to focus on broadband, because broadband is not yet pervasive, and because a system that can provide broadband service

is also capable of providing voice. Still, the FCC should add push-to-talk voice communications as an explicit requirement.

Build-out requirements are also essential. They insure that first responders outside the most populous cities will also benefit from this policy, or if this is not possible, that the spectrum will not be wasted on an ineffective policy.

The nationwide system should be built on a single architecture, with the same radio air interface throughout the nation. However, legacy systems will still exist. These can at least be connected to the same broadband backbone, presumably running IP. This implies that the licensee may be responsible for a wired backbone that even extends to areas in which wireless coverage is not (yet) available. This should be reflected in build-out requirements.

The NPRM does not discuss open standards. In the long run, a system based on open standards will be less costly than one that is built on proprietary or patented technologies. Thus, the licensee should also be dedicated to open standards.

There must also be limits to the fees charged to public safety agencies. As is well argued in the NPRM (Section III B 3), fees will encourage public safety agencies to make efficient use of the available services. However, such efficiencies come when fees are close to the marginal cost of providing a service, and not the most that the market will bear. Moreover, marginal costs are probably small compared to the annualized cost of deploying the infrastructure, especially in the early years of the system when there are fewer users. At minimum, carriers might be prohibited from charging public safety more than commercial users for a comparable service, and from charging rural public safety agencies more than urban public safety agencies. This has the potential to be effective because the carrier will face competition for commercial services in the urban markets, and this will provide practical limits on prices in those markets. However, some services used by public safety may not be comparable to any services used by the public, so these constraints are probably not sufficient. (Imposing limits on the prices paid by public safety agencies should be one of the responsibilities of a non-profit organization that represents public safety.)

9 Public Safety Sharing Spectrum, Infrastructure, or Both

As discussed above and elsewhere [1, 9, 10], first responders' communications needs are sporadic, and this can make sharing efficient. There are many forms of sharing, a number of which are contemplated in this NPRM, and some are likely to be more important than others.

First, it is possible to share infrastructure, i.e. to run communications systems that serve first responders and the public. Such infrastructure sharing within the spectrum

band in question is the very core of this proposal. It should be allowed and encouraged, provided that public safety has preemptible priority available when they need it. (Not all public safety communications require this priority, but it should not be the carrier's job to decide when public safety communications are sufficiently important. Other methods are needed.)

Infrastructure sharing is also possible outside of this band, i.e. existing commercial carriers could provide services to public safety. By nature of this arrangement, the carriers are serving as secondary communications systems rather than primary communications systems. This is a useful practice, but it does not advance the primary objectives that are appropriate for this spectrum. Consequently, such arrangements should certainly be allowed, but they should not be allowed to count towards build-out obligations.

Second, it is possible to share spectrum without sharing infrastructure. This NPRM offers the licensee the capability to operate in other public safety bands as a secondary user. The licensee must give absolute preemptible priority to the primary systems in the band. There are sharing methods that are technically possible, and there may be regions where this form of sharing would allow the carrier to expand its capacity beyond what is possible in 12 MHz. The carrier will need access to information about current and *future* plans in the band where it has secondary rights, from regional planning committees and other relevant forums.

The NPRM also contemplates allowing the licensee to make the band primarily used for the nationwide networks also available to commercial users, who would then be secondary users. This does nothing to help public safety directly, but has the potential to raise more funds to support infrastructure deployment, which is certainly worthwhile. Caution is required. First and foremost, the licensee should not be allowed to "lease" spectrum in regions where the nationwide system is not offering wireless services to public safety, as this undermines the licensee's incentives to maximize coverage.

In regions where the nationwide system is serving public safety at an appropriate level, it is reasonable to allow sharing. Indeed, there are reasons to believe that such sharing can sometimes be profitable [5]. Again, public safety must have preemptible priority available when needed. The NPRM suggests that this might be done with cognitive radio, presumably in a decentralized manner. Cognitive radio has tremendous potential, but there are spectrum bands and applications that are more conducive to a sharing scheme based on cognitive radio than this one. In the near term, it is probably easier and safer to implement this preemption function in scenarios where public safety can explicitly signal over a dependable link to the secondary user(s) to cease all transmissions.

10 Summary

The Federal Communications Commission has taken a great step forward with this NPRM, by promoting the goal of a nationwide interoperable communications systems for first responders, and by implicitly acknowledging that we must consider new approaches to fundamental change rather than minor variations on the policies that produced today's problems in the first place.

There are many ways to produce this nationwide network [9, 10], and two are particularly promising. One is for a government agency to take this 12 MHz of public safety spectrum and build a system to serve federal, state, and local emergency responders [8]. Another is to allow and encourage the private sector to build a system that serves both public safety and the public. This latter approach should only be deemed a success if the system can serve as a *primary* system for public safety throughout much of the United States, which means coverage, dependability, security, and cost must be as good or better than existing systems.

There are reasons to hope for substantial savings when first responders and the general public share the same infrastructure. If those savings can be realized, it is possible that the private sector will gladly pay much of the cost of deploying a system that is vastly superior to what public safety has today, in return for access to spectrum. Moreover, consumers could also benefit greatly from this arrangement, as there will be a new commercial broadband system serving the public throughout most of the country. However, this approach also carries a substantial risk that few regions will gain access to a system of sufficient quality for public safety, or that companies may initially offer adequate quality and prices but they will lack incentive to continue their dedication to public safety in the long run. In the worst case, we would see a system emerge that is only of marginal use to public safety, and a precious allocation of prime spectrum will be lost to public safety forever.

A policy of promoting infrastructure-sharing between public safety and commercial users must address three fundamental challenges. It must

- guarantee that infrastructure operating in this band covers most of the country, and is of sufficient quality to serve as a primary system for public safety.
- if possible, offer sufficient profit potential to commercial companies who build and operate this infrastructure that they want the opportunity.
- insure that if the two points above are incompatible, no license is issued that allows spectrum to serve both public safety and commercial users.

The third challenge can be addressed by imposing strong build-out requirements on the licensee, so that if the first two conditions cannot be met, the spectrum will quickly revert back to the FCC. This process becomes more complex and difficult if the FCC outsources much of the task of managing this band to a non-profit organization, but it is certainly not impossible. To assign this nationwide license to a well-intentioned non-profit organization or anyone else without an explicit commitment to serve first

responders throughout the vast majority of the country is gambling public safety's most valuable resource on an untested hope.

This paper proposes a new policy to address the first two challenges. A commercial carrier or carriers would get unusually long licenses and broad latitude to serve the public for a profit. They would also be obligated to serve public safety with standards on coverage, dependability, security, and price. Moreover, those standards may change over time. If the company is unwilling or unable to meet those standards, then when the license expires, they may surrender their infrastructure to the next operator.

With or without the policy above, if the profits to be gained from 12 MHz of spectrum are insufficient to cover the build out of infrastructure, then this approach cannot succeed. This paper also suggests ways to make this approach more appealing to commercial companies, although cooperation with other federal agencies is required, and possibly an Act of Congress. In particular, we propose that companies bidding in an auction for the right to build infrastructure in this band should be allowed to bid negative numbers, which represent the smallest subsidy they would accept in return for meeting public safety requirements. We also propose federal subsidies to local public safety agencies so they can quickly migrate to the new nationwide system at little or no cost. It may also be helpful to expand the amount of spectrum beyond 12 MHz. Further analysis is needed on this issue.

The FCC has shown admirable leadership on this issue. We can hope for further action from other federal agencies and the US Congress.

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[10] J. M. Peha, "Fundamental Reform in Public Safety Communications Policy," to appear in *Federal Communications Bar Journal,* 2007.[1] www.ece.cmu.edu/~peha/safety.html

[1] There is substantial overlap between [9] and [10], because the latter draws on material in the former. There are also some differences. The first paper has more content on proposals to change the bandplan at 700 MHz, and the latter on the need to address some common concerns of local public safety agencies.

APPENDIX 2

From TV to Public Safety
THE NEED FOR FUNDAMENTAL REFORM IN PUBLIC SAFETY SPECTRUM AND COMMUNICATIONS POLICY

By Jon M. Peha

Abstract

The events surrounding Hurricane Katrina and the 9/11 attacks demonstrated that the communications systems used by first responders in the United States are not adequate to meet the challenges of a post-9/11 world. The U.S. system is based on assumptions that local agencies should have maximal flexibility at the expense of standardization and regional coordination, that commercial carriers and municipal systems have little role to play, that public safety should not share spectrum or network infrastructure, and that narrowband voice applications should dominate. Many programs have been proposed to incrementally improve public safety communications systems, but without any fundamental changes to these policies, such incremental changes are likely to have limited impact.

However, a tremendous opportunity is coming thanks to the transition to digital television; 24 MHz of spectrum has been identified for reallocation from TV to public safety in 2009, roughly doubling the public safety spectrum below 2 GHz. Unless policymakers act, this new spectrum will be managed under these same old policies.

This paper explains why it is time for fundamental reform. Policy reforms should include some combination of: shifting some responsibility and authority for decisions about public safety communications infrastructure from many independent local government agencies to the federal government; further expanding the role of commercial service providers, municipal Wi-Fi networks, and other systems that serve the public; allowing public safety to share spectrum, and possibly multi-purpose network infrastructure as well, with other users; and further expanding capabilities beyond traditional voice communications. Since the TV band spectrum reallocated to public safety has few legacy systems that must be accommodated or moved, it is an excellent place to launch a new policy.

See www.newamerica.net/events/2006/from_tv_to_public_safety for full paper, plus audio and video of presentation.

UNITED STATES DEPARTMENT OF COMMERCE
Assistant Secretary for Communications
Washington, DC 20230

March 1, 2007

THE HONORABLE ELIOT ENGEL
House of Representatives
Washington, DC 20515

Dear Representative Engel:

Thank you for sharing your concerns about section 3006 of the Deficit Reduction Act of 2005, Public Law No. 109–171, and the manner in which the Department of Commerce will administer the Public Safety Interoperable Communications (PSIC) grant program created and funded by this section. The Department recognizes the significant investment the city of New York has made in improving public safety communications and interoperability.

As you note in your letter, section 3006 directs the Department of Commerce's National Telecommunications and Information Administration (NTIA) to Establish and implement a grant program to assist public safety agencies in the acquisition of, deployment of, and training for the use of interoperable communications systems that utilize, or enable interoperability with communications systems that can utilize, certain frequencies in the 700 MHz band. NTIA does not view this language to limit the grant funds only to 700 MHz systems investments. Rather, NTIA is committed to exploring the use of all available technologies to advance overall public safety interoperability, so long as those technologies will enable first responders to interoperate with 700 MHz band in the future.

Mayor Michael Bloomberg also raised similar concerns about the PSIC program, and on February 22, 2007, I visited New York City to meet with the New York Police Department. The meeting provided valuable information about the public safety needs and interoperability concerns of New York.

NTIA, in consultation with the Department of Homeland Security, intends to design the PSIC program as a one-time grant opportunity that will achieve a meaningful improvement in the state of public safety communications interoperability and provide the maximum amount of interoperable communications systems with a minimum of impact to or replacement of existing state, tribal, and local radio communications assets. NTIA expects to make PSIC grant awards no latter than September 30, 2007, as required by the Call Home Act of 2006, Public Law No. 109–459.

During these days of heightened security and awareness, public safety agencies are required and expected to serve their citizens as effectively as possible. The Department of Commerce shares your commitment to improving the state of communications interoperability among our Nation's first responders.

JOHN M.R. KNEUER
Assistant Secretary for Communications
U.S. Department of Commerce

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